

Prospects and Challenges of Aqua Tourism: A Study of Njarakkal and Malippuram Centres, Ernakulam District

Martin Emmanuel V. G¹, Dr. Neeraja James², and Dr. Somasekharan T M³

¹Student, M.A Economics, (Reg No: 2402130014), St. Albert's College (Autonomous), Ernakulam, Kochi, Kerala, India

²Assistant Professor and Head of the Department, Department of Economics, St. Albert's College (Autonomous), Ernakulam, Kochi, Kerala, India

³Assistant Professor, Department of Commerce and Management, Amrita Vishwa Vidyapeetham, Kochi, Kerala, India

Abstract

Aqua tourism has emerged as an important form of sustainable tourism that combines recreation, environmental conservation, and community participation. This study examines the socio-economic and environmental impacts of aqua tourism in Vypin Island, Ernakulam district, Kerala, with special reference to the Njarakkal and Malippuram Aqua Tourism Centres. The research assesses the benefits of aqua tourism in terms of income generation, employment opportunities, and support for local businesses, while also examining community participation, sustainability concerns, and infrastructure challenges. Primary data were collected from 30 respondents comprising local residents and visitors through structured questionnaires, supplemented by secondary data from journals, books, and online sources. The findings are expected to provide insights for policymakers and stakeholders to promote sustainable aqua tourism development that benefits local communities while preserving aquatic ecosystems.

Keywords: Aqua Tourism, Sustainable Tourism, Community Participation, Pokkali Farming, Socio-economic Development.

1. Introduction

Tourism is a major contributor to economic growth and regional development worldwide. The increasing preference for experiential and eco-friendly travel has led to the growth of aqua tourism, which focuses on recreational and educational activities associated with water bodies such as rivers, backwaters, wetlands, and coastal areas. Kerala, with its extensive network of rivers, backwaters, and coastal ecosystems, offers significant potential for aqua tourism development. Vypin Island, particularly the Njarakkal and Malippuram Aqua Tourism Centres, has emerged as a notable destination due to its rich fishing culture, mangrove ecosystems, and traditional Pokkali farming practices. Aqua tourism in these areas provides opportunities for livelihood enhancement, environmental conservation, and sustainable rural development.

2. Review of Literature

- **Naik and Raveendran (2024)** examined the role of agri- and aqua tourism in sustainable rural development. The study found that aqua tourism promotes employment, environmental conservation, community participation, and cultural preservation. However, challenges such as inadequate infrastructure, weak marketing, and limited government support hinder its growth.
- **Raj et al. (2024)** used geospatial tools and the Fuzzy Analytic Hierarchy Process (FAHP) to identify suitable cage-farming sites in Muttukadu Lagoon, Tamil Nadu. The study identified highly suitable areas for sustainable aquaculture and highlighted the potential for integrating aquaculture with aqua tourism to improve coastal livelihoods.
- **Jasingfaa Aqua Tourism Centre Case Study (2023)** explored fish-based aqua tourism in Assam and found that recreational fishing and related activities create employment opportunities and generate income for local communities. The study emphasised the role of aqua tourism in promoting economic, environmental, and cultural security.
- **Noda (2023)** examined the impact of aqua tourism on local communities near Lake Biwa, Japan. The study revealed that uncontrolled tourism can negatively affect local life and natural resources, while strong local governance and community participation can ensure sustainable tourism development.
- **Satheesh Babu, Jose, and Sanitha (2021)** analysed the development potential of aqua tourism in Njarakkal and Malippuram, Kerala. The study concluded that aqua tourism contributes to employment generation, skill development, and improved living standards, although environmental sustainability measures need further strengthening.
- **Joseph et al. (2021)** investigated sustainable tourism practices in Kerala's backwater destinations. The findings showed that stakeholder cooperation and effective resource management are essential for achieving sustainable tourism growth while minimising environmental impacts.
- **Kagungan et al. (2020)** studied the application of the blue economy concept in marine tourism development. The research highlighted the importance of government policies, innovation, and sustainable resource use in promoting economic growth and environmental protection through tourism.
- **Nidhish and Rajasree (2019)** examined water-based tourism planning in Kerala with a focus on tourism circuits and cluster development. The study emphasised that Kerala's rich water resources provide significant opportunities for sustainable tourism and local economic development.
- **Klein and Jeffrey (2019)** analysed economic factors influencing coastal tourism in Florida. Their findings indicated that beach conservation and nourishment programs enhance tourism demand and contribute positively to tourism revenue.
- **Sturesson, Weitz, and Persson (2018)** explored the role of marine ecotourism in promoting marine awareness and sustainable development. The study highlighted that stakeholder partnerships and experiential learning can strengthen marine conservation and support sustainable coastal tourism.
- **Oladele and Digun-Aweto (2017)** analysed the strengths, weaknesses, opportunities, and threats (SWOT) of aquatic tourism in Nigeria. The study found that abundant water resources and a large domestic market provide significant tourism potential, while poor infrastructure, environmental pollution, and weak policy implementation limit development. The authors emphasised the importance of stakeholder participation and effective planning for sustainable growth in aquatic tourism.

3. Significance of The Study

The study is significant because it evaluates the role of aqua tourism in improving local livelihoods, generating employment, and promoting sustainable tourism practices. It also examines community participation and environmental sustainability, providing valuable insights for policymakers, tourism planners, and local entrepreneurs. The findings can support strategies for balanced tourism development that benefits both local communities and natural ecosystems.

4. Statement of The Problem

Despite its growing potential, aqua tourism in Vypin faces challenges related to infrastructure development, environmental conservation, and community involvement. Managing tourism growth while protecting fragile aquatic ecosystems remains a critical concern. This study seeks to identify the opportunities and constraints associated with aqua tourism and suggest measures for its sustainable development in the study area.

5. Objectives of The Study

- To examine the socio-economic benefits of aqua tourism, including income generation, employment creation, and support for local businesses.
- To identify the major attractions, challenges, and infrastructure issues affecting aqua tourism development.
- To evaluate community participation, local support, and the promotion of local products through aqua tourism.
- To assess the environmental sustainability of aqua tourism and its impact on local ecosystems.

6. Research Methodology

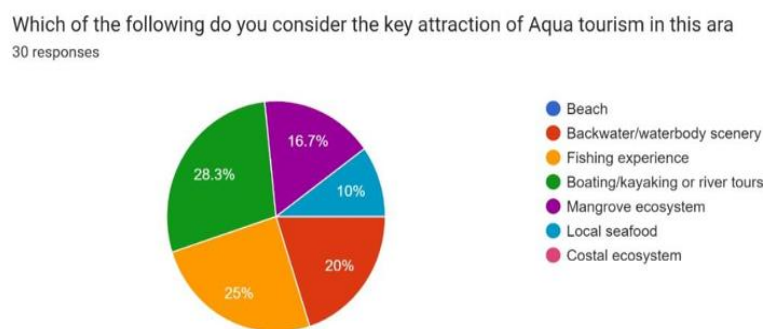
The study was conducted in Ernakulam district, Kerala, with special reference to the Njarakkal and Malippuram Aqua Tourism Centres. A random sampling method was adopted for selecting respondents. Primary data were collected from 30 respondents, including local community members and tourists, through structured questionnaires and personal interviews. Secondary data were gathered from journals, books, library resources, and internet-based sources. The collected data were analysed to understand the socio-economic and environmental dimensions of aqua tourism in the study area.

7. Data Analysis and Interpretation

Age Group (Years)	Number of Respondents	Percentage (%)
Below 18	1	3.3
18-30	10	33.3
31-45	13	43.3
46-60	4	13.3
Above 60	3	10.0
Total	30	100
Gender	Number of Respondents	Percentage (%)
Male	17	56.7

Female	13	43.3
Total	30	100
Occupation	Number of Respondents	Percentage (%)
Fisherman	8	26.7
Student	7	23.3
Govt / Private Employee	5	16.7
Business owner	4	13.3
Home maker	4	13.3
Retired	2	6.7
Total	30	100
Response	Number of Respondents	Percentage
Yes (Familiar)	30	100.0
No (Not Familiar)	0	0
Total	30	100
Source of Information	Number of Respondents	Percentage
Social media	16	53.3
Friends and Family Members	9	30
Newspapers and Magazines	5	16.7
Television (TV)	0	0
Total	30	100

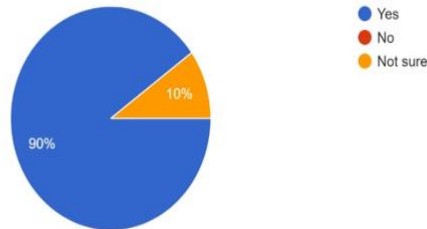
Figure 1: Which of The Following Are Considered Key Attractions of Aqua Tourism



Interpretation: The data shows that boating/kayaking (28.3%) is the most popular attraction among respondents, followed by fishing experiences (25%). Backwater scenery (20%), mangrove ecosystems (16%), and local seafood (10%) also attract visitors. No respondents selected beach and coastal ecosystems as a major attraction. Overall, visitors are mainly interested in water-based activities and natural scenery.

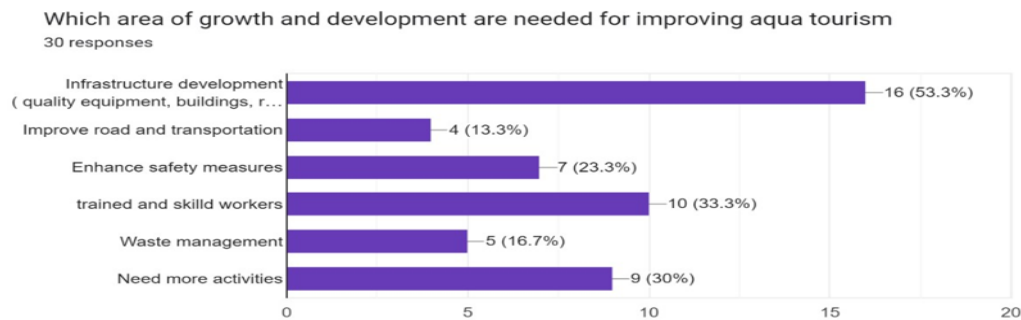
Figure 2: Aqua Tourism In This Area Has Good Potential For Future Growth And Development.

Do you think aqua tourism in this area has potential for future growth and development
30 responses



Interpretation: Out of 30 respondents, 90% agreed that aqua tourism in this area has potential for future growth and development.

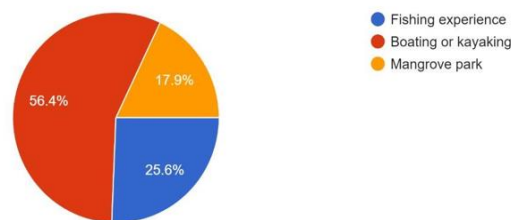
Figure 3: Areas of Growth Needed for Improving Aqua Tourism



Interpretation: The figure shows that infrastructure development is the most needed improvement for aqua tourism (53.3%). It is followed by the need for trained workers (33.3%), more tourism activities (30%), safety measures (23.3%), waste management (16.7%), and better road and transport connectivity (13.3%).

Figure 4. Any Specific Activities You Would Like To See Developed for Tourists

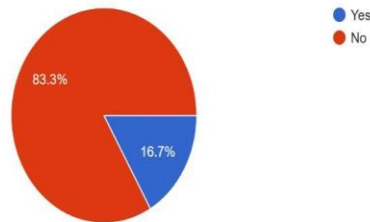
Are there any specific activities you would like to see developed for tourists
30 responses



Interpretation: The above indicates that, out of 30 respondents surveyed, 56.4% said that boating or kayaking needs development, 25.6% said that fishing experience needs development, and 17.9% said that the mangrove park is another area for development.

Figure 5. Are You or Any Member of Your Family Involved in Tourism Related Activities

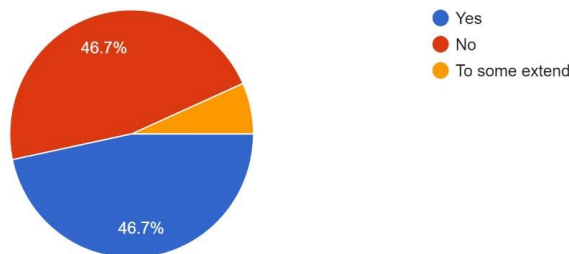
Are you or any members of your family is involved in tourism related activities
30 responses



Interpretation: The above figure states that out of 30 respondents surveyed, 83.3% responded that he or his family members are not involved in any tourism-related activities, 5 visitors (16.7%) respond yes, they are involved

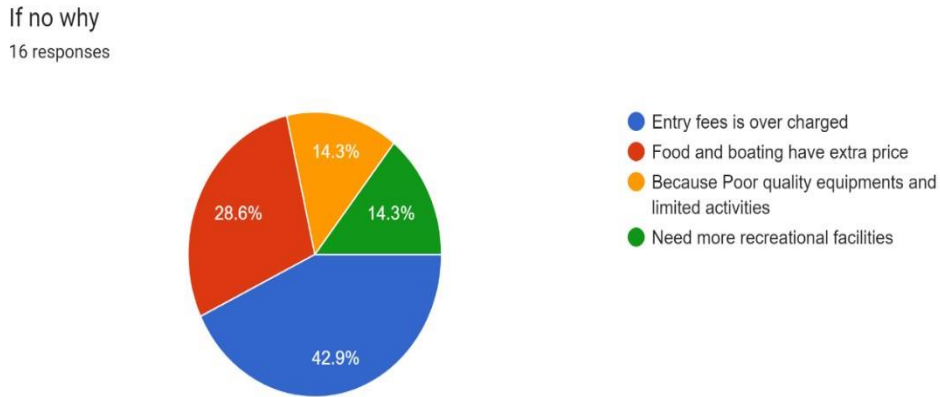
Figure 6. Aqua Tourism Activities in This Area Offer Excellent Value for Money.

Do you think aqua tourism activities offers in this area provide value for money
30 responses



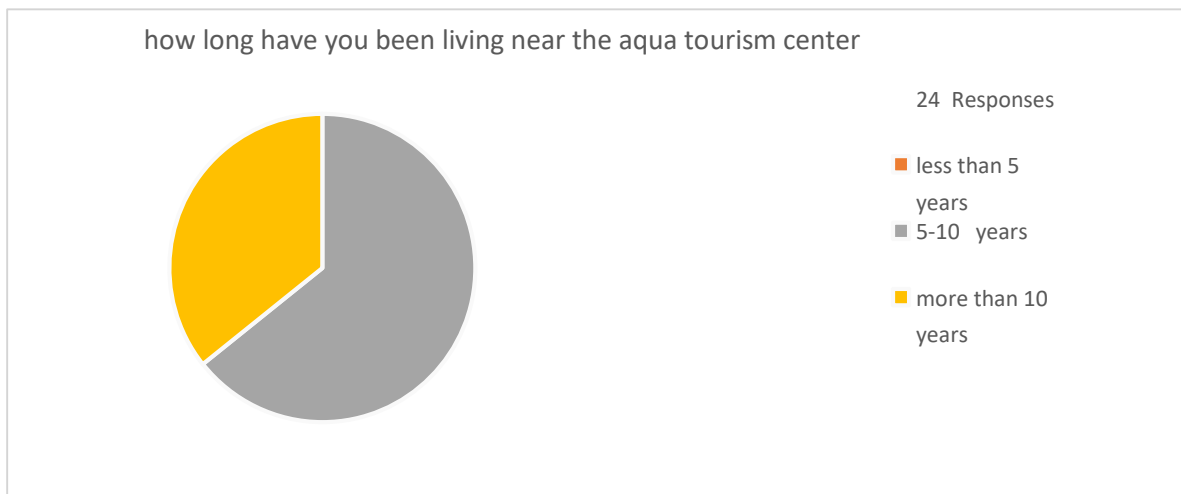
Interpretation: The above figure states that 5 out of 30 respondents surveyed respondents 46.7% select it is value for money, a similar share of respondents (46.7%) respond not value for money, and 6.6% select to some extent

Figure 7. Major Concerns Regarding The Cost And Facilities Of Aqua Tourism Activities



Interpretation: Out of the 30 respondents surveyed, 42.9% felt that the entry fee is overpriced. About 28.6% stated that food and boating involve additional costs. Another 14.3% reported that the equipment quality is poor and that tourism activities are limited. The remaining 14.3% suggested the need for more recreational facilities, such as parks and adventure zones.

Figure 8. How Long Have You Been Living Near the Aqua Tourism Center

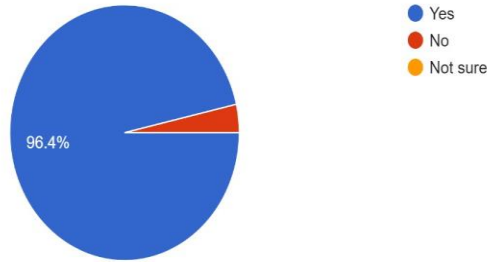


Interpretation: The data state that out of 28 respondents surveyed, most of the respondents (64%) stay 5 to 10 years, and 36% of respondents stay more than 10 years.

Figure 9. Location Is Suitable for Aqua Tourism

Development

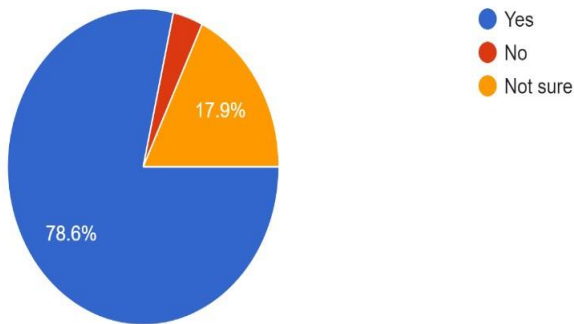
Do you agree this location is suitable for Aqua tourism development
28 responses



Interpretation: The data state that out of 28 respondents surveyed, 96.4% respond the location is suitable for tourism development, and 3.6% responded not suitable for development.

Figure 10. Income Opportunity Created by Aqua Tourism Is Sufficient for Local Community

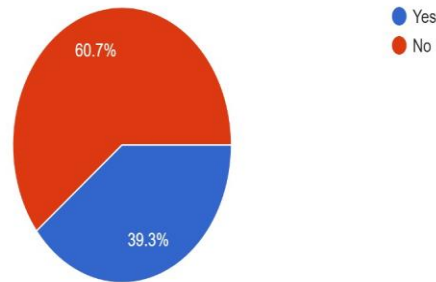
Do think income opportunity created by aqua tourism is sufficient for local community
28 responses



Interpretation: The data state that out of 28 respondents surveyed, most of them 78.6% Respond yes, it is sufficient for the local community; 17.9% noted sure; 3.6% Responded Not sufficient for the local community. It means the aqua tourism center help for income opportunities for the local community

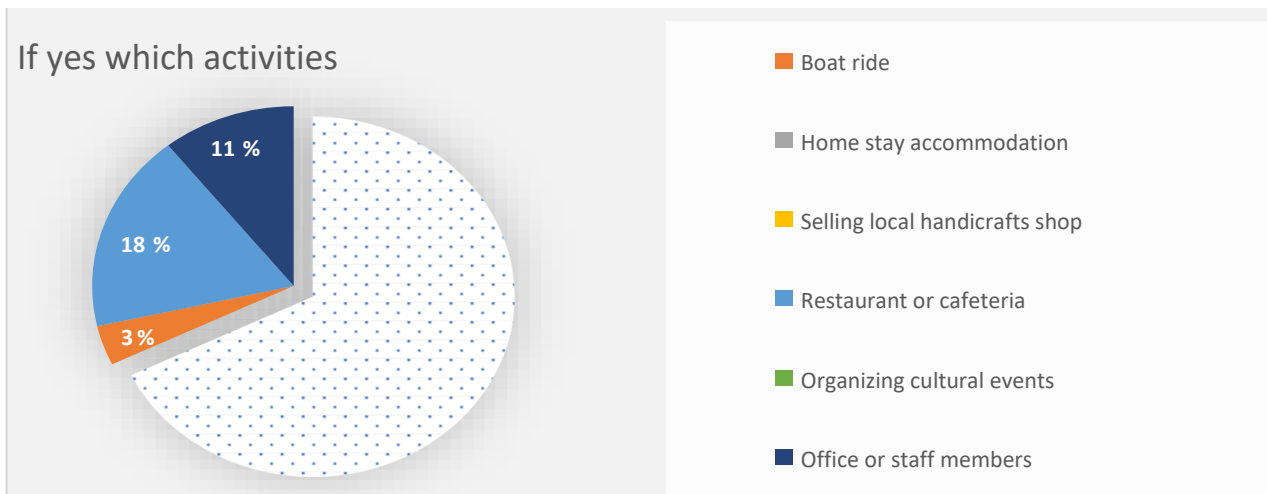
Figure 11. Are You Or Your Family Involved In Tourism Related Activities

Are you or any member of your family is involved in tourism related activities
28 responses



Interpretation: The above figure states that out of 28 respondents surveyed, 60.7% responded that he or his family members are not involved in any tourism-related activities, and 39.3% responded they are involved in tourism-related activities. This pointed that the local participation is very low

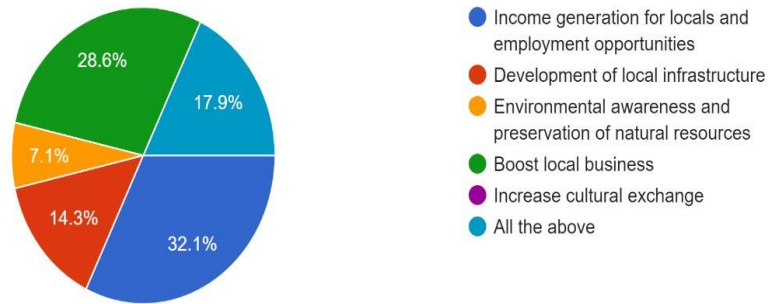
Figure 12. If Yes Which Activities



Interpretation: The data state that out of 28 respondents surveyed, 9 out of 28, around 185, responded they work in a restaurant or cafeteria, 11% work in an office or as staff members, and 3% work as a boat ride operator

Figure 13. Which of The Following Benefits Do You Think Aqua Tourism Provide In This Area

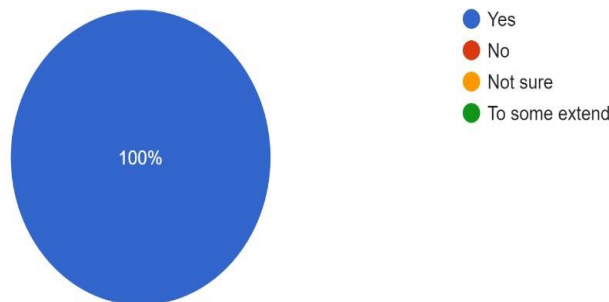
Which following benefits do think aqua tourism provide in this area
28 responses



Interpretation: The data state that out of 28 respondents surveyed 32.1% respond aqua tourism help for income generation for local and employment opportunities, 28.6% responded aqua tourism helps to boost local business, 17.9% responded all the above, 14.3% respond it help in development of local infrastructure 7.1% environment awareness and preservation of natural resource this means the aqua tourism center is beneficial for local development and boosting local business and it helps to increase employment opportunities, no one respond or not supporting it increase cultural change

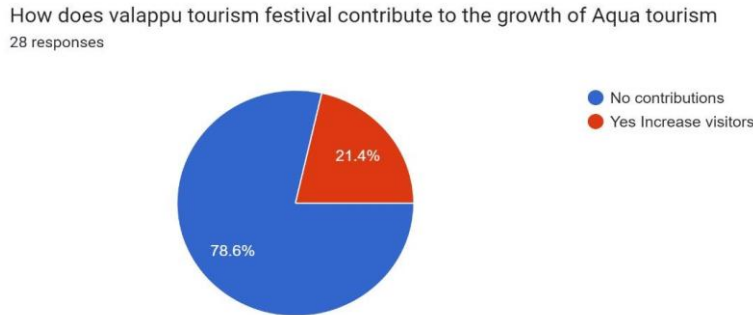
Figure 14. Local Community Support for Development Of Aqua Tourism

Dose local community is support the development of Aqua tourism
28 responses



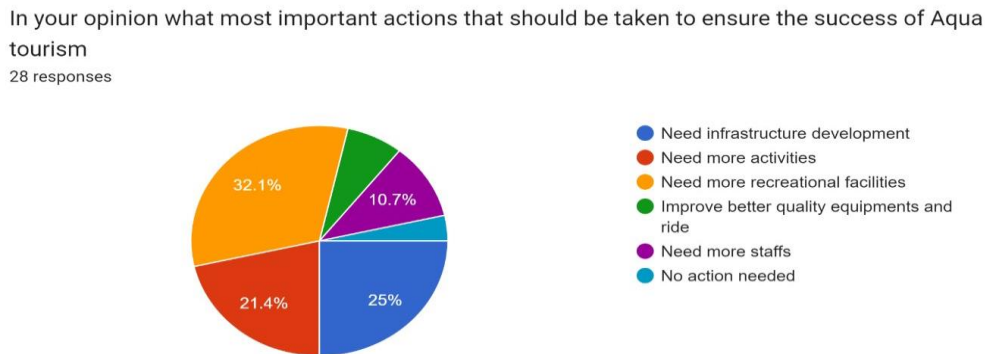
Interpretation: The data show that all 28 respondents (100%) stated that the local community supports aqua tourism and its development.

Figure 15. How Does Valappu Tourism Festival Contribute to The Growth of Aqua Tourism



Interpretation: The above figure states that out of 28 respondents surveyed, 78.6% responded valappu beach festival Not contributing for growth of aqua tourism, and 21.4% responded yes contributing and helps to increase visitors

Figure 16. Most Important Actions That Should Be Taken To Ensure the Success of Aqua Tourism



Interpretation: Out of 28 respondents surveyed, 32.1% suggested the need for more recreational facilities, 25% emphasised infrastructure development, and 21.4% recommended introducing more tourism activities. Additionally, 10.7% highlighted the need for more staff, while 7.1% called for better-quality equipment and rides. These findings indicate that the aqua tourism center requires improvements in facilities, infrastructure, activities, equipment, and services to enhance its success.

8. Limitations of The Study

1. The study was limited by constraints of time and financial resources.
2. The sample size was restricted to 30 respondents.
3. Some respondents were unavailable or unwilling to participate in the survey.
4. The findings are confined to the selected study area and may not be generalised to all aqua tourism destinations.

9. Suggestions

1. Priority should be given to developing tourism infrastructure, including better visitor amenities, transportation access, and basic facilities, as many respondents identified infrastructure as a key requirement for aqua tourism development.
2. Additional activities such as adventure sports, boating packages, fishing experiences, and recreational parks should be developed to enhance visitor satisfaction and attract more tourists.
3. The management should ensure the availability of high-quality boating equipment, safety gear, food services, and other tourism facilities to improve the overall visitor experience.
4. Training programs should be conducted for local residents and tourism workers to improve service quality, hospitality, safety management, and tourism operations.
5. Local people should be encouraged to participate in tourism-related businesses and employment opportunities through awareness programs, financial support, and entrepreneurship initiatives.
6. Entry fees and additional charges for food and boating should be reviewed to ensure reasonable pricing, as many visitors felt that the current costs are too high and reduce the value-for-money experience.

10. Conclusion

The study concludes that the aqua tourism centre has significant potential for tourism development and enjoys strong support from both visitors and the local community. Respondents recognised its contribution to environmental conservation, income generation, and local economic development. However, improvements in infrastructure, recreational facilities, tourism activities, service quality, and equipment are needed to enhance visitor satisfaction and ensure sustainable growth. Greater community participation and affordable tourism services will further strengthen the success and long-term development of aqua tourism in the study area.

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