

Research Article

Flowing Prosperity: Empowering Riverbank Communities in Rajshahi City

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Abstract

This study investigates strategies to enhance the quality of life for riverbank communities in Rajshahi City, Bangladesh, situated along the Padma River. A comprehensive analysis of socioeconomic, environmental governance, and community aspects, the study identifies key challenges and opportunities. By paying attention to the natural resources and cultural heritage of the riverbanks, the endeavor seeks to foster socio-economic growth, environmental sustainability, and cultural preservation. Findings reveal pervasive socio-economic disparities, exacerbated by environmental degradation and governance shortcomings. The study also indicates that only 78% of inhabitants take the polio vaccine and the Body Mass Index shows 72% of people are under-weight. Despite these challenges, the study highlights community resilience, and the potential of grassroots initiatives to effect positive change. The study emphasizes the importance of integrated and participatory approaches to address the multifaceted issues facing riverbank communities. By prioritizing socio-economic equity, environmental sustainability, and community empowerment, it is possible to create inclusive and resilient communities along the riverbanks of Rajshahi City in Bangladesh. Through collaborative efforts including local stakeholders, governmental bodies, and non-profit organizations, the study creates opportunities for inclusive participation, enhances livelihoods, and promotes resilience against socio-economic challenges. The authors identify why these (River-bank people) cannot manage the sustainability of river ecosystems, health problems, and sustainable development, which advocates for a harmonious balance between social, economic, and environmental dimensions. Finally, a well-thought-out recommendation has been drafted by the authors.

Keywords

Bangladesh, Health, Riverbank, Rajshahi, Communities

1. Introduction

Rivers play a vital role in shaping the socio-economic fabric of communities worldwide, serving as sources of water, transportation routes, and centers of cultural significance [1]. Along the banks of these rivers, communities thrive, often forming unique identities deeply intertwined with their aquatic surroundings [2]. However, despite the intrinsic ben-

efits rivers offer, riverbank communities often face distinct challenges that can impact their quality of life. In the context of Rajshahi City, situated along the banks of the Padma River in Bangladesh, the dynamics of riverbank living present both opportunities and obstacles. Rajshahi City, one of the major urban centers in Bangladesh, is home to a diverse array of

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riverbank communities, each with its own set of socio-economic circumstances, cultural heritage, and environmental concerns. Rivers are not merely geographical features; they are lifelines that sustain communities, cultures, and economies [3]. However, the vitality of riverbank communities often faces challenges stemming from environmental degradation, inadequate infrastructure, and socio-economic disparities. In this context, the case study of Rajshahi City presents a compelling narrative of efforts aimed at enhancing the quality of life for riverbank communities amidst these challenges. Rajshahi City, situated on the banks of the Padma River in Bangladesh, epitomizes the intricate relationship between urban development and river ecosystems. With a rich cultural heritage and a significant population reliant on the river for livelihood and sustenance, the city grapples with multifaceted issues ranging from pollution to housing inadequacies [4]. These challenges underscore the urgency of adopting holistic strategies that prioritize the well-being of riverbank communities while ensuring the sustainability of river ecosystems. Central to the discourse is the concept of sustainable development, which advocates for a harmonious balance between social, economic, and environmental dimensions [5]. By analyzing the collaborative efforts of various stakeholders, from policymakers to grassroots organizations, this case study aims to unravel the intricacies of implementing sustainable development principles in the context of riverbank communities. In Bangladesh, slum children, suffer numerous problems including educational, health care, and economic [6]. Moreover, this study situates itself within the broader academic discourse on urban planning, environmental management, and community development [7]. By synthesizing insights from interdisciplinary fields, including geography, sociology, and environmental science, it offers a nuanced understanding of the complex dynamics shaping the quality of life for riverbank communities. Through a critical examination of challenges, opportunities, and best practices, this case study aspires to contribute to evidence-based policymaking and grassroots interventions aimed at fostering resilient and inclusive riverbank communities. On the other sense, the poor people are unaware of the election and they are also not interested in it [8]. Ultimately, it underscores the imperative of prioritizing the well-being of marginalized populations while safeguarding the ecological integrity of riverine ecosystems.

2. Literature Review

Rivers are lifelines for many communities worldwide, providing water, livelihoods, and cultural significance. However, riverbank communities often face numerous challenges that impact their quality of life. In Bangladesh, students should take part in research more and more to face any kind of problem [9]. This literature review examines research related to enhancing the quality of life for riverbank communities in Rajshahi City, Bangladesh, focusing on so-

cio-economic, environmental, governance, and community aspects. Riverbank communities in Rajshahi City encounter various socio-economic challenges, including poverty, health, inadequate infrastructure, and displacement due to riverbank erosion. They highlight the economic vulnerabilities of these communities, exacerbated by the loss of livelihoods and assets caused by erosion [10]. Adnan delves into sustainable livelihood development strategies, emphasizing the importance of addressing the underlying socio-economic factors to enhance the resilience of displaced households [11]. Environmental degradation poses significant threats to riverbank communities' quality of life in Rajshahi City. Pollution, encroachment, and sedimentation degrade river ecosystems, affecting water quality and public health. Shamsuddoha and his team explore community perceptions and adaptation strategies to flood hazards, underscoring the need for integrated approaches to mitigate environmental risks [12]. Rahman emphasizes the importance of water quality management to safeguard both human health and ecosystem integrity. Effective governance and policy interventions are crucial for addressing the challenges faced by riverbank communities. The World Bank emphasizes the significance of inclusive urban planning and infrastructure development in improving the quality of life for urban residents, including those along riverbanks. However, the implementation gap remains a challenge. Engaging local stakeholders and fostering multi-level governance structures are essential for ensuring the effectiveness of interventions. Community resilience and participation play vital roles in enhancing the quality of life for riverbank communities. Grassroots initiatives and community-led interventions have shown promise in addressing local challenges and fostering social cohesion. Rahman and his fellows highlight the importance of community engagement in water quality management, emphasizing participatory approaches in building resilience [13]. Enhancing the quality of life for riverbank communities in Rajshahi City requires a holistic approach that addresses socio-economic, environmental, governance, and community dimensions. Despite challenges, there is growing recognition of the importance of integrated strategies that prioritize sustainability and community participation. Future research and interventions should leverage existing knowledge and foster collaborative partnerships to create positive and lasting impacts on riverbank communities' lives.

3. Objectives

1. To investigate the socio-economic challenges faced by riverbank communities in Rajshahi City, focusing on issues such as poverty, health conditions, inadequate infrastructure, and displacement due to riverbank erosion.
2. To assess the environmental degradation of river ecosystems in Rajshahi City and its impact on the quality of life for riverbank communities, with a specific focus on

pollution, encroachment, and water quality.

3. To examine the effectiveness of governance and policy interventions aimed at addressing the challenges faced by riverbank communities in Rajshahi City, including inclusive urban planning, infrastructure development, and multi-level governance structures.
4. To explore community resilience and participation in Rajshahi City, analyzing grassroots initiatives and community-led interventions aimed at enhancing the quality of life for riverbank communities, and identifying factors that contribute to their success or limitations.

4. Methods

We have employed both qualitative and quantitative methodologies in this study. For this research, information was gathered from books, peer-reviewed journal articles, and reports from governmental, non-governmental, and authoritative bodies, along with specific articles from print and digital news outlets. A field survey has been taken to collect the actual condition (life of the slum people) of the selected area. Microsoft Office Home and Student was used for data scrutiny and analysis.

5. Research Result and Discussion

A person's body fat percentage is determined by their height and weight, which is measured by the Body Mass Index (BMI). It is computed by taking the square of an individual's height in meters and multiplying it by their weight in kilos. The formula for BMI is:

$$BMI = \frac{Weight (kg)}{Height (m)^2}$$

BMI is commonly used as a screening tool to categorize individuals into different weight categories, such as underweight, normal weight, overweight, and obese. It provides a rough estimate of a person's overall health based on their weight and height.

The investigation results indicate that only 3% of the population is overweight, while 25% are classified as normal weight, and a significant 72% are underweight, raising concerns about the overall health and nutrition status of the community. The high prevalence of underweight individuals suggests potential issues with food security, access to nutritious meals, and overall well-being. The low percentage of overweight individuals may indicate a lack of access to high-calorie foods or sedentary lifestyles. Addressing the high prevalence of underweight individuals through interventions focused on improving nutrition, access to healthy foods, and healthcare services is crucial to promoting better health outcomes and reducing the risk of malnutrition-related health issues in the community.

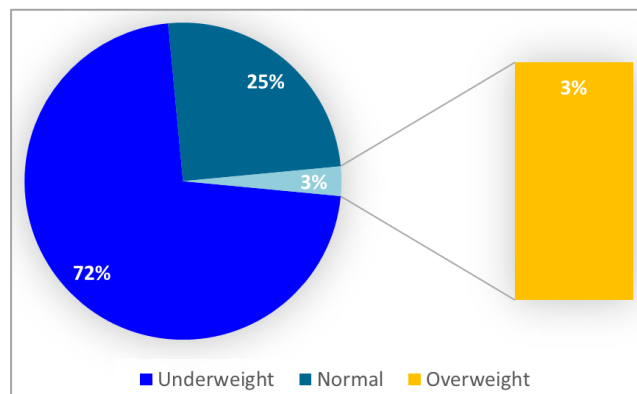


Figure 1. The figure indicates the health conditions of the residents.

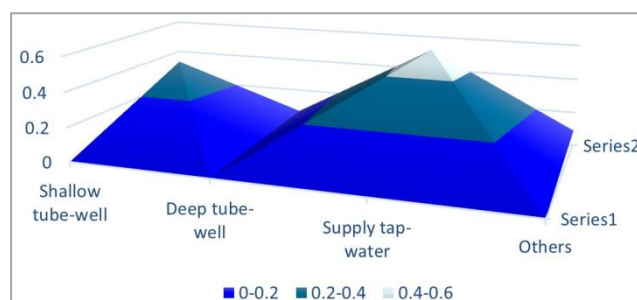


Figure 2. Water supply system in the slum area.

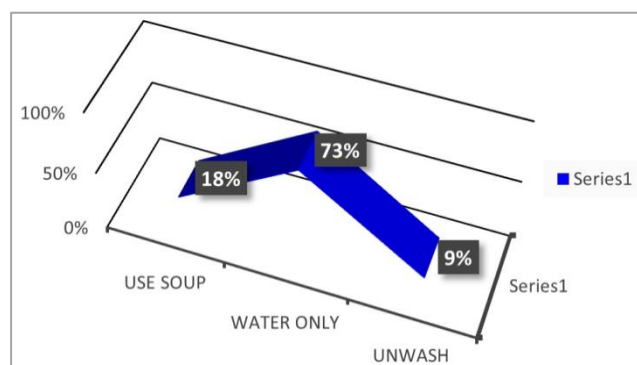


Figure 3. The figure shows the health concerns of the slum dwellers.

The distribution of water sources in the study area reveals a concerning disparity in access to safe drinking water. With only 6% of residents having access to a deep tube-well, a reliable and clean water source, a significant portion of the population relies on less secure options. The reliance on shallow tube-wells by 33% of residents poses potential risks to water quality and safety. The majority, 52%, depend on the supply tap-water system, indicating better access to treated water. However, the 9% using unhealthy water sources highlights a critical need for improved water infrastructure and education on safe drinking water practices to safeguard the health of all residents in the study area.

Slum dwellers who primarily use soup for hygiene makeup 18% of the population, while 73% rely solely on the water for

cleanliness, and 9% do not wash at all. This distribution suggests a concerning lack of access to proper sanitation and hygiene practices among slum residents. The high percentage of individuals using water only may indicate limited resources for hygiene products or facilities. The reliance on soap for hygiene could also raise concerns about the effectiveness of cleaning practices. Overall, these statistics highlight the urgent need for improved sanitation infrastructure and education on proper hygiene practices to enhance the health and well-being of slum dwellers.

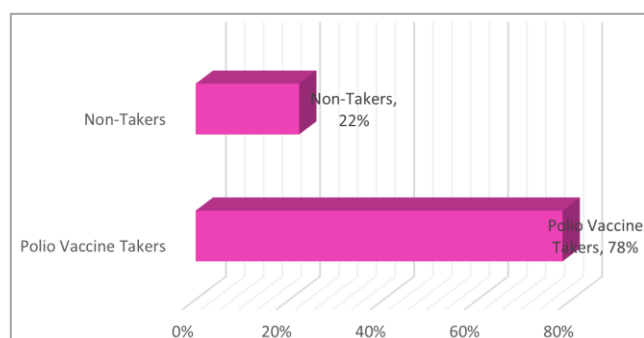


Figure 4. The figure states the Vaccine status of the slum children.

The data showing that 78% of individuals have taken the polio vaccine while 22% have not taken it is a positive indicator of vaccination coverage in the population. The high percentage of vaccine takers suggests a strong awareness of the importance of immunization against polio and a proactive approach toward public health. However, 22% of non-takers highlight a group that may be at risk of contracting polio and spreading the disease. Efforts should be made to increase vaccination uptake among this group through targeted education campaigns, outreach programs, and ensuring easy access to vaccination services. Overall, maintaining high vaccination rates is crucial in preventing the spread of polio and protecting the community from outbreaks.

Table 1. The existing table shows different kinds of diseases of the slum dwellers.

Diseases	Percentage	Type
Fever, Cold, and Cough	74%	Variable
Dysentery	53%	Variable
Cholera	9%	Variable
Malaria	17%	Variable
Pneumonia	23%	Variable
Allergies	52%	Chronic
Asthma	33%	Chronic
Anemia	19%	Chronic

Diseases	Percentage	Type
Eye and Ear problems	21%	Chronic
Skin disease	48%	Chronic
Stomach aches	39%	Chronic
Headaches	43%	Chronic
Others	23%	Variable

The distribution of health conditions in the population reveals varying prevalence rates across different ailments. Fever, cold, and cough are the most common, affecting 74% of individuals, indicating a high incidence of respiratory infections. Dysentery follows closely at 53%, highlighting potential issues with sanitation and water quality. Cholera, malaria, and pneumonia have lower prevalence rates at 9%, 17%, and 23% respectively, but still pose significant health risks. Allergies and skin diseases affect a substantial portion of the population at 52% and 48% respectively, indicating potential environmental triggers. Asthma, anemia, eye and ear problems, stomach aches, headaches, and other ailments also contribute to the overall health burden in the community. Addressing these health conditions through improved healthcare access, sanitation measures, and public health interventions is crucial to enhancing the well-being of the population.

6. Conclusion

Rivers have long served as the lifeblood of communities, providing water, livelihoods, and cultural identity. In Rajshahi City, Bangladesh, situated along the banks of the Padma River, the relationship between riverbank communities and their natural environment is deeply intertwined. This study has explored strategies to enhance the quality of life for these communities by addressing socio-economic, environmental, governance, and community dimensions. The findings of this study underscore the multifaceted challenges faced by riverbank communities in Rajshahi City. Socioeconomic disparities, including poverty, inadequate infrastructure, and displacement due to riverbank erosion, pose significant barriers to improving living standards. Environmental degradation, characterized by pollution, habitat loss, and water quality issues, further exacerbates these challenges, threatening public health and ecosystem integrity. Governance and policy interventions aimed at addressing these issues are hindered by bureaucratic hurdles and limited community participation, highlighting the need for more transparent and inclusive decision-making processes. Despite these challenges, the study also identifies sources of resilience and potential pathways for positive change within riverbank communities. Grassroots initiatives and community-led interventions demonstrate the capacity of residents to mobilize resources and address pressing challenges such as waste management and disaster

preparedness. These initiatives highlight the importance of community empowerment and participation in driving sustainable development at the local level. Moving forward, the key to enhancing the quality of life for riverbank communities in Rajshahi City lies in adopting integrated and participatory approaches that address the root causes of socio-economic and environmental vulnerabilities. This requires a concerted effort from government agencies, non-governmental organizations, and local communities to prioritize socio-economic equity, environmental sustainability, and community empowerment. One promising avenue for intervention is the promotion of inclusive urban planning and infrastructure development that prioritizes the needs of riverbank communities. By investing in essential services such as clean water, sanitation, and education, policymakers can address immediate socio-economic needs while laying the foundation for long-term resilience. Additionally, measures to mitigate environmental degradation, such as pollution control and ecosystem restoration, are essential for safeguarding public health and preserving the ecological integrity of river ecosystems. Furthermore, enhancing governance structures to promote transparency, accountability, and community participation is crucial for ensuring the effectiveness and sustainability of interventions. This involves fostering partnerships between government agencies, non-governmental organizations, and local communities to co-create solutions that reflect the diverse needs and perspectives of riverbank residents. In conclusion, the journey towards enhancing the quality of life for riverbank communities in Rajshahi City requires a collective effort grounded in principles of equity, sustainability, and community empowerment. By prioritizing the well-being of riverbank residents and their natural environment, it is possible to create inclusive and resilient communities that thrive in harmony with their surroundings. Through collaborative action and a commitment to meaningful change, Rajshahi City can serve as a model for sustainable development along riverbanks worldwide.

7. Recommendation

By addressing the specific needs and challenges faced by riverbank communities, particularly within the urban setting of Rajshahi City, this research endeavors to shed light on crucial aspects of community development and social welfare. Riverbank settlements often encounter unique socio-economic and environmental issues, ranging from inadequate infrastructure to susceptibility to natural disasters. Understanding and improving the quality of life in these areas not only directly benefits the residents but also contributes to broader urban development initiatives and sustainable city planning efforts. As such, this study holds significant relevance for policymakers, urban planners, and researchers seeking to enact positive change and foster inclusive growth within riverbank communities. The recommendations are mentioned below:

1. Allocate resources for the improvement of basic infrastructure such as clean water supply, sanitation facilities, and paved roads to enhance living conditions for riverbank residents.
2. Develop sustainable housing solutions that are resilient to riverbank erosion and flooding, incorporating eco-friendly materials and innovative design practices to ensure long-term viability.
3. Support the diversification of livelihood opportunities for riverbank communities through skill-building programs, microfinance initiatives, and entrepreneurship training to reduce dependency on traditional occupations vulnerable to environmental hazards.
4. Implement measures to protect and restore river ecosystems, including reforestation, wetland conservation, and pollution control measures, to improve water quality and preserve biodiversity.
5. Facilitate community-led disaster preparedness and response initiatives, including the establishment of early warning systems, emergency shelters, and evacuation plans, to enhance resilience to natural disasters such as floods and cyclones.
6. Promote inclusive governance processes that actively involve riverbank residents in decision-making processes related to urban planning, resource management, and infrastructure development to ensure their voices are heard and needs are addressed.
7. Improve access to quality education and healthcare services for riverbank communities by establishing schools, healthcare clinics, and mobile health units within proximity to residential areas.
8. Encourage the adoption of sustainable agriculture practices among riverbank communities, such as organic farming, agroforestry, and water-efficient irrigation techniques, to improve food security and enhance environmental sustainability.
9. Support initiatives that preserve and promote the cultural heritage of riverbank communities, including cultural festivals, heritage conservation projects, and community-based tourism programs, to celebrate local traditions and strengthen social cohesion.
10. Foster partnerships between government agencies, non-governmental organizations, academia, and the private sector to leverage resources, expertise, and networks for collaborative action in enhancing the quality of life for riverbank communities in Rajshahi City.

Abbreviations

BMI Body Mass Index

Author Contributions

Md. Jahangir Alom: Conceptualization, Investigation,

Methodology, Writing – original draft, Writing – review & editing

Md. Alomgir Hossan: Resources, Data curation, Formal Analysis, Supervision, Investigation

Conflicts of Interest

The authors declare no conflicts of interest.

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