Analysis of Farmers’ Perception and Attitudes of Water Quality in Margodadi Embung, South Lampung

Tastaptyani Kurnia Nufutomo¹, Firdha Cahya Alam²

¹ Environmental Engineering, Institut Teknologi Sumatera, Lampung Selatan, Indonesia
² Environmental Engineering, Institut Teknologi Sumatera, Lampung Selatan, Indonesia

Correspondent e-mail: tastaptyani.kurnia@tl.itera.ac.id

Abstract. Margodadi Embung (retention basin) is water pond that was designed for irrigation and conservation which is located in South Lampung, Indonesia. This Embung is surrounded through numerous farm fields, consisting of the cassava plant, corn plants, palm trees, and paddy fields. This research was aimed to know the farmers’ perception and attitudes of water quality in Margodadi Embung, South Lampung. Sampling was conducted using random sampling on farmers’ around the Embung, with the parameter of respondent profile, farming attitudes, knowledge about the Embung, and perception of the Embung water quality. The outcomes confirmed that the farmers had been using manure and chemical fertilizers for his or her fields, and also, they wiped clean their farm animals in Embung after plowing on the farm. Most of the farmers thought that the water quality is still good and fortunately, it was proved with the DO and BOD parameters that still be permitted according to Government Regulation no 82, 2001. However, it was indicated that the knowledge of the farmers of water quality will influence the perception and attitudes of the farmers towards the Margodadi Embung.

Keywords: Embung, Perception, Attitudes, Water, Quality

1. Introduction

Embung or retention basin are pond of water that changed into made specially for irrigation use and water conservation area. Embung can consists of pollution that encompass nutrients, sediments, natural remember as the principle supply of pollutants withinside the waters [1]. Margodadi Embung (Figure 1) is one of the Embung that's positioned in South Lampung, Indonesia. This Embung changed into surrounded with the aid of using agricultural area, which includes paddy fields, corn plants, and palm trees.
Farmers of the Embung generally use manure and chemical fertilizer for his or her agricultural fields, and it's going to waft via runoff whilst the watering manner conducted [2]. Residues of fertilizer that circulate the Embung may be the supply of vitamins for aquatic biota, in particular aquatic plants [3], in order that eutrophication manner may be passed off withinside the Embung. Afterwards, the attitudes and perception of the farmers around the Embung can be possibly influence the water quality of the Embung. Therefore, research about the farmers’ perception and attitudes of water quality in Margodadi Embung, South Lampung are important to conduct as a baseline for government regulation to the farmers.

2. Method

2.1 Questionnaire

Sampling was conducted using random sampling on respondent that conducting activities around the Embung, especially farmers with the parameter of respondent profile, farming attitudes, knowledge about the Embung, and perception of the Embung water quality. The questionnaire then were analyzed using correlation analysis with R software.

2.2 Water Sampling

Water samples had been taken from Margodadi Embung from 3 sampling locations: 1) inlet, 2) center, and 3) outlet. Grab sampling techniques had been used the use of one hundred mL sterile bottle. The samples had been positioned into the icebox. Tests of DO, BOD, and COD had been performed as initial repute of the water fine of the Embung.

3. Results and Discussion

3.1 Respondents Profile

Random sampling were conducted to farmers and other people around the Embung. The profile of the respondent can be seen in Table 1.

| No | Respondents Profile        | Quantity |
|----|----------------------------|----------|
| 1  | Farmers and Cattlement     | 16       |
| 2  | Others                     | 15       |

From the table, the farmers and cattlement were dominated around the Embung. The farmers themselves were cultivating rice, corn, cassava, and rubber. The cattle that they have were cow, goat, and duck. With education profile of the respondents were mostly primary and high school.
3.2 Attitudes

The attitudes of the farmers towards the Embung were identified. The respondents from the farmers were using chemical and organic fertilizer, with frequency of watering between once and twice a week. This using of fertilizer is normal according to In addition, 6 of the cattlements respondents said that they cleaned the cattle in the Embung everyday.

3.3 Knowledge

About the knowledge of the Embung, the respondent mostly said that they know about the using of the Embung. It can be seen in Table 2.

| No | Respondents Answers | Total Answers |
|----|----------------------|---------------|
| 1  | Irigation             | 5             |
| 2  | Fishing Place         | 9             |
| 3  | Water Storage         | 3             |
| 4  | Clean the cattle, washing, bath | 7 |
| 5  | No use                | 7             |

From the respondents mostly said that the EMbung is used for fishing place, clean the cattle, and even had no use.

3.4 Perception

The perception of the respondents can be seen in Table 3.

| No | Respondents Answers | Total Respondents |
|----|----------------------|-------------------|
| 1  | Bad                  | 4                 |
| 2  | Normal               | 9                 |
| 3  | Good                 | 10                |
| 4  | Very Good            | 3                 |
| 5  | Didn’t Know           | 5                 |

For the importance of the EMbung, most respondents also said that the Embung is important for them (table 4). This perception if compared to research in Yamuna River, India [4], found that the respondent that dependen on the water will not pollute the water.

| No | Respondents Answers | Total Respondents |
|----|----------------------|-------------------|
| 1  | Not important        | 4                 |
| 2  | Normal               | 4                 |
| 3  | Important            | 12                |
| 4  | Very Important       | 7                 |
| 5  | Didn’t Know           | 4                 |
Based on the Table 3, it can be conclude that the most of the respondent think that the water quality of Embung were still good. When it compared with the BOD and DO test, it was also showed the good results. The water quality of the Embung on parameters of DO and BOD can be seen in Table 5.

Table 5. Water Quality of Embung

| No | Parameter | Sample 1 (outlet) | Sample 2 (center) | Sample 3 (inlet) | Quality Standards |
|----|-----------|-------------------|-------------------|------------------|------------------|
| 1  | DO (mg/L) | 3                 | 3                 | 3                | 3                |
| 2  | BOD (mg/L)| 6                 | 4                 | 5                | 6                |

Based on table 5, the quality of the Embung according to DO and BOD standards were still permissible for water quality of Embung.

3.5 Correlation Test

For the correlation check between Knowledge of the Farmers and the Perception of the Farmers closer to the Embung have been checked the usage of Pearson's product-second correlation. The outcomes confirmed that the correlation is 53% with importance p-value = 0.002 < 0.05. It approaches that the information of the farmer approximately the Embung have a medium correlation with the notion of the Farmers. If in comparison to the studies in Mashavera River Basin, the notion of the farmers to the water first-rate and perceived dangers can replicate the reputation of the environmental and social conditions [5]. So, if we need to boom the notion and attitudes of the farmers, the information and education to the farmer to be extra conscious to the Embung. Besides that upgrades of aesthetics along the Embung may be taken into consideration to advantage extra recognition from the public [6].

4. Conclusion

From the outcomes, it may be concluded that the water pleasant of Embung primarily based totally on DO and BOD parameters had been nevertheless good, and the notion of the Farmers across the Embung additionally stated that the fine of the water had been good. However, if the attitudes of the farmers that also smooth the cattlements each day within the Embung and the usage of excessive quantity of fertilizer, it may be in all likelihood affected the fine within the future.

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