

## SWOT Analysis of Galuga Final Disposal Site

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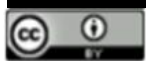
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### Abstract

In activities, the community produces waste so that the production of waste is increasing over time. For this reason, it is necessary to carry out effective and efficient waste management. This study aims to determine the strategy of waste management managed by the Environmental Agency at the Galuga Landfill, Galuga Village, Cibungbulang District, Bogor Regency, in this study used descriptive research methods using a qualitative approach. The informants in this study were the Waste Management Section, the Head of the Galuga Landfill, Garbage Transport Officers, Community Leaders, and locals served as the study's informants. Interviews and documentation are used in the acquisition of data and information. By considering all internal and external characteristics of the firm, namely strengths, weaknesses, opportunities, and threats, the SWOT analysis data analysis technique is applied. According to the results of the SWOT analysis, the Galuga solid waste subsector is in quadrant one, which is strong internally and externally. As a result, the value of the difference between internal factors' strengths and weaknesses shows a positive value, and the value of external factors' opportunities and threats also shows a positive value. Therefore, an active approach to adopting landfill management, such as creating a waste zoning pattern, upgrading services, and making efforts to minimize trash through 3R, will be established to address strategic challenges that arise.

**Keywords:** SWOT Analysis, Final Disposal Site, TPA Galuga, Waste Management

### 1. Introduction

Waste is residual material that is not used, has no value, or needs to be disposed of; it typically results from community-based activities. The community generates waste as a result of their activities, and since this waste production increases daily, effective and efficient waste management is required (Law No. 18 of 2008).

Administratively, the Bogor Regency Government is in charge of the Galuga TPA's location. TPA Galuga is, however, operationally managed by the Bogor City Government. About 48 ha (92%) of the 52 ha of the Galuga TPA are set aside for the disposal of trash produced by Bogor City inhabitants. In the meantime, a 4 ha (8%) area is designated for the dumping of waste from Bogor Regency inhabitants. (Yusuf, 2017). A structure like that could lead to conflicts of interest between the governments of Bogor City and Bogor Regency. This dilemma is comparable to that of the Bantar Gebang TPA, where the DKI Jakarta Provincial Government dumps rubbish on property owned by the TPA that is administratively located in the West Java Province's Bekasi City region. The regional autonomy law and the split of territory are two factors in the emergence of these issues. The Galuga TPA management agreement between the Bogor City Government and the Bogor Regency Government is

only good for 5 (five) years, hence an extension of the agreement is necessary every 5 years to ensure the sustainability of the TPA management (Afifah, 2018). The determination of the Galuga TPA as a final waste processing site actually started in 1986 (Yusuf, 2017 & Afifah, 2018), namely the year of construction or land preparation for waste management, but began operating in 1992.

#### 1.1 Definition of Waste

Waste is defined as the solid byproduct of human everyday activities and/or natural processes in Law No. 18 of 2008 addressing waste management. Waste is the residue left over after materials have undergone treatment, either because the majority has been taken, as a result of processing, or because it did not give social and economic advantages and could pollute the environment (Hadiwiyoto, 1983).

Other opinions regarding waste include:

1. Waste is defined as solid waste made up of both organic and inorganic waste that has reached the end of its useful life and needs to be managed in order to protect development investments and the environment (National Standardization Agency, 2002)

2. Discarded which is the result of human and natural activities that have taken elements of its main function (Kuncoro, 2009).
3. In general, waste is part of something that is not used or something that is thrown away. In general, it comes from activities carried out by humans (Law no. 18 of 2008).

## 1.2 Types of Waste Management

There are several types of waste processing, which are expensive to cheap, or high risk to low risk. According to SNI 19-2454-2002, there are several methods for large-scale waste processing in Indonesia, namely:

1. Open dumping  
The common method of disposal in Indonesia and is carried out in a simple manner, namely the waste is spread out in an open place without cover and processing. However, this waste that does not receive any treatment results in a foul odor and disease.
2. sanitary landfill  
Garbage is placed in a concave location, then under certain circumstances it is filled with soil. At the top of the landfill, it is used again to pile up waste and then backfilled with soil so that it forms layers of garbage and soil (Taqwa, et al, 2017). The basic part of the construction of a *sanitary landfill* is made of a waterproof layer equipped with a collection pipe and leachate channel *which* is formed from the decomposition process of organic waste. (Salman et al, 2020)
3. Burning (*incineration*)  
The method of burning can be done on a small scale, but it is an act that violates government regulations because it interferes with the rights of road users who pass through the burning place. For large-scale this process uses a tool called an *incinerator*, this tool can burn up to a temperature of 600-800 °C in the first combustion chamber, the mass of waste will be reduced to 70-75% in the second combustion chamber, the temperature is increased to 800-1,100 °C to oxidize gas compounds that have not been completely oxidized in the first combustion chamber. To apply this method, care must also be taken because this process usually produces dust, smoke, and particulate pollution that can interfere with public health and activities. Dangerous compounds from the combustion process are *dioxins*, and dioxin compounds can cause cancer. *Dioxins* are formed in the combustion process of chlorine-containing compounds with hydrocarbons at a low temperature of about 250°C.
4. Community-based waste management  
Waste management that can be done by the community is by practicing the 3R (reduce, reuse, recycle). Reduce, reduce waste production and do not commit to excessive consumption or consume based on needs and desires. Reuse, reuse items that are still fit for use. This means reducing consumptive habits and reducing the potential for waste to accumulate. Recycle, reprocessing, namely activities that utilize used goods or waste by processing the material so that it can be used further. Recycle is the last alternative if reduce and reuse can no

longer be practiced on an item or waste (Hasim, 2010).

## 1.3 Sources of Waste

According to Chandra (2007), waste in an area or place is dominated by the following sources:

1. Residential settlements  
Garbage in settlements is generated by one or more families living in a building or dormitory located in a village or in a city. The type of waste generated is usually food waste and food processing waste materials or wet waste (*garbage*), dry waste (*rubbish*), household furniture, ash or garden plant residues.
2. Public and commercial areas  
Public area are places that allow many people to gather and carry out activities, including places of trade. The types of waste generated from such places can be in the form of food waste (*garbage*), dry waste, ashes, building residues, special waste, and sometimes hazardous waste.
3. Places of public utility ownership.  
Public roadways, parking lots, health service facilities (hospitals and health centers), military complexes, conference centers, resort beaches, and other government facilities are among the public service facilities in question. Dry waste and special trash are typically produced in these locations.
4. Light and heavy industry  
The industries in question are the food and beverage, wood, chemical, metal, sewage, and drinking water treatment plants, as well as other industrial activities that are either distributive in nature or that solely involve raw processing. Wet waste, dry waste, building remnants, special garbage, and hazardous waste are typically the types of waste produced here.
5. Agriculture  
Plants and animals produce waste, and agricultural settings like gardens, fields, or rice paddies also generate waste in the form of rotting food components, agricultural waste, fertilizers, and plant insect repellents.

## 1.4 Waste Management

Policy According to the urban waste management policy released by the Indonesian Ministry of Public Works, urban waste management is a system made up of 5 components and their corresponding sub-systems, namely:

1. Regulation/legal  
The fact that Indonesia is a state of law, where the relevant legislation serves as the foundation for all life, informs some aspects of regulation. Strongness and a legal foundation are needed in Indonesia for municipal solid waste management in areas like organization formation, retribution collection, public order, and other areas. Among other things, the following regulations are necessary for the execution of the waste management system in metropolitan areas:
  - 1) Public order and garbage management.
  - 2) A master strategy for city trash management.
  - 3) Organizations for management, forms, and institutions.

- 4) Implementation processes for management.
  - 5) The size of the service charge or levy.
  - 6) Collaboration with numerous parties that are similar, such as regional or corporate collaboration.
2. Institutions and businesses.
- A multidisciplinary activity, organization and management gives attention to the parties serviced, namely the urban community, and is based on technical and management concepts about the economic, social, cultural, and physical characteristics of the city region. The organizational form's design and choice are modified to:
- 1) Government regulations that foster it.
  - 2) The pattern of the operational system applied.
  - 3) System working capacity.
  - 4) The scope of work and tasks must be addressed.
3. Operational techniques
- Based on SNI 19-2454-2002, the operational technical procedures for urban waste management include the basics of planning for:
- 1) Waste storage.
  - 2) Garbage collection.
  - 3) Garbage transfer.
  - 4) Garbage transport.
  - 5) Waste management.
  - 6) Final disposal of waste.
4. Financing
- As with other activities, the financing component of the municipal solid waste management system is ideally calculated based on:
- 1) Investment costs.
  - 2) Operation and maintenance costs.
  - 3) Management fee.
  - 4) Cost for development.
  - 5) Cost of community outreach and development
5. Community
- Participation Without the participation of the waste-producing community, all planned waste management programs will be in vain. One approach to the community to be able to assist government programs in cleanliness is how to familiarize the community with behavior that is in accordance with the program's objectives. These include, among others:
- 1) How to change people's perceptions of orderly and orderly waste management.
  - 2) Local social, structural and cultural factors.
  - 3) Habits in waste management so far.

## 2. Research Methods

### 2.1 Place and Time

research was conducted at the final waste disposal site (TPA) in Galuga Village, Cibungbulang District, Bogor Regency. The time of the study was carried out in March-June 2022.

### 2.2 Materials and Tools

#### 1. Tools

In this study the tools to be used include writing instruments, questionnaire sheets, voice recorders and cameras for documentation.

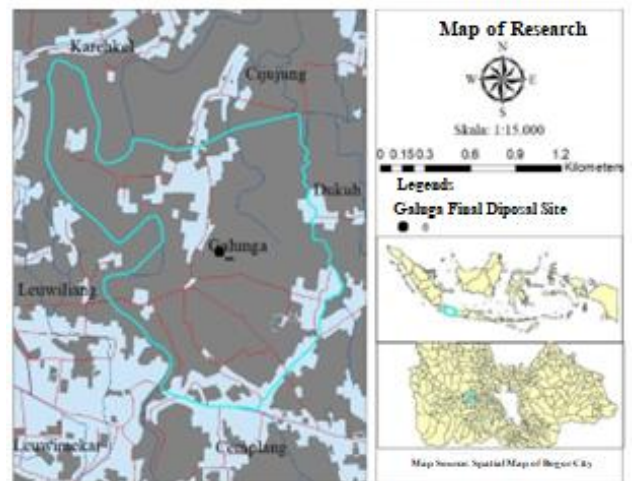


Figure 1. Map of Research

#### 2. Materials

Primary data, also known as data received from the first source, individuals, such as the outcomes of interviews or the outcomes of conversations in the field that researchers typically conduct, are among the materials to be used in the research. Primary data for this study were gathered through interviews, field survey findings, and questionnaires given to a number of people who are thought to be authorities on TPA issues.

The type of secondary data is relevant to the issue being researched. This information was gathered from documents that belonged to the Bogor Regency Government, including those from the Bogor Regency Environmental Service and the Bogor Regency Sanitation Service, as well as from literature (references), reports, writings, and other sources that were pertinent to the subject or research issue.

### 2.3 Research Methods

This study is descriptive qualitative, which means it seeks to explain a phenomenon (Suyigono 2017). There is no need to create a hypothesis during the research stage because descriptive research types typically do not need one (Juliandi and Irfan, 2014). SWOT analysis is the research methodology used. The following are the methods employed in this study's data collection:

1. Both primary and secondary data were used in this investigation. A questionnaire with a list of structured questions was given to the respondents in direct interviews conducted at the study objective in order to acquire primary data.
2. Speak with pertinent organizations to learn more about their infrastructure and waste management facilities.
3. Secondary information was gathered from a number of relevant organizations, such as the Sanitation Service of the Bogor Regency in the form of policy documents, waste data from the Cibungbulang District in the Bogor Regency, research publications, and numerous references relevant to this study.
4. List your advantages, disadvantages, opportunities, and threats. The research flow chart is presented in the following figure:

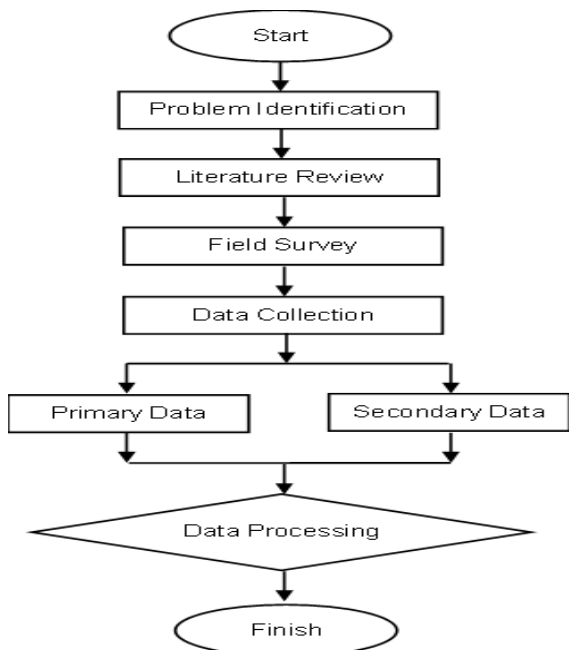


Figure 2. Flowchart of Research

## 2.4 SWOT Analysis

When applied appropriately, technique is one of the most effective analytical tools. The acronym SWOT, which stands for Strengths, Weaknesses, Opportunities, and Threats, is also well-known. These are external aspects that organizations or business unit firms must consider. The ability of the strategic determinants of companies, organizations, and companies to maximize the role of strength factors and take advantage of opportunities so as to simultaneously act as a tool to minimize weaknesses in the organization and reduce the impact of threats makes SWOT analysis a potent tool for conducting strategic analysis. that appear and have to be handled.

Strengths are the advantages that a firm or organization possesses over rivals in meeting customer demands. These advantages include skills, products, and other aspects. Weaknesses are flaws that exist inside an organization's structure, such as resource, skill, and ability constraints that pose a significant obstacle to the outward impression of good organizational performance. Threats are unfavorable environmental elements, and opportunities are different beneficial environmental circumstances for a business unit, as follows:

Table 1. SWOT Matrix

Internal Factors	Strength (S)	Weakness (W)
External Factors	1. Write down Strengths 2.	1. Write Down Weaknesses 2.
Opportunities (O)	Strategy (SO)	Strategy (WO)
1. Write down opportunities 2.	1. Use strength to take advantage of opportunities 2.	1. Use strength to take advantage of opportunities 2.
Threats (T)	Strategy (ST)	Strategy (WT)
1. Write Threats 2. 3.	1. Use power to avoid threats 2.	1. Minimize weaknesses and avoid threats 2.

The use of SWOT analysis in regional waste management efforts has been carried out previously, with the aim of being a feasibility study in the Greater Jakarta area (Fernando, 2011), Kec. Pamulang, South Tangerang City (Mas'adi et al, 2020), Burangkeng TPA, Bekasi (Rimantho & Tamba (2021), and Benowo TPA, Surabaya (Sarbidi, 2008)

## 3. Results and Discussion

### 3.1 Description of Data Analysis

The description of research data is an explanation of the data. The researcher used a SWOT analysis technique to conduct research on the Galuga landfill in Bogor Regency's Cibungbulang District. The theory offers a helpful visualization of the critical factors that the company's leadership must take into account to make sure that the strategy can be implemented in organizational life. A consistent link between one aspect, namely: strengths, weaknesses, opportunities, and threats, is part of an effective relationship strategy. Researchers compile forecasts of conditions (internal and external), variables from external circumstances, a profile of environmental possibilities and challenges, and a description of the environment's strengths and weaknesses.

### 3.2 Research Results

The Galuga Final Disposal Site (TPA), which is situated in Galuga Village, Cibungbulang District, Bogor Regency, as well as the Environmental Service's main office, which is situated on Jl. Central, Cibinong District, Bogor Regency, Strong Faith. The findings of the study on the SWOT Analysis of the Galuga Final Disposal Site employing the SO strategy, WO strategy, ST strategy, and WT strategy will be provided in this chapter. Various data were gathered from informants on waste management services employing the SO strategy, WO strategy, ST strategy, and WT strategy after doing research, collecting data in the field, and direct documentation (Winahyu et al, 2013).

The discussion contains the findings of data analysis as well as information gathered by researchers on the ground and modified to the theory they are using. The David Hunger theory, which the researcher in this study uses, offers a helpful representation of the crucial factors that the leadership must take into account to make sure the strategy may succeed in organizational life. A constant link between one factor, namely: strengths, weaknesses, opportunities, and threats, is a necessary component of an effective plan. In this instance, the researcher incorporates the SWOT analysis' indicators into the implementation tool.

The fundamental premise of this study is that the Environmental Service will handle garbage as part of its services. The Environmental Service provides a service through the establishment of seven UPTs, which are located throughout the district in Cibinong, Jonggol, Ciawi, Ciampea, Parung, Leuwiliang, and Jasinga. The 3R TPSTs are dispersed among a number of regions, including Ciomas, Sukaraja, and Kemang Districts. Residents have rejected TPA Galuga on numerous occasions due to the TPA's effects, and the TPA's waste management practices still involve open dumping. The community is not in agreement with the TPA's existence because of the TPA's effects on air, water, and soil pollution.

Table 2. Matrix SW

Internal Factors			
Strengths	Weight	Rating	Score
1. Having 7 UPT	0.2	3	0.6
2. Having Fleet	0.4	4	1.6
3. Having TPSS 3R	0.4	4	1.6
<b>Total</b>	1.0		3.8
Weakness	Weight	Rating	Score
1. Inadequate facilities and infrastructure	0.2	3	0.6
2. Lack of waste management	0.4	4	1.6
3. The presence of environmental pollution	0.4	3	1.2
<b>Total</b>	1.0		3.4

Table 3. Matrix OT

External factors			
Opportunities	Weight	Rating	Score
1. Still in process TPST zoning	0.3	4	1.2
2. Expansion of landfill area	0.4	4	1.6
3. More waste banks	0.3	3	0.9
<b>Total</b>	1.0		3.7
Threats	Weight	Rating	Score
1. Landslide waste	0.4	4	1.6
2. The volume of waste is increasing	0.4	3	1.2
3. Rejection of the TPA by the community	0.2	3	0.6
<b>Total</b>	1.0		3.4

### 3.3 Discussion

The results of data analysis and facts that researchers get in the field and adapted to the theory researchers use. The researcher in this study uses David Hunger's Theory which in this theory provides a useful visualization of the important components that must be considered by leaders to ensure that the strategy can work in organizational life. An effective strategy includes a consistent relationship of one factor, namely: *strengths*, *weaknesses*, *opportunities*, *threats*. In this case, the researcher combines the indicators in the SWOT analysis into the implementing apparatus.

The results of the internal factor scoring of the solid waste subsector above obtained the total value of strength: 3.8, total value of weakness: 3.4 so that its position is 0.2 (internal factor). The results of the external factor scoring of the solid waste subsector above obtained the total value of opportunity: 3.7, total value of threat: 3.4 so that its position is 0.15 (external factor). The position of internal and external factors in the solid waste subsector in the following quadrants:

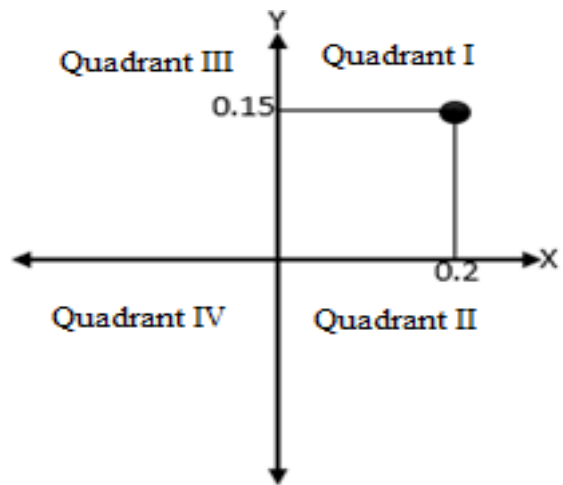


Figure 3. SWOT Quadrant of Galuga Landfill Management

According to the SWOT analysis, the Galuga solid waste subsector is in quadrant one, which indicates internal and external strength. As a result, the value of the difference between strengths and weaknesses on internal factors shows a positive value, and the value of the difference between opportunities and threats on external factors also shows a positive value. This means that an aggressive strategy will be developed to deal with any strategic problems that arise.

### 4. Conclusion

The following conclusions can be taken from the results of the SWOT analysis of the Galuga Final Disposal Site: The Galuga Final Disposal Site (TPA) continues to employ an open dumping system, which is a system that merely dumps and is stacked, to carry out a waste management strategy. based on the SWOT analysis. TPA managers must make aggressive efforts to adopt TPA management, including developing waste zoning patterns, enhancing services, and working to decrease waste using the 3Rs. The Environmental Service manages a variety of garbage services, including TPSS (Temporary Garbage Disposal Sites), Garbage Banks, and Garbage Transport Fleet, but the waste in the TPA continues to have an impact on the neighborhood (Disposal Site). Galuga from pollution of the water, soil, and air.

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