

Compensation and Resettlement Approaches after Compulsory Land Acquisition for Jamuna Multipurpose Bridge Project (JMBP) in Bangladesh: Policy and Practice

Md Belal Hossain¹, Md Abud Darda², H.M. Shahin Quadir³, Terefe Alemu⁴, Al-Amin⁵

1 Sustainable Livelihood Consultancy Firm, Dhaka

2 Natural Science Academic Group, National University, Bangladesh

3 Mutual Trust Bank, Bangladesh

4 Ministry of Innovation and Technology 2490, Addis Ababa, Ethiopia

5 Department of Development Studies, Daffodil International University

Corresponding author*

Md Belal Hossain,

Sustainable Livelihood
Consultancy Firm, Dhaka

Email: belal.feni@gmail.com

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Abstract

This study evaluates the compensation and post-resettlement support policies for people affected by development projects (PAPs) in Bangladesh, focusing on the Jamuna Multipurpose Bridge Project (JMBP), the country's largest mega-project. An analytical framework was developed, and a questionnaire survey was conducted among 116 randomly selected PAPs. The study investigates the compensation and resettlement procedures followed in accordance with existing national laws and examines whether the policies ensure adequate post-resettlement support and fair compensation. The findings reveal that the current practices, based on a flawed land acquisition law, fail to meet global standards for resettlement policies. Despite some improvements in compensation and post-resettlement support compared to other completed mega-projects in the country, PAPs in the JMBP faced difficulties accessing their compensation and support packages. The study identifies issues with faulty valuation methods for loss calculations, which forced many resettlers to struggle to restore their livelihoods to pre-displacement levels. The study recommends the establishment of a clear resettlement policy, the assurance of fair compensation, and the initiation of a "benefit-sharing" mechanism to better address the needs of PAPs.

Introduction

Bangladesh, since its colonial era, has faced persistent challenges such as hunger, poverty, malnutrition, and unemployment, which continue to affect a significant portion of its population (Alam et al., 2003). Like many developing nations, Bangladesh has limited access to global resources, a low technological base, and vulnerable infrastructure, which has impeded its economic progress (Hussain, 2011). Outdated and inefficient infrastructure has become a critical barrier to development, despite the growing need for modern infrastructure projects that can benefit both society and the environment (Shi & Shang, 2020). Infrastructure development is a fundamental component of economic progress; however, in Bangladesh, it remains hindered by the lack of efficient systems and the high costs involved in construction. Despite these challenges, Bangladesh continues to invest heavily in large-scale infrastructure projects, but the process of land acquisition, a crucial step in such projects, remains complex and problematic. The acquisition of both public and private land for infrastructure projects, especially in the context of rapid industrialization and urbanization, often involves compulsory purchase, voluntary purchase, and land consolidation (Cash et al., 2006), with land often acquired at low market values, further exacerbating inequalities (Belej & Walaci, 2008). Land, being a scarce and vital resource, has a profound impact on human life and existence. Bangladesh, with one of the highest population densities in the world, faces significant pressure on its limited land resources. This pressure leads to development-induced displacement and resettlement (DIDR), a common issue in the country, affecting



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thousands of households each year (Khatun, 2009). While land acquisition and resettlement are essential for infrastructure development, the current resettlement practices often fail to meet global standards, leaving displaced persons vulnerable to impoverishment. The existing national laws, including the Acquisition and Requisition of Immovable Property Act, 2017, have been insufficient in ensuring fair compensation and sustainable livelihoods for those affected (Cernea, 2000; Zaman, 1996). This research examines the shortcomings in Bangladesh's resettlement policies and practices, particularly in relation to mega development projects such as the Padma Multipurpose Bridge Project (PMBP). It critically evaluates the existing legal framework and highlights the need for an updated, integrated land law and resettlement policy that addresses the socio-economic needs of project-affected persons (PAPs). The study also explores the gaps between the current practices and international standards, emphasizing the need for policies that ensure fair compensation and long-term socio-economic sustainability for those displaced by development projects.

Literature Review

Land use, considered an artificial alteration of the land surface, plays a vital role in shaping ecosystem features (Steffen, 2007). This change involves transforming land into arable land, grasslands, forests, and urban areas (Mendoza et al., 2011). When land undergoes further changes due to modernization or industrialization, these alterations have an adverse impact on the livelihoods of people, particularly those dependent on cultivable land or other natural resources (Tuyen, 2011). Inhabitants in rural areas are more severely affected than others, as they face significant challenges from land use changes or the loss of agricultural resources on a large scale (Thanh, 2019). Nguyen (2011) showed in his research that the large-scale conversion of agricultural land for industrialization or infrastructure development leads to various issues, such as a decline in traditional food cultivation and labor adaptation. Therefore, compensation through laws and policies is necessary to avoid future risks and uncertainties. Islam (2005) revealed that the public differentiates land law and regulation from other legal disciplines because of its distinct language and complexity. The land legal framework is based on several principles, including land extinction, ownership, acquisition, requisition, compensation, settlement of Khas land, land mutation, ownership rights records, taxes, and certification. Land acquisition procedures vary across countries and are distinguished by the public ownership of land, with "the right and action of the state to acquire property not owned by it for civic use" (Chan, 2003). In the USA, this right is known as "Eminent Domain," and the action is termed "Condemnation" (Eaton, 1995). Other countries use different terminologies, such as compulsory purchase, expropriation, resumption, and obligatory acquisition (Boyce, 1984; Denyer-Green, 1994; Brown, 1996). In developing countries like Bangladesh, land acquisition procedures are often seen as fostering inequality, which goes against the constitutional promise of equality and the establishment of social and economic justice (Islam, 2005). Azis (2013) observed that land acquisition largely depends on public interest and is implemented by the government based on three core components: acquisition through an authorized framework, lawful tradition, and legal substance. Although land is a limited resource with significant effects on human life and existence, infrastructure development in any country requires the use of a large amount of land (Subash et al., 2017). Development-triggered displacement occurs when individuals are forced to leave their homes and assets due to infrastructure projects such as bridges, industries, dams, highway expansions, and airports (Downing & Garcia-Downing, 2009). Terminski (2015) claimed that displacement adds additional stress to landowners or families being relocated, leading to adverse socio-economic effects even before their physical displacement. The acquisition of privately owned land for development-oriented mega-projects causes displacement by the state or development agencies, a common

practice worldwide. However, this phenomenon is more complex in Bangladesh (Atahar, 2013). As a land-scarce region, Bangladesh faces significant pressure on land resources due to its large population. Consequently, land has become not only a means of livelihood but also a symbol of pride, status, prestige, social power, and satisfaction in Bangladesh.

To address these issues, it is essential to establish a clear process to manage and control land acquisition procedures, including strategies, public consultations, compensation payments, land ownership, petitions, and proper resettlement (FAO, 2008). After physical displacement, various studies have highlighted different compensation opportunities, including monetary compensation, social security assistance, and alternative employment for a temporary period. These measures help displaced persons avoid future uncertainties and adjust to their new lifestyle (Hui et al., 2013; Qian, 2015). Lombard (2016) identified a legal issue where displaced persons are often denied compensation due to a lack of legal title. The resettlement process (Mathur, 2011; Reddy et al., 2015) is complex and multidimensional. Some people benefit from resettlement, but many others lose valuable assets, especially those who do not receive compensation (Cernea, 1997, 2003a, 2007, 2008). When supplementary compensation is provided, landowners may welcome compulsory purchase or land acquisition. Usilappan (1997) emphasized the need for a resettlement policy with fair and equitable compensation for displaced owners. Zaman (1996) indicated that prior to the independence of Bangladesh (then East Pakistan), many development projects were completed without proper resettlement plans, displacing a large number of inhabitants and acquiring much land. Specifically, the construction of the Kaptai Hydraulic Dam in 1962 displaced about 18,000 households and took 54,000 acres of land, but the affected people did not receive adequate compensation or support for their land loss. Islam et al. (2015) stated that the existing legal framework in Bangladesh deprives the population of compensation for public infrastructure development projects. The country has also failed to formulate an integrated law for land acquisition and resettlement to implement large-scale infrastructure developments effectively (Atahar, 2014).

Materials and Methods

This study employs a mixed-methods approach, combining both empirical data and literature review, to analyse the post-resettlement situation of the Jamuna Multipurpose Bridge Project (JMBP), Bangladesh's first resettlement initiative for development-induced displacement. The research involved a structured questionnaire survey conducted in June 2020, which included 116 household heads from the affected areas. The survey aimed to gather insights into participants' views on the compensation procedure and the effectiveness of the resettlement program in restoring livelihoods. Respondents were asked to rate their perceptions on various aspects of livelihood restoration using a five-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree". Nine key dimensions were assessed to measure livelihood restoration, including income generation, education and healthcare opportunities, asset accumulation, status in the community, household well-being, vulnerability reduction, and sustainable natural resource use. Additionally, the socio-demographic status of the respondents, both before and after resettlement, was documented to examine changes in their living conditions. The study also draws upon extensive literature from scholarly articles, textbooks, journals, conference proceedings, and research reports to contextualize the findings within the broader framework of land acquisition and resettlement policies in Bangladesh. The Jamuna Bridge Resettlement Project (JMBP), located in the Tangail and Sirajganj districts, was chosen as the case study due to its significant role as the first large-scale resettlement project in the country. Initially, the project acquired 5,800 acres of public land for construction, which later expanded to over 7,000 acres, consisting primarily of agricultural land (83%), with smaller portions designated for homesteads and other uses. The project

ultimately impacted approximately 16,500 households, affecting nearly 100,000 people. Data from the questionnaire survey were analyzed using categorical regression to identify the key factors influencing livelihood restoration and assess the effectiveness of the resettlement policy. The analysis aimed to uncover the social and economic impacts of the Jamuna Bridge resettlement process, with a focus on the challenges and successes experienced by displaced individuals in their efforts to regain sustainable livelihoods.

Results

In this section, the results obtained from a questionnaire survey conducted on the Jamuna Multipurpose Bridge Project (JMBP), the first resettlement case following the liberation of Bangladesh, are analysed and critically discussed. A total of 116 affected households from both ends of the project (Sirajgonj and Tangail districts) were surveyed in this study. In terms of age, most of the household heads (52.60%) belong to the age group of 40-50 years. Additionally, 84.48% of the respondents were male, and 80.17% were married. The results indicate that the highest percentage (nearly 40%) of respondents had a junior/secondary school level of education (Table 2).

Table 1: Demographic Profile of Study Household Heads

Variables and Categories		Frequencies (%)
Age group	0-30	09 (7.75%)
	30-40	29 (25.00%)
	40-50	61 (52.60%)
	Above 50	17 (14.65%)
Gender of household head	Male	98 (84.48%)
	Female	18 (15.52%)
Marital Status	Married	93 (80.17%)
	Single/Widowed/Divorced	23 (19.83%)
Educational status	Illiterate	11 (9.48%)
	Primary	29 (25%)
	Junior/Secondary School	46 (39.67%)
	Higher Secondary School	21 (18.10%)
	Graduate	09 (7.75%)
Total (N) =		116 (100.0)

Table 1 shows the demographic characteristics of the 116 household heads surveyed in the study. The majority of respondents were aged between 40-50 years (52.60%), followed by those in the 30-40 age group (25%). A significant proportion of respondents were male (84.48%) and married (80.17%). In terms of education, most participants had a junior/secondary school education (39.67%), with 25% having completed primary education. Only 7.75% of the respondents were graduates, and 9.48% were illiterate. These findings provide a snapshot of the socio-demographic profile of the affected households in the Jamuna Multipurpose Bridge Project resettlement area.

Table 2: Household income before resettlement and present-day in BDT

Monthly Income	Before resettlement (%)	Present (%)	Changed Percent
10,000-15,000	24.14	19.83	(-) 4.31
15,000-20,000	27.60	23.28	(-) 4.32

20,000-25,000	31.90	37.93	(+) 6.03
25,000-30,000	8.60	12.93	(+) 4.33
30,000 above	7.76	6.03	(-) 1.73

Table 2 presents the data on monthly income before and after resettlement, reveals mixed changes. A decrease in income was observed in the lower income brackets, with the 10,000-15,000 BDT and 15,000-20,000 BDT ranges dropping by 4.31% and 4.32%, respectively. However, the higher income ranges saw improvements, with the 20,000-25,000 BDT and 25,000-30,000 BDT ranges increasing by 6.03% and 4.33%, respectively. The highest income bracket (above 30,000 BDT) experienced a slight decrease of 1.73%. This suggests a shift towards slightly higher income categories post-resettlement for some individuals.

Table 3: Income source of people in the project area before resettlement and present-day

Sources of Income	Before resettlement (%)	Present (%)	Changed Percent
Service	14.66	22.40	(+) 7.74
Trade/Business	15.50	13.80	(-) 1.70
Crop Farming	31.04	25	(-) 6.04
Livestock Farming	18.10	12.10	(-) 6.00
Fishing	10.35	6.00	(-) 4.35
Remittances	6.90	11.20	(+) 4.30
Off-firm Activity	3.45	9.50	(+) 6.05

Table 3 represents the data on income sources before and after resettlement reveals notable shifts in the livelihoods of people in the project area. The percentage of individuals earning from service increased by 7.74%, while trade/business and crop farming decreased by 1.70% and 6.04%, respectively. Livestock farming and fishing also saw declines of 6.00% and 4.35%. On the other hand, remittances rose by 4.30%, and off-firm activity showed a significant increase of 6.05%. These changes suggest a shift in income sources, with some sectors experiencing growth while others faced decline.

Table 4: Regression model for livelihood restoration and related influential resettlement factors

Variable	Beta	Std. Error	F	p-value
Failure to Buy Similar Properties	0.182	0.136	1.798	0.136
Sufficient compensation payment	0.753***	0.163	21.478	0.000
RAP is less focused on SLR	0.575*	0.325	3.138	0.018
Change of occupations	0.548***	0.194	8.004	0.000
Faulty compensation payment procedures	0.136	0.262	0.268	0.898
Insufficient prior consultations	0.493**	0.253	3.799	0.007
Dependent Variable: Livelihood restoration, $R^2 = 0.558$, $F = 4.796^{***}$, $p\text{-value} = 0.000$ [* $p\text{-value} < 0.05$, ** $p\text{-value} < 0.001$, *** $p\text{-value} < 0.0001$]				

The table 4 presents the results of a regression analysis examining various factors influencing livelihood restoration after resettlement. The model indicates a strong relationship between the independent variables and the dependent variable, livelihood restoration ($R^2 = 0.558$, $F = 4.796$, $p\text{-value} = 0.000$). Several variables are statistically significant, suggesting that they play an important role in the livelihood restoration process.

The most influential factor in livelihood restoration is sufficient compensation payment ($\text{Beta} = 0.753$, $p\text{-value} = 0.000$), with a strong positive impact on livelihood recovery. This indicates that higher compensation payments are strongly associated with better livelihood restoration outcomes for project-affected persons. Similarly, change of occupations ($\text{Beta} = 0.548$, $p\text{-value} = 0.000$) also shows a significant positive effect, suggesting that individuals who were able to change occupations post-resettlement have better livelihood restoration outcomes. In contrast, failure to buy similar properties and faulty compensation payment procedures were not found to be statistically significant, with $p\text{-values}$ of 0.136 and 0.898, respectively, indicating that these factors do not have a significant impact on livelihood restoration. Other significant factors include RAP (Resettlement Action Plan) being less focused on SLR (Sustainable Livelihood Restoration) ($\text{Beta} = 0.575$, $p\text{-value} = 0.018$), which suggests that a lack of focus on sustainable livelihood restoration in the resettlement plan negatively affects the livelihood recovery of the displaced. Additionally, insufficient prior consultations ($\text{Beta} = 0.493$, $p\text{-value} = 0.007$) also has a significant impact on livelihood restoration, highlighting that the lack of adequate consultation before resettlement leads to less effective recovery. These findings emphasize the importance of sufficient compensation, occupation change opportunities, and inclusive planning for successful livelihood restoration after displacement.

Discussions

To date, Bangladesh has failed to formulate a recognized resettlement policy or an integrated land and national resettlement law. Although a draft policy aimed at addressing inconsistencies and reducing disparities between development projects, while mitigating the risks of impoverishment for affected people, titled the "National Policy on Involuntary Resettlement and Rehabilitation (NPIRR)," was formulated under technical assistance (ADB TA) in 2009, it has not been formally adopted. In March 2018, another draft, the National Resettlement Guidelines 2018, was prepared by the Ministry of Land (MoL) under section 9(4) of the Act 2017 (Zaman & Khatun, 2018). This draft was sent to the Cabinet Division for review but has not yet been approved or gazetted for practical implementation. As a result, two separate "standards" are currently being applied to mitigate compensation for project-affected people under the existing resettlement policy. Some practitioners refer to this as "double standards" created by the previous Ordinance of 1982. For instance, people affected by land acquisition due to projects funded by DFIs (Development Finance Institutions) are eligible for more extensive compensation, including relocation assistance and the restoration of living standards, compared to those affected by government-funded projects. People affected by government-funded projects only receive compensation for the loss of land and structures in accordance with existing laws (Zaman, 1996; Atahar, 2014). In the current context, instead of applying the previous drafts on resettlement policy, the country relies on the Acquisition and Requisition of Immovable Property Act, 2017 (ARIPA 2017) and the respective donor agencies' safeguards policies, including those of the World Bank, ADB, JICA, and AIIB, depending on the funding mechanism (grant, loan, etc.) To date, Bangladesh continues to follow the resettlement practices outlined in the ARIPA 2017;

however, these guidelines are deemed insufficient and inadequate. In practice, donor agencies prepare their own resettlement action plans for proposed projects, following their guidelines and identifying gaps between the ARIPA 2017 and their own scope. The major shortcomings in the resettlement practices outlined in Bangladesh's policy, as stated in the ARIPA 2017, are presented in Table 6

Table 5: Major shortcomings of resettlement policy for land acquisition in Bangladesh

Issues	ARIPA, 2017 (Resettlement Policy)
Affected-peoples	Without titles or ownership record, Act does not cover PAPs
Prior Consultations	No provision in Act about pre-consultation with landowners for land acquisition, but they are allowed to raise objections under section 4(7).
Asset Valuation	Valuation for lost assets is calculated based on recorded transactions past year of comparable assets within project area which never reflect actual market value for replacement cost. Because, in Bangladesh buyer/seller often recorded lower value than actual transactions to avoid registration fees, taxes, etc.
Compensation	200% additional premium on market value for the GoB funded projects while 300% for the donors funded. It ensures cash compensation only for losses of land as replacement cost from the domestic funded project while PAPs will get replacement cost plus relocation assistance and provisions from donors funded projects to regain former living standards,
Restore Livelihood	As per sections 8(1) & 9(1) of the Act, District Commissioner (DC) will consider the matter during the asset valuation for acquisition, but no other provisions for PAPs.
Dispute against acquisition decision	Landowners can make objections under section 5(1) against land acquisition but this is subject to long time (at least one year) to meet such dispute in court that disrupts the progress of project ultimately
Pay compensation before physical relocation	Under section 11(1), landowners will get the compensation which applies only for the titleholders partially.
Provisions for non-title holders	No provision of compensation for replacement cost, resettlement assistance for restoration of livelihoods of affected persons those are as informal settler/squatters, occupiers, and informal tenants and leaseholders without document. Moreover, Bargader (shareholders) cultivator will not get any compensation if cultivate on khas land (government land).
Payment of compensation	It is often paid in installments that quite impossible for affected persons to regain their previous losing property including profession completely.
Process of acquiring	As per Act the process of acquiring lands in extremely lengthy with 22 steps, different public bodies and agencies involves that ultimately hampered emergency needs to be execute a development project.

The ARIPA, 2017 (Resettlement Policy) in Bangladesh has several problems. It doesn't cover non-titleholders for compensation, lacks pre-consultation with landowners, and

uses outdated methods for valuing assets. Compensation is often insufficient and paid in installments, delaying livelihood restoration. The long and complex land acquisition process also hinders timely execution of development projects and fair resettlement for affected people. Bangladesh currently lacks separate laws for land acquisition and resettlement caused by development projects. To address this, Bangladesh needs to create a clear legal framework and resettlement policy. The country can reform its existing laws and borrow practices from countries like China and India, which have well-established resettlement policies. The World Bank (WB) emphasizes the importance of public consultation and participation from both developers and affected people (PAPs) in development projects. The WB's Environmental and Social Standard 5 (ESS5) focuses on minimizing the adverse impacts on communities. In contrast, China's land laws provide higher compensation and resettlement subsidies for affected people, which Bangladesh could consider adopting to improve its own policies. Vinclay (2017) suggests that Bangladesh should support affected individuals not just through cash compensation but with long-term assistance to restore their livelihoods. Currently, in Bangladesh, landowners receive only one-time cash compensation, which is often used for immediate needs, leaving them struggling to regain their previous livelihoods. In comparison, China's laws provide compensation plus resettlement subsidies to ensure affected people's living standards are restored. By adopting the World Bank's ESS5 policy, Bangladesh can ensure better protection for PAPs, including compensation based on replacement costs and post-relocation assistance. Additionally, benefit-sharing from development projects, as seen in China and India, should be integrated into Bangladesh's policy to support the displaced population. Finally, the WB's guidelines on prior consultation with PAPs and local communities in decision-making can help prevent future displacement and ensure fair and sustainable resettlement practices.

Land for Land as Compensation

Deciding whether to offer compensation through land or cash is a complex issue. However, it is important to consult with the affected people (PAPs) and provide them with suitable alternatives, such as offering land in new locations. This approach can be helpful in reducing complaints and dissatisfaction. Bangladesh can consider using land consolidation techniques, which are common in other countries, to assist farmers and those affected by land acquisition (FAO, 2008). By consulting with PAPs, the government can better understand their needs and offer land that suits their farming activities, ensuring a smoother transition.

Land Valuation

The Asian Development Bank (ADB) defines the fair market value of land as the amount a buyer is willing to pay in the open market. Bangladesh could adopt this method for valuing land for acquisition. Countries like China, Malaysia, USA, and India already use comparable sales systems, where the value of nearby land in similar conditions is considered to determine the fair market value (Chan, 2006). This approach would provide a more accurate reflection of the actual market value.

Fixed Compensation

In some countries, compensation is fixed based on negotiations with landowners. Countries like Peru, Japan, and Singapore follow this method. In Italy, the compensation for agricultural land is higher, taking into account not only the land's market value but also its future earnings (FAO, 2008). This could be an option for Bangladesh, especially for agricultural land acquisitions.

Post-Resettlement Support

For successful livelihood recovery, the government should also focus on providing post-resettlement support. This includes offering skill development and job training to the displaced people, ensuring they can regain their livelihoods and achieve sustainable development (Peng et al., 2019). By focusing on these areas, Bangladesh can improve the resettlement process and help PAPs rebuild their lives.

Conclusion

Bangladesh's current land acquisition and resettlement policies fail to meet international standards, causing hardship for displaced people (PAPs). Issues like outdated land management, corruption, and insufficient compensation risk creating a new impoverished class, which could hinder major projects like the Padma Bridge and others. To address this, Bangladesh needs a revised legal framework that minimizes land loss, improves compensation, and restores infrastructure. Drawing on successful international practices, such as China's benefit-sharing model, could improve resettlement. The government must ensure fair compensation, provide better relocation, and avoid acquiring agricultural land. By making these changes, Bangladesh can foster sustainable development and growth.

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Author contributions

Md Belal Hossain: Conceptualisation, methodology, data analysis, and writing. Md Abud Darda: Data collection, literature review, and analysis. H.M. Shahin Quadir: Supervision, review, and editing. Terefe Alemu: Statistical analysis and data interpretation. Al-Amin: Validation and final manuscript approval.

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Data availability

Data will be available upon reasonable request.

Declarations

Ethical approval

Informed consent We prepared a consent form, discussed the research process, and provided this consent form to the participants before the interview. We listened to this consent form for those who didn't know how to read it. The participating respondents were notified in support of their consent process that their commitment was voluntary and confidential. We informed them that their names would not be revealed in the study and would be used in pseudonyms. All participants consented orally and signed this consent form.

Conflict of interest

The authors declared that no conflict of interest exists.

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