



# Global Journal of Engineering Science and Research Management

## IMPROVING COMMUNITY AWARENESS AROUND THE UNIVERSITY OF BUANA PERJUANGAN KARAWANG ON THE IMPACT OF WASTE AND TRAINING OF THE UTILIZATION OF PLASTIC WASTE FOR CREATIVE ECONOMIC ACTIVITIES

Budi Rismayadi\*, SE. MM

\* Universitas Buana Perjuangan Karawang

DOI: 10.5281/zenodo.2703356

**KEYWORDS:** Community Awareness, Waste, Training, Creative Economic.

### ABSTRACT

The purposes of this activity are how is the knowledge of the community around UBP Karawang campus about the dangers of plastic waste for environmental pollution. What steps that have been taken by the local government in dealing with waste problems in the community. Providing training to produce products that made of plastic waste. The research method is qualitative method with FGD and debt interview. The finding of this research is Counseling activities on the impact and risks of inorganic waste to the community around campus have a positive effect on improving their understanding of how the community must manage waste properly, especially in the effort to sort and separate organic and inorganic waste, this activity of course must be continuously increased with intensity more by educational institutions, especially by local governments..

### INTRODUCTION

Karawang Regency with such rapid economic growth and development in various sectors has changed the economic pattern of the community and the problems have become more complex, the various needs of the people in Karawang are very dependent on the use of inorganic materials and other materials from the processing of chemicals such as styrofoam, plastic, fiber and so on. This of course causes problems to arise where plastic waste and other inorganic products become larger each year.

Data which are obtained from the department of environmental and hygiene (DLKH) Karawang Regency stated that in 2016, volume of plastic waste in the Jalupang landfill reached an average of 1,100 cubic meters per day. Even before the holidays, the volume of waste is estimated to increase by up to 45%. While from the report submitted by DLKH it is predicted that the increase in the volume of plastic waste each year increases by 5%. This is accordance with the statement from the Ministry of Environment and Forestry (KLHK) that the data shows that the waste produced in Indonesia in 2017 reaches 65.8 million tons, this means that if efforts are not made to anticipate waste, there will be a mountain of garbage in some areas causing a much bigger problem.

Plastic waste is a problem that has been taken seriously for environmental pollution, especially for soil pollution. Because of its nature which is an inorganic material so that the plastic cannot be decomposed by bacteria and takes a long time to decompose, so that its characteristics can cause a decrease in soil fertility, in addition plastic usage by the community is also a problem that is quite difficult to control .

In addition, plastic is also used as a medium to save various types of goods, including hazardous chemicals, the Karawang regency which has many industrial areas often produces result plastic waste containing toxic and hazardous materials, so reports are often found on environmental pollution that caused by waste disposal which contains B3, and some time ago a pile of plastic waste was found in the base Regency which was suspected contain B3 so that the police intervened to test the plastic waste.

Various steps are taken by the government to control the impact of plastic waste, and it would be nice if the plastic waste can be used wisely by recycling and being made into new products, and this of course requires special skills from community to be able to change waste plastic becomes another product. Plastic waste recycling management efforts have been carried out by the government, such as by providing trash bins that have been separated into



## Global Journal of Engineering Science and Research Management

several categories of waste (wet waste and dry waste). However, this strategy still has not provided significant results in reducing the amount of plastic waste.

However, it is considered that the current method has not been fully effective. There are still many people who throw garbage not based on the waste category. Increasing of understanding to the public about how the dangers of plastic waste for environmental pollution need to be carried out continuously with both direct and indirect socialization. As expressed by Vesilind et al (2003) states that in the implementation of a waste management in a community, the first thing to do is to do direct waste reduction to the source of waste. In certain cases the source of producing plastic waste is quite much, including the households that contribute to the high plastic waste in Karawang Regency.

An effective way is needed in this activity, so that the plastic waste that collected has been separated by the type of plastic category, so that the recycling process at the next level can be carried out more efficiently. Ergonomic and integrated plastic waste management can help strategic activities or programs in an effort to reduce the amount of effective plastic waste.

In the process of a system there are at least 6 aspects that need to be considered that are technically, economically, ergonomically, socio-culturally, can be accounted for, save energy, and help preserve the environment (Manuaba, 2004). This means that it is necessary to treat the community consistently in understanding the handling of plastic waste which will effectively be able to help the mechanism and rules of the local government in handling waste, especially plastic, so that the risk of adding public waste volume from plastic materials can be reduced.

By paying attention to these six aspects or criteria that will be used in the preparation of the management of plastic waste recycling, the research carried out by the community is focused at how to use effective plastic waste management strategy methods by involving the community (waste of sources) directly and related informal recycling institutions, accompanied by the selection of efficient and ergonomic technologies and facilities to improve community empowerment, especially as households as the main focus in various research studies. So that in the results of the research can provide alternative technologies in the recycling process so that it can increase work productivity and can be used as a reference in an integrated plastic waste management strategy to increase community empowerment and is expected to reduce the amount of plastic waste.

Another effort that carried out by the community is by providing and improving various trainings on how to produce products from the use of plastic waste, and this is considered as an alternative in an effort to suppress the spread of plastic waste, this effort has been developed by many communities and various organizations, so some products of community creativity has bigger economic value.

From the description above, it is necessary to do alternative efforts in providing counseling and socialization to the public regarding the importance of their role in controlling the spread of plastic waste that can harm and damage the environment, this effort can be done by providing skills and expertise to the community in changing plastic waste into a variety of useful products whose purpose is to reduce plastic waste disposal.

### THE OBJECTIVE OF ACTIVITY

The objectives of this activity include:

1. Awareness from the community about the dangers of plastic waste for the environment and the importance of the culture of disposing of trash in the garbage can that provided
2. Housewives are able to sort plastic waste from household waste so that it can facilitate the sorting of organic and inorganic waste
3. The community has the expertise and skills in producing products from plastic waste materials that are expected to reduce the volume of plastic waste



## MATERIAL

### *History of Plastics*

Since the 1950s plastics have become an important part of human life. Plastics are used as packaging raw materials, textiles, car parts and electronic devices. In medicine, plastic is even used to replace parts of the human body that are no longer functioning. In 1976 plastic was said to be the most widely used material and was chosen as one of the 100 news events of this century.

Plastic was first introduced by **Alexander Parkes** in 1862 at an international exhibition in London, England. Parkes' plastic invention called *parkesine* is made from organic material from cellulose. Parkes said that his findings had rubber-like characteristics, but at a lower price. He also found that this parkesine can be made transparent and able to be made in various forms. Unfortunately, this finding cannot be socialized because of the high cost of the raw materials used.

At the end of the 19th century when the need for billiard balls increased, many elephants were killed for its trunks as raw material for billiard balls. In 1866, an American named **John Wesley Hyatt** discovered that celluloid could be formed into hard material. He then made billiard balls from this material to replace elephant trunk. But, because the material is too brittle, these billiard balls break when they collide.

The first man-made synthetic material was discovered in 1907 when a New York chemist named **Leo Baekeland** developed a liquid resin which he named *bakelite*. This new material does not burn, and does not melt in a vinegar acid liquid. Thus, once this material is formed, it cannot change. This Bakelite can be added to various other materials such as softwood. Not long afterwards various items were made from *bakelite*, including weapons and light machines for war purposes. *Bakelite* is also used for household purposes, for example as an ingredient to make electrical insulation.

*Rayon*, another modification of cellulose, was first developed by **Louis Marie Hilaire Bernigaut** in 1891 in Paris. At that time he was looking for a way to make man-made silk by observing silkworms. However, there is a problem with this finding rayon which is very flammable. Later this problem could be overcome by **Charles Topham**.

### *Plastic Fever*

In 1920 was marked by plastic fever. **Wallace Hume Carothers**, a Harvard University chemist who heads DuPont Lab, developed nylon which at that time was called Fiber 66. This fiber replaced animal hair to make toothbrushes and silk stockings. In the 1940s nylon, acrylic, polyethylene, and other polymers replaced natural materials that were decreasing.

Another important innovation in plastics is the invention of *polyvinyl chloride* (PVC) or vinyl. When trying to attach rubber and metal, Waldo Semon, a chemist at the tire company B.F. Goodrich invented PVC. Semon also found that this PVC is a material that is cheap, durable, fire resistant and easy to form.

In 1933, **Ralph Wiley**, a lab worker at the Dow chemical company, accidentally discovered another type of plastic, *polyvinylidene chloride* or popularly called saran. saran were first used for military equipment, but later it was discovered that this material was suitable for food packaging. Saran can be attached to almost every furniture such as bowls, plates, pans, and even in the layers of advice yourself. No wonder that Saran is used to store food so that the freshness of the food is maintained.

In the same year, two organic chemists **E.W. Fawcett** and **R.O. Gibson** who worked at Imperial Chemical Industries Research Laboratory found *polyethylene*. Their findings have a huge impact on the world. Because this material is light and thin, during World War II this material was used as a coating for underwater cables and as insulation for radar.



## Global Journal of Engineering Science and Research Management

In 1940 the use of *polyethylene* as an insulating material was able to reduce the radar's weight by 600 pounds or about 270 kg. After the war ended, this plastic became increasingly popular. Currently *polyethylene* is used to make beverage bottles, jerry cans, shopping bags or plastic bags, and containers to store food.

Then in 1938 a chemist, **Roy Plunkett** discovered Teflon. Now teflon is widely used to coat cooking equipment as nonstick ingredients. Furthermore, a Swiss engineer **George de Maestral** was very impressed with a type of plant that used thousands of small hooks to attach itself. Then in 1957 de Maestral imitated the plant to make Velcro or adhesive from nylon material.

### *Get to know about plastic waste and its processing*

Almost everyone certainly will not be separated from the plastic material in their daily activities. Yes, plastic has become an important component in modern life today and its role has replaced wood and metal considering its advantages include light and strong, resist to corrosion, transparent and easily dyed, and good insulating characteristics.

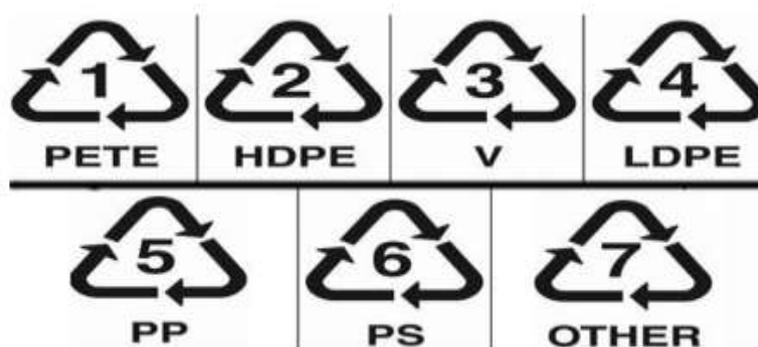
These characteristics of plastic materials make it difficult to replace with other materials for a variety of applications, especially in daily life, from food packaging, household appliances, children's toys, and electronic to automotive components. The increased use of plastic materials has resulted in increased production of plastic waste from year to year. As an illustration of plastic consumption in Indonesia, it reaches 10 kg per capita per year, so that it can be predicted that the amount of plastic waste produced.

But without realizing it, plastic is the most difficult type of waste to decompose and at the same time the most polluting to the environment. To decompose plastic waste from only mineral water bottles, it takes at least 500 years. Not only on land, the pollution of plastic waste in the sea can also disrupt the balance of the ecosystem, which makes the sea polluted and many marine animals death by plastic waste.

As we all know that plastic is very difficult to decompose in the soil, it takes years and this will cause its own problems in handling it. Disposal in garbage landfill (TPA) is not a wise solution in the management of plastic waste. The role of scavengers in reducing plastic waste deserves to give appreciation even though this cannot eliminate one hundred percent of the existing plastic waste. There needs to be management of plastic waste starting from the smallest environment, households to large scale covering urban areas that managed by the city or local government. To facilitate the management of plastic waste at the household scale, it is necessary to have an understanding of the types of plastics, their material content, and their impact on the environment so that proper management is expected to be formed.

The following is the code of plastic material issued by *The Society of Plastic Industry* in 1998 in the United States and used by system development agencies such as ISO (International Organization for Standardization)

**Picture**  
**Plastic symbol**



Picture Research : [www.google.com](http://www.google.com)



To explain the above code can be described as follows:

***Polyethylene Etilen Terephalate (PET)***

In PET or PETE (Polyethylene Etylene Terephalate) this logo is usually printed with the number 1 as the picture above, this code is used for clear plastic bottles or transparent, for example is a bottle of mineral water, a bottle of juice and almost many other types of drinks. Bottle packaging with code like this is used only once, because if it is too often used to store warm water or hot water it can cause the polymer layer on the bottle to melt and remove carcinogenic substances which will cause cancer.

This PTE material is quite dangerous for workers related to the processing of PETE bottle recycling. Because the manufacture of PETE uses antimony trioxide compounds, these compounds when inhaled can cause irritation of the skin and respiratory tract, while for women this compound can cause serious problems as menstrual problems, miscarriages for pregnant and delays in the growth of children up to 12 month.

***Hige Density Polyethylene (HDPE)***

This coded 2 HDPE package is usually used for milk bottles that are milky white, tupperware, gallons of drinking water, folding chairs etc. HDPE plastic bottles type have characteristics that are stronger, harder, more blurry and more durable to high temperatures.

HDPE is one of the plastic materials that is safe to use because of the ability to prevent chemical reactions between HDPE plastic packaging and the food / drinks in its packs. Just like PET, HDPE is also recommended only once, because the release of antimony trioxide compounds continues to increase over time, this type can also be recycled back into tile, pipe and other floor materials.

***Polyvinyl Chloride (PVC)***

It is written (sometimes red) with number 3 in the middle, the sign V means PVC (Polyvinyl Chloride), which is the type of plastic that is the most difficult to recycle, this is usually found in plastic wrap (cling wrap), and bottles. The reaction that occurs between PVC and food packaged has the potential to have a dangerous disease, especially for the kidneys and liver health, this material will release toxins when burned or exposed to hot temperatures. PVC is not allowed to be used in preparing food or food packaging.

***Low Density Polyethylene (LDPE)***

LDPE, namely plastic is generally brown and is a type of thermoplastic or made from petroleum, it is usually used for food, plastic packaging, relatively soft bottles, clothing and mebeul and other products

Its mechanical characteristics are stronger, translucent, flexible and the surface is rather fatty, at a temperature of 60 degrees is very resistant to chemical reactions, the protection against water vapor is good, can be recycled and good for items that require flexibility but strong

This LDPE-based item is difficult to destroy, but good for food because the chemical reaction between food and packaging from LDPE is not easy to react so that this material is relatively easy to recycle.

***Polypropylene***

Plastic with a code like this usually has the characteristics of a slightly transparent bottle like cloudy, polypropylene type of plastic that is quite strong and lightweight with low steam penetration, good fat resistance and quite stable in high temperature.

This type of plastic is the best plastic material that is often used for the most important food and beverage places, especially for baby bottles. If you want to use a bottle to store food and drink it is better to use a bottle or container with the number 5 code so that it is relatively safer and the quality of food and drinks remains in good condition. Besides this type of plastic material is also easy to use as recycled material, so many people use this type of plastic to produce a variety of new products that are safer.



## Global Journal of Engineering Science and Research Management

### Polystyrene (PS)

Polystyrene was first made in 1839 by Eduard Simon, a German pharmacist. When isolating the substance from natural resin, he did not realize what he had found. Another German organic chemist, Hermann Staudinger, realized that Simon's invention consisted of a long chain of styrene molecules, which is a plastic polymer.

Pure solid polystyrene is a colorless plastic, hard with limited flexibility that can be formed into various products with good detail. The addition of rubber during polymerization can increase flexibility and shock resistance. This type of polystyrene is known as High Impact Polystyrene (HIPS). Pure transparent polystyrene can be made into various colors through a compounding process. Polystyrene is widely used in electronic products as casings, cabinets and other components. Home tools that made of polystyrene as follows: brooms, combs, basins, clothes hangers, buckets.

This type of material should be avoided for use as a food and beverage store because its type is dangerous for humans, some researchers say that the use of this type of plastic to store food and drinks will risk to brain health, estrogen hormone in women, cause reproductive problems and growth nervous system.

The other impact is for human health, the content contained in styrofoam such as benzene, carcinogens, and styrene will react quickly once the food is placed into styrofoam. Hot steam from food will trigger this chemical reaction to occur faster, for example benzene which when it has reacted and entered the body and the blood tissue and accumulated for years will cause damage to the spinal cord, anemia and even reduce production of red blood cells that are so needed by the body to control the essence of food and oxygen to the body. If our red blood cell count decreases due to the reaction of styrofoam, our body will respond to some symptoms that are not fair. Then substances that also dangerous are carcinogens that can cause cancer, carsinoge will be more dangerous if the styrofoam or plastic containers are used repeatedly because the carcinogens can dissolve easily. Then styrene in a New Jersey study found 75% of breast milk was contaminated with styrene. This happens because the mother uses a styrofoam container to store food. The same study also mentions that styrene can migrate to the fetus through the placenta in pregnant women. Long-term exposure will certainly cause styrene buildup in the body. As a result can emerge nerve symptoms, such as fatigue, anxiety, insomnia, and anemia.

One of type of polystyrene that is quite popular among the producer and consumer communities is polystyrene foam. Polistirena foam is widely known as styrofoam which is often used inappropriately by the public because actually styrofoam is a trade name that patented by the company Dow Chemical. By the maker Styrofoam is intended to be used as an insulator for building construction materials.

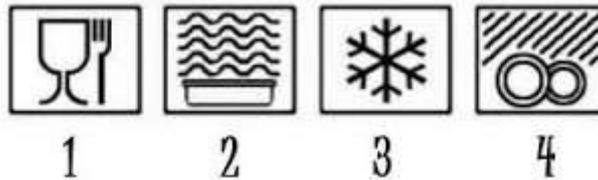
Foam polystyrene is produced from a mixture of 90-95% polystyrene and 5-10% gas such as n-butane or n-pentane. Polystyrene foam is made from styrene monomer through suspension polymerization at a certain pressure and temperature, then heating to soften the resin and evaporate the remaining blowing agent. Polystyrene foam is a plastic material that has special characteristics with a structure composed of granules with low density, has a light weight, and there is space between granules containing air that cannot deliver heat so this makes it an excellent heat insulator.

Polystyrene foam is so widely used in life, but it cannot be easily recycled so that the waste treatment must be done properly so will not harm the environment. The use of used polystyrene for additives in the manufacture of polymer asphalt is one way to minimize the waste.

### Other

Special plastics with codes 1,3,6 and 7 (polycarbonate) have chemical hazards, but this does not mean that plastics with other codes are completely safe, but need to be studied further, so if we have to use plastic we should use plastic with codes 2,4,5 and 7 except polycarbonate, generally polycarbonate plastic is used for other products that are not in contact with food, such as roofing and others.

The following picture describes the plastic function for various home needs that are relatively good to be used as a container for storing food and drinks.



- a. The first picture is a spoon and fork, meaning that the container is safe for food
- b. The second picture shows a wave of radiation which shows that the container can be used in microwave
- c. The third image is similar to snowflakes, meaning that the container can be put in the freezer
- d. The image of a plate with a line like rain indicates that the container can be placed in a dishwasher

After recognizing the symbol, it's good for us to start paying attention to the container we have in order not to use it wrongly, because wrong use not only damages the environment but can also damage and be harmful to human health.

Note:

- If the use of plastic with hazardous materials such as polycarbonate cannot be prevented, then do not store food and drinks in hot conditions in the plastic.
- Avoid using plastic bottles to store drinking water, if the use of plastic bottles made from PET (code 1) and HDPE (code 2) cannot be prevented, use only once and immediately be spent because the release of antimony trioxide compounds continues to increase over time, another alternative substance safer way is to use a bottle container of stainless steel or glass material.
- Prevent heating of packaged food in plastic, especially in microwave ovens, which can cause chemicals in the plastic to release and react with food more quickly. This can also occur if plastic packaging is used to pack oily or fatty foods.
- Wrap the food first using banana leaves or paper before wrapping it with plastic wrap when it is heated
- Try to use packaging that made from cloth to bring vegetables, food or groceries and use a package made of stainless steel or glass to store food or drinks
- Prevent the use of plastic plates and cutlery for cooking, use a stainless steel, glass, ceramic or wood cutlery that is relatively safer
- If we often buy fried foods on the roadside, try not to be directly put into a bag of cracks. It is because the black coloring contained in the plastic will decompose and degrade into toxic radical substances when exposed to hot temperatures that are harmful to human health and capable of causing cancer cells in the body becomes uncontrolled
- Avoid using plastic bottles (repeated mineral water bottles for drinking places)
- Apply, spread and invite each family and community members around the neighborhood to know how to use plastic wisely

### Easy Ways to Use Plastic Waste

This plastic recycling article will discuss about the right and easy way to use plastic waste around us. This plastic recycling article is not only aimed at introducing how to manage waste but also recognizes deeper understanding of plastic so it doesn't make you confused. First, let's get a closer understanding of the meaning of plastic waste. Plastic or plastic waste itself has become an irreplaceable material in the lives of modern society. Modernity and plastic are like an interrelated unit. In daily life always use plastic, whether to wrap food, shop, and so on.



## Global Journal of Engineering Science and Research Management

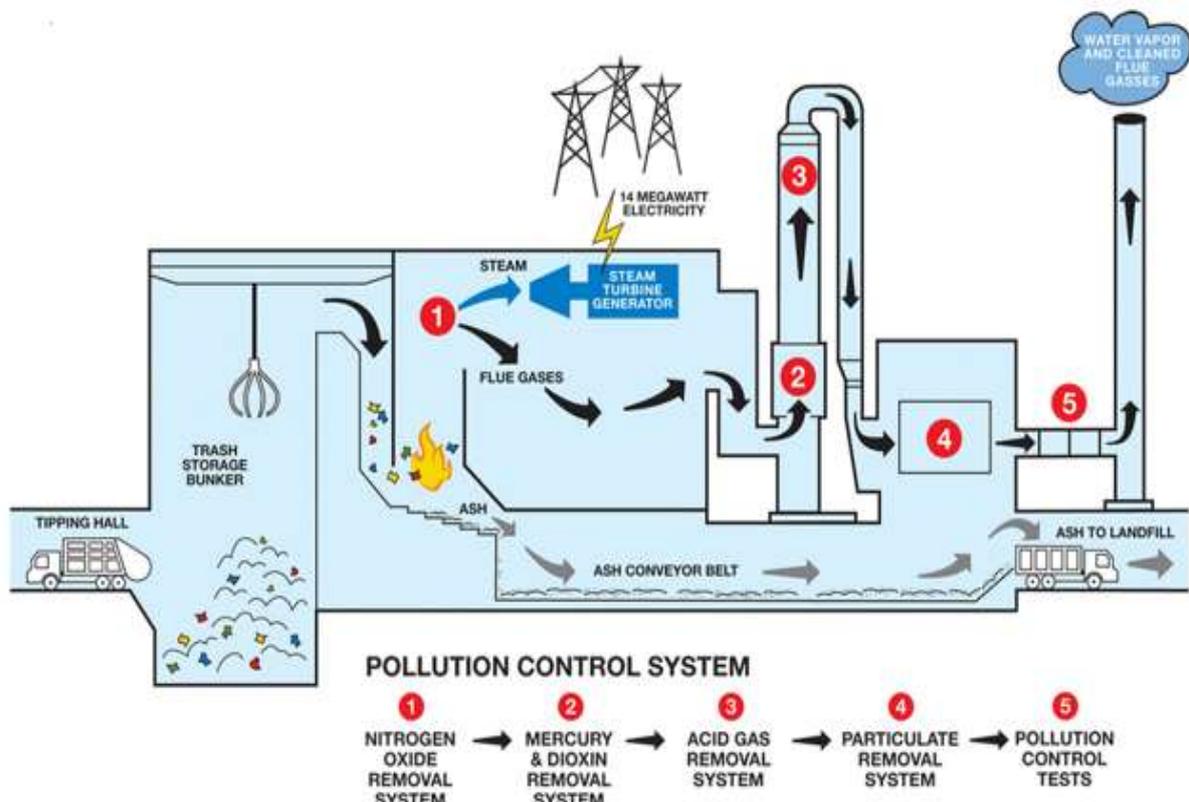
This plastic recycling article will also explore how to utilize plastic waste. Utilizing plastic waste, that has been considered destructive, can save the environment and provide material benefits. You certainly have begun to realize that lately there are a lot of products made from garbage that have high artistic value and selling value. The plastic business has even begun to expand rapidly in every region. Even a home-based waste management business can generate turnover of up to tens of millions of rupiah. Try to look around you, there are lots of plastic waste packaging for clothes, detergents, shampoos, coffee packaging, snacks, etc. that you can use to form a unique shopping bag or other item. Can you imagine how much plastic waste you can save by making and using these recycled bags? Environmental saving can start from ourselves.

This plastic recycling article will not only provide examples of plastic handicrafts that you can make, for example pencil cases, tissue boxes, clothes hangers, piggy banks, curtains, plastic collage paintings, and so on. Each product you produce can be made with high artistic value using a blend of recycled materials with other accessories as a support. So that in addition to being effective, it also produces not a small profit when you market it out.

### Environmental friendly plastic waste treatment

The method of processing plastic waste is still a hot discussion in every meeting about the environment. Where plastic waste is waste that cannot be decomposed by soil. So that it will always have a threat to environmental pollution. Many seminars discuss about how serious this concern is about plastic waste. And our hope, the present and future generations can better understand the processing of this plastic waste.

Picture  
Integrated Waste Management



Picture Source : <https://g8penyuluhan2016.wordpress.com/>



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There are several ideas for handling plastic waste, including:

1. Recycle plastic waste by separating plastic particles to create new products. Recycled plastic will usually be transformed into plastic seeds, beverage bottles, and new products with other new forms. Almost every country always strives to carry out large projects in recycling plastic waste.
2. By using machine incinerators to recycle plastic waste. Some countries use this machine to process plastic waste that is not detected. All plastic waste is burned using incinerators. But there are adverse effects if you use this method that is the emergence of pollution or air pollution. But over time, the developers have worked hard to reduce the impact of air pulses generated.
3. To reduce the impact of plastic waste, most countries in the world have banned the use of certain plastic products. This is to reduce the sense of dependence on plastics products and replace it with products that are more environmentally friendly.
4. Using bags from paper or other materials to shop. So that it can reduce the use of plastic in everyday life.
5. In order to reduce the impact of plastic waste, the government and the private person must be aware of each other. The government must make trash bins on each side of the city and every individual must also have awareness about disposing of garbage. Don't mix plastic waste with recyclable waste. Place plastic waste in a designated trash can. And do not throw plastic waste in public places such as on the road, in the river, in the ditch, in the ditch, and where the garbage will be potentially bad for the environment.
6. Increasing the activities of seminars or meetings that discuss the recycling of plastic waste about the latest method of processing plastic waste. And our hope, the government is involved in the socialization of plastic waste recycling and also state or private institutions will be more vigorous in discussing the threat of plastic waste to the environment.

### Activity Implementation Method

The main approach used in designing plastic waste management systems and the utilization of plastic waste into new products is the concept of Total Ergonomics which is an integration between Macro Ergonomics and Micro Ergonomics. The first phase carried out in this study was identification and initial research. The initial research was to study the existing conditions of the plastic waste management system in Karawang starting from core management activities to operational management.

Then the identification of deficiencies or problems that occur in the management of plastic waste is carried out. Problem identification was carried out by distributing a number of questionnaires to 50 respondents, namely the community in the UBP Karawang campus to find out the level of awareness and knowledge of the community regarding waste and plastic waste in particular.

### Activity Participants

Participants in this community service activity (ABDIMAS) were the community around UBP campus in Puseurjaya Village, Telukajmbe Timur Karawang Subdistrict, with a total of 50 participants consisting of 36 women and 14 men, the following list of participants:

No	Name	M/L	Age	Profession
1	SITI MARHAMAH	P	52	HOUSEWIFE
2	ACIH BINTI SYAH	P	48	HOUSEWIFE
3	RATNA JUWITA	P	24	PRIVAT EMPLOYEE
4	ENDANG JUWARSIH	P	38	PRIVAT EMPLOYEE
5	HALIMAH JUNIARTI	P	43	HOUSEWIFE
6	SARTIKA	P	45	HOUSEWIFE
7	ENCIH	P	51	HOUSEWIFE
8	ANIH	P	50	HOUSEWIFE
9	MIMIN AMINAH	P	48	HOUSEWIFE
10	AYU JUANDA	P	38	PRIVAT EMPLOYEE
11	JUNIARSIH	P	29	PRIVAT EMPLOYEE
12	MARTINAH	P	38	HOUSEWIFE
13	HILDA HIKAYATI	P	47	PRIVAT EMPLOYEE



14	UCU HALIMAH	P	48	HOUSEWIFE
15	ANAH SUHANAH	P	46	HOUSEWIFE
16	IDA RATNANINGSIH	P	49	PRIVAT EMPLOYEE
17	RINA KURNIASIH	P	44	HOUSEWIFE
18	NINA NURHASANAH	P	45	HOUSEWIFE
19	ENCOP SOFIANTI	P	45	PRIVAT EMPLOYEE
20	ANAH DAHLIANTI	P	44	PRIVAT EMPLOYEE
21	ENDANG RATNANINGSIH	P	52	HOUSEWIFE
22	SRI MARYANI	P	51	HOUSEWIFE
23	NUNUNG NURHASANAH	P	42	HOUSEWIFE
24	ELA WAELA	P	60	HOUSEWIFE
25	BIHADNINGSIH	P	68	HOUSEWIFE
26	SRI WATINI	P	43	HOUSEWIFE
27	SANTI	P	52	HOUSEWIFE
28	SISKA	P	38	PRIVAT EMPLOYEE
29	ROHAYATI	P	42	HOUSEWIFE
30	KOKOM KOMARIAH	P	40	HOUSEWIFE
31	KURNAESIH	P	39	HOUSEWIFE
32	SITI KOMALASARI	P	42	HOUSEWIFE
33	NUNUNG NURHASANAH	P	45	HOUSEWIFE
34	NILUH AYU	P	53	HOUSEWIFE
35	RAHMATIANI DEWI	P	31	PRIVAT EMPLOYEE
36	FARIDA	P	28	PRIVAT EMPLOYEE
37	ASEP RAHMAT	L	45	ENTREPRENEUR
38	ANDI SUTARDI	L	38	ENTREPRENEUR
39	MAMAN ROSMANA	L	53	PRIVAT EMPLOYEE
40	KARDI	L	49	PRIVAT EMPLOYEE
41	KARYANA	L	50	ENTREPRENEUR
42	MAMAT ITOK	L	53	ENTREPRENEUR
43	SUDRAJAT	L	48	ENTREPRENEUR
44	WAWAN HERMAWAN	L	44	PRIVAT EMPLOYEE
45	SURYANA	L	54	ENTREPRENEUR
46	MUHAMMAD	L	38	PRIVAT EMPLOYEE
47	UJANG RAHMAN	L	42	PRIVAT EMPLOYEE
48	ASEP KURNIA	L	43	PRIVAT EMPLOYEE
49	AGUS HENDRIYANA	L	32	ENTREPRENEUR
50	SUPRAPTO	L	51	ENTREPRENEUR

Source : Author, 2018

### Analysis Tool

In this activity questionnaires were disseminated which must be filled by the participants in the implementation of activities, this was done to determine the extent of participants' understanding of the impact of waste and the dangers to the community environment plastic as an effort for the creative economy of the community.

The following is a series of questions submitted to the participants, consisting of 5 questions that must be filled using a written statement, this is done so that the community can convey their perspectives on the conditions they experience in daily life related to waste and plastic waste.



No	Pertanyaan
1	What do you think about household waste in your environment?
2	Do you think it is dangerous for the environment?
3	What do you think about the role of the community in waste management?
4	What do you think the role of the local government is in handling waste problems?
5	How to manage waste according to residents well?
6	How do you recycle garbage you know?
7	There needs to be training on waste management into a product?

The questions posed to participants are then collected and grouped based on their similar views and perceptions of the object in question, then given an average percentage weighting of answers that have the same perception, then given conclusions about each of these questions.

## RESULTS AND DISCUSSION

Based on the preliminary observations of the attendance form, the female participants found that the number of participants consisted of women who were unemployed (housewives) and women with the status of working as employees of private companies, while men consisted of entrepreneurs and private employees, so the data can be presented in the following table

**Participant Data Table**

Sex	Work	Not work	Total
Female	11	25	36
Male	6	8	14
Total	17	33	50

Source : Processed data, 2018

From the data above it is known that 25 women with an average age of more than 40 years did not work, did not have a fixed income, 3 of them opened a part-time food trade business and 11 women worked in private companies. Whereas for men who worked as many as 6 people, as many as 8 entrepreneurs worked so that the total number of participants who attended the event were 50 people.

From the participants' data, it is also known that the average participant receives formal education with the following data:

1. D3 graduate 1 person
2. High school graduates 43 person
3. Junior high school graduates 6 person

Then from the questionnaire data distributed to participants, the report can be prepared in the table as follows:

No	Question(s)	Answer
1	What do you think about household waste in your environment?	Generally, the participants stated that they found it is difficult to dispose of their trash, every day the garbage produced in each family was quite a lot, generally garbage consisted of organic vegetables, leaves, and inorganic from plastic waste (bag plastic), every day garbage was dumped on the yard and burned, a small portion throws it on the side of the road, and on the edge of the river.
2	Do you think it is dangerous for the environment?	Generally all participants realize that waste is very dangerous for the environment and health, besides that garbage can cause environmental pollution and odor



		and causes of flooding and various diseases for the community.
3	What do you think about the role of the community in waste management?	Participants stated that the role of the community is very important in waste management, they are willing to spend money to dispose of garbage, but the problem is, they do not know where to dispose of garbage because they do not have a temporary landfill and even garbage transport vehicles never pass to collect garbage from residents, a small proportion of participants (only 12%) stated that there must be an effort for community cooperation in waste management, but most of them gave the problem to the local government.
4	What do you think the role of the local government is in handling waste problems?	Participants stated that the local government should provide landfills and better waste management techniques so that the community would not have trouble disposing of garbage, the government was considered to have a very large role and responsibility in overcoming the waste problem, because the community is not likely to dispose of garbage directly to landfills final waste because of the far distance and expensive fees.
5	How to manage waste according to residents well?	Some residents tend not to know exactly how waste management should be done (indicated by a few statements made by participants) most of them stated that they never got information and direction from the local government on how to manage waste in the community, so they generally routinely rubbish in a place that they consider appropriate to dispose of garbage
6	How do you recycle garbage you know?	Recycling of plastic waste that is known by residents is limited to the business of collecting economical value plastic waste such as bottled water in containers and other types of plastic (generally showing plastic industrial waste) which have high economic value, most do not understand the technique of recycling.
7	There needs to be training on waste management into a product?	All participants felt the need for training activities on how to process plastic waste to produce products that have selling value, so they have expertise in utilizing plastic waste so that it is expected to produce new types of businesses that provide additional income for the community.

Source: Researchers, processed 2018

## DISCUSSION

From the results of counseling activities for the community, it was found that the community around the UBP campus realizes how dangerous garbage is to their environment, both organic and non-organic waste, they believe that garbage creates a much bigger problem if not managed properly, but most community feels that the intensity of counseling to the community regarding waste management programs from the local government and other institutions is very rare, so that many people do not understand how to manage waste management.



## Global Journal of Engineering Science and Research Management

In addition, the availability of waste disposal facilities and infrastructure in the community is still very little, so that people are confused about where they have to dispose of garbage, this is what causes the surrounding community to only burn trash in the yard, or even throw it on the Citarum riverbanks.

### Giving Material Training for Plastic Waste Utilization for Creative Economy

In this training, the community is given several examples of how to produce various products from the use of plastic waste into economical value products and has a selling value that is in great demand by communities.

In the training each participant is given the materials used to make the work, the products that will be made in this training:

1. Beautiful bags from plastic packaging for detergent soap and others
2. Container accessories and stationery from 1 liter-plastic bottle

#### Tools and materials needed to make bags:

1. 4 packs of 450 ml various detergent soap packaging with the same design (2 pieces for the front and back layers, 2 pieces for the left and right layers)
2. Scissors
3. 50 cm strap size 3 cm for bag strap
4. 1 meter strap size 2 cm
5. Zipper or can use 4 cm adhesive
6. Needles and sewing thread (preferably using a sewing machine to make it faster)
7. Furing / cloth bag lining
8. Trimmer lace fabric

#### Tools and materials needed to make button containers or accessories containers:

1. Bottle of soft drink with 1 liter size
2. Fuel Glue
3. Glue gun
4. Small zipper
5. Accessories patch

#### How to make bags from used detergent packaging

1. Clean the plastic from stains and dirt. To clean it can use tissue paper, but if it's difficult you can soak it using warm water
2. Cut two pieces of packaging with the desired size, try the second piece of plastic packaging has the same size
3. Cut two other packages (for left and right sides) into two parts with a width of about 7 cm
4. Set and sew adhesive / zipper to be faster done using a sewing machine, on the front and back of the bag
5. Set and sew the cellophane tape about 3 cm width on the plastic surface of the front and back of the bag strap
6. Set and sew cotton lace at the same time with 2 cm size on the top side of the plastic sheet, do this step on the plastic packaging for the front and back
7. Connect the two packages that have been cut to 7 cm (for the left and right sides) so that they form a long sheet
8. Connect by using sewing machine part 7 with plastic sheets for the front and back
9. Then attach the cellophane tape to the entire edge
10. Then a small and beautiful bag made from used plastic packaging has finished

#### How to make container accessories and stationery from used bottles

Cut and discard the top of the bottle because this part is not used. The bottom of the bottle can be cut and adjusted to the desired length of the container. Next, use plastic glue to stick the zipper to the bottle. The results can also be enhanced by giving plastic paint and decorating it with stickers or other accessories that you want.



## Global Journal of Engineering Science and Research Management

Now there is no need to spend money to buy a new pencil place, even this creation can be used as a gift for your younger sister and brother or your friends. It is very easy and unique.

### CONCLUSION

Counseling activities on the impact and risks of inorganic waste to the community around campus have a positive effect on improving their understanding of how the community must manage waste properly, especially in the effort to sort and separate organic and inorganic waste, this activity of course must be continuously increased with intensity more by educational institutions, especially by local governments.

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