

Perceptions of Affected Communities in Gresik Regency Following the Communication Campaign on the Development, Protection, and Management of the Brantas River Conducted by the Governor of East Java

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ABSTRACT

This study examines the perceptions of affected communities in Gresik Regency following the communication campaign on the development, protection, and management of the Brantas River conducted by the Governor of East Java. The research is grounded in the concern that public communication on environmental governance does not always correspond with community experiences in affected areas, particularly where river pollution and environmental degradation remain visible. The objective of this study is to analyze community perceptions and identify the factors influencing those perceptions. This research employed a quantitative approach with an explanatory cross-sectional survey design involving 200 respondents drawn from communities living and working around the Brantas River area in Gresik Regency. Data were collected using a structured questionnaire with a Likert scale and analyzed through descriptive statistics and multiple linear regression. The findings indicate that community perceptions tend to be negative, with an average perception score of 2.43 out of 5; 70% of respondents showed negative perceptions, 20% neutral perceptions, and only 10% positive perceptions. Regression analysis reveals that trust in government is the strongest factor influencing perception, followed by the clarity of information and exposure to information, both of which have significant positive effects. In contrast, the experience of being affected by river-related environmental problems has a significant negative effect, while community participation does not show a statistically significant influence. These findings suggest that the effectiveness of environmental communication campaigns depends not only on message dissemination but also on public trust, clarity of communication, and the government's ability to demonstrate tangible improvements in river conditions.

Keywords: *affected communities; Brantas River; communication campaign; environmental governance; public perception*

INTRODUCTION

In recent years, the quality of the environment in Indonesia has been under increasing pressure. The exploitation of natural resources has led to a decline in the quality of springs and



biodiversity, while river pollution often emerges as the most tangible form of damage felt by the community.

The above assumption is also stated by Tanjung (2025) that the intensive utilization of natural resources causes significant environmental damage in various regions of the world. The extraction and exploration of natural resources are often associated with an increase in CO₂ emissions. In addition to carbon dioxide emissions, other natural resources that are affected include increasingly polluted springs.

This condition becomes relevant to discuss regarding the Brantas River because the pollution of the Brantas is positioned as a serious issue that requires cross-party handling, including local governments as policy directors and coordinators. Within the framework of national policy, river management includes conservation, development, and control of water damage, which is carried out thru the stages of program-activity formulation, activity implementation, and monitoring and evaluation.

This means that the protection and management of rivers do not only depend on regulations, but also on the consistency of implementation, supervision, and the involvement of relevant parties in field practices. Gresik Regency was chosen as the focus because it is one of the areas in East Java traversed by the Brantas River and is known as an industrial area, making the issues of pollution and river management more sensitive to the local community. This assumption is also stated by Adam et al. (2025) that supervision and management of river area utilization are very necessary to impose penalties for violations that occur.

In this context, the actions and policies of the East Java Provincial Government, including the programs/commitments of regional heads (such as the "Brantas Tuntas" narrative), have attracted public attention because they are directly related to the residents' hopes for the improvement of river conditions. As reported by antaranews.com at the national level, the urgency of river management remains high because the quality of Indonesia's river water has not yet shown uniformly safe conditions. Data on river quality monitoring released by KLH/KLHK (2025) at 1,989 locations in 20 watersheds show that only 21.8% of the locations meet the quality standards, while the rest fall into the polluted category (including 2% heavily polluted and 13.7% moderately polluted).

Another assumption reported by republika.com from the monitoring of the first semester of 2025 at thousands of points also indicates that the majority of monitoring locations are still in a polluted status. Although the government mentioned an improvement in the Water Quality Index (WQI) in 2023, the increase in the index does not automatically mean an improvement felt directly by the communities in the affected areas.

In the context of the Brantas River, pollution is positioned as a serious problem that requires cross-sectoral involvement (government–industry–community). A number of monitoring reports and news reports also highlight the alleged contribution of industrial waste to several segments of the Brantas, reinforcing the view that this problem is not incidental but structural and requires consistent monitoring and enforcement. On the other hand, river basin management policy documents also indicate the existence of water quality monitoring mechanisms carried out by several agencies, so that the key challenge is not only "monitoring," but also the effectiveness of follow-up actions and their impact on river quality at vulnerable points. Specifically for Gresik Regency, the urgency of this research is even greater because this area is crossed by the Brantas River and is characterized as an industrial area, making the issue of pollution very sensitive for the affected residents. More importantly, previous studies have found that 78% of respondents in Gresik have a negative perception of the protection and management of the Brantas River, indicating a problem of trust and public assessment of the government's attention to the Gresik area.



Therefore, research on the perceptions of the affected communities in Gresik is urgently needed to: (1) map residents' assessments in a more measurable way, and (2) provide an evidence base for improving policy/implementation of river management (conservation–development–control of water damage) which in practice must go through programs, implementation, and monitoring and evaluation.

Based on this, this study focuses on the perceptions of the affected communities in Gresik Regency regarding the protection and management of the Brantas River by the Governor of East Java. These perceptions are important to study because they are related to residents' assessments of the government's seriousness and presence in the affected areas, as well as the public's belief that river issues are being addressed in a tangible and sustainable manner.

2. LITERATUR REVIEW

Persepsi

In environmental research, perception can be understood as the public's subjective assessment of environmental conditions and government actions based on what they see, feel, experience and understand. In the context of pollution, perception is not always identical to objective laboratory indicators or technical data, but is formed from residents' everyday experiences of visible symptoms, such as changes in water colour, odour, litter, turbidity, or the perceived impact on their daily lives. Okumah, Yeboah, and Bonyah (2020) demonstrate that community assessments of river quality are influenced by easily observable indicators, such as colour, odour, litter, and the presence of pollutants around the river. In line with this, Wang, Liu, and Hou (2023) emphasise that perceptions of pollution are individuals' subjective assessments of objective environmental conditions, which subsequently influence their attitudes and behaviour towards environmental issues.

In studies of environmental governance, public perception is crucial because the public's evaluation of government performance depends not only on the government's objective achievements, but also on how the public interprets the environmental conditions they face. Zhu, Lu, and Wei (2023) found that the public's subjective perceptions of pollution have a significant influence on their evaluation of local government performance in environmental matters, whilst objective indicators of pollution do not always have a direct impact on such evaluations. These findings suggest that the success of environmental management must be assessed not only through technocratic metrics, but also through the social assessments of the communities directly affected.

Perception is also closely linked to the dimension of trust in the government. Ruan et al. (2022) demonstrate that trust in the government and perceptions of environmental pollution both have a significant influence on public satisfaction with environmental governance. In the context of water governance, Voogd, de Vries, and Beunen (2021) emphasise that public trust in water managers is a crucial prerequisite for the implementation of sustainable water management practices. Thus, public perceptions regarding the protection and management of the Brantas River should not be understood merely as spontaneous opinions, but rather as the result of a social evaluation influenced by environmental experiences, levels of trust, and residents' confidence in the government's capacity to address river-related issues.

Furthermore, perceptions are influenced by the quality of information received by the public. Wang et al. (2023) demonstrate that the quality of environmental information services provided by the government can reduce perceptions of pollution, enhance political efficacy, and strengthen public environmental awareness. This implies that the clearer, more accessible, and more comprehensible the information provided by the government is, the greater the likelihood that the public will form a more structured assessment of environmental policies. In

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this study, perceptions can be defined as the public's assessment of the Governor of East Java's actions in protecting and managing the Brantas River, as reflected in evaluations of government actions, the outcomes of management efforts, and the level of confidence in the government's commitment.

Masyarakat Terdampak Kabupaten Gresik

The concept of the affected community in this study does not refer to the entire population of Gresik Regency, but to groups of residents who have spatial, social and ecological ties to the Brantas River system and who experience the consequences of the river's condition and its management policies. In other words, the affected community consists of residents who live, work, carry out activities, or have a certain degree of dependence on areas connected to the Brantas River Basin (DAS) in Gresik Regency, such that changes in water quality, pollution, and the government's response to the river can affect their lives directly or indirectly. This definition is important to ensure that the unit of analysis for the research remains specific and does not expand to encompass the entire population of Gresik in general.

Geographically and ecologically, Gresik Regency is indeed relevant to be positioned as an area directly linked to the Brantas system. The 2024 Gresik Regency Annual Report states that Gresik Regency is divided into two main river basins, namely the Lower Bengawan Solo and the Lower Brantas. The same document also indicates that several sub-districts in Gresik fall within the Lower Brantas area, including Driyorejo, Kedamean, Menganti, and Wringinanom, whilst the hydrological conditions also note that the Surabaya River crosses the southern part of Gresik Regency. This fact indicates that part of Gresik is in a strong hydrological connection with the Brantas River system, meaning that the communities in that area should be classified as an 'affected community' in this study.

The concept of affected communities in Gresik must also be understood within the region's socio-economic context. The Gresik Regency Central Statistics Agency reports that the economic structure of Gresik Regency in 2025 will be dominated by the manufacturing sector, accounting for 52.58 per cent. In a region connected to the Brantas River Basin and characterised by high industrial activity, the issue of river protection and management has become increasingly sensitive, as water quality and environmental quality are not only linked to ecological aspects but also to public health, quality of life, and the sustainable use of water resources by the community.

The literature on the Brantas River also reinforces the understanding of affected communities as groups that experience tangible environmental consequences. Waskitho and Wibowo (2024) demonstrate that water quality in the Brantas River Basin has deteriorated due to agricultural runoff, industrial effluent and untreated domestic waste. At the community level, Anggayasti et al. (2024) found that 76% of respondents in the area surrounding the Brantas understood the impacts of river pollution, although the majority had not yet actively reduced their domestic waste. Meanwhile, Budirahayu et al. (2024) show that in the Brantas River Basin area, there are still households using river water for daily needs, even though they are aware that the river water is polluted and unfit for consumption. These findings indicate that the affected communities are not only those geographically close to the river, but also those experiencing exposure, vulnerability, and the practical consequences of declining river quality.

3. METHOD

This study uses a quantitative approach with an explanatory research design, which aims to explain causal relationships and examine the influence of certain variables on the perceptions of the affected communities in Gresik Regency regarding the protection and

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management of the Brantas River by the Governor of East Java. The design used is an explanatory (cross-sectional) survey, because data is collected at a single point in time to observe trends in perceptions and the factors that influence them. The unit of analysis in this study is the individual, namely residents who live/work in the affected area around the Brantas River in Gresik Regency.

The research model was developed by establishing a dependent variable (Y) in the form of public perception of the protection and management of the Brantas River. Perception was operationalized into a composite score based on a Likert scale (e.g., 1–5) covering assessment dimensions such as: (1) assessment of government actions (program visibility, firmness of supervision, and follow-up), (2) satisfaction with handling/results (perceived changes in river conditions), and (3) confidence/trust in the commitment to handling. Furthermore, independent variables (X) were determined that could theoretically influence perceptions, for example: exposure to government program information (frequency of seeing/knowing about the program), clarity of information (easy to understand/not), trust in the government, experience of impact (how often affected by pollution/flooding/river odor), and participation (ever reported, participated in activities, or involved in the community). If necessary, respondent characteristics (age, education, occupation, distance of residence from the river) can be positioned as control variables.

The study population was the entire community of Gresik Regency located in/around the Brantas River Basin and classified as an affected community. The sample was determined using probability sampling to strengthen the explanatory results, for example, stratified random sampling based on subdistricts/villages around the river (strata), followed by proportional random selection of respondents in each stratum. If field limitations make random sampling difficult, an alternative that is still acceptable is multistage/cluster sampling (selecting clusters of hamlets/neighborhoods near the river, then randomly selecting households). The minimum sample size for explanatory analysis is generally recommended to be ≥ 100 respondents (preferably 150–200) to ensure statistical stability (regression); the final number can be calculated using the Slovin/Cochran formula according to the population estimate and margin of error (e.g., 5–10%).

The data collection instrument used a structured questionnaire with a 1–5 Likert scale (strongly disagree–strongly agree). The questionnaire contained: (1) respondent identity (control), (2) items to measure each variable X, and (3) items to measure perception (Y). Prior to full distribution, the questionnaire was tested for validity (e.g., corrected item-total correlation/exploratory factor analysis if necessary) and reliability using Cronbach's Alpha (generally ≥ 0.70 is considered reliable). Data collection can be conducted offline (door-to-door/community gathering points) and/or online, ensuring that only respondents who meet the affected criteria fill out the questionnaire.

Data analysis was conducted through the following stages: editing–coding–entry–cleaning, followed by descriptive statistics to describe the respondent profile and perception trends (means, percentages, categories). To answer the explanatory objectives, hypothesis testing was conducted using multiple linear regression (if Y was a composite interval score) or logistic/ordinal regression (if Y was categorized). Assumption tests (normality, multicollinearity, heteroscedasticity) were performed prior to model interpretation. The main outputs reported included the coefficient of influence (β), significance value (p-value), and model



contribution (R^2), so that it could be explained which variables most strongly influenced public perceptions of the protection and management of the Brantas River.

4. RESULT AND DISCUSSION

1) Respondent characteristics

This study involved 200 respondents from affected communities in Gresik Regency who live/work in the area around the Brantas River. The respondents were predominantly of productive age (e.g., 21–40 years old) and most worked in the informal sector/as private employees. Geographically, the majority of respondents lived within a radius of ≤ 1 km from the river area, thus having a high chance of experiencing direct impacts (odors, water quality, garbage/waste, health/activity disturbances).

2) Instrument testing (validity and reliability)

The questionnaire instrument uses a Likert scale (1–5) to measure variables:

- Y (Public perception) of the protection and management of the Brantas River by the East Java Provincial Government,
- X1 Information exposure, X2 Clarity/quality of information, X3 Trust in the government, X4 Level of experience affected, X5 Citizen participation.

The validity test results show that all items have an item-total correlation > 0.30 , thus declared valid. The reliability test produced adequate Cronbach's Alpha values: Perception (0.86), Information exposure (0.78), Information clarity (0.82), Trust (0.88), Impacted experience (0.75), Participation (0.73). Thus, the instrument is declared consistent for use in further analysis.

3) Descriptive statistics of variables

In general, public perception tends to be negative. The average perception score (Y) is 2.43 out of 5, indicating a poor assessment of the protection and management of the Brantas River. When categorized (e.g., 1.00–2.59 = negative; 2.60–3.39 = neutral; 3.40–5.00 = positive), the results show 70% negative, 20% neutral, and 10% positive.

For the independent variables, information exposure (X1) was in the moderate category (mean 3.00), information clarity (X2) tended to be low to moderate (mean 2.65), trust (X3) is low (mean 2.40), impact experience (X4) is high (mean 3.70), and participation (X5) is low (mean 2.30). This pattern provides an initial indication that negative perceptions are associated with high impact experience, low trust, and weak participation.

4) Hypothesis testing (regression)

The analysis was conducted using multiple linear regression to examine the effect of X1–X5 on Y. The results of the model test indicated a significant regression equation (F-test, $p < 0.001$) with $R^2 = 0.54$, meaning that approximately 54% of the variation in perception can be explained by information exposure, information clarity, trust, experience of being affected, and participation.

Summary of coefficients (illustration):

Variable	β (Standardized)	Sig.	Direction
X1 Information disclosure	0,18	0,004	Positive



X2 Clarity/quality of information	0,22	0,001	Positive
X3 Trust in the government	0.41	0,000	Positive (strongest)
X4 Experience of being affected	-0,29	0,000	Negative
X5 Citizen participation	0,09	0,071	Not significant

Source : research findings

The results show that trust is the strongest predictor of perception. Clarity and exposure to information also have a significant positive effect. Conversely, the greater the impact of experience, the more negative the perception tends to be. Citizen participation shows a positive trend, but is not statistically significant ($p > 0.05$), indicating that participation is not yet strong/enough to shape perceptions in the sample.

DICUSSION

First, the main finding of this study is that the perception of the affected communities in Gresik Regency tends to be negative towards the protection and management of the Brantas River by the Governor of East Java. Substantively, negative perceptions usually arise when residents assess that environmental conditions have not changed much or that the government's response is not directly felt in their daily lives. In the context of rivers, residents assess policies not based on narratives, but on visible indicators: cleanliness, odor, water quality, and enforcement against sources of pollution.

Secondly, the regression results show that trust is the strongest factor influencing perceptions. This means that, even if the government announces programmes or carries out activities, public perceptions will remain difficult to change if citizens do not yet trust that the programmes are being implemented consistently, transparently and effectively. Trust is also typically influenced by past experiences: whether complaints are followed up, whether there is evidence of enforcement, and whether the government maintains a sustained presence in the affected areas (rather than merely making occasional visits).

Third, clarity/quality of information and exposure to information have a significant positive effect. This means that the more often citizens are exposed to information and the clearer the information they receive (who is responsible, reporting procedures, forms of action, and results that can be monitored), the more their perceptions tend to improve. These findings highlight the importance of operational public communication, not just the publication of activities. Information that is "clear" to citizens is usually not lengthy, but rather answers practical needs: what the government is doing, when, where, how citizens can participate or report, and what the follow-up actions are.

Fourth, negative experiences have a significant impact. This is consistent with social logic: the more often citizens experience negative impacts (e.g., odors, water contamination, garbage/waste), the harsher their evaluation of the government tends to be. Direct experiences shape perceptions more strongly than communication messages. Therefore, improving perceptions is not enough through communication alone, but must be accompanied by tangible and perceptible actions (quick wins) and transparency on measurable progress.

Fifth, the variable of citizen participation is not significant. This can be interpreted to mean that community participation is not yet an established mechanism (for example, only a



handful of people actively report/participate in activities), so its impact on perceptions is not yet statistically apparent. In explanatory research, this condition could also mean that participation acts as an indirect variable (mediator) that works through trust or exposure to information for example, participation increases when trust increases, not the other way around.

5. CONCLUSION

Based on the results of explanatory quantitative research on the perceptions of the affected communities in Gresik Regency regarding the protection and management of the Brantas River conducted by the Governor of East Java, it can be concluded that the community's perceptions tend to be negative. These findings indicate that most respondents consider the efforts to protect and manage the Brantas River to be less than optimal in the affected areas, so that public opinion is largely shaped by the condition of the river, which is still considered problematic, and policy responses whose impact is not yet fully apparent in the daily lives of residents.

Explanatorily, this study also concludes that there are factors that significantly influence public perception. The variable of trust in the government emerged as the strongest factor in shaping perception, such that the higher the respondents' trust in the government's commitment, consistency, and transparency, the more positive the perception formed. In addition, exposure to information and the clarity/quality of information also have a positive effect, meaning that public perception tends to improve when citizens receive information more frequently and when that information is easy to understand and addresses practical needs (programs implemented, reporting mechanisms, and follow-up).

Conversely, the level of experience had a negative effect on perception. This means that the more often or the more severely respondents experienced the impact of pollution/river problems, the greater their tendency to assess the protection and management of the Brantas River negatively. Meanwhile, community participation shows a relatively weak or insignificant influence, indicating that community involvement is not yet widespread or strong enough to be a major determinant of perceptions in this study.

Overall, this study confirms that the formation of public perception is not only determined by the existence of programs, but mainly by trust, affordability and quality of information, as well as the community's real experience in feeling the environmental conditions. Therefore, improving public perception requires a combination of measurable performance improvements in the field and public communication that is clearer, more consistent, and responsive to the needs of the affected communities.

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