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Urban Community Forestry in Nepal: A Case Study of the Ranibari Community Forest in Kathmandu

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Abstract

Community forestry was introduced in Nepal in the late 1970s to empower local communities in managing natural resources. While its success in rural areas is well-documented, its role in urban settings remains underexplored. This study examines the impact of community forestry on the social, environmental, and economic dimensions of urban life, focusing on the Ranibari Community Forest in Kathmandu. A mixed-methods approach was employed, integrating qualitative interviews, quantitative surveys, and systematic observations to analyze how urban residents engage with the community forest and its contribution to urban resilience. Findings demonstrate that the Ranibari Community Forest significantly enhances environmental quality, fosters social cohesion, and generates economic benefits for city residents. However, challenges persist due to rapid urbanization, evolving policies, and management complexities. The study highlights the critical importance of incorporating community forestry into urban planning frameworks to promote sustainable development and resilience in urban areas.

Keywords: community forestry, urban settlement, sustainable development, urban planning, Ranibari, Kathmandu

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Introduction

Nepal is characterized by remarkable ecological and cultural diversity, with approximately 44.74% of its land area covered by forests spanning diverse ecosystems—from subtropical Terai plains to the alpine Himalayas (Forest Research and Survey Department, 2023). These forests are essential for biodiversity conservation, supporting local livelihoods and preserving cultural traditions (Hobley, 2001). Historically, forest management in Nepal was centrally controlled by the state, but widespread deforestation during the mid-20th century revealed inherent weaknesses in this approach (Devkota et al., 2017). This led to a paradigm shift beginning with the Forest Act of 1976 and the Forestry Master Plan of 1978, which laid the groundwork for community-based forest governance by legally recognizing community forest user groups (CFUGs) as autonomous entities responsible for sustainable forest management (Ministry of Forests and Soil Conservation, 1993; FAO, 2010). This participatory approach has effectively reduced deforestation rates, restored degraded landscapes, and enhanced rural

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livelihoods, with over 23,000 CFUGs currently managing more than 2.2 million hectares of forest, thereby benefiting millions of households and improving forest health indicators (FECOFUN, 2024; Ministry of Forest and Soil Protection, 2013).

Nepal's community forestry aligns with global community-based forest regimes seen in countries including Indonesia, South Korea, Mexico, Mozambique, and the Philippines. These models demonstrate the dual benefits of ecological protection and socioeconomic advancement through local engagement (Bre, 2012; FAO, 2025). Meanwhile, Nepal faces rapid urbanization challenges such as deteriorating air quality, loss of green spaces, increased flood risks, and urban heat islands, particularly in Kathmandu (IQAir, 2024). Urban forestry research globally corroborates benefits such as improved air quality, crime reduction, enhanced mental health, and cultural preservation (Novak & Dwire, 2007; Kuo & Sullivan, 2001; Hunter et al., 2019). At the same time, studies on Kathmandu's built environment highlight the comparative advantages of eco-friendly buildings on urban sustainability, underscoring the importance of integrating green infrastructure into urban planning (Mishra & Rai, 2017). Furthermore, Mishra's extensive research on sustainable urban development, risk assessment, green financing, and organizational environmental performance stresses the critical necessity of embedding sustainability principles in Nepal's urban management frameworks (Mishra, 2018, 2019).

Problem Statement

Urban planning in Nepal has traditionally prioritized physical infrastructure and economic growth over environmental sustainability and social welfare. Consequently, urban areas have become densely constructed with minimal emphasis on green space, resulting in worsening air and noise pollution, urban heat island effects, inefficient waste management, and declining public health outcomes (MoUD, 2017; World Bank, 2021). This unchecked urban expansion has led to "concrete jungles" that exacerbate social isolation and vulnerability among urban residents, heightening mental health challenges and deteriorating quality of life. Climate-related events such as flooding and heat stress further highlight the urgent need for green infrastructure integration into urban development policies (Kabisch et al., 2017).

Despite the proven success of community forestry in rural Nepal in promoting environmental stewardship and improving livelihoods, its adoption and integration within urban planning remain limited. Urban community forests are often marginalized in city development strategies, constrained by competing land-use demands, insufficient policy support, and weak institutional frameworks. Studies focusing on urban community forestry in municipalities like Pokhara and Bharatpur reveal both the promise and the significant barriers of scaling community forestry models to urban contexts, emphasizing the need for participatory, well-supported approaches (Lamichhane & Thapa, 2022). Given these challenges, it is imperative to explore how community forestry can be effectively integrated into Nepal's urban planning to advance ecological resilience, social inclusion, and sustainable urban growth—a perspective strongly advocated in recent sustainability and governance research (Mishra et al., 2024).

Research Objective

This study aims to investigate the potential and challenges of integrating community forests into urban planning in Nepal. Specifically, it seeks to:

- Assess the environmental, social, and economic contributions of community forests in urban settings.
- Understand urban residents' perceptions of the importance of community forests for improving city life.

- Identify policy, institutional, and land-use barriers and opportunities for embedding community forestry within urban development frameworks.

The overarching goal is to inform policies and planning strategies that leverage community forestry to foster sustainable, inclusive, and resilient cities, aligning with global commitments such as the Sustainable Development Goal 11.

Methodology

Research Design

This study employed a concurrent mixed-method approach integrating qualitative and quantitative techniques to investigate the interaction between urban residents and the Ranibari Community Forest in Kathmandu. The concurrent design enabled simultaneous collection and analysis of qualitative and quantitative data, thereby providing a comprehensive understanding of the complex socio-ecological dynamics involved (Creswell & Creswell, 2018; Creswell & Plano Clark, 2018). Ranibari Community Forest was selected as an ideal case study site due to its successful urban forest management, balancing ecological integrity with social benefits. The study aimed to identify the nature of benefits to urban inhabitants, their engagement practices, and resultant social and environmental outcomes.

Study Area Description and Justification

The Ranibari Community Forest (RCF), located within Kathmandu Metropolitan City's Ring Road in Lajimpat (Ward No. 3), spans approximately 6.95 hectares at an altitude of 1,303 meters and is managed by a local community forest users' committee (Maharjan et al., 2006). Ecological assessments report 108 vascular plant species from 58 families, with dominant species including Schima wallichii, Celtis australis, and Engelhardtia spicata, despite weak regeneration and the presence of invasive species such as Lantana camara (Maharjan et al., 2006). The forest supports diverse fauna, including over 67 bird species, six small mammal species like the Asian House Shrew (Suncus murinus), and a variety of meso- and macrofauna (Budhathoki et al., 2020) . RCF serves as a crucial urban biodiversity hotspot and green space within Kathmandu.

Its long history of community management, proximity to a dense urban population, and ecological significance make RCF a valuable site to explore the nexus between urban development and community forestry. The forest's urban setting provides a unique opportunity to assess its role in urban ecological improvement, environmental awareness, and delivery of ecosystem services.

Data Collection Techniques

Data collection employed the following methods:

Field Survey: A structured questionnaire was administered to 50 randomly selected visitors of RCF. The questionnaire captured demographic information, visitation frequency and purposes, motivations for forest use, and perceived social and environmental impacts through both closed and open-ended questions. The sample size was chosen based on methodological adequacy and practical feasibility, aligned with precedent studies employing 30 to 100 respondents for capturing diverse visitor perspectives while ensuring analytical robustness (Creswell & Creswell, 2018).

Semi-Structured Interviews: In-depth interviews were conducted with key stakeholders, including the park officer, to obtain expert insights on forest management, environmental outcomes, economic benefits, and policy implications related to urban community forestry.

Direct Observation: Systematic field observations were made to examine forest conditions, visitor behavior, and the integration of the forest within the urban landscape. This technique triangulated survey and interview data, enriching contextual understanding.

Sample Size and Justification

Fifty respondents were selected for the quantitative survey through random sampling. This size was appropriate for concurrent mixed-method research within community forestry contexts, enabling representative data on visitor diversity and capturing data saturation through recurring themes and behavioral patterns. The sample size was also feasible within the study's three-month timeframe and resource limitations, thus ensuring reliable and relevant quantitative data complementing qualitative findings (Creswell & Creswell, 2018).

Data Analysis

Quantitative survey data were analyzed using descriptive statistics and presented in tables and charts to illustrate demographic trends, visitation patterns, and perceptual variables. Qualitative interview and observational data underwent thematic analysis to identify recurring patterns, narratives, and nuanced insights related to community interaction with the forest. A triangulation strategy was employed to cross-validate findings from multiple data sources and enhance the credibility of conclusions. Whenever possible, primary data were corroborated with secondary literature to enrich interpretation depth and support empirical rigour. Conclusions were drawn through a balanced integration of logical inference and evidence-based analysis.

Findings

This section shares the findings from the data we gathered through field surveys and key informant interviews, both quantitative and qualitative. We dive into the demographics of the participants, the reasons and frequency of their visits, and we explore the key themes regarding the environmental, social, and economic benefits that the Ranibari Community Forest brings to the community.

Participant Demographics

The study recorded a balanced gender distribution among the respondents, with the same number of men and women. The majority were 45 years of age and above and lived within or near the Ranibari community forest area, which indicated the local and mature visitor base. Personal data was collected but maintained only for relevant demographic variable analysis.

Gender-wise participation was almost equal, reducing prejudice in reactions based on sex. Although a little more male visitors were seen, the difference was negligible. The residence was indirectly seen, and 86% of the participants were residents, outlining the attraction of the forest for nearby residents; Only 14% were visitors to neighboring areas.

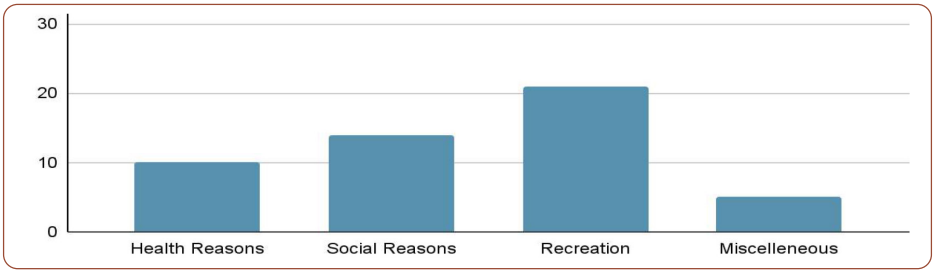
Participants were classified into three age groups. The largest group (n = 26) included respondents over 45 years of age, followed by youth in the age group of 10–25 (n = 17). Adults were low in the age of 25–45 years (n = 7), which is likely to be due to the trend of vocational commitments and migration.

Visitor Purpose and Frequency

Recreation and social interaction were the primary inspiration to go to the community forest. Most of the participants visited a weekly or monthly, reflecting moderate but coherent engagement of urban green places. 10–25 and 45+ age groups participated more often, more leisure time, due to health awareness and social needs, while 25–45 age groups had less participation due to commitments. While entertainment was the main inspiration, socialization also played a significant role, and physical health benefits were accepted but less impressive. Weekly trips were the most common, with monthly trips, which were aligned with a period of holiday.

Figure 1

Purpose of Visit

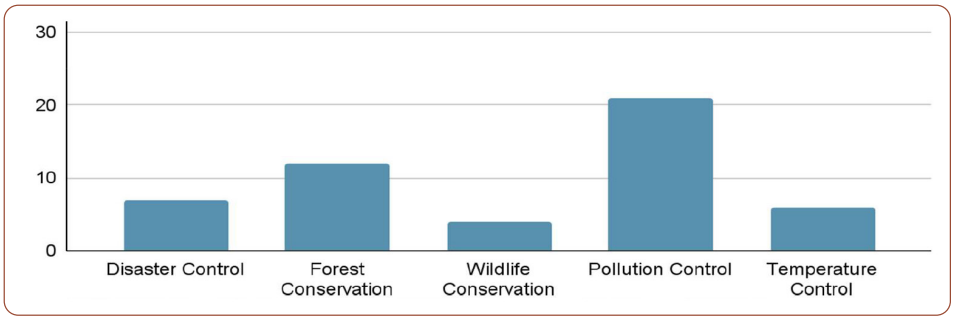


Perceived Environmental Contributions

The participants widely acknowledged the environmental value of the Ranibari Community Forest. About half of them (n = 21) emphasized their role in reducing urban air pollution. Others recognized its contribution to temperature control (n = 6), biodiversity conservation (n = 12), and natural disaster mitigation (n = 7), especially in the light of recent urban floods.

Figure 2

Perceived Environmental Contributions

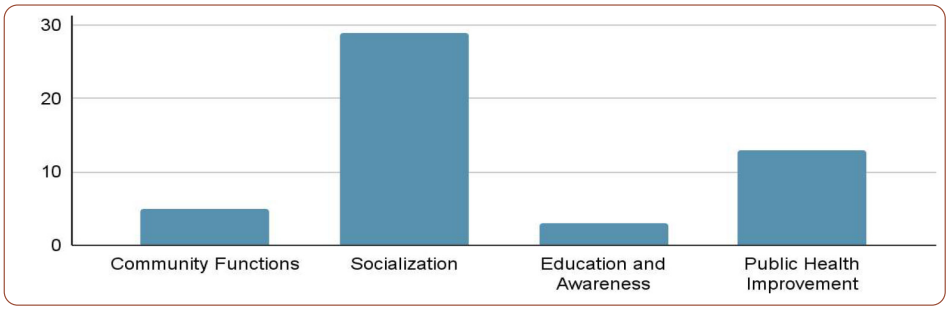


Perceived Social Contributions

The forest was appreciated as a social place that promotes informal ceremonies, cultural continuity, and mental welfare. The majority (in = 29) saw it as a peaceful place to meet friends and family. Thirteen respondents gave it importance to physical exercise, especially the elderly. Some people identified their role as an educational site for hosting community events (n = 5) or for environmental awareness (n = 3).

Figure 3

Perceived Social Contributions

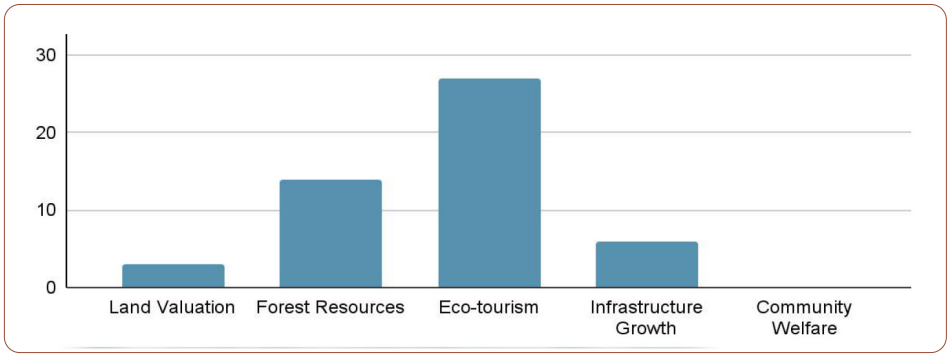


Perceived Economic Contributions

Although economic benefits were limited, the respondents recognized many crucial contributions. Eco-tourism was the most often quoted economic impact (n = 27). Some respondents (n = 10) mentioned forest resources such as wood, while others (n = 7) mentioned the growing property values near the forested land as it increased the aesthetic environment of the residence area. These findings suggest that urban residents find considerable financial value to green spaces, especially through tourism and better land evaluation.

Figure 4

Perceived Economic Contributions



Overall, Ranibari Community Forest provided remarkable environment, social and limited but significant economic benefits to its urban users. The youngest and oldest age groups are the busiest, for recreation and socialization. Participants emphasized pollution control and community collecting places, which are in the form of basic values of the forest. These findings outline the importance of urban forests in increasing the vibrancy of the city and the following chapters will be severely discussed regarding the current literature.

Observed Contributions

An observation of the entire area was done to reaffirm and reinforce collected data, during which we spotted an overlooked economic contribution of the Ranibari Community Forest. The park also provided opportunities for small private street vendors to operate food carts and shops near the periphery of the area, enabling them to take advantage of eco-tourism. Furthermore, inside the park, we noticed a small eatery operating, which took advantage of the park's eco-tourism. Hence, this also reveals how the economic benefits of community forest in urban areas can be wide and broad.

Empirical Contributions

Data collected through a key informant interview with the park officer affirmed the findings gathered through field surveys. In addition, it also revealed key contributions unknown to the public. The Ranibari Community Forest made a considerable economic contribution via Agroforestry and Eco-tourism. Production and distribution of organic soil and compost not only generates revenue for the community forest but also indirectly supports urban greenery i.e., gardening and farming. And Eco-tourism provided a steady flow of revenue, i.e., an entry fee of Rs. Twenty per person. Furthermore, it also provided a more affordable space for social event hosting such as Parties (for Brata-Banda, Marriage, etc.), Picnics, etc. adding more opportunities for revenue generation. A rough estimate data suggested that the Ranibari Community Forest generated 10-12 lakhs annually, which is a considerable amount, given that the Community Forest is also self-sustaining with bare minimum infrastructure and labour.

The Ranibari Community Forest revealed that urban forests can also have a significant presence in the social life of urban people. Nepalese cultural and religious traditions are deeply intertwined with nature i.e. one is inseparable from the other. Forested lands are often ideal locations for conducting ancestral, cultural, and religious rituals. This Community Forest hence is also preserving urban traditions and cultural identity, ensuring local people have a safe place to conduct ancestral worship, family god worship i.e., Kul-Puja and more. Furthermore, the affordable space provided for social events as mentioned above, is also ensuring continuation of social practices as people do not have to struggle with the burden of rising economic pressures brought in by important social events like marriage.

Lastly, wildlife conservation is the most widely discussed issue associated with forest and disappearance of urban wildlife has been an issue worldwide. The Ranibari Community Forest, along with its contribution in mitigating city air pollution, also provided a haven for Kathmandu's diverse bird species (more than sixty-seven species). Not to mention, small urban mammals and amphibians that are rarely talked about such as squirrels, frogs, etc.

Empirical and Observed Challenges

Data collected via the key informant interview with the park officer shed light on key challenges faced by forested land in urban areas, even those protected by local communities.

Land encroachment of forested land was highlighted as the most genuine issue in the interview, where both government infrastructure projects and private individual businesses or residents had encroached on the land of Ranibari community forest, effectively reducing it to the current size i.e., total of 6.95 hectares. This trend will surely intensify in the future as mass rural-urban migration is increasing population density of urban areas, resulting in uncoordinated and erratic urban infrastructures that will further occupy and encroach on urban forest and wildlife.

Negligence and lack of government intervention in protecting urban forests was another concern of the park's authorities. Ranibari Community Forest is effective.

self-sustaining and receives little to no assistance, whether financial, technical or at policy level, from government bodies. The park's operations and expenses are fully covered via its revenue. Both concerns were reinforced when we conducted our observation for further validating the collected data. The park had bare minimum infrastructures along with their low state of repair. The forested area was also enclosed with wire mess walls, as a response to growing encroachment.

Discussion

Environmental Impacts

Data collected from surveys, key informant interviews, and field observations substantiate the critical environmental functions played by the Ranibari Community Forest (RCF) within an urban setting. Findings affirm the forest's effectiveness in reducing air pollution and stabilizing the local ecosystem, contributing significantly to temperature regulation. These outcomes align with extant research highlighting the benefits of urban green spaces, particularly their role in improving air quality and thermal comfort (Kabis et al., 2020). Globally, urban forests are increasingly recognized for their capacity to sequester carbon, reduce particulate matter, and mitigate urban heat island effects, positioning them as indispensable components for resilient city development and climate adaptability. Mishra and Rai (2017) similarly emphasized the comparative ecological advantages of eco-friendly urban building designs, reinforcing the need for green integration in urban contexts.

Social Impacts

Urban community forests like Ranibari extend beyond environmental benefits to generate profound social impacts. The forest functions as a vital communal space for daily recreation, social

interactions, and cultural activities, fostering social cohesion, identity preservation, and a sense of belonging across generations. This reflects global findings that access to urban green spaces correlates with improved mental health outcomes, including reductions in stress, anxiety, and depression in densely populated areas (Browning et al., 2023). Furthermore, the preservation of cultural heritage within the forest—manifested through temples, sacred trees, and rituals—reinforces RCF's role as a living cultural landscape that nurtures local identity and collective memory. These social and cultural functions contribute to the creation of inclusive, psychologically supportive, and culturally vibrant urban environments (Kumar & Has, 2022). Mishra et al. (2024) also argue for embedding environmental sustainability orientations within organizational and community practices to enhance social well-being and performance.

Economic Impacts

Although urban community forests may initially appear less economically contributory than their rural counterparts, this study highlights several underappreciated economic benefits. Notably, RCF facilitates eco-tourism and enhances the aesthetic qualities of surrounding neighborhoods, factors valued by community members. Literature supports that urban green spaces boost local economies through increased tourism, elevated real estate values, and the growth of nature-based enterprises (Hase et al., 2021). Importantly, urban forests yield substantial returns by engaging in ecosystem service markets and climate adaptation financing mechanisms, thereby integrating environmental assets into broader economic development strategies (McDonald et al., 2020). Mishra and Aithal (2022, 2023) emphasize the burgeoning role of green financing and sustainable banking practices in leveraging environmental resources for economic resilience, reinforcing the policy relevance of integrating urban forests into economic planning.

Integrated Implications for Urban Forestry

Overall, the multifaceted benefits of urban community forests such as Ranibari underscore their strategic significance in providing environmental services, advancing social welfare, and stimulating local economies. However, challenges persist due to the pressures of rapid urbanization, resource limitations, and fragmented policy frameworks. Exploiting the full potential of urban community forestry requires embedding these green spaces within urban planning processes, empowering community forest user groups (CFUGs) for enhanced governance, and raising public awareness about their diverse values. Mishra (2019) stresses the importance of robust building bye-laws and urban regulations to facilitate sustainable urban development, which could incorporate urban forestry frameworks more effectively. Integrating urban community forests as core elements of green infrastructure can enable Nepal's cities to evolve into more resilient, inclusive, and livable spaces, advancing sustainability goals consistent with national and international commitments (Mishra et al., 2024).

Conclusion

This study suggests that urban community forests, such as Ranibari, provide important environment, social and economic benefits - improve air quality, conserve biodiversity, strengthen social relations and support livelihood. Nevertheless, they face rapid urbanization, weak policies and challenges with limited resources. To unlock its capacity, community forestry must be integrated into urban planning and climate adaptation strategies, with strong local regime, community participation and sustainable financing. It is necessary to empower community forest user groups (CFUG), promote public awareness, and promote cooperation between government, non -governmental organizations and academics.

Future research and monitoring should guide evidence-based policies and innovative models for community engagement. With these stages, urban community forestry can become the cornerstone of permanent urban development, enhancing flexibility, ecosystem and quality of life in Nepal.

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