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Revitalization of Pogar Reservoir Tourism Through Reforestation: Its Impact on Community Awareness in Climate Control

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Abstract

The function of reservoirs is crucial for storing water, especially during the rainy season. The ongoing issue at Pogar Reservoir is the barren condition of the area and the limited knowledge among the community regarding the reservoir's role in climate control. Based on these issues, efforts are needed to raise community awareness of the importance of reservoirs through revitalization activities at Pogar Reservoir. The community service method used is the Asset-Based Community Development (ABCD) approach. This service was carried out by a team in coordination with the local government. Additionally, socialization was conducted to help the community understand the proper management of the reservoir. The revitalization program was then implemented in the areas around the reservoir by planting Petai trees and others. The results of this service were appreciated by the local government and the community, with tree planting in the reservoir area, restoring the reservoir's function as a better-maintained green area, and turning it into a potential village tourism destination that supports local economic growth and small and medium-sized enterprises (SMEs). This revitalization also created job opportunities for the local community, and the previously barren reservoir area has become greener and better maintained.

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INTRODUCTION

Reservoirs are open areas that offer various benefits to human well-being, both directly and indirectly. The primary goal of reservoir construction is to manage water resources by storing excess water during the rainy season (Fauziah & Laily, 2015; Julia, 2017). With this main function, reservoirs are expected to provide optimal facilities to the community, particularly in supporting irrigation systems in agricultural areas and serving as green open spaces that also aid in climate control. Additionally, reservoir construction is an effort to preserve water sources, helping to prevent water shortages during the dry season and avoid flooding during the rainy season (Purwanto et al., 2017).

To ensure that reservoir systems function optimally, the presence of vegetation, such as trees, around the reservoir is crucial. Tree roots play a role in strengthening the soil and helping to retain

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water, ensuring that water in the reservoir remains available during the dry season. Conversely, without sufficient vegetation, reservoirs are more prone to drying out and becoming barren during the dry season. Therefore, vegetation not only maintains the environmental stability of the reservoir but also contributes to the sustainability of the reservoir's function as a stable water storage system (Budianto et al., 2023; Khoir et al., 2022).

Trees also play an important role in the water cycle. Tree roots absorb water from the soil, which is then transported to the leaves and eventually released into the atmosphere through the process of transpiration. However, if the soil's absorption capacity decreases, the water reserves that should be available during the dry season will be lost, disrupting the balance between water availability and demand. This is where the importance of reservoirs lies in maintaining this balance and minimizing the impacts of climate change, such as floods and droughts (Annisa & Yunus, 2023; Fakhrudin et al., 2023; Nurdiyanto et al., 2021).

Tunglur Village, located in Badas District, Kediri Regency, is one of the villages that heavily relies on agriculture as its primary source of livelihood. With an area of 550 hectares, Tunglur Village is surrounded by rice fields and fish ponds, and one of the key resources in the village is Pogar Reservoir. This reservoir was built to irrigate agricultural land that had experienced water shortages, but recently its function has begun to decline due to inadequate management. As a result, the area around the reservoir appears poorly maintained, which also reduces its potential as a natural tourism attraction. The revitalization of Pogar Reservoir through these strategic efforts aims to improve the reservoir's performance, ensure stable water availability, and support the agricultural sector as well as local economic development through sustainable tourism.

However, the challenges still faced in revitalizing Pogar Reservoir include the barren environmental conditions and the community's limited knowledge about the importance of reservoirs in climate control. Many residents around the reservoir are not yet aware of the importance of maintaining and optimally utilizing the reservoir, even though it has provided many benefits to them. Based on these issues, efforts are needed to raise community awareness through education and revitalization programs, similar to those successfully implemented at other reservoirs, such as Penjalin Reservoir (Sutikno et al., 2023); revitalization that revived the reservoir as a tourist destination at Tanjungan Reservoir (Janah & Legowo, 2020); Darma Reservoir (Putriady et al., 2022); and Mrica Reservoir (Alim & Santoso, 2022). Given the success of these revitalization efforts, similar efforts are necessary in the form of Pogar Reservoir Tourism Revitalization through tree planting around the reservoir to raise awareness among residents about the importance of the reservoir in climate control and to optimize the potential of Pogar Reservoir.

METHOD

This community service was carried out at Pogar Reservoir, located in Tunglur Village. Tunglur Village is situated in Badas District, Kediri Regency, East Java Province. The village covers an area of 102 km^2 and is administratively divided into eight hamlets.

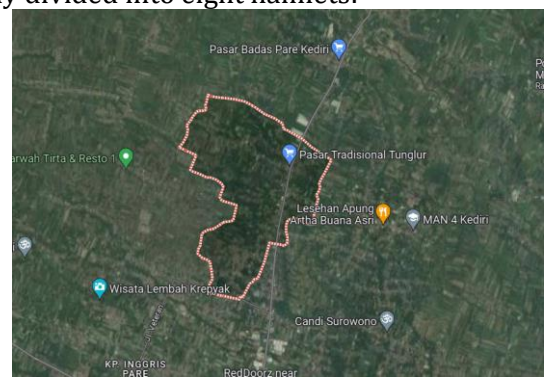

Figure 1. Map of Tunglur Village

Tunglur Village consists of dry land and agricultural rice fields. On the northern side of Tunglur Village, the Mangetan Canal river passes through, which is used for irrigating 237 hectares of rice fields. The method used in this community service is the Asset-Based Community Development (ABCD) approach. The ABCD approach is a community service procedure where the initial data

generated from observations of the subject is used to identify the problems that exist (Haris, 2015; Yuwana, 2022). Once the problems have been identified, appropriate solutions are sought through relevant actions. Below is a description of the community service steps carried out using the ABCD approach:

Step 1: Asset Mapping: Identify and map the assets owned by Tunglur Village, particularly those that can support the revitalization of Pogar Reservoir.

a. Physical Asset Identification: Inventory the physical assets around Pogar Reservoir, such as available land for reforestation, existing public facilities (e.g., access roads, seating areas, parking areas), and the physical condition of the reservoir itself.
b. Human Asset Identification: Record the skills and knowledge possessed by local residents, including farmers, reservoir managers, and community members experienced in conservation or tourism activities.
c. Social Asset Identification: Identify existing social networks and community groups, such as farmer groups, youth organizations, and religious organizations, that can play an active role in the revitalization program.
d. Economic Asset Identification: Map the local economic potential that can be developed through the revitalization of the reservoir, such as the agricultural sector, fisheries, and tourism development opportunities.

Step 2: Mobilization: Mobilize the community to actively participate in revitalization activities by utilizing the identified assets.

a. Formation of Working Groups: Form working groups consisting of representatives from various human assets, including community leaders, members of farmer groups, and local youth with technical skills.
b. Commitment and Support Mobilization: Conduct outreach and open discussions with the community and village government to gather support and commitment for the revitalization efforts. Encourage the involvement of individuals with economic or social assets to participate.
c. Action Plan Development: Work with the community to develop a clear action plan with stages of revitalization, including tree planting, reservoir facility improvements, and tourism area development.

Step 3: Implementation: Carry out revitalization activities in accordance with the action plan, utilizing local assets.

a. Reforestation and Environmental Improvement: Conduct tree planting and other vegetation around Pogar Reservoir with community involvement, particularly from farmer groups and youth. Ensure the types of trees planted are suited to local soil and climate conditions.
b. Tourism Infrastructure Improvement: Implement improvements or construction of simple tourism facilities, such as walking paths, play areas, and rest areas, using local resources and community labor.
c. Community Education and Empowerment: Implement educational programs on the importance of reservoirs in climate control and their use as a resource for tourism and the economy. Provide training to the community on how to manage the reservoir and tourism facilities sustainably.

Step 4: Sustaining: Ensure the sustainability of the revitalization program and long-term reservoir management.

a. Formation of Maintenance Teams: Form maintenance teams responsible for taking care of the reservoir and surrounding areas, including maintaining cleanliness, caring for plants, and maintaining tourism facilities.
b. Monitoring and Evaluation: Hold regular meetings to evaluate the success of the program and develop strategies to address emerging challenges. Involve the community in the evaluation process to ensure the program operates as expected.
c. Capacity Building: Provide ongoing training for the community in tourism management and environmental conservation, as well as developing other skills that can support local economic sustainability.
d. Long-Term Collaboration: Establish long-term partnerships with external parties, such as local government, NGOs, and academics, to support further development and ensure the continuation of the revitalization program.

The revitalization through tree planting by the community service team was coordinated with the local government, the Water Resources Office (PUPR), village officials, and the local community around the reservoir. This was followed by community empowerment and education on the reservoir's role in climate control, as well as the development of reservoir management structures within the community. The implementation included the planting of 56 Petai seedlings along the Pogar village reservoir, attended by 40 participants. The community service program for the revitalization of Pogar Reservoir focused not only on physical improvements but also on community empowerment and the maximization of local assets. These steps are designed to encourage active community participation and ensure the long-term sustainability of the program, ultimately bringing economic, social, and environmental benefits to Tunglur Village.

RESULTS AND DISCUSSION

Pogar Reservoir is located in Pogar Hamlet, Tunglur Village. The reservoir is situated within a residential area. The main livelihood of the residents around the reservoir is farming. Economically, the community around the reservoir can be considered underprivileged. Many of them do not have work when the condition of the fields is good. In the early days when the reservoir was still bustling, it greatly helped the economy of the surrounding community. Many residents earned their income around the reservoir. However, this did not last long. As the reservoir became quieter and eventually inactive, many of the residents' economies declined.

Tunglur Village is bordered to the east by Sembung Village, to the north by Sambiresik Village, to the west by Pogar Village, and to the south by Banaran Village. Tunglur Village has several tourism potentials that are rarely known, such as Pogar Reservoir. Pogar Reservoir is an asset owned by the Public Works and Public Housing (PUPR) Department of Kediri Regency. This reservoir was previously farmland cultivated by local residents. All the residents knew that the land would eventually be turned into a reservoir. Many residents proposed that the land should be developed as a reservoir. After several years of hearing these proposals, the PUPR Department carried out the normalization of the land to turn it into a reservoir.

The normalization of Pogar Reservoir was intended to ensure the availability of irrigation water for the surrounding rice fields, as well as to be used as a village tourism site, which could foster the growth of local MSMEs (Micro, Small, and Medium Enterprises). The normalization of the reservoir, which cost around IDR 1.3 billion, initially had very promising progress. Many residents from both the local area and beyond came to visit the reservoir, mostly out of curiosity about the condition of the reservoir. This increased the income of the local residents, helping to support household economies (Nurlaela et al., 2021; Rahmayanti & Pinasti, 2018). However, this did not last long. The once beautiful reservoir with excellent water quality and a spacious area quickly deteriorated. The residents who had been visiting disappeared. The water began to recede, and the reservoir became neglected. This was due to a lack of awareness among the community and the village authorities, who had been entrusted with maintaining the reservoir's potential. The active period of the reservoir lasted only two years. The reservoir was often used by unscrupulous residents for fishing, and there was a lack of awareness among the local villagers and youth to care for the potential that had been inherited from the PUPR for the sustainability of the community's livelihood.

Pogar Reservoir

Revitalization is a method used to enhance the value of something considered to be no longer functioning effectively. In principle, revitalization serves as a solution to the neglect of an asset, particularly when the asset is owned by the government (Jannati et al., 2020; Widarto, 2023; Yustikasari & Kadarisman, 2020). This concept is often implemented as a way to restore the value of government assets that have diminished in usefulness, especially in the context of tourism. Through revitalization, a government asset or tourist attraction can be rejuvenated with some changes and improvements, potentially increasing its popularity and directly impacting local economic revenue. The stages of implementing revitalization in the conservation process include:

a. Scheduling and staging of physical plans
b. Selecting proposals and uses that align with environmental values and are feasible to implement

c. Interpreting the sustainability of the planning process in relation to the physical and functional behaviors or cultural practices
d. Managing the sequence/stages of the physical plan implementation
e. Controlling the site through regular inspections of physical and socio-cultural impacts
f. Estimating changes/improvements due to future activities

After a lengthy consolidation and negotiation process, a significant challenge faced by Tunglur Village was identified. One of the issues pertains to the tourism potential of Tunglur Village. At this stage, the Collaborative KKN (Kuliah Kerja Nyata) conducted a survey to understand the problems so that solutions could be found. The survey involved interviews conducted directly with the people of Tunglur Village and relevant village officials to support the Collaborative KKN program at Pogar Reservoir in Tunglur Village.

The consolidation and negotiation process went well, resulting in effective and efficient planning. The planned activities include the revitalization and reforestation of the Pogar Reservoir area in Tunglur Village, which will involve local community members. The Collaborative KKN from IAIN Kediri and UIN Sunan Kalijaga contributed to the reservoir's revitalization efforts, collaborating with the Water Resources Office (PUPR), village officials, and the local community to restore the reservoir and revitalize the businesses surrounding Pogar Reservoir Tourism. Before the revitalization began, the Collaborative KKN group conducted a site survey of the reservoir, which had become neglected and where the local MSMEs (Micro, Small, and Medium Enterprises) had all ceased operations.

Figure 2. Discussion with village officials and request for permission to carry out revitalization activities at Pogar Reservoir

To maximize this effort, the Collaborative KKN engaged in discussions with various stakeholders, including the village youth organization leader, the village head, hamlet leaders, and the Water Resources Office, which was prepared to assist with any necessary budget. After discussions were held and agreed upon by all members, efforts were made to restore the effectiveness of the reservoir through the Pogar Reservoir Tourism Revitalization. Initially, there were many criticisms and suggestions from the surrounding residents and village authorities. However, the Collaborative KKN group did their best to manage the reservoir and restore it to its former condition.

The first step involved collaborating with the Tunglur Village youth organization, which responded positively and provided valuable input for the reservoir's restoration. Since the reservoir was originally managed by the PUPR, confirmation was made with them. Initially, the PUPR did not respond positively, but after further discussions, the Kediri Regency Water Resources Office (PUPR) visited the Collaborative KKN post. The discussion led to an agreement to proceed with the Pogar Reservoir Tourism Revitalization shortly thereafter. The PUPR also expressed high hopes that the reservoir revitalization would have a positive impact on the local community. Once matters with the PUPR were resolved, the Collaborative KKN group faced challenges in the revitalization process, particularly regarding operational costs, the long-term sustainability of the reservoir, and the potential revival of local MSMEs. A solution was found through reforestation with Petai trees. New relationships were established to carry out reforestation in the still-barren reservoir area. The

Collaborative KKN group received a grant of 56 Petai tree seedlings from Ansor for planting at Pogar Reservoir.

Figure 3. Petai tree seedlings to be planted around Pogar Reservoir

Due to the high costs associated with revitalizing Pogar Reservoir, the Collaborative KKN group submitted a funding proposal to the Village Head of Tunglur. After several days, funding for the revitalization activities was approved, with an amount of IDR 1,000,000. Once the funds were disbursed, the Collaborative KKN group allocated the money for all the planned needs.

The next activity involved visiting and maintaining relationships with residents around the reservoir, starting with visits to the Village Head, Hamlet Leader, Youth Organization Leader, and local RT (neighborhood) heads. These visits aimed to strengthen family ties and communicate the students' intentions to carry out the reservoir revitalization. The community responded positively to these intentions. The peak of the revitalization activities, themed "Revitalization of Pogar Reservoir Tourism Through Reforestation," took place on a designated day and began in the morning, lasting until completion. The event was attended by representatives from the PUPR, Water Resources Office, the Village Head, Tunglur Village officials, and the local community.

Figure 4. Implementation of the reservoir revitalization attended by the PUPR Department, Water Resources Office members, the Village Head, Tunglur Village officials, and the local community

The revitalization of Pogar Reservoir began with an opening ceremony, including speeches from the Deputy District Head of Badas, PUPR representatives, the Village Head of Tunglur, and the Collaborative KKN leader. After the speeches, a ceremonial cutting of the tumpeng (a traditional cone-shaped rice dish) marked the official opening of the revitalization event, with high hopes that Pogar Reservoir would be restored to its former activity. The event continued with the planting of the first Petai tree by the Village Head, followed by the Deputy District Head of Badas, the Tunglur Hamlet Leader, local community members, PUPR workers, and all Collaborative KKN members. Everyone involved in the Pogar Reservoir revitalization worked together. The reforestation activities began at 07:00 and concluded at 11:30, successfully completing the reforestation of Pogar Reservoir. The Collaborative KKN participants expressed their gratitude to the community and all parties involved in the Pogar Reservoir revitalization.

Pogar Reservoir Revitalization

Pogar Reservoir is an asset inherited from the PUPR to the Tunglur Village community. Before the revitalization, Pogar Reservoir appeared very barren and neglected (see Figure 5). This was due to the community's lack of awareness regarding the reservoir's importance. Additionally, the PUPR had handed over all responsibilities for the reservoir's maintenance to the local community. Following the revitalization, the reservoir received positive feedback, raising community awareness about its upkeep. Initially, the community did not care about the reservoir's condition, but they are now aware of the need to develop and maintain it. The once-barren reservoir has now become green and lush.

(Before) (After)

Figure 5. Comparison of Pogar Reservoir before and after revitalization

The success of a revitalization program can be seen in the follow-up actions taken after the revitalization activities are completed. The management of Pogar Reservoir, which was previously overseen by the Water Resources Office (PUPR), has now been handed over to the Pogar Hamlet in Tunglur Village. Future management will be developed by the Tunglur Village youth organization. The Collaborative KKN group has strived to assist the community, village officials, and the youth organization in working together on revitalization through reforestation.

Additionally, the tree planting is expected to impact the reservoir's water availability. Strong tree roots can filter and absorb water into the soil, helping maintain the balance of the water ecosystem (Lukisworo, 2021; Prananto, 2022; Putra et al., 2022). Thus, Tunglur Village can ensure sufficient water availability for agriculture, irrigation, and daily community needs. Overall, the Collaborative KKN group's tree-planting revitalization of Pogar Reservoir has provided widespread and long-term benefits for the village's sustainability. This program not only brought positive environmental changes but is also expected to contribute to economic growth and community welfare while leaving a natural legacy for future generations.

CONCLUSION

The conclusion of this community service is that Tunglur Village, consisting of several hamlets, has Pogar Reservoir located in Pogar Hamlet. Previously, the reservoir was used for agricultural purposes and managed by the PUPR. Through the revitalization carried out by the Collaborative KKN of IAIN Kediri and UIN Sunan Kalijaga, along with the youth organization and local residents, the reservoir has been successfully restored as a better-maintained green area with the potential to become a village tourism destination that supports local economic growth and MSMEs. This revitalization also created job opportunities for the local community, and the once-barren reservoir is now greener and better maintained. Additionally, the management of the reservoir, previously under the PUPR, has now been handed over to the Tunglur Village community, particularly Pogar Hamlet, for further development. This success marks the beginning of ongoing communication and collaboration between local residents and relevant parties to ensure the long-term success of the reforestation and revitalization program.

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