

Relocation to Sustainable Livelihood: 4C Framework—Conservation, Community, Conflict, and Coexistence at Bhadra Tiger Reserve, Chickmagalur.

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Abstract:

This study explores the integrated model of conservation and community rehabilitation undertaken in the Bhadra Tiger Reserve (BTR), Karnataka, through the lens of the 4Cs Framework—Conservation, Community, Conflict, and Coexistence. Titled “Enhancing Socio-Economic Rehabilitation for Forest Dwellers in Bhadra Tiger Reserve”, the research evaluates the outcomes of the voluntary relocation of 463 households from 16 core forest villages, such as Muthodi and Hebbe, to well-planned sites like M.C. Halli and Kelagur. The relocation aimed to balance ecological regeneration with socio-economic upliftment, aligned with multiple UN Sustainable Development Goals (SDGs) including SDG-1 (No Poverty), SDG-4 (Quality Education), SDG-11 (Sustainable Cities), SDG-13 (Climate Action), and SDG-15 (Life on Land).

Employing a mixed-method approach, the study gathered data from 273 households using surveys, FGDs, and interviews. Quantitative findings showed significant improvements in income, education (particularly for girls), infrastructure access, and a steep decline in human-wildlife conflict. Qualitative insights revealed enhanced community dignity but also persistent gaps in healthcare, irrigation, and livelihood diversification. Thematic analysis and word cloud visualization highlighted both the transformative and challenging aspects of rehabilitation.

The research emphasizes Bhadra’s ethical and participatory resettlement approach—legal land rights, housing, and stakeholder collaboration—as a replicable model for rights-based conservation. However, sustained governmental support, continuous ecological monitoring, and context-specific skill development remain crucial for long-term success.

The Bhadra model teaches that conservation is not about exclusion, but coexistence—a journey where forests, wildlife, and people thrive together. In a world facing ecological crises, Bhadra offers a powerful blueprint where development and biodiversity protection walk hand in hand, reaffirming that “The forest

is born of man, and the tiger is born of the forest—none can survive in isolation.”

Keywords: Conservation Relocation, Bhadra Tiger Reserve, 4Cs Framework, Socio-Economic Rehabilitation, Human-Wildlife Coexistence

Introduction:

The Bhadra Tiger Reserve (BTR), located in the Chikkamagaluru district of Karnataka, is one of India’s significant protected areas established to conserve biodiversity, particularly endangered species like the tiger. While the creation and expansion of such reserves are vital for ecological preservation, they often bring complex challenges for forest-dwelling communities whose lives are intricately tied to the forest ecosystem. In the case of BTR, a substantial population of forest-dependent families lived within the core areas of the reserve, relying on it for their livelihoods through activities such as grazing, fuel wood collection, and small-scale farming. However, their continued presence posed challenges to conservation efforts, leading to frequent human-wildlife conflicts and environmental degradation. Recognizing the dual necessity of ecological protection and human welfare, the Government of Karnataka, along with various conservation agencies, initiated a comprehensive voluntary relocation program for forest dwellers from the Bhadra Tiger Reserve. This initiative aimed not only to reduce anthropogenic pressure on the forest but also to enhance the socio-economic conditions of the displaced communities through planned rehabilitation. Families were relocated to newly developed settlements like M.C. Halli and Kelagur, which were equipped with improved infrastructure and basic services including housing, roads, electricity, water supply, healthcare, and schools. This relocation program has often been cited as one of the more successful examples of conservation-linked rehabilitation in India due to its emphasis on participatory planning, fair compensation, and community engagement. However, while initial assessments suggest that the resettlement improved access to essential services and reduced forest dependency, there remains a need to systematically evaluate the long-term socio-economic outcomes of this transition. Questions persist about the sustainability of livelihoods in the new settlements, the effectiveness of infrastructure and service delivery, and the emotional and cultural adjustments faced by relocated families.

This study seeks to explore these dimensions in depth. By assessing current living conditions, identifying the factors that influenced relocation decisions, and evaluating post-relocation livelihood strategies through the lens of the Sustainable Livelihood (SL) Framework, the research aims to provide a holistic understanding of the rehabilitation experience. It also investigates the perceived benefits of forest resources prior to relocation and the ongoing challenges in the new environment, offering insights into both the successes and gaps in the process. In doing so, the study contributes valuable evidence to the broader discourse on conservation-induced displacement and rehabilitation in India. It offers practical recommendations for future policy-making and program implementation, emphasizing that the success of such initiatives lies not just in physical relocation, but in the long-term enhancement of human well-being alongside environmental conservation.

Journey of Bhadra Tiger Reserve Relocation:

The First C- Conservation:

About Project Tiger:

Project Tiger is a flagship conservation program launched by the Government of India in 1973 to protect and conserve the endangered Bengal tiger. It marked a significant shift in wildlife conservation efforts in

India. Initially, the project encompassed nine tiger reserves, covering a total area of 9,115 square kilometers. Over the years, it has expanded to include 55 tiger reserves, safeguarding a substantial portion of India's landmass. The core objectives of Project Tiger are: • Protection of tigers: Ensuring the survival and maintenance of a viable tiger population in their natural habitats. • Habitat conservation: Preserving and restoring tiger habitats to provide suitable conditions for their survival. • Anti-poaching measures: Implementing strict anti-poaching activities to combat the illegal trade of tiger parts. • Community involvement: Engaging local communities in conservation efforts to promote coexistence and sustainable livelihoods. Project Tiger has been instrumental in increasing India's tiger population, making it a global success story in wildlife conservation. However, challenges such as habitat fragmentation, human-wildlife conflict, and illegal poaching persist. Continuous efforts are required to ensure the long-term survival of tigers and their ecosystem

Second and Third C: Community and Conflict

In the 1970s, faced with numerous difficulties, some villages expressed a desire to relocate outside the reserve if offered sufficient compensation (Sreekantaiah and Subramanya, 1992). The Karnataka government initially proposed a resettlement project in 1974 but failed to develop concrete plans until 1987 (Yatish Kumar, personal communication, 2024). Between 1987 and 1992, the government conducted surveys to identify eligible households and detailed project plans. A significant delay occurred while the government developed these plans and secured necessary funds. This delay necessitated a substantial increase in funding and additional land acquisition due to the growing population and number of households and villages within the reserve. The Karnataka government released initial funds in 1996 and sought further financial assistance from the central government.

The High Court's opposition to relocation incited some individuals to set fires, destroying 25 km² of the reserve. In 2001, the High Court dismissed the case and urged the project's swift completion. Simultaneously, efforts by local conservation NGOs (Bhadra Wildlife Conservation Trust, Wildlife First!, and Nature Conservation Guild), along with the forest and revenue departments, secured approval and consent from numerous households. From 1998 to 2001, these NGOs actively worked to improve community relations and foster consensus on relocation among diverse village factions. They continuously addressed people's concerns, fears, and challenges within the reserve while ensuring the forest and revenue departments progressed with resettlement plans. The forest department constructed and upgraded bridges, roads, and the water supply system for villages within the reserve (Shri Yatish Kumar, Divisional Forest Officer, personal communication 2024). Over time, consistent support from local NGOs and forest-revenue departments convinced many initially hesitant individuals to relocate (D.V. Girish, personal communication, 2024; Y. Kumar, personal communication, 2024). Government compensation for land and houses reassured households, prompting their decision to move. Project implementation commenced with the involvement of village representatives, NGOs, and the forest and revenue departments of Chikmagalur and Shimoga districts. Despite a decade-long delay, the Project Tiger steering committee ensured the availability of land and funds. Official implementation began in October 2001, with households receiving land deeds in the resettlement villages of M.C. Halli and Kelaguru. The government allocated land and individual housing sites to each household. Initially designated for resettlement, 334 hectares of land in M.C. Halli faced encroachment by existing residents, necessitating the purchase of additional land.

The new village, M.C. Halli, spanning 304 hectares, became home to 373 families (with 373 agricultural plots and individual housing sites). Many reserve households had illegally encroached on forestland for cultivation and housing without legal land deeds (Sreekantaiah and Subramanya, 1992; Karanth, 2003). Despite their ineligibility for compensation, the government granted land and houses in M.C. Halli to many of these households. The Rajiv Gandhi Housing Corporation built 203 houses (between November 2001 and June 2002) for poorer, landless villagers at a cost of 42,000 rupees (approximately US \$900) per house. Wealthier households constructed their own homes. Kelaguru, the second village, comprised 186 hectares of revenue land allocated to the remaining families. M.C. Halli land proved more suitable for sugarcane and rice cultivation, while Kelaguru land favored coffee. Consequently, Kelaguru households received larger land allotments. The government compensated households for dismantling their reserve houses and transportation costs to the resettlement villages. All households received a free housing site and a six-month subsistence allowance for food, fuelwood, and fodder. Both villages now boast electricity, piped water supply to each house, public transportation, improved communication, multiple markets, schools, hospitals, and proximity to major cities. M.C. Halli residents actively participated in the decision-making process, influencing house design and construction, and securing additional requests like gas stoves from the revenue department.

Recent developments include public water systems, electricity, phones, televisions, solar lights, and gas cooking stoves in both villages. All households received housing compensation and demolished their reserve homes (Y. Kumar, personal communication 2024). Additionally, a new school in M.C. Halli and regular health camps have improved school enrolment through active child participation (D.V. Girish, personal communication 2024).

Table 1 Bhadra Tiger Relocation Project: A Step Wise Approach

Step	Year	Description
1	1970	Villages thought to move outside of reserve, if offered adequate compensation by the Government. (Original Request Made by Hebbe Village)
2	1987-1992	Government Initiated Surveys
3	1996	GoK Released the fund and requested Additional funds from GoI
4	1999	Madla Village filed a case in High-court of Karnataka (Forest Fire Case)
5	1998-2001	NGOs Namely, Bhadra Wildlife Conservation Trust, Wildlife First! And Nature Conservation Guild. These organizations continually sought to address people's concerns, fears, and problems inside the reserve, and ensure that the forest-revenue departments continued to move forward with plans for resettlement. The forest department constructed and improved bridges, roads, and a better water supply system for villages inside the reserve
6	2001	High court Dismissed the Case
7	2001	Official Implementation Started
8	2001-2003	Rajiv Gandhi Housing Corporation constructed 203 Houses at MC Halli
9	2002-2005	All households received housing compensation, and dismantled their houses in the reserve.

Step	Year	Description
10	Post 2005 to till date	The Bhadra relocation is now complete and is considered a success by the government, non-governmental organizations, and many relocated people.

Research Methodology:

The research methodology adopted in this study is rooted in a mixed-method research design, which integrates both quantitative and qualitative approaches to provide a comprehensive understanding of the relocation outcomes in the Bhadra Tiger Reserve context. The study primarily employed a descriptive and exploratory research type, aiming to document and analyze the socio-economic transitions experienced by 273 relocated households. Quantitative data was collected using structured household surveys covering key variables such as income levels, education, employment, housing conditions, health access, and infrastructural amenities. This provided measurable indicators of the post-relocation transformation. To enrich these findings and capture nuanced perspectives, qualitative methods such as Focus Group Discussions (FGDs), key informant interviews, and narrative case studies were also conducted. These tools allowed the researchers to delve into the lived experiences, emotional journeys, and adaptive strategies of the resettled communities. The triangulation of data sources enhanced the reliability and depth of the analysis, ensuring that both statistical patterns and human stories were woven together to form a holistic account of the socio-economic rehabilitation process.

Data Analysis:

Impact Analysis:

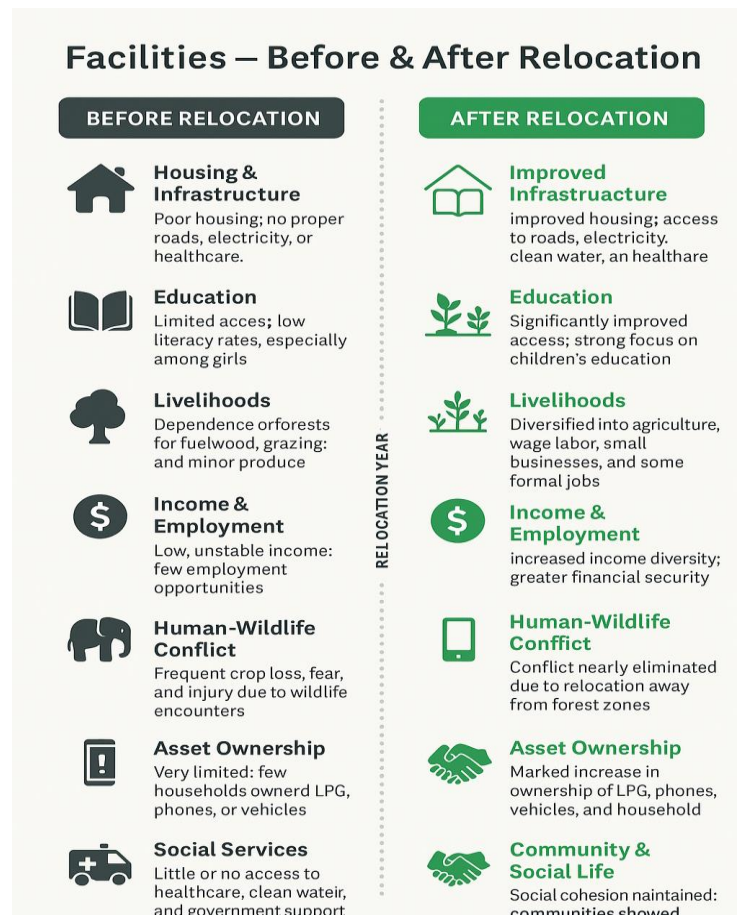
Relocation Impact			Interpretation
Infrastructure Analysis			
Facilities	Before Relocation in KMs	After Relocation in in KMs	Post-relocation, access to critical infrastructure improved drastically.
Drinking Water	0.5	0	
Banking Facility	15-25	1	Most essential services like healthcare, education, banking, and transport are now within 0.5–1 km, compared to 4–25 km before.
Distance in Transport	4	1	
Police Station	20	1	
Post office	8	1	
Primart School	8	0.5	
High School	20	0.5	This has significantly enhanced convenience, reduced time and travel cost, and improved quality of life.
Primay Health Center	20	0.5	
Hospital	20	0.5	
Near Urban Center	20	0.5	
Sustainable Livelihood Analysis			
Sustainable Livelihood	Before Relocation	After Relocation	

Relocation Impact			Interpretation
Physical Capital			
Type of House you live			There is a clear shift from unsafe or traditional structures to modern housing. Although Kachcha houses increased due to mass construction, Wooden housing was completely eliminated. This shift represents an improvement in the durability and safety of dwellings.
Kachcha	186	230	
Semi-Pucca	38	21	
Pucca	25	22	
Wooden	24	0	
Availability of household amenities			
Bike	17	273	Availability of household amenities shows a massive leap in modern conveniences.
Car	3	80	
Pump set	10	273	
LPG	10	273	
Mobile	5	273	The universal access to electricity, LPG, and mobile phones indicates a substantial uplift in living standards and connectivity.
Electricity	4	273	
Financial Capital			
Average Income (Year)	20000	200000	Household income increased tenfold, reflecting a strong economic transition.
Average Expenditure (Year)	5%	15%	
Average Saving (Year)	95%	85%	Although expenditure also rose, households still save a healthy 85%, suggesting economic resilience and financial stability.
Source of Income for you			
Agriculture	YES	YES	Income sources became more diversified and sustainable.
Livestock	YES	YES	
Forest resources	YES	NO	People moved away from forest dependency and wage labor towards formal jobs,
Ecotourism	NO	NO	
Govt. & private job	NO	YES	

Relocation Impact			Interpretation
Job in forest department	YES	NO	business, and ecotourism, aligning with conservation goals and providing stable incomes.
Business	NO	YES	
Wage labour	YES	YES	
Human Capital			
Average Family Size	7	3	Significant improvement in literacy and education levels, paired with a smaller average family size, points to better access to education and likely shifts toward nuclear family systems post-relocation.
Average Adult Labour (15-64 Years)	18-42	18-52	
% of Literature Person in Village	10%	30%	
Average Education of Schooling in Years	14-18	18-21	
Social Capital			
Participation in Social Events Jaatre/Festivals	YES	Yes	While social cohesion within the community remained strong (celebrations and events continue), the relationship with the Forest Department weakened. This may be due to reduced interactions post-relocation, requiring better outreach and engagement to maintain conservation collaboration.
Relationship with Forest Department	Very Good	Reduced	

The relocation process from Bhadra Tiger Reserve to M.C. Halli and Kelaguru has led to:

1. Improved infrastructure and living conditions
2. Enhanced financial well-being and reduced forest dependency
3. Rise in education, literacy, and asset ownership
4. A small trade-off in the human-forest department relationship, which can be addressed.



Discussion:

The 4th C: Coexistence:

Infographic Facilities Before and After Relocation:

The Bhadra Tiger Reserve Relocation Project in Karnataka stands as a transformative model that operationalizes the principle of coexistence by integrating ecological conservation with human rehabilitation in an inclusive, participatory, and ethically sound manner. Located in the biodiverse Western Ghats, a global ecological hotspot, Bhadra faced increasing anthropogenic pressure from 16 human settlements—such as Muthodi, Hipla, Hebbe, and Madla—within its core zone, leading to deforestation, grazing, fire hazards, and disruption of wildlife corridors, particularly those vital for the survival of flagship species like the Bengal Tiger. Recognizing the unsustainable coexistence within the forest core, the Government of Karnataka, under the ambit of Project Tiger, initiated a voluntary relocation program targeting 463 families (and a total of over 736 households) with the goal of reducing ecological stress and improving the socio-economic lives of forest-dependent communities. What distinguishes the Bhadra model from conventional relocation efforts is its emphasis on dignity, transparency, and community consent—there was no coercion, no displacement under duress, but rather a structured dialogue between forest authorities, civil society organizations, and the communities themselves. Resettlement sites—M.C. Halli and Kelagur—were not mere dumping grounds for relocated people but thoughtfully planned villages equipped with basic infrastructure such as concrete housing, roads, electricity, clean water, schools, and land rights. Each family received a legal title for agricultural and residential land, making them owners and not just beneficiaries, which dramatically altered their sense of belonging and

empowerment. The essence of coexistence in this context was not simply removing people from forests, but building a framework in which both nature and humans could flourish without compromising each other's rights and needs. The study undertaken to assess the outcomes of this intervention adopted a mixed-method research approach—quantitative surveys from 273 households captured data on income, education, employment, access to healthcare, infrastructure, housing, and instances of human-wildlife conflict; these were complemented by qualitative methods including Focus Group Discussions (FGDs), key informant interviews, and narrative accounts, all of which helped in understanding the lived experiences of those relocated. The data revealed a range of positive impacts: a substantial increase in household income due to access to alternative livelihoods and markets; improved school enrollment rates, especially for girls, due to proximity to schools and provision of transport facilities; and remarkable enhancement in housing conditions, sanitation, electricity, and road connectivity. Most notably, the incidence of human-wildlife conflict—once a daily reality for families living in the forest—declined drastically, allowing wildlife to return and habitats to regenerate naturally. This demonstrates how ethical and voluntary relocation can promote ecological revival while ensuring human welfare. However, the path to coexistence is neither smooth nor uniform. The research also highlighted ongoing challenges, including limited access to quality healthcare, inadequate irrigation facilities affecting agricultural productivity, and slow progress in livelihood diversification, with many families still dependent on wage labor or subsistence farming. These issues suggest that relocation is not a one-time event but a long-term process that demands continued institutional support, monitoring, and adaptation to emerging needs. Coexistence, thus, must be seen as a dynamic goal—an ongoing negotiation between conservation imperatives and human development. The Bhadra model exemplifies this multidimensional coexistence. Ecologically, it succeeded in reducing pressure on the forest, aiding biodiversity recovery, and re-establishing natural cycles. Socially, it respected the cultural identity of communities by enabling them to retain communal bonds, customs, and festivals even after relocation. Institutionally, it fostered cooperation between various stakeholders—the forest department, NGOs, conservation scientists, and local leaders—each of whom played a role in planning, executing, and monitoring the project. Such institutional coexistence is critical to ensure that conservation does not become a top-down, technocratic imposition, but an inclusive, adaptive process. This model also strongly aligns with several United Nations Sustainable Development Goals (SDGs), including SDG 1 (No Poverty), SDG 4 (Quality Education), SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 15 (Life on Land), showcasing how localized interventions can contribute to global sustainability targets. Furthermore, the model sets a precedent for conservation practices in other protected areas of India and beyond, where human-wildlife conflict, forced displacement, and habitat degradation continue to be major concerns. It redefines conservation not as a strategy of exclusion or sacrifice, but as one of inclusion, mutual respect, and shared benefit. The Bhadra experience also brought out emotional narratives—stories of fear turning into hope, resistance giving way to acceptance, and despair evolving into empowerment. Many community members, initially hesitant, later expressed pride in their new homes and aspirations for a better future for their children. These narratives reinforce that coexistence is not just about policy and infrastructure but also about emotional resilience, social cohesion, and psychological security. The word cloud analysis and thematic storytelling further enriched the findings, bringing to light subtle aspects like identity, memory, and adaptation, which are often ignored in traditional development metrics. Despite the successes, the study underscores that for coexistence to be sustained, relocation must be backed by continuous governmental engagement, periodic evaluation, ecological monitoring, and investments in education, healthcare, and livelihoods. Moreover,

conflict-resolution mechanisms and grievance redressal forums must be institutionalized to prevent alienation or marginalization of resettled communities. Skill development, especially in eco-tourism, sustainable agriculture, and non-farm rural enterprises, can go a long way in building economic resilience and reducing dependence on state support. The Bhadra Tiger Reserve model, therefore, is a compelling example of how coexistence can be realized when conservation and compassion go hand in hand. It proves that forests, wildlife, and human societies need not be in perpetual conflict but can thrive in tandem through ethical governance, participatory planning, and sustained investment. In a world increasingly grappling with climate change, habitat loss, and social displacement, Bhadra offers a replicable, humane alternative—a beacon that shows it is possible to reconcile ecological integrity with human dignity. Ultimately, the success of such models depends on political will, community trust, institutional coordination, and a deep philosophical shift from dominion over nature to stewardship alongside it. The Bhadra story reminds us that coexistence is not an abstract ideal, but a practical, powerful path toward sustainable futures for both people and the planet.

The findings reveal that relocation significantly enhanced the quality of life for the majority of the resettled families. Key impacts include improved access to education, diversification of income sources, increased household wealth, better housing, and stronger physical infrastructure such as roads, electricity, and healthcare facilities. Notably, education emerged as the top-ranked benefit, indicating a forward-looking shift in community aspirations toward long-term development and empowerment. Economic resilience strengthened post-relocation, with families moving away from forest dependency to a diversified livelihood portfolio that included agriculture, wage labor, small businesses, and limited formal employment. Asset ownership, including access to amenities like LPG, mobile phones, electricity, and transportation, has seen a remarkable rise, signaling improved living standards. The relocation also successfully minimized human-wildlife conflicts, a major conservation goal, while maintaining strong social cohesion among the relocated communities.

Conclusion:

The relocation of forest-dependent communities from the core area of the Bhadra Tiger Reserve (BTR) to newly developed settlements at M.C. Halli and Kelagur offers a compelling illustration of the 4Cs framework in action—Conservation, Community, Conflict, and Coexistence. Under Conservation, the project succeeded in significantly reducing anthropogenic pressure on critical tiger habitats, leading to ecological restoration and a marked decline in human-wildlife conflict. The return of wildlife and natural regeneration of forests are testament to the project's environmental impact, validating the ecological rationale behind the relocation.

In terms of Community, the initiative prioritized human welfare through participatory planning, legal land rights, and improved access to infrastructure, education, healthcare, and livelihood opportunities. The rise in educational enrollment—especially among girls—alongside increased household assets and diversified income sources, reflects a deeper transformation in the community's mindset from dependency to self-reliance and long-term development. Social cohesion and collective resilience also played a vital role in easing the emotional burden of relocation, particularly for older residents who shared deep cultural and emotional ties to the forest.

Addressing the theme of Conflict, the relocation process effectively mitigated long-standing tensions between conservation goals and human needs. By offering transparent compensation, infrastructural support, and voluntary relocation options, the initiative minimized resistance and built trust among

stakeholders. Moreover, the significant reduction in human-wildlife encounters demonstrates that well-executed relocation can be a peaceful resolution to ecological conflict, avoiding the adversarial dynamics often seen in conservation efforts.

Finally, the Bhadra project embodies the principle of Coexistence, not merely through spatial separation of humans and wildlife, but by creating a framework where both can thrive in harmony. It recognizes that forests, tigers, and communities are interdependent and that conservation should be inclusive, not exclusionary. However, for this coexistence to be sustainable, continued government engagement is essential—particularly in addressing gaps in healthcare, irrigation, and employment. Emotional and psychological well-being must also be integrated into long-term rehabilitation plans.

In conclusion, the Bhadra relocation initiative is a model of how the 4Cs can be operationalized to create lasting solutions that balance environmental priorities with human dignity. It calls for a holistic vision where conservation and community development are not competing interests but complementary goals, advancing the larger aim of ecological harmony and sustainable human futures.

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