

The impact of Jangari reservoir tourism on environmental pollution

Arfiyana Destaria Tarmizi ¹, Hertien Koosbandiah Surtikanti ^{2*}

¹ Universitas Pendidikan Indonesia; arfiyanadestariat@gmail.com

² Universitas Pendidikan Indonesia;

* Correspondence: hertien_surtikanti@yahoo.com

Received Date: June 12, 2023

Revised Date: July 29, 2023

Accepted Date: July 29, 2023

Cite This Article:

Tarmizi, A. D., & Surtikanti, H. K. (2023). The impact of Jangari reservoir tourism on environmental pollution. *Asian Journal of Toxicology, Environmental, and Occupational Health*, 1(1), 1-8. <https://doi.org/10.61511/ajteoh.v1i1.2023.139>



Copyright: © 2023 by the authors.

Submitted for possible open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>)

Abstract

The purpose of this research is to learn information about the effects of Jangari reservoir tourism on the Environmental Pollution Surrounding Bobojong Village. This study is conducted on the Jangari Reservoir Located In Bobojong Village, Mande District, Cianjur, West Java. Samples in the study include West Java LLASDP employees, tourist conscious groups, bargas owners, Floating Net Cage (KJA) owners, tourists and other communities. The sampling technique used is purposive sampling. This research conducted by observation to the location, ingrate, and interview of the respondents. The questionnaire used consisted of 11 questions in the form of multiple choice and stuffing. The data of further research is analysed in a qualitative descriptive way that aimed at describing the quality of the findings based on the study of the references used. The result of this research shows that even though there is not much visible environmental pollution, indications of environmental pollution are already visible, marked by the presence of piles of garbage at several points, styrofoam waste in the waters of the Jangari Reservoir, boat traffic activity in the waters of the Jangari Reservoir, and water hyacinth growing around it. waters to cover the water surface of the reservoir. Waste management in Jangari Reservoir does not carry out 3R (Reuse, Reduce, Recycle), waste management has involved local communities and the government but the implementation has not been maximized because it is not carried out routinely.

Keywords: environmental conditions; impact of tourism activities; Jangari reservoir; waste treatment

1. Introduction

The Jangari reservoirs is one of the world's leading tourist facilities in Bobojong district, Mande district, West Java ([Luckyardi et al., 2021](#)). The tourists who visit the Jangari reservoirs come from inside and outside cisponsor districts. Tourists visiting the Jangari reservoirs work out such as by boat, fishing, camping, savoring freshwater fish in floating establishments, and enjoying the natural edge of a reservoir. Not only are these used for recreational purposes but they are used as a livelihood by setting up Floating Net Cage (KJA), as a place to raise freshwater fish such as the Nile tilapia and the goldfish. The activities carried out by tourists can easily produce sewage, such as those from food-packaging, food waste, as well as solar effects from boat use, and the feeding of food-grown fish from pelae can affect the conditions of the water reservoir of the Jangari ([Igwe et al., 2022](#)). The resulting waste comes not only from tourist activity visiting the Jangari reservoir, but communities living near the Jangari reservoir take part in domestic sewage production, such as dishwater, soapy water, fecal water, food leftovers, and daily requirement residue.

The higher potential within an ecotourism region will significantly impact local social and economic activities, such as those in the community's economic activity and

neighborhood hygiene levels. One visible impact is the effect on the environmental aspect that causes environmental pollution. Environmental pollution in the 1997 UU RI Number 23 is the introduction or inclusion of living things, substances, energy, and other components into the environment by human activities that make the environment unsustainable (Pyananjung & Rianti, 2018).

Contamination that can occur in Jangari reservoir tourism is water pollution, the quality of water affects human health, this is because it is a media for spreading diseases or called waterborn diseases such as diarrheal diseases, hepatitis a, cholera, taeniasis, and ascariasis. From the foregoing, the purpose of this article was to learn information about the effects of Jangari reservoir tourism On The Environmental Pollution Surrounding Bobojong Village, Mande District, West Java Province. Thus, the benefit of writing this article is to provide information on the impact of Jangari reservoirs' travel on environmental pollution with environmental conditions, the impact of tourist activities, and the treatment of sewage on the Jangari reservoir (Suyasa, 2015).

2. Methods

This research is conducted on the Jangari Reservoir Located In Bobojong Village, Mande District, Cianjur, West Java (Figure 1). Samples in the study include West Java LLASDP employees, tourist conscious groups, bargas owners, Floating Net Cage (KJA) owners, tourists and other communities. The sampling technique used is purposive sampling according to the need for research and the availability of samples in the field. The research conducted by observation to the location, ingrate, and interview of the respondents. The questionnaire used consisted of 11 questions in the form of multiple choice and stuffing. The data of further research is analysed in a qualitative descriptive way that aimed at describing the quality of the findings based on the study of the references used.

Figure 1 shows that the Jangari Reservoir is one of the Citarum DAS PPK operational targets because the position of the Jangari Reservoir is in sector 12. Waste cleaning activities in the Jangari Reservoir are carried out in collaboration with the Citarum Harum Sector 12 Task Force and the Cianjur Regency Government to deal with water hyacinth, marine cage problems floating nets, industrial waste, domestic waste, and critical land to restore the water quality of the Cirata Reservoir.

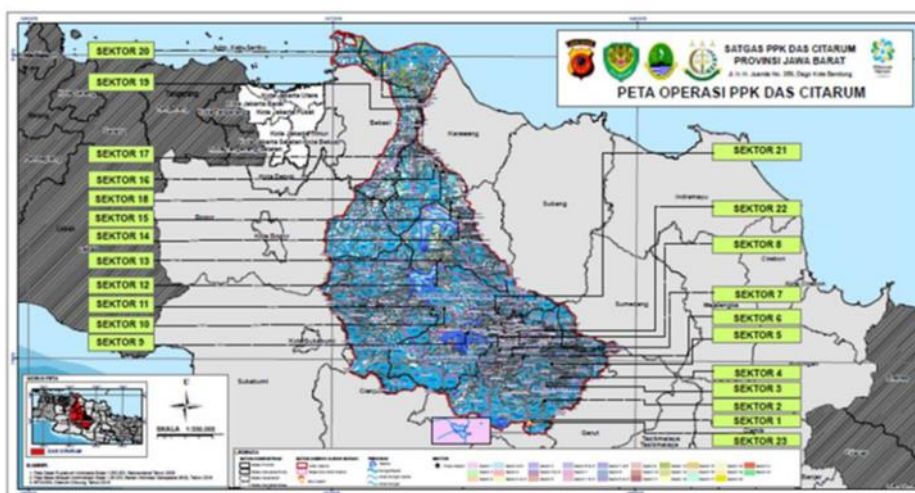


Figure 1. Research location
(Source : Citarum Harum, 2022)

3. Results and Discussion

Reservoir Cirata which has a catch area of 603,200 Ha and an average volume of about 2,165 x 10⁶ m³ is one of the Reservoir in the Citarum river, which is located between the Saguling and the Jatiluhur Reservoir. Reservoir Jangari is one of the tourist attractions in the Cianjur district located in Bobojong Village, Mande Subdistrict, Cianjur District, West Java Province. Jangari reservoirs are used by communities around the world to raise freshwater fish such as Nile tilapia and carp by making Floating Net Cage (KJA) Figure 2.



Figure 2. Jangari Reservoir, Cianjur

The results from observation to the location, filtering, and interviews of respondents include West Java LLASDP employees, tourist conscious groups, bargas owners, Floating Net Cage (KJA) owners, tourists and other communities obtained information on the impact of the Jangari reservoir tourist activities on Figure 3.

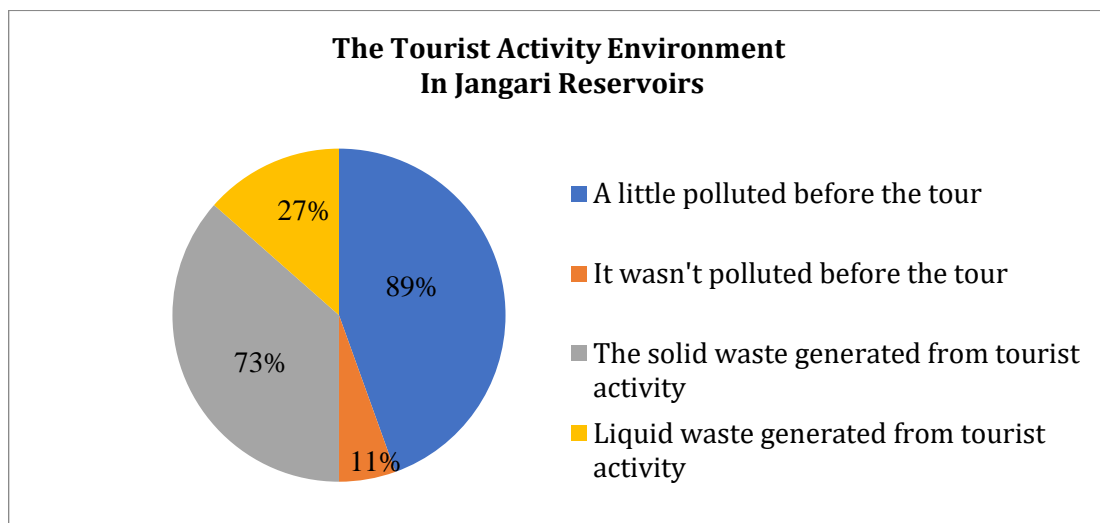


Figure 3. The Tourist Activity in The Jangari Reservoir

The environmental conditions in Jangari reservoirs are not visible to be high environmental polluting, with 88.9% of respondents stating that Jangari is slightly polluted and 11.1% said that Jangari is unpolluted. From the value of sewage produced at Jangari reservoir 27.3% of liquid waste and 72.7% of solid sewage (Figure 3). Can be seen from 1 of the sewage from Jangari reservoir waters such as the sterofom, plastic and tree branches, while sewage can be produced from domestic sewage such as the laundry detergent, soap, and fetal water produced from homes around the Jangari reservoir, in addition to the floating net homes contribute to the production of domestic waste. Apart from domestic sewage, there are goiter encils around the water of the Jangari reservoir (Figure 2), where it is not controlled or cleared at the speed of the fast goner can close the surface of the

reservoir, thereby hindering boat traffic and increasing fuel emitted by boats that would pollute the water reservoir.

According to the interview with the LLASDP employee Cirata DISHUB West Java trash (Figure 2) is a blend of trash that flows into the Jangari reservoir. When heavy rains of garbage are carried to the surface of the water in the Jangari reservoir, when garbage is not cleaned and transported to the TPS will cause a bad odor and reduce aesthetic beauty to the swift. In addition to the sterofom garbage there are gonads enclosing their boat around the river's surface, the owner of the boat enceng gondok can disrupt boat traffic when delivering passengers to the location of buoyancy restaurants, the delivery of feed from fish and fish (Riyadh et al., 2020) Sometimes even the gonads can stop boat traffic because they have to wait for it to be cleaned by groups of farmers from Floating Net Cage (KPKJA) because the cleaning of the gonads requires a larger boat to pass over the water surface covered by the gonads.

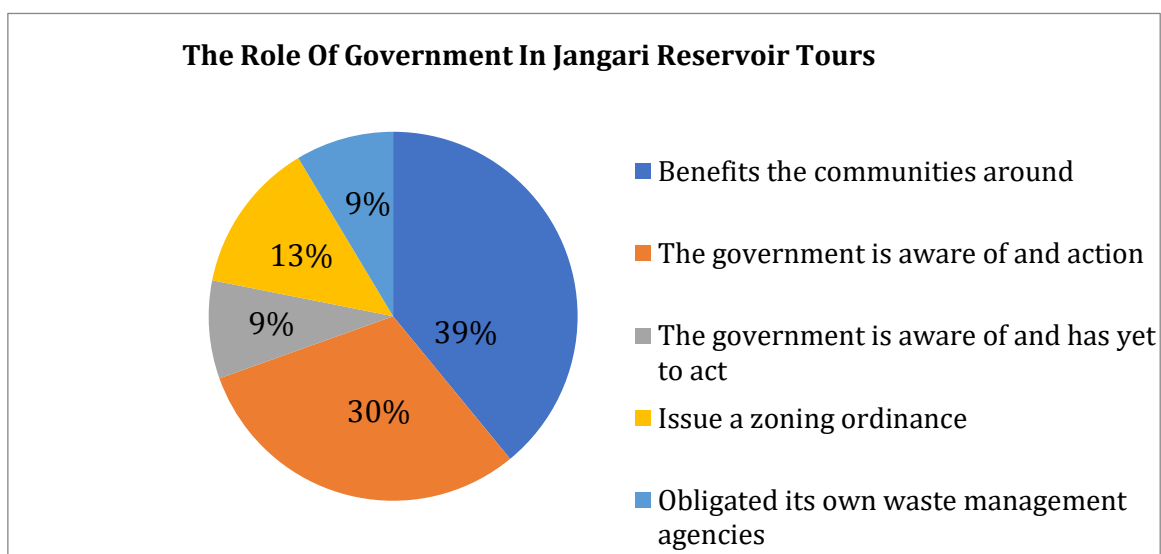


Figure 4. Public response to the role of government in Jangari reservoir Tours

The Jangari, which is used by communities around the world as a location for such freshwater fish as the nila and the carp, is made up of Floating Net Cage (KJA), and the Jangari which is used as a tourist venue for the cisponsor district. The Jangari reservoirs are conducted by a tourist conscious group that coordinates the regional tourist service and culture of the region's regional government in order to manage an entry retribution of IDR 5.000 and tourist parking management. The tourist activity to be done in a Jangari reservoir is like navigating a reservoir by boat, eating freshwater fish ata floating restaurant, or simply enjoying the natural beauty of the lake's shore (Figure 5).



Figure 4. Tours at Jangari reservoir, Cianjur

The tourist activity in the Jangari reservoir has been here for a long time, with the result of a 100% year turnaround on the Jangari reservoir, 44.4 percent more profitable and

55.6% more profitable than the cost (Figure 3). For those around the country, there are tourist activities in the Jangari reservoir that are profitable because it can open jobs so that the economy can run. [Khrisnamurti et al. \(2015\)](#) tourism activities can affect the value of people's incomes because of effortstand jobs that affect the rotation of people's economic wheels and thus promote the well-being, standard of life, social stratification of society.

Ecotourism is having a positive impact as a result of earning more from jobs in the ecotourism sector and can raise awareness of communities in order to maintain their environment by properly disposing of sewage ([Ayuningtas & Dharmawan, 2011](#)). Making ecotourism in the PLTA reservoir will create the potential for environmental change caused by overexposure ([Happy et al., 2014](#)).

Tourist activities in Jangari reservoirs can produce such high amounts of solid waste as leftovers, instant food or water packaging and liquid wastes as dishwater residues and detergent and water-fuel remains. According to interviews with the waste communities generated from the activities in the Jangari reservoir have not been managed properly, since sewage is only being dumped in the garbage can, and it even being incinerated at certain points that are not actually garbage. [Khrisnamurti et al. \(2015\)](#) travel activities can cause environments to be contaminated, public health disrupted, changes in water vegetation and damage to the aesthetics of water, reduced water change in aesthetic value.

The activity in Jangari reservoirs is done without escape from the waste produced, both in tourist and in the surrounding communities. The waste management around the reservoir is on the shoulders of the people and the government. The role of the people around the reservoir may appear to be low, but there is already a simple waste removal from woven bamboo or canisters stored in front of the stalls around the reservoir (Figure 4). Based on figure 3 of the government's role in the Jangari bank's travel of 77.8 percent, the bank's director of the planning of the development of the country's foreign exchange reserves, said. The effluent produced by the Jangari reservoir Tours when not properly treated would result in environmental pollution. [Masjhoer \(2018\)](#) the food stalls are among the manufacturers of organic and inorganic wastes on the tourist site, organic waste comes from raw foods, cardboard, paper, cardboard, whereas inorganic wastes come from wrapped bags, instant drinks, instant noodles, and snacks.

Observation has shown that the sewage produced from the Jangari reservoirs has not been disposed of in the type of water dump only in the space provided, whereas the gonads are cleaned by groups of farmers' pool of Floating Net Cage (KPKJA), and the sewage and enceng gonads are then carried by the cleaning service to the TPA Pasir Sembung Cianjur. Sewage and its mumps are not used by local communities because of such obstacles; Limited in the cost of waste treatment, limited in human resources for processing it, and enceng goiters have a high density that could not be used as a craft. The disposal of sewage produced from the activities in the Jangari reservoir and the cleaning of the reservoir from the gonads was not done on a regular basis by the janitors. Waste management should involve people, businesses, and government agencies so that treatment problems can be avoided and regular monitoring and evaluation of domestic administrators, regular reporting and related services to monitor janitors by forming field coordinator.

The information from [Citarum Harum \(2022\)](#) West Java Government has a program that was destroyed by the ministry of interior coordinator 1) critical land management; 2) industrial waste treatment; 3) farm waste management; 4) domestic wastewater treatment; 5) waste management; 6) the impulse control of space; 7) water resources and tourism management; 8) handling for Floating Net Cage; 9) law enforcement; 10) public education and empowerment 11) data management, information and public relations, and 12) research and development.

The sewage removal activity in the Jangari reservoir is done by cooperation Satgas Citarum Harum Sektor 12 and Cianjur District Government to tackle the problems of the gongs, Floating Net Cage industrial waste, domestic waste, and critical land to restore the

quality of the Cirata reservoir. Government follow-up on Jangari Reservoir Tourism activities 33.3% of respondents stated that the government issued regional regulations, 22.2% of respondents stated that agencies treat their own waste, and 11.1% of respondents stated that the government provided counseling to the community, while solutions for environmental restoration of Jangari Reservoir 66.7% of respondents stated that they carried out sewage or waste treatment, 22.2% of respondents complied with existing regulations, and 11.1% of respondents chose other (Figure 4). The results of direct observation to the Jangari Reservoir there are no signs related to the prohibition of littering, counseling activities are not carried out routinely, there are no 3R (reuse, reduce, and recycle) activities in the Jangari Reservoir tour because waste is simply burned. [Masjhoer \(2018\)](#) the burning of garbage is potentially responsible for air pollution and is adversely affected for the environment because organic garbage can be used as a compost fertilizer that can be sold to farmers or tourists so that economic benefits can be felt by management.

Health problems related to the Jangari reservoir tourist activity 22.2% of those affected by digestive problems and 72.2% of those selected by others. Public digestive disorders are due to the fact that lake water cannot be used as a source of water for consumption. According to the use of speedboat over lake water produces a drain from fuel results in a reduction in the quality of the lake's water and increased human activity can result in a coli or stool coliform that increases the risk of contamination by the lake's water. As opposed to [Fahrurazi et al. \(2018\)](#) the contaminated use of water can cause skin diseases such as itching, red spots, pain, heat, scaly skin.

Public activity around Jangari savings is 66.7% for community service service, 11.1% for waste management, and 22.2% of those selected by others. The interviews were obtained information on the efforts of the people around the world in the treatment of the sewage produced from the activities in the Jangari reservoir covers: 1) The KJA owner spends more than IDR 50/kg of feed to be used as the cost of cleaning the water hyacinth which is carried out by the Floating Net Pond Farmers Group; 2) Tourism Awareness Group (POKDARWIS) doing a reservoir cleaning using a reservoir cleaning machine, but not maximum because of the reductions incurred in the operating costs of the engine and officers; 3) Some people who have a fish restaurant business use wood waste from damaged boats as fuel for burning fish and provide solid domestic waste disposal sites in front of the restaurant. As opposed to [Garno \(2019\)](#) stated that Jangari waters, will continue to get a supply of nutrients from the KJA totaling 27,786 pieces. This continuous supply of nutrients will certainly stimulate the occurrence of "blooming" at any time; until Jangari's tourism potential becomes no longer feasible. For this reason, it is suggested that all relevant parties start thinking about forming an institution whose role is to manage the Cirata reservoir in an integrated manner so that all the potential of the reservoir can be utilized sustainably.

4. Conclusion

Tourism activities in the Jangari Reservoir can have an impact on environmental pollution which will disrupt the health of the people around the Jangari Reservoir. Even though there is not much visible environmental pollution, indications of environmental pollution are already visible, marked by the presence of piles of garbage at several points, styrofoam waste in the waters of the Jangari Reservoir, boat traffic activity in the waters of the Jangari Reservoir, and water hyacinth growing around it. waters to cover the water surface of the reservoir. Waste management in Jangari Reservoir does not carry out 3R (Reuse, Reduce, Recycle), waste management has involved local communities and the government but the implementation has not been maximized because it is not carried out routinely. Thus, the suggestions resulting from writing this article to prevent pollution in the Jangari Reservoir include; 1) Create a 3R program (Reuse, Reduce, Recycle) to handle waste generated from tourism activities in the Jangari Reservoir; 2) There needs to be more intense coordination between the local community, local government, and the central government to manage the waste generated from tourism activities in the Jangari Reservoir; 3) There is a need for

regular monitoring and evaluation by the government of environmental conditions in the Jangari Reservoir.

Acknowledgement

-

Author Contribution

-

Funding

This research received no external funding.

Ethical Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Data Availability Statement

The data is not available.

Conflicts of Interest

The authors declare no conflict of interest.

References

- Ayuningtas, D, I dan Dharmawan, A, H. (2011). Dampak Ekowisata Terhadap Kondisi Sosioekonomi Dan Sosio-Ekologi Masyarakat Di Taman Nasional Gunung Halimun Salak. *Sodality: Jurnal Transdisiplin Sosiologi, Komunikasi, dan Ekologi Manusia*, Desember 2011, hlm. 247-258
- Citarum Harum. (2022). 12 *Program rencana aksi citarum harum*. Retrived from:<https://citarumharum.jabarprov.go.id/>
- Fahrurazi., Riza, Y., & Ernadi, E. (2018). Perilaku Pengguna Air Sungai dengan Keluhan Kesehatan Kulit pada Masyarakat Sekitar Sungai Pangambangan Banjarmasin. *An Nadaa*, Juni 2018, hal. 40-45.
- Garno, Y. S. (2019). Kualitas Perairan di Muara Jangari-Waduk Cirata. *Jurnal Hidrosfir Indonesia*, 2(3).
- Happy., Sujianto., dan Sofyan. (2014). Strategi Pengembangan Ekowisata di Kawasan Waduk Pembangkit Listrik Tenaga Air (PLTA) Koto Panjang Kabupaten Kampar. *Dinamika Lingkungan Indonesia*, Juli 2014, p 97-108 Volume 1, Nomor 2.
- Igwe, E.T., Otaba, E.I., & Edem, E.C. (2022). A review of tourism impact in cross river state, *aWorld Journal of Advanced Research and Reviews*, 13(02), 274-278. <https://doi.org/10.30574/wjarr.2022.13.2.0153>
- Khrisnamurti, Utami, H dan Darmawan, R. (2015). Dampak Pariwisata Terhadap Lingkungan Di Pulau Tidung Kepulauan Seribu. *Kajian* Vol. 21 No. 3 September 2016 hal. 257 – 273.
- Luckyardi, S., Gaol, T.V.L.,Oktafiani, D. (2021). Assessment of the water quality and environmental management in jangari reservoir watershed using selected physical, chemical, and biological parameters, *Journal of Engineering Science and Technology*, 16(6), 4518-4529
- Masjhoer, J, M. (2018). Partisipasi Pelaku Usaha Pariwisata dalam Pengelolaan Limbah di Pantai Pulang Sawal, Kabupaten Gunungkidul, Yogyakarta. *Jurnal Pariwisata Terapan*, No. 2, Vol. 2, 2018.

- Pyananjung, P. A & Rianti, R. (2018). Dampak Pengembangan Ekowisata terhadap Kesejahteraan Masyarakat di Kabupaten Bengkayang: Studi Kasus Kawasan Ekowisata Riam Pangar. *Jurnal Nasional Pariwisata*, Volume 10, Nomor 1, April 2018 22 Volume 10, Nomor 1, April 2018 (22 - 38). ISSN: 1411 - 9862.
- Riyadh, Wesnawa, G. A dan Citra, P, A. (2020). Dampak Potensi Pariwisata Terhadap Kualitas Air Danau Beratan. *Jurnal Pendidikan Geografi Undiksha*. Volume 8, Nomor 1, April 2020, pp. 23-32. <http://dx.doi.org/10.23887/jjpg.v8i1.23474>.
- Suyasa, W. B. (2015). *Pencemaran Air dan Pengeolaan Air Limbah*. Denpasar: Udayana University Press.