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Knowledge, Action, Perception and Attitude of Management of Talangagung Landfill toward Edu-Tourism Program: A Community Perspective

Koderi[1,2]*, Suyadi[1,3], Abdullah Said[1,4], Abdul Wahib Muhaimin[1,5]

[1]Doctoral Program of Environmental Studies, Graduate Program, University of Brawijaya, Malang, Indonesia
[2]Environmental Department of Malang Regency, Indonesia
[3]Faculty of Animal Husbandry, University of Brawijaya, Malang, Indonesia
[4]Faculty of Administrative Science, University of Brawijaya, Malang, Indonesia
[5]Faculty of Agriculture, University of Brawijaya, Malang, Indonesia

Abstract

This study aimed to determine the knowledge, action, perception, and attitude of landfill managers and community to Talangagung landfill program as an edu-tourism destination in Malang. Talangagung landfill became one of the best examples of waste management in Indonesia. This study used a quantitative approach by conducting field observations and questionnaire survey for data collecting. Questionnaires were distributed to community around landfill to assessed waste management in Talangagung landfill as an edu-tourism attraction. The data obtained was analyzed descriptive quantitatively by using Likert scale. The results showed that landfill manager and community had good knowledge about waste management practices based on environmental conservation principles. This was in line with the action, perception, attitude of landfill managers and community that supported the government program. The average Likert score of observed indicators indicated that respondents' answers were in the 'high level' category with a score of 3.92. It means respondents had a positive response to the questions posed by the researcher based on conditions in the field. Synergy and cooperation between landfill managers and community were one of the keys to support the success and sustainability of edu-tourism program in Talangagung landfill.

Keywords: community, edu-tourism, landfill management, perspective.

INTRODUCTION

Waste is basically substances or objects that are not used anymore, either in the form of domestic waste (household) and disposal of the factory as the rest of the industrial process [1]. People in managing waste still rely on end-of-pipe approach, that is, garbage collected, transported, and disposed to final waste processing site or landfill. In fact, large volumes of waste at the site have the potential to release methane (CH_4) gas that can increase greenhouse gas emissions and contribute to global warming and bring bad impacts to society. If the waste is stacked in the absence of good waste management [2-7].

Waste processing is an effort to reduce the volume of waste or change the waste into something more useful. Waste that has been collected can be processed further, either in the location of waste sources or after arriving at the final waste processing site [8,9]. Waste management that does not meet the principles of environmental conservation can cause conflicts between the landfill manager and surrounding community. For example, fire case at Bantar Gebang landfill at Bekasi, landslide case of garbage at Leuwigajah, Bandung and Kohse landfill in Ethiopia causing negative impact to environment and decreasing quality of life of society.

Waste management activities in the landfill have the potential to be utilized as a form of socialization and educational tourism on waste management and environmental conservation for visitors or the public. Landfill opportunities to become ecotourism products, such as educational tourism (edu-tourism), will be in line with sustainable tourism development programs. The essence of a sustainable tourism program is maintaining a balance between economic needs, socio-cultural relations and environmental conservation [10,11]. There are some characteristics of ecotourism such as (a) the existence of local management; (b) the existence of quality travel and tourism products; (c) appreciation of the culture; (d) the importance of training; (e) rely and relate to natural and cultural resources; (f) integration between development and conser-

*Correspondence address:
Koderi
Email : ri.kode@yahoo.co.id
Address : Office of Environmental Services, Malang Regency, Jl. KH. Agus Salim No. 7, Malang.

vation [12]. Educational tour is a program who tourists visit a tourist destination with the main purpose to gain experience of learning or non-formal education directly in the tourist destination [13,14]. Educational tour contains elements of education that aims to change the perception of a person to have awareness, responsibility, commitment to environmental conservation and culture. Educational tourism was a new market opportunity in tourism services business [15]. The desire of tourists to gain more knowledge about tourist destinations has led to a shift in the trend of tourist preferences toward special interest activities with more intensive participation in tourist areas visited. Currently, more tourists want to get more learning experience in making tourist visits.

One example of landfill management as educational attractions is Talangagung landfill is located in the city of Kepanjen, Malang regency. Talangagung landfill is a final waste processing site that was initially managed by an open system (open dumping) then converted into controlled landfill (sanitary landfill) with a capacity of 140 $m^3.day^{-1}$. The development of the Talangagung landfill began in September 2009, in 2010 the prototype model of the utilization of methane gas began to be developed, and in January 2011 the discussion was conducted with experts from universities for the preparation of future improvement programs. This landfill is used as educational tourism destination and laboratory application of appropriate technology for waste processing, and place of learning to improve student and community motivation in environmental conservation based waste management. In the development of educational tourism, community involvement is an important thing and must exist. In this case, society should be viewed as a subject and not as an object of tourism development. Community participation plays important role in achieving good waste management and a key factor attaining the goal of waste management [16,17,18].

The existence of people living around the landfill to be one factor for the successful landfill management. This community also play a role in maintaining the sustainability of the landfill edu-tourism program that has been proclaimed by the local government [19]. However, the information regarding public perception of waste management system in landfill and Talangagung landfill status as educational tourism object has not been widely available. This information is important as a material evaluation of landfill management based on environmental conservation and community participation. Therefore, in this study, researchers assess the knowledge, action, perception, and attitude of landfill managers to the existence of Talangagung landfill as an educational tourism destination.

MATERIALS AND METHOD

This study used a quantitative approach by conducting field observations and questionnaire survey for data collecting. Data were analyzed statistically descriptive. This descriptive analysis was carried out with the aim of obtaining information about the knowledge, action, perception, and attitudes of the community around the landfill manager regarding the management and status of Talangagung landfill as an educational tourism object.

Area Study

This research was conducted in Talangagung landfill, Kepanjen Sub-district, Malang Regency, East Java Province. Geographically, Talangagung landfill was located at 8°07'14.81''S and 112°33'43.00''E with 339 m asl in elevation. This area study was determined intentionally, with the following considerations (1) Talangagung landfill was the main priority program of the Malang Local Government in order to follow up the Laws of the Republic of Indonesia number 18 of 2008 concerning Waste Management; (2) Talangagung landfill has been identified as Smart Practice 2016 by Knowledge Center, Ministry of National Development Planning of the Republic of Indonesia (BAPPENAS).

Data Collection

The research data was collected by using questionnaires survey and distributed to respondents (community) living around landfill. The number of respondents who participated in this study were 99 individuals with no considerations of gender, age, and occupation of the respondents. A structured questionnaire could be effectively used in order to investigate public participation in waste management practices, focusing on awareness, attitude, knowledge, and behavior [20]. Data collection was conducted by filling out a list of questions in writing addressed to the respon-dent. Basically, data collection using question-naires was similar to interviews, the difference lies in questions and answers made in writing. Questionnaires were distributed to community members, but the researcher kept the questionnaire completely filled according to the circumstances.

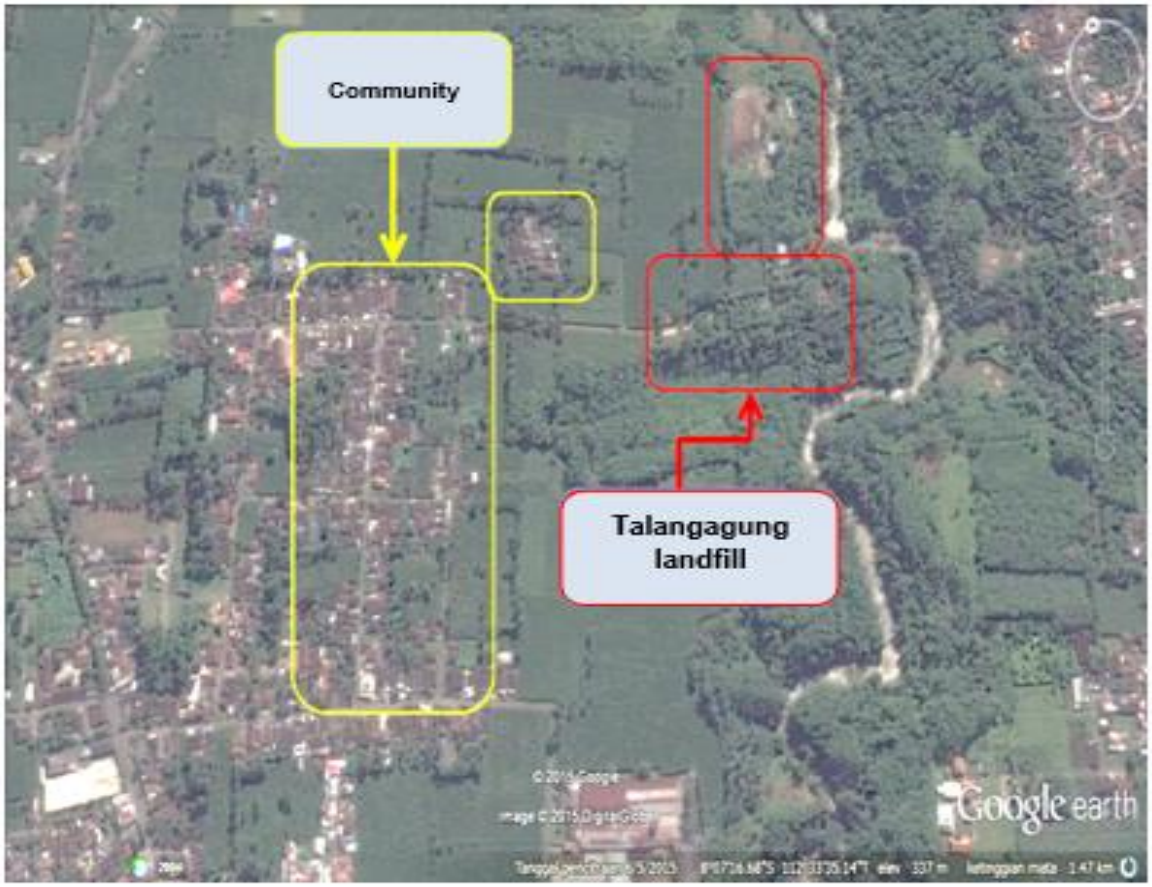

Figure 1. Location of Area Study at Talangagung Landfill, Kepanjen, Malang.

Data Analysis

This research used descriptively quantitative analysis. This descriptive analysis was to provide an overview of the field data by interpreting the primary data into tabulation. Thus, this descriptive analysis aimed to obtain a description of the condition of variables studied include knowledge, actions, perceptions, and attitudes of communities around the Talangagung landfill and also to identify the characteristics of each variable.

This study used Likert scale in data analysis to describe the category and level of each indicator on observed variables. Likert scale was a way of measurement by providing an opportunity to a respondent to answered questions with a predetermined answer score ranged 1 to 5 [21]. Questionnaires in this study using five answers that could be selected one by respondents. The answer given by respondent had the value according to the items compiled with answers that had a range positive to negative meaning. The data of this research using semantic differential scale yielded score of 1 to 5. Then to categorize the average of respondent's answer was determined interval scale calculated from the highest score minus the lowest score then divided by five. From the calculation, the interval for the category of 0.80 was obtained, thus the categories of respondents' answers were determined based on the following scales lowest (1.00 - 1.80), low (1.81 - 2.60), moderate (2.61 - 3.40), high (3.41 - 4.20) and highest (4.21 - 5.00).

RESULTS AND DISCUSSION

In terms of knowledge about the existence of Talangagung landfill as an edu-tourism destination, in general, the community had good knowledge about it as evidenced by the average Likert's score of 3.72. This score informed that the level of respondent's knowledge to Talangagung landfill status as edu-tourism destination was high. There were several indicators that described the level of knowledge of respondents including knowing, understanding, applying, analyzing, synthesizing, and evaluating. Likert's scores on synthesizing and evaluating indicators were observed lower than the other indicators (3.04 and 3.08) and categorized into 'moderate'

level (Fig. 1). Community's knowledge about the suitability between landfill management with environmental conditions on Talangagung landfill was on still low level. This could be seen from the respondents' answers where as many as 32% of respondents answered was 'appropriate', 32% of respondents answered was 'not appropriate', and 31% of respondents did not answer.

Meanwhile, community knowledge about the evaluation of landfill management policy involving the local government and community itself was also observed at low level. With regard to the implementation of the evaluation activities, as many as 54.6% of respondents stated that the evaluation of landfill management policy was 'often' conducted but as many as 27.8% of respondents stated that evaluation was rare to do. This became a note for landfill manager and local government to develop better and routine evaluation plan. Evaluation became important because it was a means to encourage improvement and development in the future.

According to the community, waste management practice in Talangagung landfill was well-managed by landfill manager. This was showed from Likert score more than 3.40 with an average of 4.02, this value belong to 'high' category level (Fig. 2). This high score illustrated that the respondents agree with the questions posed by researcher based on reality in the field. Questions posed to respondents were divided into several indicators including awareness, interest, evaluation, policy implementation, and acceptance from the landfill management for better edu-tourism practices.

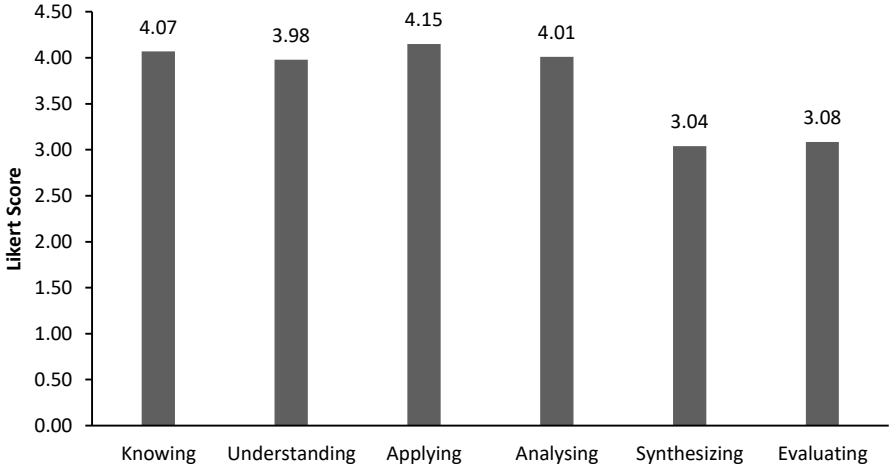

Figure 1. Knowledge of Community on Landfill Management as an Edu-tourism Object

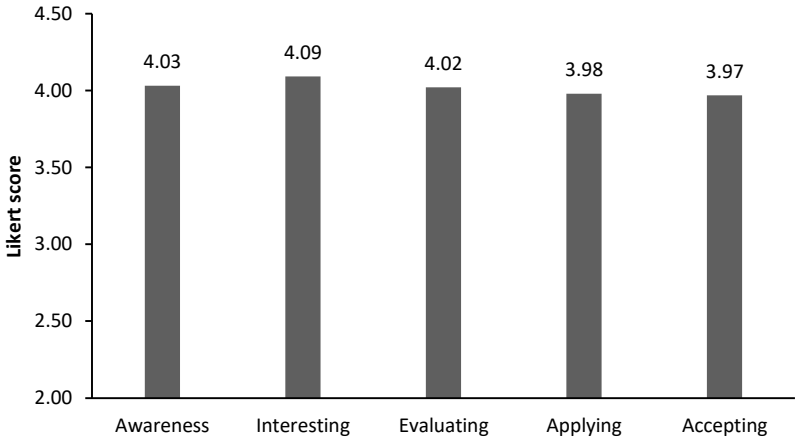

Figure 2. Actions of Landfill Manager on Waste Management based on Community's Answer

Based on field observations, activities of waste management to support Talangagung landfill as an edu-tourism destination were motivated by desire to achieve better environmental conditions. This was evident from the results of interview where more than 45% of respondents always stated environmental factors to be the main reason on each question points asked (indicator). Environmental knowledge was strongly correlated with environmental activity [16]. Additionally, environmental knowledge was connected to improving people's attitude toward the environment [16,22].

Beside environmental factors, economic and socio-economic factors were also be another reason factor for implementation of good waste processing practices. Good landfill management also provided good impact for community as well so that the landfill edu-tourism program could well develop. Thus, the number of visitors (tourists) would be increased and interested to visit. This was certainly good thing because it could give additional income for the surrounding community or landfill manager.

For community perception aspect, their responses were determined based on four question points as an indicator including the understanding of landfill manager about environmental rules on waste management practices (understanding), community interest in landfill program as an edu-tourism object (interesting), joint evaluation between landfill manager and community (evaluating), and concern about the negative impact of landfill (interpretation).

Understanding, interesting, and evaluating indicators showed high Likert's score, >3.41 with an average of 4.08 (Fig. 3). According to 90% of respondents, landfill managers had been processing waste in accordance with existing environmental rules. This was in line with the interest of respondents to management of landfill in Talangagung as a place to learn how to implement good waste processing practices for healthy environment. Almost all respondents stated that they interested or very interested, 87%, 27% respectively, on waste management system applied by Talangagung landfill manager. A good waste management process and fitted with environmental conservation rules became the main attraction for community to support the edu-tourism landfill program. However, this conditions need to be supported by regular evaluation on landfill management system. According to the respondents, evaluation activeties should be conducted jointly between landfill manager and community for improvement of edu-tourism landfills. Because the synergy between landfill managers and community was an important and interrelated factor to guarantee the landfill sustainability and success [23,24].

Although the landfill management regarding waste management practices had good appreciation, but 60% of respondents were still concerned about the negative impacts of landfill and only 28% of respondents stated that they were not worried about the negative impacts. Respondents had interpretation that the negative impacts of landfill might be emerged anytime. Based on Likert's score, the response was only 3.36 and this was categorized into 'moderate' level. This situation became a duty for landfill manager and local government to improved community understanding on safety aspects of current landfill management. Socialization of the benefits and safety of environmental based landfill management needed to be deeply and intensively conduct to the community. This was important thing because when community felt insecure about the existence of this landfill, the sustainability of edu-tourism landfill program would be threatened in the future. People would have awareness on waste management practices towards the environment when gaining a lot of knowledge about the consequences of waste management [25].

Policy of Malang government which established Talangagung landfill as an edu-tourism destination was supported by respondents. Over 90% of respondents agreed on each question point asked. The answers used to describe respondents attitude toward the policy. On each question indicator, the Likert score of the respondent's answer was more than 3.40 with an average of 4.03 categorized into high level (Fig. 4). Based on this information indicated that respondents did not refuse the policy. It also informed that respondents showed good environmental attitudes. Environmental attitudes were understood as favorable or unfavorable feelings towards some feature of the physical environment or a problem related to it. Environmental attitudes and behaviors were frequently linked to those personal values. Related to this, attitudes were favorable or unfavorable feelings inspired by an object or situation [26].

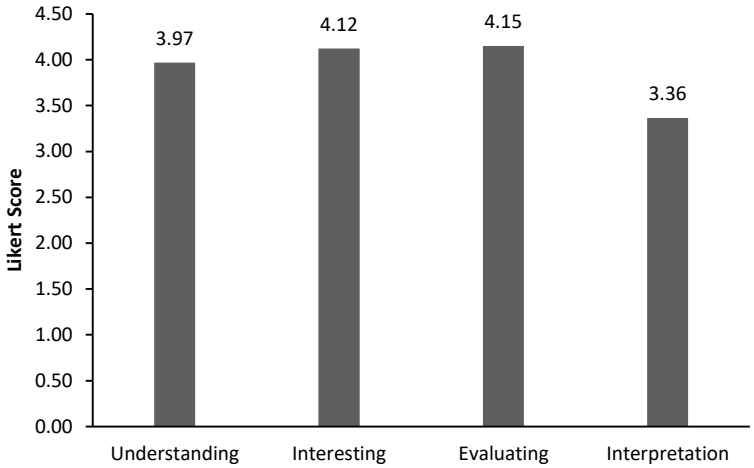

Figure 3. Community's Perception toward the Landfill Manager's Understanding on Waste Management

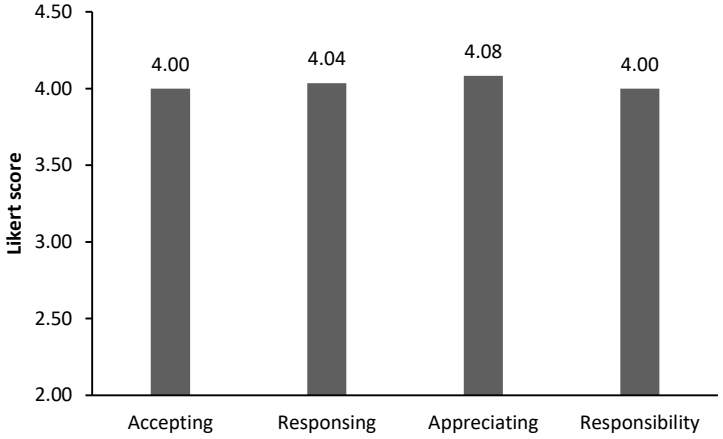

Figure 4. Landfill Managers and Community's Attitude toward Waste Management Policy as Edu-tourism Destination

Regarding to responsibility of landfill management, 93% of respondents stated that the landfill manager had carried out their responsibilities well. The process of waste management had been well conducted, so some problems could be minimized to be emerge. Talangagung landfill became one of examples on environmental based and integrated landfill management in Indonesia. Waste management process used as tourist attraction made this place to be a learning tool for every visitor such student and community. In the development of an edu-tourism object, there were five principles that should be considered [27]. This five basic principles included environmental conservation, education, tourism, economy, and community participation. These five principles interrelated to one another and it could not be separated.

The existence of Talangagung landfill provided benefits not only for landfill managers but also the surrounding community. People community got benefits from both environmental and economic aspects. From the environmental aspect, people got environmental benefits such as clean environmental, health, feeling comfort. Meanwhile, on the economic aspect, community got benefit in the form of utilization of methane gas (renewable energy) from the landfill management. The management of landfill had built a methane gas channel system, as a result of its waste management activities, which was well integrated into people's house around the landfill. This methane gas channel system had been integrated into 190 houses around the landfill with a radius of 1 km. This methane gas could be utilized by the community for daily activities such as cooking.

Thus, the local community could save their expenses per day. In addition, in this Talangagung landfill, there were also various supporting facilities for every visitor who came.

Transformation of Talangagung landfill from open dumping system to controlled landfill management had become the beginning of development of this edu-tourism program. An environmental based and integrated waste management system was the main attraction of this landfill. One of real effort on sustainable waste management development was the utilization of methane gas by community around the landfill with an integrated system. Utilization of methane gas as waste processing products was considered as one successful innovation in landfill management. Furthermore, this innovation becomes one of existing tourist attractions in Talangagung landfill. In addition, the development of green open space in the landfill area accompanied by various facilities also became one of the additional attractions for the visitors.

The development of conservation-based edu-tourism object at Talangagung landfill is deliberately conceptualized and carried out flexibly to optimize the use of available resource potential. Of course, it will or may also affect ecological considerations. Because the phenomenon of emerging ecological problems may also have an impact on the disruption of economic and social order. The alternative and effective way to avoid such problems is to integrate conservation education at every stage of the edu-tourism landfill development process. This must be set from the beginning through local policy products, so that the implementation process of development from the beginning to end of the landfill management will be consistent and integrated with environmental conservation education. This concept offers the implementtation of anticipatory environmental policy and cross - sectoral conservation policy at the local district or municipal level.

The process of conservation education in the landfill is very necessary to do. It serves as a learning material for visitors related to the importance of environment sustainability for human life. Educational institutions have very important role in preparing professionals and technicians in the environment field, including waste management. Therefore, cooperation between educational institutions and landfill managers is very important to be established. Some developing countries that invest in environmental education and research have enjoyed positive impacts from such investments as having clean cities and changing people's assumptions on environmental workers by putting them at a high level.

CONCLUSION

Respondents showed a good opinion on the knowledge, action, perception, and attitude of landfill managers toward landfill management programs as edu-tourism destination. It was indicated by the average Likert score of the observed indicator being in the 'high level' category. The establishment of Talangagung landfill as an edu-tourism destination also had been supported by community around the landfill. Synergy and cooperation between landfill managers and community was one of the key to support the success and sustainability of edu-tourism program in Talangagung landfill.

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