



# Optimizing Plastic Waste Management Through PT Kilang Pertamina Internasional Unit VI Balongan CSR/TJSL Program “Wiralodra Waste Bank in Balongan Village”

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**Abstract.** The CSR or TJSL program of PT Kilang Pertamina Internasional Unit VI Balongan through the Wiralodra Waste Bank in Balongan Village has created significant positive impacts in various aspects of community life. The social impact is evident in the formation of a sustainable waste management system, changing the habit of collecting, landfilling, and burning to collecting, sorting, and processing (recycling) the waste. Community awareness of the importance of waste management has increased, prompting active participation in waste management activities, and providing economic empowerment through the sale of waste that is sorted and processed into plaques through the innovation of used cooking oil (UCO) stoves as a tool for recycling the waste. The community's mindset has also changed, shifting from traditional waste management to a more sustainable system. Positive environmental impacts are reflected in waste reduction, creating a cleaner and healthier environment. The Wiralodra Waste Bank Program not only provides positive impact on social and economic aspects, but also contributes to sustainable environmental protection in Balongan Village.

**Keywords:** CSR, Waste Bank, UCO Stove, Waste Management, Sustainable, Economic Empowerment

## 1 Introduction

Corporate Social Responsibility (CSR) or Corporate Social and Environmental Responsibility (TJSL) is a concept of action carried out by a company as a form of corporate responsibility for the social, environmental and empowerment conditions in the vicinity of the company's operating area. CSR practices are set forth in UU No. 22 of 2001 Article 40 Paragraph 5 on Oil and Gas, and UU No. 25 of 2007 Article 74 Paragraph 2 on Limited Liability Companies. PT Kilang Pertamina Internasional (PT KPI) Unit VI Balongan refinery is one of the companies that complies with regulations related to CSR programs in the company's operational area in the Balongan area, Indramayu

Regency, West Java. CSR or TJSL is a global demand where a company's success is not only assessed by its financial performance and product marketing but also its social and environmental performance [1]. The implementation of CSR activities is based on many reasons and demands, as a combination of internal and external factors. The companies consider carrying out CSR or TJSL activities, among others, generally for the following reasons: 1) To comply with regulations, laws, and rules 2) As a corporate social investment to gain a positive image 3) Part of the company's business strategy 4) To obtain a license to operate from the local community 5) Part of the company's risk management to reduce and avoid social conflicts [2].

The Wiralodra Waste Bank (Waste Recycling Management Community Area) in the CSR program is one of the programs assisted by PT KPI Unit VI Balongan which is carried out with the community in Balongan Village. This program focuses on processing organic waste through cultivating BSF (Black Soldier Fly) maggots and inorganic waste through recycling plastic waste into valuable products such as plaques, etc. Based on data from the Indramayu Regency Environmental Service (DLH), the potential waste in the Indramayu area reaches 1,100 tons/day, which is specifically caused by plastic waste. The problem of plastic waste is a serious problem that affects the environment, human health, and ecosystems. Plastic waste is the remainder of non-renewable natural resources such as minerals or industrial processes and cannot be decomposed by nature or only a small portion can be decomposed over a very long time (Indramayu Regent Regulation Number 44.1 of 2018).

According to the Minister of Environment Regulation Number 13 of 2012 concerning the Implementation of Reduce, Reuse and Recycle through Waste Banks. The term waste bank is a place for sorting and collecting waste that can be recycled or reused to become something of economic value. Waste banks are also a strategy to build public awareness to love the environment. Currently the Wiralodra Waste Bank is a forum for the community in Balongan Village to obtain information related to waste management, waste utilization, and creating economic value from waste.

This research aims to analyze the impact of PT KPI Unit VI Balongan's CSR or TJSL Program through the Wiralodra Waste Bank from an environmental, social, and economic perspective, as well as government policy to find out how the company optimizes the program, especially regarding the processing of inorganic plastic waste through innovation recycling waste use oil stove fueled by used cooking oil.

## 2 Method

The Circular Economy-based waste processing method according to Figure 1. is a collaboration between the WIRALODRA Program in Balongan Village, the MASIF Youth Program (Creative Indramayu Society) managed by the Groove Creative Group in Lemahabang Village and PT KPI Unit VI Balongan. This forms a value chain between the Wiralodra Group, Groove Creative Group and PT KPI Unit VI Balongan which collaborates on waste management and environmentally friendly stove innovation. The Wiralodra group processes plastic waste obtained from plastic waste at PT KPI Unit VI Balongan and community plastic waste using a set of used cooking oil stoves and press tools (detail Figure 2.) created by PT KPI Unit VI Balongan workers

into semi-finished goods, namely plastic blocks, which are then processed further by the Groove Creative group into finished goods in the form of official company plaques (detail Figure 3.) and other creative products. These plastic recycled products are used directly by PT KPI Unit VI Balongan and are also sold to the public through the marketplace.

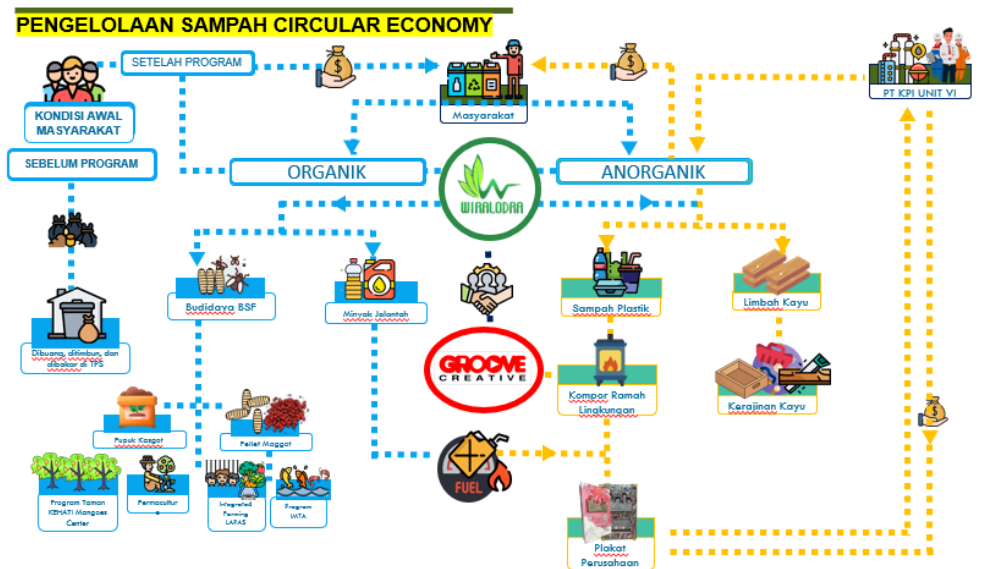


Fig. 1. circular economic waste management of the wiralodra waste bank group.

The research uses an approach method from primary data and secondary data using a descriptive method with a qualitative approach regarding the implementation of the PT KPI Unit VI Balongan CSR program related to the Balongan Wiralodra Waste Bank and its innovations in waste processing. The primary data in this research at least describes the approach used with in-depth interviews and participatory observation as well as documentation studies. The informants consisted of the Wiralodra Waste Bank group, the Balongan Village Government, and informal figures from Balongan Village. The secondary data was obtained from PT KPI Unit VI Balongan activity reports and government regulatory documents and/or applicable laws.

### 3 Results and Discussion

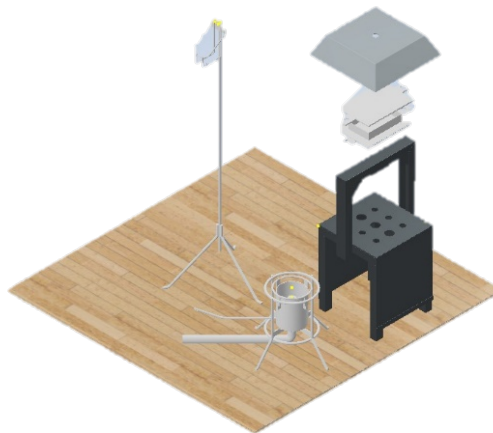
Corporate Social Responsibility (CSR) is a community development concept implemented by companies and cannot be separated from the company's business goals. CSR is a commitment to improving the welfare of society through freedom to choose practices and contributions based on the company's resources [3]. Apart from that, CSR is a commitment made by business entities or companies to act ethically, operate legally, and contribute to the quality of life of employees and their families, and companies are obliged to contribute to the welfare of local communities [4]. Broadly, the definition of CSR is a commitment made by a company as a responsibility for its concern for the

welfare of internal and external stakeholders to the company, for example company employees, community welfare, and environmental sustainability.

The Wiralodra Waste Bank Program was initiated by PT KPI unit VI Balongan together with the Balongan Village community in 2019 and was made a partner by the Company based on the results of a social mapping document carried out by a team of experts from Gadjah Mada University in 2016 in an effort to utilize environmental activities and management in an integrated manner with The goal is to achieve a waste-free village and as a form of corporate responsibility to improve community welfare and environmental sustainability.

Based on data from the Ministry of Environment and Forestry (KLHK), the daily amount of waste in Indramayu Regency in 2021 is around 1,102.62 tons and will increase to 1,113.65 tons in 2022. With a population of around 1,834,434 people, on average an individual produces around 0.60 kg of waste per day. According to the situation and problems that have been explained regarding waste, the Wiralodra Waste Bank Program, which has 10 members, has contributed from 2019 to 2023 by carrying out various activities.

In 2019, socialization of waste-free villages was carried out, initiation of BSF maggot cultivation as an organic waste processor, and an ecobrick celebration for environmental decoration to commemorate Independence Day. In 2020, there was the introduction of groceries-waste exchange and cultivating catfish in buckets as a response to the Covid-19 disaster for family food security, then holding an environmental school using the waste exchange method with WiFi as an incentive for children to access the internet for online learning. In 2021, after being consistent with processing organic waste by cultivating maggots, the group initiated the creation of larger maggot kumbungs and replicating maggot kumbungs in Lombang Village, Juntinyuat District under the name of the Maggot El-Faruq group for processing larger waste with a target of 300 kg/month of waste. organic waste is processed by BSF maggots, apart from that the group uses inorganic waste resulting from factory waste such as paralon, pallets, drums and used trash cans to make furniture, wall decorations and economically valuable handicrafts.



**Fig. 2.** Set equipment of used cooking oil stoves & press tools.

In 2023, after being able to process organic waste beyond the target by processing 300 kg/month, the Wiralodra Waste Bank group accompanied by PT KPI Unit VI Balongan is currently focusing on processing plastic waste into plaques and as a form of the company's CSV (Creating Share Value) program. CSV is a concept developed from the CSR program. CSV is explained as an effort to create a logical reputation by including social issues as important review proposals in formulating company schemes. CSV focuses on efforts to integrate company activities by becoming part of society, or company efforts in running a business by considering the social order of the environment into the integrity of the business [5].

The implementation of CSV at the Wiralodra Waste Bank is a long-term investment effort by the company to maintain and foster good relationships with stakeholders from both the village and community. Moreover, the environmental conditions of the surrounding community need a comprehensive approach through programs that build community awareness in the long term. The CSV value implemented at the Wiralodra Waste Bank is increasing community capacity in managing waste into goods of economic value, one of the products produced is plaques.

This program for processing plastic waste into plaques has been running for 3 (three) months from August - October 2023. Based on interviews with members of the Wiralodra Waste Bank, it is known that one plaque can be produced in one hour. One plaque is produced from 2 kg of plastic waste. If calculated in a day, the group can produce eight plaques, but due to equipment constraints, the group is only able to produce an average of five plaques a day. The plaques that have been produced have two types, (1) "unpolished" plaques are rectangular plaques that have not been trimmed at the edges, the sizes vary with an average of 25 x 20 cm and have a price of IDR 75,000. (2) "polished" plaques are rectangular plaques that have had their edges trimmed, the average size is 20 x 15 cm, and has a price of IDR 100,000.

There are innovative technological applications in the plastic to plaque conversion program, the first is plastic management, and the second is the use of used cooking oil stoves as a plastic cooking component which can save energy and costs in the plaque making process. The results of the interview revealed that the group could produce 30 plaques using one 12-kilogram LPG gas cylinder, meaning the costs incurred were approximately IDR 200,000. However, the group has another alternative to replace gas with used cooking oil processed with a mechanical stove (the result of an adaptation of PT KPI Unit VI Balongan technology). By using this stove with used cooking oil collected from the community as fuel, it can be assumed that the cost for the process of burning plastic into plaques is IDR 0,00.

The impact that occurs due to the formation of the Wiralodra Waste Bank is an environmental impact because there is a change from non-processed waste to processed waste, thereby reducing the accumulation of waste in the community. Moreover, using used cooking oil from households also reduces the burden on the community in managing difficult-to-manage waste such as oil. In Addition, the economic impact is additional income for groups that can exceed the income of the main job.



**Fig. 3.** Final product of processed waste to plaques

PT KPI Unit VI Balonga's role in assisting and managing the Wiralodra Waste Bank program has reduced the social problems that occurred in Balongan Village and turned them into an opportunity to create a better life. Even though it has a good assessment, CSV cannot yet be measured in a definitive framework, so its achievements need to be recorded so that it can be improved in the future [6]. Furthermore, this program makes the company's responsibility to society considered a long-term investment that improves people's standard of living sustainably.

Wiralodra Waste Bank's practices in providing education and social value in managing plastic waste, creating ideas for processing plastic into plaques that reduce environmental impacts, and increasing living standards through increasing income and creating new business lines (*blue ocean*) can be categorized as an application of the CSV value of company to society. Companies that implement CSV will integrate social, environmental, and economic values into strategy, structure, individuals, processes, and rewards [7]. The social benefits of this program according to groups and communities are described as having very good benefits. This can be seen that PT KPI Unit VI Balongan through the Wiralodra Waste Bank program is able to create new institutions that are active and provide a good example to the people of Balongan. Apart from that, it provides options for the community to be able to manage waste into better goods and reduce the level of burning that occurs in Balongan Village. This makes the community consider that program sustainability is very necessary so that waste can be handled and does not become a burden in the future.

## 4 Conclusion

The PT KPI Unit VI Balongan community engagement program through the Wiralodra Waste Bank in Balongan Village has produced a significant impact on various aspects of community life in the vicinity of the company's operating area, including:

1. Establishment of a sustainable waste processing system in the community, from previously just collecting, landfilling, and burning waste, it has changed to collecting, sorting, and processing (recycling) the waste.



2. Empowering the community's economy with innovation in recycling plastic waste into valuable products by utilizing innovation in used cooking oil stoves to increase community income.
3. Significantly reduces waste that pollutes the environment, especially plastic waste, thereby creating a cleaner and healthier environment for the entire community.

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