

# The Environmental Impact of Shopping Centre Management in Makassar, Indonesia

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**Abstract-**The purpose of this research is to develop environment impact instruct, so the environment is can be maintained without hindering the pace of development that could improve economic growth by creating the concept of ecology-based economy. Samples were taken of 4 shopping center in the city of Makassar through observation and interviews by commission members EIA Makassar using qualitative methods. The results showed that the waste generated by the shopping center/mall is managed in related with the EIA due diligence that is by separating the solid waste. The Government will also continue to pursue waste management program, in the case of infringement by the Mall, the government will impose sanctions in the form of administrative sanctions.

**Index Terms-**EIA, instruments, waste management, shopping centers.

## I. INTRODUCTION

The development of urban areas as an indicator of economic growth. The increasing economic activity of community led the growth of urban facilities such as five-star hotels, shopping malls, and the property sector. [1]. Various economic activities affect the quality of the urban environment. Environmental issues become a global problem and affect the quality of human life. Therefore, the growth of economic facilities must be accompanied by environmental protection regulations. The environmental policy of each country becomes a solution to the conflicts that result from the utilization of environmental resources. This conflict is caused by the perpetrators of pollution and the affected victim [2].

The regulation for protection and management of environment in Indonesia are embodied in Law of The Republic Indonesia Number 32 Year 29. The regulation based on the considering of principles of sustainable and environmentally friendly development. Specifically, the Article 13 chapter V is the rules for pollution control and damage of environment by prevention, solution and recovery. Furthermore, in the environmental protection policy many principle are using for control such as planning, utilization, control, maintenance, supervision and law enforcement.

The prevention damage of environment in infrastructure building use the Environmental Impact Assessment / EIA (Indonesian term: AMDAL). The environmental protection law article 22 set that activities which have significant impacts to the environment shall be subject to the preparation of AMDAL. Many criteria in determination of significant impact, such as the large number of resident affected by the activities, the size of area, environmental components that will be affected and the cumulative of effect. This instrumen reviews the level of vulnerability to environmental damage or pollution that occurs as a result of the company. From the initial planning of a business or development activity shall contain estimates important impact on the environment, both physical and non-physical, including social, cultural, in order to be considered whether the plan needs to be made to the environmental impact assessment.

In the recent year, development of many shopping centres were affect to the environmental quality in Makassar city.

Various economic activities within the building accompanied by the visit of many people caused the existence of solid waste and liquid waste. Urban environmental pollution is an impact with the growth of shopping centers.

Population growth in urban areas will lead to the growth of shopping centers. Furthermore, the control of the risk of environmental pollution with activity in the center of trade is continuously done. This article describes the potential environmental impacts on activity in shopping centres and their waste control. The results of this study are beneficial to the person in charge of environmental protection regulation in Makassar City.

## II. METHOD

This type of research is descriptive empirical [3]. The research location in the shopping center in the city of Makassar. whereas, Panakkukang Mall, Ratu Indah Mall, Mall Trans, and Karebosi Link. Data collection techniques using observation on the object of research, interviews with the commission members EIA, also with technical literature that data in the form of primary data and secondary data. Once the data is acquired and analyzed using qualitative analysis methods, then analyze the information obtained during interviews of the parties is competent in their field and community participation Makassar.

### III. RESULTS AND DISCUSSION

Table 1. The Shopping Centre Activity

No.	Shopping Centre	Location	Number of tennat	Floor	Build in
1	Ratu Indah Mall	Dr. Ratulangi Street	58	4	1999
2	Panakukkang Mall	Boulevard Street	49	4	2003
3	Trans Studio Mall	Tanjung Bunga	54	3	2008
4	Makassar Town Square	Perintis Kemerdekaan Street	42	3	2008

The four shopping centers have met certain actions for environmental protection such as:

- Install or repair the waste treatment unit so that the waste is in accordance with the specified environmental quality standard
- Restoring environmental functions
- Eliminating or destroying the cause of environmental pollution and destruction

#### *Management of Hazardous and Toxic Materials*

Various economic activities in the shopping center produce various types of valleys. Economic activity in four shopping centers is restaurant, salon, cinema, fashion outlet, bookstore and pharmacy. Each type of activity produces different types of waste and the impact of pollution. (Table 2)

Table 2. Waste Type and The Impact

Activity	Waste type	Source	Impact
Restaurant	Liquid waste	- leftover drinks - waterused kitchen equipment and utensil - leftover water cleaning	pollution in the sewer
	Solid waste	- Food Packaging - Tissue - used beverage cans and bottles	- Volume of solid waste
	Gaseous and Odorous waste	Smoke from the stove - Cigarette smoke	- Air pollution
Salon	Liquid waste	- remaining hair dye - Remaining hair tonic - Remaining shampoo	pollution in the sewer
	Solid waste	- Haircut - Hair dye wrapping - Fod wrappers - Used canned drink	- Volume of solid waste
	Gaseous and Odorous waste	steam	Depletion of the ozone layer
Cinema	Solid waste	- Remaining ticket - Food wrappers - Used cans / drinks - Tissu - Leftovers	- Volume of solid waste
	Liquid waste	- leftover drinks waste water in the toilet	- pollution in the sewer
Fashion outlet	Solid waste	clothes wrapper paper purchases - food wrappers - Tissues	- Volume of solid waste
Bookstore	Solid waste	- Book wrapping - Tissues - Book packaging	- Volume of solid waste
Pharmacy	Solid waste	- Pharmacy wrapping - Pharmacy packaging - Paper purchases	- Volume of solid waste

The waste generated by these shopping centers is generally waste food products from restaurants in this Mall. The most visited place by the citizens is cafes and restaurants. The type of waste resulted solid and liquid waste and resulted impact or pollutes the environment.

The environmental feasibility criteria consist of ten benchmarks:

- a. Conformity of spatial plan
- b. Policy on environmental protection and management
- c. The importance of defense and security
- d. A careful forecast of the magnitude and nature of the impact
- e. The initiator's ability is responsible
- f. Business plans that do not interfere with social values and the value of ecological entities
- g. No disruption to the business and / or activities that have been around
- h. Not exceeding the carrying capacity and capacity of the environment

### ***The Control of Environmental Impact***

Environmental impact control is a responsibility of shopping center managers. This effort aims to facilitate transport in solid waste. In the treatment of liquid waste aims to reduce the content of pollutants when disposed of in urban sewerage installations. Shopping center managers are required to process waste so as to meet environmental quality standards.

Liquid waste management system from building were using installation of Waste Water Treatment System (WWTP). The system is channeled through water channel to shelter. Sources of waste such as disposal of detergents, waste of processed foods liquid food and beverages. Waste is first collected in shelters by separating waste water. Then the shelter is equipped with an aerator motor that serves to distribute oxygen to prevent decay during the process of this waste. The next step is equity and neutralization as a chemical process to neutralize wastewater to prevent contamination when channeled into waterways. The construction of waste water treatment is based on the calculation of the estimated volume of wastewater results. The calculation is based on the estimated number of tenants and past references.

Solid waste disposal activities in shopping centers are managed separately by type. Placement of organic waste of food waste separately to facilitate transportation to temporary garbage disposal. Waste bottles, paper and packaging cans are also separated. Waste indicated as B3 waste material or hazardous and toxic waste material is collected later to be destroyed in certain area as required by the Ministry of Environment of the Republic of Indonesia.

The whole process of waste management and treatment of the mall is already related with the provisions of the EIA. This, due to the time of establishment Mall, which is the main condition their eligibility EIA test. With proper management, waste Mall in accordance with the applicable rules and procedures, and has passed the test of the feasibility of the EIA, the living environment of citizens who were around the Mall is not disturbed, and preservation of our environment can be maintained despite development continue to be implemented. However, a regional mall that is currently happening waste pollution that results from Mall is visible in the drainage water change color and emit a bad odor. Hence, the EIA needs to be re-examined from the Mall. So, there is no environmental pollution that harms citizens who live around the mall.

The government imposed sanctions on shopping center managers who did not meet environmental standards. This type of sanction may be forced money and compensation. The imposition of forced money shall be borne by any delay in the execution of a court order in carrying out the actions taken to preserve the functioning of the environment. These forced penalties are alternative against administrative sanctions

- In addition to the right of the victim to indemnify an individual, a legal entity or a defamatory authority, a person whose right to a good and healthy environment is violated, has the right to challenge an action to bring the environment to recover.
- Based on these realities, environmental management is also inseparable from the role of government that serves to sanction the manager of the mall if found in violation. If found guilty of pollution and environmental degradation that disrupt the stability of natural resources, and provides for penalties such as:
  - The sanctions are civil, the manager of the mall is required to compensate for negligence resulting in the destruction of the environment so that citizens who exist around the mall into a disturbed ecological.
  - Sanctions in crime that prosecutions for therein contained elements of the crime as an example if the waste generated can cause a person's death.
  - Administrative sanctions are sanctions given to the mall like the revocation or termination of a production license or permit activities in the mall for a certain period of time.

### **IV. CONCLUSION**

The waste of economic activity in the shopping center is divided into solid waste, liquid waste and gas waste. Most of the waste generated comes from restaurants with solid waste and liquid waste. Control of liquid waste by using waste water treatment system. Control of solid waste by using the sorting system between organic waste, inorganic waste and B3 waste. Overall, the waste generated by the shopping center/mall is managed in related with the EIA

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