GOVERNMENT OF BANGLADESH
LOCAL GOVERNMENT
ENGINEERING
DEPARTMENT (LGED)

The World Bank

RESILIENT INFRASTRUCTURE FOR ADAPTATION
AND VULNERABILITY REDUCTION

RIVER PROJECT

BASELINE SURVEY REPORT

For

Consultancy Services for Monitoring and Evaluation (M&E)

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MAIN REPORT

A. QUANTITATIVE ANALYSIS – SAMPLE HOUSEHOLD SURVEY

B. QUALITATIVE ANALYSIS

1. **Focus Group Discussion (FGD)**
2. **Key Informant Interview (KII)**

Table of Contents

A. QUANTITATIVE ANALYSIS – SAMPLE HOUSEHOLD SURVEY 2
EXECUTIVE SUMMARY 1
CHAPTER 1: INTRODUCTION 9
1.1 Background and Rationale 9
1.2 Project Locations 9
1.3 Objectives of the Baseline Survey 11
CHAPTER 2: STUDY METHODOLOGY 12
2.1 Approach and Methodology of the Baseline Study 12
2.2 Secondary Data Collection 12
2.3 Primary Data Collection Methods 12
2.4 Field Monitoring and Supervision 19
2.5 Quality Control 19
2.6 KoboToolbox Data Processing, Consolidation and Cleaning 19
2.7 Data Analysis and Report Writing 20
CHAPTER 3 | DETAILED ANALYTICAL FINDINGS 22
3.1 Household Landholding Structure 22
3.2 Geographic Variation in Landholding 23
3.3 Demographic Characteristics by Household Category 25
3.4 Household Size, Dependency and Literacy by Location 27
3.5 Primary Occupation of Working Household Members 28
3.6 Land Ownership and Operational Holding 29
3.8 Average Livestock Value by Location 32
3.9 Annual Household Income by Source and Landholding Category 33
3.10 Annual Household Expenditure by Item and Landholding Category 35
3.11 Baseline Household and Per-Capita Income 38
3.12 Baseline Household and Per-Capita Expenditure 39
3.13 Geographic Variation in Income and Expenditure 40
3.14 Baseline Income–Expenditure Surplus 41
3.15 Distribution of Income by Decile 42
3.16 District Income Inequality 43
3.17 Household Food Consumption Pattern 44
3.18 Food and Total Expenditure Pressure 45
3.19 Per Capita Income, Expenditure and Daily Calorie Intake 46
3.20 Calorie-Intake Distribution and Incidence of Poverty 48
3.21 Reported Calamity Types Occurred 50
3.22 Lightning occurrence during the last year 51
3.23 Flood Impacts by Asset Type 54
3.24 Flood-depth Profile in Homesteads and Agricultural Land 55
3.25 Crop Area Damaged by Crop Type 56
3.26 Households Reporting Fish-production Impacts 57
3.27 Composition of Drinking-water Sources 57
3.28 Household Assessment of Drinking-water Quality 58
3.29 Responsibility for Maintenance of Shared Water Sources 60
3.30 Shelter-location Choices During Homestead Inundation 60
3.31 Whether Cattle and Birds Accompany Evacuated Households 61
3.32 Availability of a Government Flood-shelter 62
3.33 Awareness of Nearby LGED School-cum-Shelter Development 63
3.34 Public Consultation among Respondents 64
3.35 Perceived Benefit among Respondents 65
3.36 Disaster-management Training Coverage 66
3.37 Distribution of Training Providers 67
3.38 Fatalistic Perception of Flood Risk 67
3.39 Preferred Preparation and Precaution 68
3.40 Access to an Early-warning System 69
3.41 Early-warning message channels 70

3.42 Use of Warnings and Perceived Benefit 70
3.43 Perceived Need and Effectiveness of Multipurpose Shelters 71
3.44 Stated Willingness to Use a Shelter and Alternative Arrangements 72
3.45 Shelter Satisfaction Dimensions 72
3.46 Demand for Designated Livestock Shelter Space 73
3.47 Constraints Affecting Shelter Use 74
3.48 Reported Condition of Connecting Roads and Bridges/culverts 75
3.49 Assessments of Access-route Services 76
3.50 Space for Women and Animals 76
3.51 Composition of Connecting-road Types 77
3.52 Average Daily Movement by Mode and User Group 78
3.53 Reported Availability of Solar Energy 79
3.54 Reported School-facility Deficits 79
3.55 Position of Women Respondents Within the Household 80
3.56 Educational Attainment of Women Respondents 81
3.57 Annual Income in Selected Women's Occupations 82
3.58 Women's Work Duration by Household Category 83
3.59 Share of Total Income Attributed to Women, Husbands and Others 83
3.60 Seasonal Intensity of Women's Workload 84
3.61 Women's Daily Time Use in Selected Activities 85
3.62 Use of Earnings of Women 85
3.63 Perceived Increase in Male and Female Agricultural Workload 86
3.64 Women's Flood-related Problems 87
3.65 Use of Major Treatment Sources and Costs Involved 88
3.66 Illness Profile by Major Category 88
3.67 Disaster-related Problems Identified by Women 89

B. QUALITATIVE BASELINE REPORT 91
1. Focus Group Discussion Report (FGD) 91
Executive Summary 101
1. Introduction 102
Project Background 102
1.2 Project Development Objective 102
1.3 Project Components Relevant to the FGDs 102
1.4 Purpose and Objectives of the FGDs 102
1.5 Scope and Use of the Report 102
2. Methodology 102
2.1 Study Coverage and FGD Locations 102
2.2 Participant Selection and Composition 103
2.3 Discussion Guide 104
2.4 Facilitation Process 104
2.5 Analytical Approach 104
2.6 Quality Assurance and Limitations 104
3. Detailed Findings and Interpretation 104
3.1 Flood Exposure and Consequences 104
3.2 Existing Shelter Arrangements and Capacity 104
3.3 Shelter-Connecting Roads, Crossings and Mobility 105
3.4 Drainage and Waterlogging 105
3.5 Water, Sanitation, Hygiene and Health 105
3.6 Electricity, Lighting and Communication 105
3.7 Gender, Disability, Age and Personal Safety 105
3.8 Livestock and Household Asset Protection 105
3.9 Early Warning, Awareness and Preparedness 106
3.10 School Continuity and Multipurpose Use 106
3.11 Community Governance, Operation and Maintenance 106
4. Cross-Cutting Synthesis 106
4.1 Areas of Strong Convergence 106
4.2 Geographic and Contextual Variation 106

4.3 Integrated Resilience Pathway 107
4.4 Relationship with the Household Baseline Survey 107
5. Participant Priorities and Suggested Measures 107
6. Conclusions 108

2. KEY INFORMANT INTERVIEW (KII) REPORT 109
Executive Summary 110
1. Introduction 111
1.1 Background 111
1.2 Purpose of the KII Component 111
1.3 Objectives 111
1.4 Scope and Interpretation 111
2. Methodology 111
2.1 Coverage and Informant Categories 111
2.2 Selection Approach 111
2.3 Interview Domains 112
2.4 Analytical Approach 112
2.5 Data Quality and Limitations 112
3. Detailed KII Findings and Interpretation 112
3.1 Existing Flood-Shelter Facilities and Practices 112
3.2 Access Roads, Bridges and Culverts 113
3.3 Livestock and Disaster Vulnerability 113
3.4 Disaster Preparedness and Early Warning 114
3.5 Educational Facilities and Multipurpose Use 114
3.6 Expected Community and Livelihood Benefits 114
3.7 Environmental and Social Considerations 115
3.8 Operation, Maintenance and Institutional Sustainability 115
4. Cross-Theme Synthesis 115
4.1 Infrastructure and Institutional Interdependence 115
4.2 Areas of Convergence 116
4.3 Areas Requiring Qualification 116
4.4 Relationship with Other Baseline Evidence 116
5. Participant-Informed Recommendations 116
6. Conclusions 117
6.1 Consolidated KII Indicator Tables 117

Annexures

1. Baseline Household Survey Questionnaire
2. FGD Checklist
3. KII Questionnaire
4. Detailed Analytical Tables – Provided in Separate Volume
5. Infographics Gallery – Provided in Separate Volume

EXECUTIVE SUMMARY









EXECUTIVE SUMMARY

Purpose and survey coverage

The baseline survey documented pre-intervention socioeconomic conditions, disaster exposure, shelter access, community preparedness, health burdens and gender-related vulnerabilities in the RIVER project and control areas. The results establish a detailed descriptive reference for 250 proposed school-cum-flood-shelter catchments across 14 flood-prone districts and four divisions.

Indicator	Project area	Control area	Baseline interpretation
Households interviewed	3,750	1,250	5,000 households in total
Geographic coverage	14 districts; 38 Upazilas	Comparable localities	Project/control design
Household size	4.26	4.22	Very small baseline difference
Dependants per earner	2.18	2.20	More than two members supported per earner
Landless households	48.67%	49.12%	Landlessness dominated both samples
Per-capita annual income	Tk 70,693	Tk 70,123	Close aggregate resource levels
Daily calorie intake	2,155 Kcal	2,123 Kcal	Project mean slightly higher
Calorie-based population poverty incidence	54%	55%	High deprivation in both areas

Overall baseline picture

Project and control households were closely aligned on aggregate household size, sex composition, dependency, landlessness, income, expenditure, calorie intake and poverty. Beneath those averages, marked differences appeared by district, landholding class and livelihood. Shelter demand was very high, but nearby shelter availability, disaster training, early-warning access, connecting-road quality, lighting, water, sanitation and inclusive space were limited.

SOCIOECONOMIC BASELINE

Household structure, livelihoods and productive assets

The sample was concentrated at the lower end of the landholding distribution: landless and marginal households represented 65.02% of the project sample and 67.84% of controls. Agriculture was the largest primary occupation, although day labour, business and service employment created a diversified livelihood structure. Livestock and poultry formed an important productive and precautionary asset base.

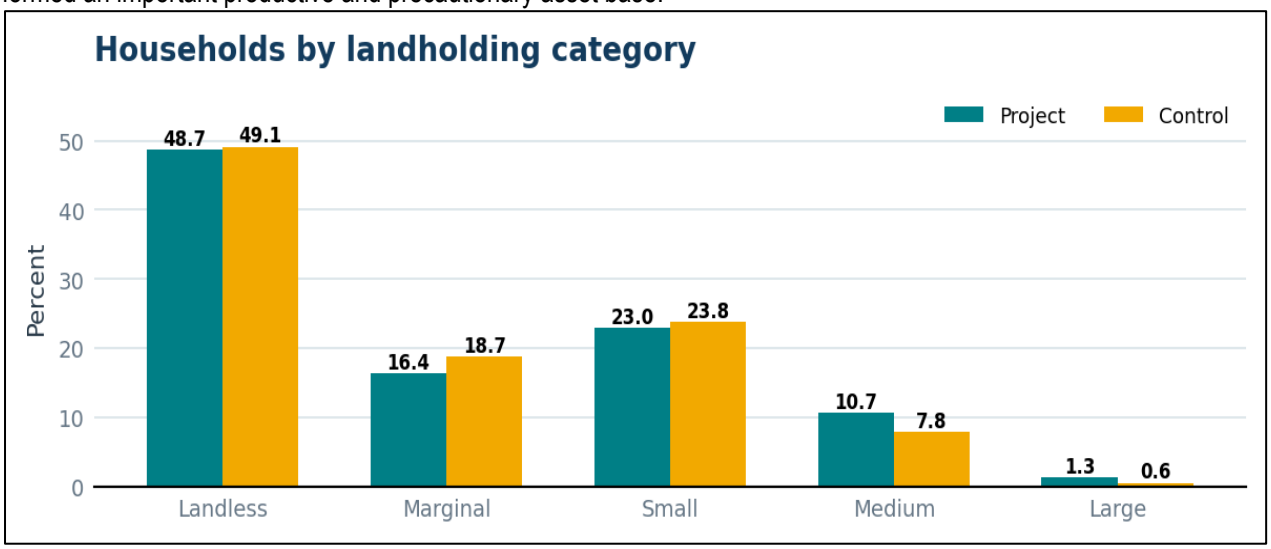


Figure ES.1: Landholding distribution in project and control areas

Indicator	Project area	Control area	Baseline interpretation
Landless / marginal / small	48.67 / 16.35 / 22.99%	49.12 / 18.72 / 23.76%	Lower three classes dominated
Medium / large farmers	10.72 / 1.28%	7.84 / 0.56%	Upper categories were small
Female population	48.31%	48.14%	Nearly identical sex composition
Female-to-male ratio	0.93	0.93	Same overall ratio
Literacy	89.81%	89.88%	Near equality overall; district variation
Agriculture as primary occupation	34.30%	36.79%	Largest occupation in both areas
Agricultural + non-agricultural day labour	24.19%	22.48%	Large wage-dependent group
Business / private service	15.40 / 11.40%	15.58 / 12.85%	Comparable non-farm structure
Households owning livestock/poultry	64.59%	61.36%	Widespread productive assets
Chicken / milch-cow ownership	37.41 / 30.93%	34.96 / 27.68%	Most common listed assets
Average reported livestock value	Tk 79,091	Tk 66,767	Project estimate was higher

The close overall landless share masks geographic variation: project-area landlessness ranged from 28.28% in Gopalganj to 70.48% in Kurigram. Average operated land increased from 0.20 acre among landless project households to 3.86 acres among large farmers. Productive capacity therefore varied much more across landholding groups and districts than the aggregate project-control comparison suggests.

LIVING STANDARDS

Income, expenditure, inequality, food security and nutrition

Average income and expenditure were close across the two areas, but both samples showed high consumption pressure and poverty. Expenditure absorbed more than nine-tenths of per-capita income. Calorie intake rose with landholding, although the calorie gradient was much flatter than the income gradient, particularly in the project area.

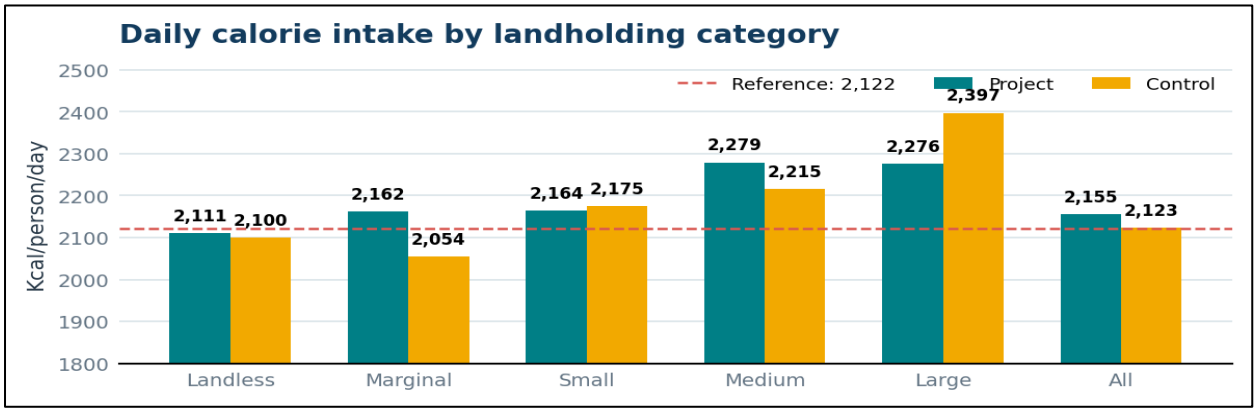


Figure ES.2: Daily calorie intake by landholding category; dashed line indicates 2,122 Kcal

Indicator	Project area	Control area	Baseline interpretation
Annual household income	Tk 301,265	Tk 296,199	Project average 1.7% higher
Annual household expenditure	Tk 279,157	Tk 272,340	Positive average residual in both
Income-expenditure residual	Tk 22,108	Tk 23,859	Control residual slightly higher
Per-capita income/expenditure	Tk 70,693 / 65,505	Tk 70,123 / 64,474	Expenditure exceeded 91% of income
Food share of expenditure	65.2%	66.3%	High essential-consumption burden
Daily calorie intake	2,155 Kcal	2,123 Kcal	Project mean 32 kcal higher
Above 2,122 Kcal	51%	51%	Half met the reference threshold
Below 1,600 Kcal	14%	16%	Severe calorie shortfall remained
Population below poverty line	54%	55%	High poverty incidence
Gini coefficient	0.33	0.33	Similar measured inequality
Top decile / bottom-half income share	24.9 / 27.2%	24.7 / 27.7%	Comparable distribution
D10:D1 income ratio	9.43	9.22	Large top-bottom income gap

Average daily calorie intake was 2,155 kcal in the project area and 2,123 kcal in the control area, with 51% of households in both areas consuming above 2,122 kcal. Calorie-based population poverty incidence was also similar, at 54% and 55%, respectively. The relatively high incidence reflects the vulnerability of the surveyed flood-prone communities, where recurrent flooding and riverbank erosion affect livelihoods and assets, and should not be directly compared with national poverty estimates based on different methodologies and populations.

Landholding was strongly associated with monetary welfare: project per-capita income rose from Tk 61,562 among landless households to Tk 112,307 among large farmers, while calorie intake increased by only 165 kcal. Higher income was therefore not proportionally translated into dietary energy, and calories alone do not measure diet quality.

DISASTER EXPOSURE

Hazard profile, flood depth and reported losses

Flood, heavy rainfall and storms were the most widely reported hazards. Agricultural land was overwhelmingly classified in the high flood-depth category, and water bodies were affected more frequently than homesteads or agricultural land over the 25-year recall period. Boro/Rabi accounted for the largest share of damaged crop area and project-area monetary loss.

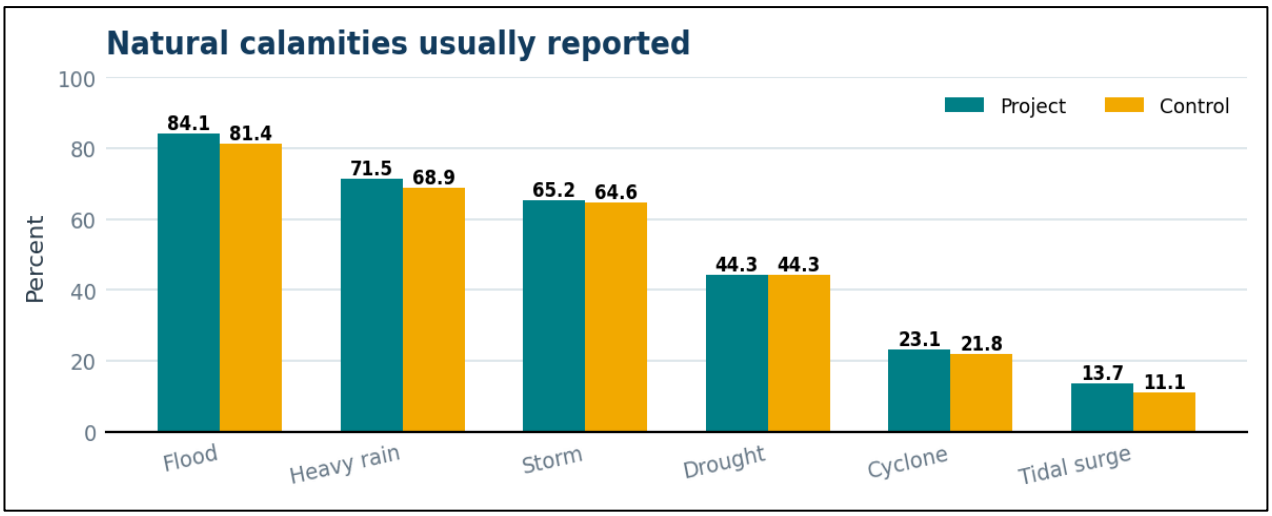


Figure ES.3: Percentage of households reporting usual natural calamities

Indicator	Project area	Control area	Baseline interpretation
Flood / heavy rainfall / storm	84.1 / 71.5 / 65.2%	81.4 / 68.9 / 64.6%	Dominant hazard cluster
Drought / cyclone / tidal surge	44.3 / 23.1 / 13.7%	44.3 / 21.8 / 11.1%	Secondary hazards
Homestead times affected in 25 years	2.05	1.77	Repeated household exposure
Agricultural land times affected	2.96	2.59	Project average higher
Water-body times affected	4.91	4.01	Most frequently affected asset
Agricultural land: high flood depth	93.63%	94.65%	Severe reported inundation
Homestead: medium flood depth	38.58%	33.65%	Largest project homestead band
Reported damaged crop area	400,560 decimals	Area total reported	Cumulative, not normalized
Boro/Rabi share of damaged area	61.82%	68.5%	Largest seasonal crop component
Aus monetary crop loss	Tk 21.82 million	Tk 4.40 million	Reported totals
Aman monetary crop loss	Tk 46.00 million	Tk 15.90 million	Reported totals
Boro/Rabi monetary crop loss	Tk 83.15 million	Tk 20.76 million	Largest reported project loss
Lightning reported during last year	84.85%	79.76%	Project area higher by 5.09 percentage points
Average reported lightning occurrences	10.33	6.97	Project average 3.36 higher (about 48%)
Average reported people died	2.48	1.65	Reported average; not a mortality rate
Average reported livestock died	3.09	1.66	Project reported average about 86% higher

The project-area loss totals were larger for every crop season, but these totals reflect the larger project sample, the amount of exposed cultivated land, crop mix and reported unit losses. They should therefore be interpreted as aggregate reported burdens rather than standardized loss rates. The ranking nevertheless shows the concentration of reported damage in the Boro/Rabi season.

Lightning exposure and reported consequences

Lightning was reported as a widespread hazard in both survey areas. During the year preceding the survey, 84.85% of project-area respondents (3,182 of 3,750) and 79.76% of control-area respondents (997 of 1,250) reported that lightning had occurred in their locality—a project–control difference of 5.09 percentage points. Reported intensity also differed: the project-area average was 10.33 occurrences, compared with 6.97 in the control area, a difference of 3.36 occurrences or approximately 48%. The reported average numbers of people and livestock killed were also higher in the project area (2.48 people and 3.09 livestock) than in the control area (1.65 and 1.66, respectively).

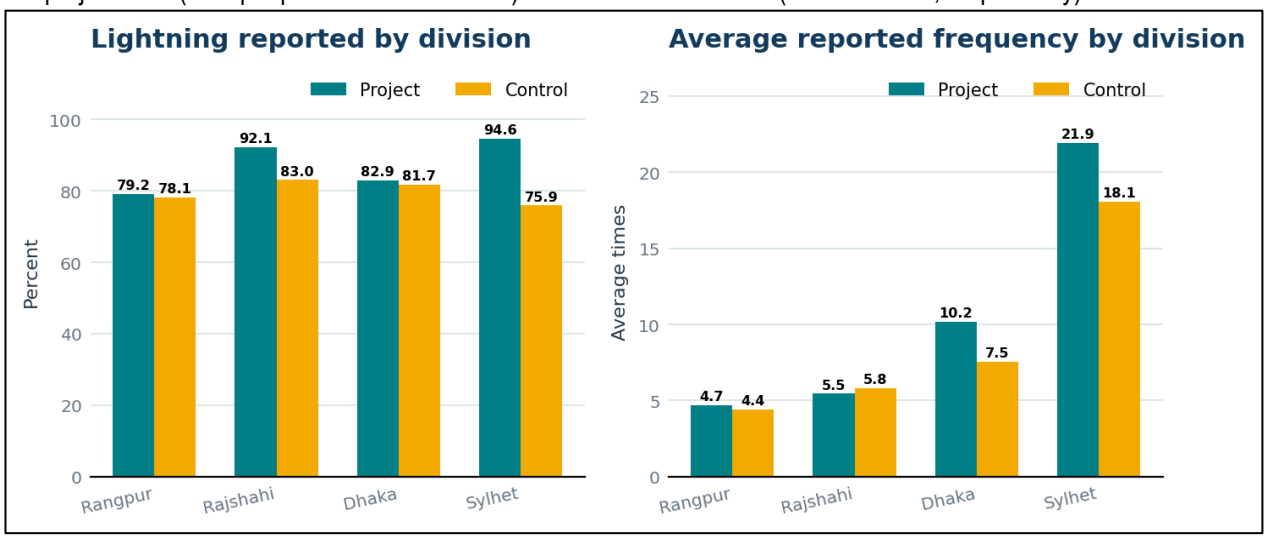


Figure ES.4: Division-level reported lightning occurrence and frequency during the preceding year

The aggregate results concealed pronounced spatial variation. In the project area, the share reporting lightning ranged from 71.52% in Gopalganj to 95.90% in Habiganj; at the division level, it reached 94.60% in Sylhet and 92.12% in Rajshahi. Frequency was highest in the two Sylhet districts: Sunamganj recorded a project-area average of 26.94 occurrences and Habiganj 16.71, while the corresponding control averages were 17.58 and 21.00. Gopalganj also recorded high averages in both areas (18.25 project; 13.78 control). Project-area frequency exceeded the control average in 9 of 14 districts, demonstrating that the overall difference was not geographically uniform. Occurrence percentage and event frequency should be read separately: the former indicates how widely lightning was experienced, while the latter indicates its reported recurrence.

SHELTER SYSTEM

Shelter demand, access, connectivity and service conditions

The baseline revealed very high demand for multipurpose shelters and willingness to relocate during floods, alongside very limited nearby shelter availability. In the project area, connecting roads, bridge/culvert conditions, street lighting, water, sanitation, inclusive space and solar energy were widely reported as inadequate or absent.

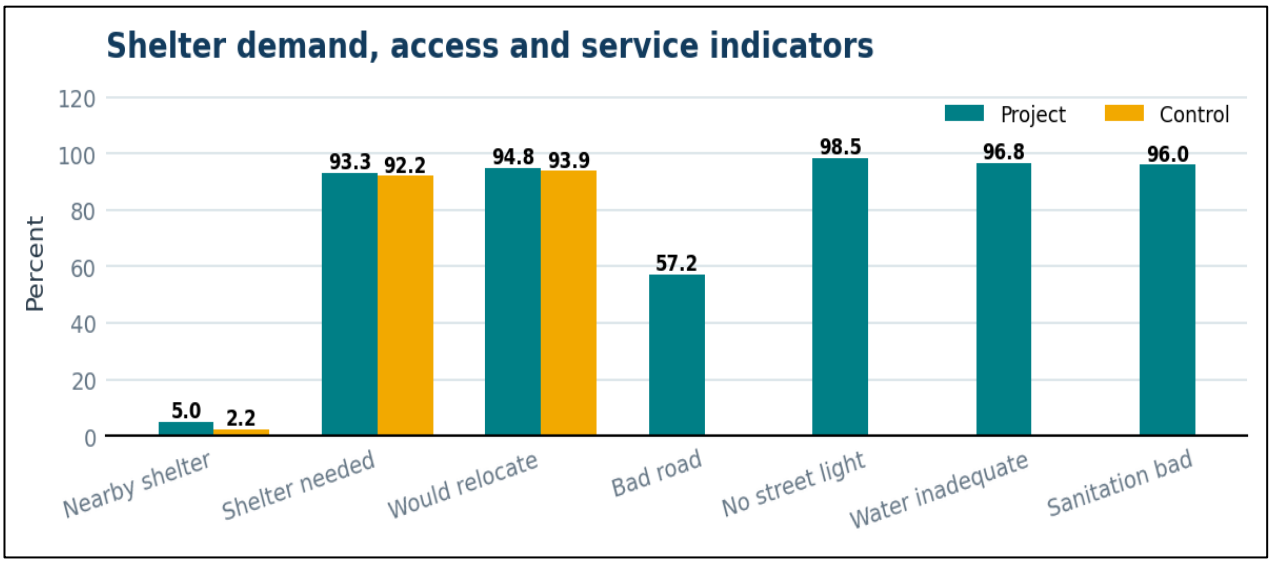


Figure ES.5: Shelter demand and service indicators; service-condition data were collected in the project area

Indicator	Project area	Control area	Baseline interpretation
Nearby government flood shelter	4.99%	2.24%	Very limited nearby availability
Multipurpose shelter needed	93.28%	92.16%	Very high stated demand
Would move to a shelter	94.83%	93.92%	Very high intended use
Aware of LGED shelter development	65.57%	Not collected	District range: 0.6-98.1%
Consulted / expected benefit among aware	78.73 / 98.7%	Not collected	High consultation and expected benefit
Connecting road: good / moderate / bad	7.09 / 35.73 / 57.17%	Not collected	Bad was the dominant rating
Bridge/culvert: good / moderate / bad / none	12.53 / 19.15 / 31.33 / 36.99%	Not collected	More than one-third reported none
No street light / inadequate water	98.53 / 96.75%	Not collected	Near-universal service gaps
Bad sanitation / no women's space	96.03 / 94.21%	Not collected	Major inclusion and WASH gaps
No animal space / no solar energy	94.45 / 98.91%	Not collected	Livestock and energy constraints
Community road available / average length	30.19% / 1.93 km	Not collected	Road access was limited
Average daily foot / motorized movement	1,498 / 657	Not collected	Connecting routes carried regular use
School facilities adequate	15.25%	Not collected	84.75% considered inadequate
No/poor WASH; furniture; rooms	66.45 / 61.15 / 60.53%	Not collected	Leading school-facility deficits

These indicators describe a compound access problem rather than a single missing facility. A household's ability to use a shelter depended on the presence and condition of the connecting route, the bridge or culvert network, lighting, WASH, privacy, livestock space and the underlying capacity of the school. The project-only service modules provide detailed profiles but no direct control benchmark.

PREPAREDNESS AND COPING

Training, early warning, evacuation and livestock protection

Formal preparedness mechanisms were weak: very few respondents had received disaster training and fewer than one-fifth reported an early-warning system. Where warnings were used, most respondents considered them beneficial. Households relied heavily on their own homesteads and public buildings for refuge, while livestock protection was a central concern.

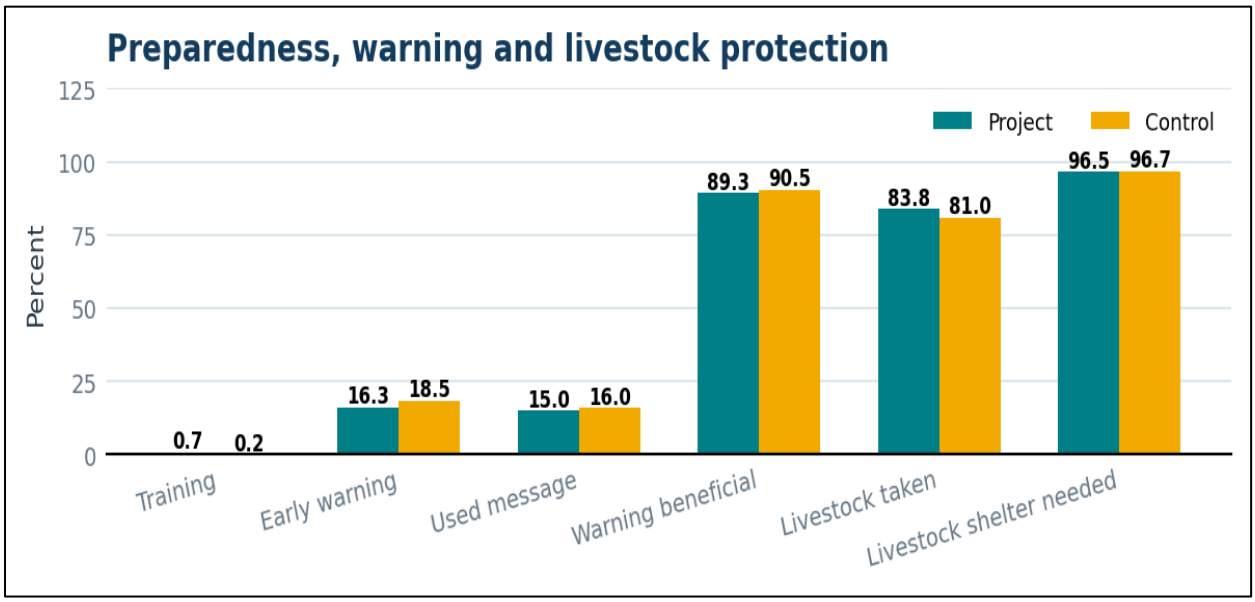


Figure ES.6: Preparedness, warning and livestock-protection indicators

Indicator	Project area	Control area	Baseline interpretation
Disaster training received	0.69%	0.16%	Formal training was extremely rare
Early-warning system available	16.27%	18.48%	Limited access in both areas
Used warning messages	15.0%	16.0%	Use tracked limited availability
Warnings considered beneficial	89.3%	90.5%	High perceived usefulness among users
Fatalistic view of flooding	56.7%	52.9%	Common risk perception
Sheltered on own homestead	41.3%	46.1%	Most common reported refuge
Used school/government building	23.1%	19.4%	Important public-refuge option
Took livestock to shelter	83.8%	81.0%	Livestock commonly accompanied households
Livestock shelter considered necessary	96.5%	96.7%	Near-universal stated need
Existing-shelter users not satisfied	41.7%	25.0% (n=28)	Control base was very small
Existing shelter: no WASH	89.5%	87.3%	Most frequently reported constraint
Inadequate women's facilities	73.0%	71.1%	Large inclusion gap
Insufficient infrastructure	54.4%	56.8%	More than half of users

The baseline therefore combined high willingness to use shelters with weak formal preparedness and uneven service quality. Informal coping remained prominent: households stayed on homesteads, moved to public buildings and sought to protect livestock. Satisfaction estimates describe only respondents who had used an existing shelter; the small control-user base limits precision.

HEALTH, GENDER AND INCLUSION

Health burden, treatment use and women's economic conditions

Common fever, cough and flu dominated reported morbidity. Pharmacies and MBBS physicians were the principal treatment sources, with substantial physician-treatment costs. The women's module showed meaningful economic contribution and long working days, alongside overlapping constraints related to economic activity, education, capital and decision-making during floods.

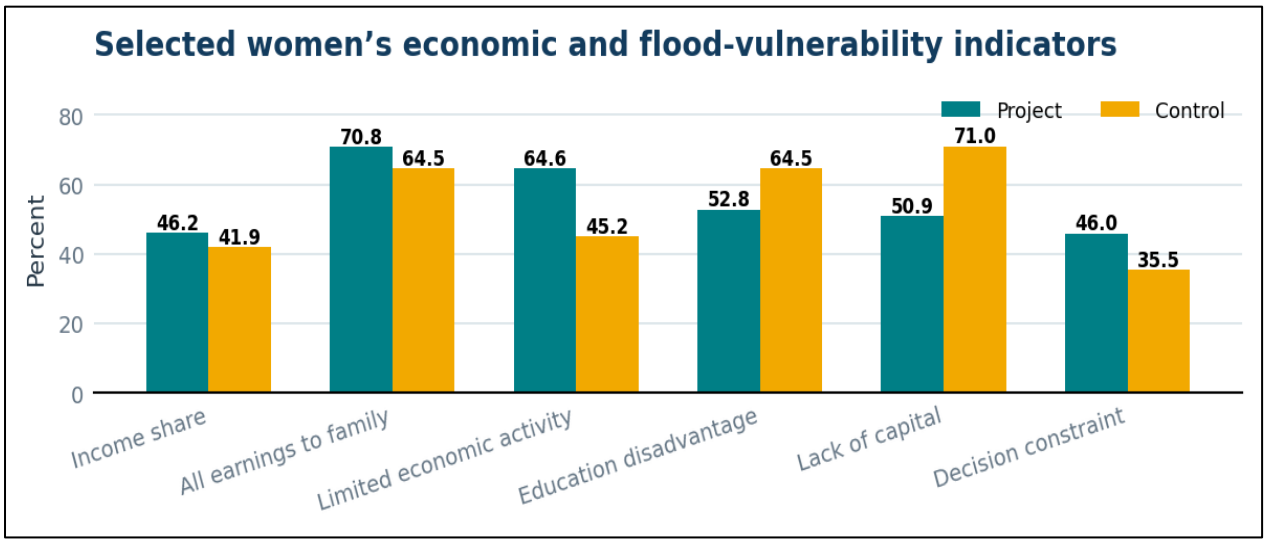


Figure ES.7: Selected women's economic and flood-vulnerability indicators

Indicator	Project area	Control area	Baseline interpretation
Fever/flu cases per 1,000 households	420	397	Most common reported illness group
Pharmacy treatment contacts	42.5%	44.8%	Largest treatment source
MBBS treatment contacts	33.7%	34.5%	Second-largest source
Average MBBS treatment cost	Tk 20,445	Tk 20,429	Nearly identical reported cost
Women respondents who were HH heads	21.12%	9.68%	Women's module composition differed
Graduate / illiterate women	18.01 / 13.66%	6.45 / 3.23%	Mixed education profile
Average annual women's work income	Tk 135,123	Tk 112,097	Project estimate higher
Average work duration	21.13 days; 6.7 hrs/day	20.74 days; 7.19 hrs/day	Similar days; longer control day
Women's share of reported HH income	46.16%	41.86%	Substantial contribution
Spent all earnings on family	70.81%	64.52%	Majority in both areas
Limited economic activity during floods	64.60%	45.16%	Most reported project constraint
Educational disadvantage	52.80%	64.52%	Control share higher
Lack of capital	50.93%	70.97%	Major constraint in both areas
Limited decision autonomy	45.96%	35.48%	Project share higher

Women's economic participation coexisted with substantial unpaid and paid workloads. Project respondents averaged 21.13 working days per month and 6.7 hours per working day, while seasonal workload peaked in Baishakh and Jaistha. Because only 31 women were interviewed in the control module, the project-control differences are descriptive and sensitive to the composition of that small sample.

OVERALL BASELINE FINDINGS AND IMPLICATIONS

The baseline presents a consistent picture of highly flood-exposed and socioeconomically vulnerable communities. Recurrent flooding and related hazards affect livelihoods, assets and access to essential services, while formal preparedness, nearby shelter availability and supporting infrastructure remain limited. At the same time, the strong demand for multipurpose shelters, high willingness to relocate during floods, and community emphasis on improved access, WASH, safety and livestock protection demonstrate the relevance of the proposed RIVER interventions. Project and control areas were broadly comparable across many aggregate socioeconomic indicators, providing an appropriate baseline for assessing subsequent changes, while important differences across districts, landholding categories, livelihoods and gender-related conditions should be considered in future monitoring and evaluation.

Interpretive cautions

All project-control comparisons are descriptive baseline differences and do not represent project effects. Percentages based on multiple responses do not sum to 100%. Project-only infrastructure modules describe the 3,750 project-area respondents. Monetary values are nominal respondent estimates, crop-area totals are cumulative rather than exposure-normalised, and the 25-year disaster history is subject to recall limitations. For Table 3.22, the denominator used to calculate the average numbers of people and livestock reported dead was not specified. The values are therefore presented as respondent-reported averages, not as verified casualty totals or mortality rates.

A. BASELINE SURVEY REPORT









CHAPTER 1: INTRODUCTION

1.1 Background and Rationale

Bangladesh's geographic vulnerability, marked by its low-lying deltaic landscape and dense population, places it among the most climate-sensitive nations globally. Due to climate change, recurring climate-induced hazards such as riverine and flash floods, cyclones, and riverbank erosion have escalated in frequency and intensity, severely impacting livelihoods, infrastructure, education, healthcare, and mobility, especially in rural and economically disadvantaged communities.

Despite remarkable progress in social and economic sectors, with consistent GDP growth averaging close to 6 per cent since 2000, Bangladesh remains vulnerable to economic and climatic shocks. The COVID-19 pandemic highlighted these vulnerabilities, increasing poverty rates and reversing years of progress. Additionally, global climate indices rank Bangladesh among the most affected countries due to climate-induced disasters, further compounding risks to development and poverty reduction.

Flooding is a near-constant threat in Bangladesh, affecting millions of people each year and causing substantial damage to agriculture, infrastructure, and livelihoods. Large-scale floods in recent years, such as those in 2017 and 2020, have underscored the urgent need for resilient infrastructure. Key community infrastructure, such as roads, sanitation systems, and public buildings, is particularly vulnerable to flood damage, and the lack of accessible, safe flood shelters compounds the risks for vulnerable populations.

Women, children, people with disabilities, and economically marginalized communities bear the brunt of these disasters. Gender disparities become more pronounced during emergencies, where limited access to safe spaces, basic amenities, and health services exacerbates vulnerabilities. Existing flood shelters often lack gender-sensitive features such as separate toilets and secure areas for women and girls, resulting in low utilization during disasters. To address these pressing challenges, the Government of Bangladesh (GoB), with support from the World Bank, has launched the Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project.

Project Development Objective (PDO)

The Project Development Objective (PDO) of RIVER is to reduce the vulnerability of people in targeted communities to riverine and flash floods and to improve the Country's capacity for Disaster Preparedness and Response. The PDO will be achieved by reducing flood vulnerability in targeted communities through the construction of climate-resilient infrastructure, enhancing community-level disaster preparedness, and strengthening institutional capacity for emergency response and recovery. The baseline survey followed the PDO and Intermediate Results Indicators specified in the approved RIVER M&E Framework.

Major interventions being implemented under the project are:

1. 500 Primary School cum Flood Shelters;
2. Construction/ installation of 100 Solar PV Nano-grid Systems;
3. Raised land above the Flood level for 250 school cum flood shelters
4. Improvement of Flood Shelter Connecting Road- 275 km;
5. Construction of Bridges- 500 m;
6. Construction of culverts- 1330 m;
7. Improvement of Community Infrastructure Road- 110km;
8. Solar Street Light- 6600; and
   Installation of Light Protection System- 1400

1.2 Project Locations

The RIVER Project is being implemented in 81 Upazilas (UZs) across 14 districts, as shown in Table 1.1 and Figure 1 below.

Table 1.1: RIVER Area Coverage by District and Upazila

Division	District	Upazilas
Dhaka	Faridpur	Alfadanga, Bhanga, Boalmari, Char Bhadrasan, Faridpur Sadar, Madhukhali, Nagarkanda, Sadarpur, Saltha (9)
	Gopalganj	Gopalganj Sadar, Kashiani, Kotalipara, Muksudpur, Tungipara (5)
	Madaripur	Kalkini, Madaripur Sadar, Rajoir, Shib Char (4)
	Rajbari	Pangsha, Rajbari Sadar, Goalanda, Baliakandi, Kalukhali (5)
Rangpur	Kurigram	Bhurungamari, Chilmari, Kurigram Sadar, Nageshwari, Phulbari, Rajarhat, Raumari, Ulipur (8)
	Lalmonirhat	Hatibandha, Kaliganj, Lalmonirhat Sadar, Patgram (4)
	Rangpur	Gangachara, Kaunia, Pirgacha, Pirganj, Taraganj (5)
	Nilphamari	Domar, Kishoreganj, Nilphamari Sadar, Saidpur (4)
	Gaibandha	Fulchhari, Sadullapur, Gobindaganj, Saghata, Sundarganj, Gaibandha Sadar (6)
Rajshahi	Sirajganj	Belkuchi, Kazipur, Shahjadpur, Sirajganj Sadar, Tarash, Ullapara, Chauhali (7)
	Pabna	Bera, Bhangura, Chatmohar, Sujanagar (4)
	Bogura	Sariakandi, Gabtali, Dhunat, Sonargaon (4)
Sylhet	Habiganj	Ajmiriganj, Baniachong, Habiganj Sadar, Lakhai, Shayestaganj (5)
	Sunamganj	Bishwambarpur, Chhatak, Derai, Dharmapasha, Dowarabazar, Jagannathpur, Sulla, Tahirpur, Jamalganj, Shantiganj, Sunamganj Sadar (11)

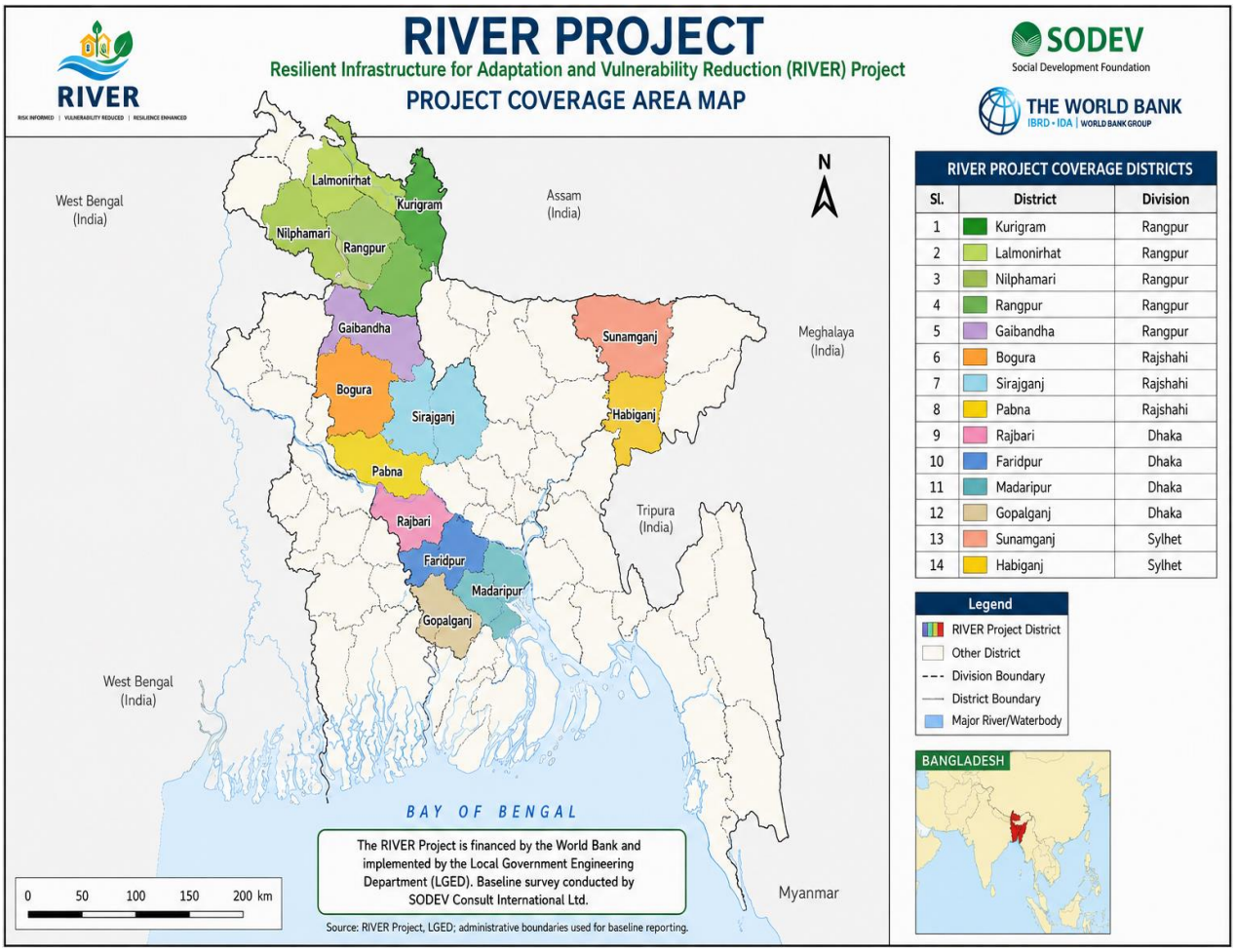


Figure 1: Map of Bangladesh indicating RIVER project locations

1.3 Objectives of the Baseline Survey

The baseline study established the pre-intervention frame of reference for monitoring and evaluating RIVER. Its design, sampling, instruments, field procedures and indicator definitions were treated as integral parts of the evaluation system because subsequent measurements had to remain comparable with the baseline. The study therefore documented not only average conditions, but also the distribution of conditions across project and control areas, districts, landholding groups, sex, vulnerability categories and livelihood groups.

The baseline study provided the information base against which RIVER implementation progress, outputs, outcomes and longer-term effects could be assessed. It measured the situation before the project interventions, documented differences between the project and control samples, and created the reference values required to estimate changes over time. The baseline did not itself measure project impact; rather, it established the counterfactual structure and pre-project benchmarks needed for subsequent impact assessment.

The project and control samples were surveyed with the same household questionnaire and broadly comparable field procedures. This common measurement framework supported later comparison of changes in income, expenditure, health and medical costs, food security, access to shelters and roads, disaster losses, water-resource conditions, livelihood resilience and other indicators aligned with the RIVER Results Framework. Baseline differences between the two groups were recorded as pre-existing differences and were not interpreted as project effects.

For subsequent impact assessment, the household and locality information recorded in the baseline, together with the census and respondent lists referred to in Annex 3, provides the principal tracing and comparison frame. Repeated measurement of the same households and communities, where feasible, permits analysis of change at household level; where recontact is not possible, the documented sampling strata and selection procedures provide the basis for comparable replacement and statistical adjustment.

The Household Survey Questionnaire was shared with the relevant stakeholders on 27 April 2026 and was subsequently finalized for field application. The questionnaire covered the baseline indicators required for monitoring and later impact assessment, including household characteristics, livelihoods, income and expenditure, health burden and medical costs, food consumption, disaster exposure and losses, access to infrastructure and services, sheltering practices, water resources and coping capacity.

SODEV Consult International Ltd. conducted the field surveys and prepared the RIVER Baseline Survey Report. Fieldwork commenced on 16 June 2026 under the direct supervision and guidance of the M&E Consultant team, with support from the field PIUs, D&S Consultants and other relevant stakeholders.
The Baseline Report covers the following:

(a) Existing socio-economic status of and living conditions of the communities before start of project work to assess the disaster vulnerability scenario;
(b) The general perception of the beneficiaries in respect of the needs and benefits of flood shelters, shelter connecting roads, community infrastructure roads and schools; and
(c) Level of awareness among target groups about RIVER interventions at the household level.

CHAPTER 2: STUDY METHODOLOGY

2.1 Approach and Methodology of the Baseline Study

The M&E Consultant used quantitative and qualitative data-collection tools to gather information from community members, local administration, LGED officials, schoolteachers and school management committees (SMCs), Union Disaster Management Committees (UDMCs), and other relevant stakeholders. The team reviewed project documents, administrative records, technical reports, and relevant literature. All field and analytical activities were carried out under the supervision and guidance of the M&E Consultant. The methodology used in the completed baseline study is described below.

Approach: The baseline study applied a pre-intervention project-control design within a broader pre-post evaluation framework. Household conditions in the catchment areas of proposed RIVER interventions constituted the project-area baseline. Comparable communities located beyond the direct influence of the interventions constituted the control-area baseline. The completed survey described the situation before project implementation and established the values against which subsequent changes could be compared.

SODEV Consult International Ltd. developed the data-collection tools and converted the finalized household questionnaire into a digital KoboToolbox form. The completed study followed survey design and planning, questionnaire finalization, Kobo form programming, field-investigator training, field testing, electronic data collection, server-based consolidation, validation and cleaning, statistical analysis and report preparation. The detailed procedures used are described below.

2.2 Secondary Data Collection

Secondary data were collected from different sources, including government documents, official statistics, technical reports, NGOs, and research organizations. The study used relevant books and scholarly journals to collect the necessary secondary data. The objective of secondary data collection was to review the status of existing disaster shelters, multipurpose disaster shelters, disaster management, government and NGOs' roles and responsibilities in disaster management, disaster vulnerability and risk reduction issues, etc. Review and analysis of secondary data provided a cost-effective way to gain a broad understanding of the baseline study. Secondary data also helped verify the consistency of primary data.

2.3 Primary Data Collection Methods

2.3.1 Study Population

The target group of the baseline survey was the local people of different categories, local administration, LGED officials, local school teachers, students and school management committee (SMC), union disaster management committee (UDMC) in the following 14 districts: Faridpur, Gopalganj, Madaripur, Rajbari, Kurigram district, Lalmonirhat, Rangpur, Nilphamari, Gaibandha, Sirajganj, Pabna, Bogura, Habiganj and Sunamganj.

2.3.2 Sample Design

For the baseline study, both quantitative and qualitative tools were selected for data collection from the targeted respondents. A participatory approach was adopted as far as practicable. The general survey tools like Household Survey (HHS), Key Informant Interview (KII), and Focus Group Discussion (FGD) were used for primary data collection. The baseline survey process was supplemented by secondary data on socio-economic profile and environmental, institutional and production profiles in selected areas.

2.3.3 Development and Programming of Data Collection Tools

A mixed-methods design was applied. Quantitative information was collected through structured household interviews administered electronically through KoboToolbox, while qualitative information was collected through FGDs and KIIs. Secondary information from project documents, official sources and relevant reports supplemented and cross-checked the primary findings. The baseline used a quasi-experimental project-control structure and recorded pre-intervention

conditions in both groups. The design documented baseline similarities and differences so that subsequent impact analysis could adjust for observed imbalance.

The same structured household questionnaire was used in project and control areas to preserve measurement comparability. After stakeholder review and finalization, the questionnaire was programmed in KoboToolbox with a consistent variable structure, response codes, identification fields and question sequence. The electronic form was checked against the approved questionnaire before field deployment. Annex 1 contained the questionnaire, Annex 2 listed the surveyed flood-shelter-cum-school locations, and Annex 3 contained the census and surveyed-household lists for the project and control areas.

Kobo form testing. The programmed form was tested during investigator training and during the field test conducted on 16 June 2026. The test examined question wording, Bangla display, response options, skips, validation requirements, household and location identifiers, and the completeness of submitted records. Problems detected during testing were corrected before full field deployment so that all survey teams used the same finalized digital form.
For qualitative data collection, an FGD guideline has been developed to discuss with the vulnerable community people, community leaders, owners of livestock, women UP members, school teachers, guardians of students, students of the GPS, religious leaders, etc. Both male and female beneficiary groups participated in each FGD.

For conducting the KII, a KII guide questions/ checklist has been developed for interviewing the Key Informants in the following categories:

Category 1: LGED District Executive Engineer (XEN)/ Sr. Assistant Engineer/ UZ Engineer /RRE (Regional Resident Engineer)/ DRE (District Resident Engineer)
Category 2: District In-charge, CEMRCB/ Consultant UDMC/ UZDMC (PIU)
Category 3: UZ Education Officer
Category 4: UZ Agriculture Officer
Category 5: UZ Livestock Officer
Category 6: NGO Representative/ Union Parishad (UP) Chairman/Ward Councillor/ Member (Male & Female)
Category 7: Head Teacher of Primary School/SMC Members.

Baseline Survey Indicators
The baseline survey followed the Project Development Objective (PDO) indicators and Intermediate Results Indicators specified in the RIVER Results Framework (Annex 4). It also measured the following socioeconomic and disaster-related indicators required to describe pre-intervention conditions and support subsequent project-control impact assessment:

Socio-economic Indicators

Table 2.1A: Socio-economic Indicator Areas

Major Area	Indicators
Demographic	Age, sex, marital status, education and household size
Livelihood	Occupation, living standard, food deficit, energy use, water and sanitation
Income and expenditure	Income and sources, expenditure by major head, savings, investment and indebtedness

Disaster-related Indicators

Table 2.1B: Disaster-related Indicator Areas

Major Area	Indicators
Type of disaster faced	Flood, cyclone, tidal surge, waterlogging, drought and other hazards
Intensity of disaster	Severe, moderate or not severe
Frequency and duration	Number of events and duration of exposure
Coping strategy	Movement to shelter centres or relatives' homes; temporary migration; construction on high land; raising homestead plinths
Shelter during disaster	Availability, access, length of stay and available facilities
Damage and loss	Damage to houses and roads; loss of crops, poultry, livestock, fish and other property
Crisis created	Death or injury, food crisis, income loss, disease outbreaks, snakebite and other consequences

Table 2.1C: Consolidated Baseline Indicator and Sub-indicator Framework

The consolidated framework below linked each baseline indicator to its measurable subindicators and to its role in subsequent project-control impact assessment. It complemented the socioeconomic and disaster-related indicator-area summaries presented in Tables 2.1A and 2.1B.

Theme	Indicator	Sub-indicators / measures recorded at baseline	Use in future impact assessment
Socioeconomic	Demographic structure	Age; sex; marital status; household size; sex ratio; dependent members per earner	Measured household composition and dependency at baseline; supports matched household and subgroup analysis.
Socioeconomic	Education and literacy	Educational attainment; literacy status; school attendance where recorded	Tracks changes in human capital and continuity of education associated with resilient school-cum-shelter infrastructure.
Socioeconomic	Primary and secondary livelihood	Main occupation; secondary occupation; agricultural and non-agricultural wage work; business; service; fishing; livestock rearing	Measures livelihood transition, diversification and continuity of employment in project and control areas.
Socioeconomic	Landholding and land use	Landholding category; homestead land; cultivated land; orchard; pond; fallow land; sharecropped-in and sharecropped-out land	Defines a principal baseline stratifier and permits distributional impact analysis from landless to large-farmer households.
Socioeconomic	Household income	Total annual household income; per-capita income; income by source; income–expenditure surplus or deficit	Measures real income change and distinguishes project-related livelihood gains from transfers or other sources.
Socioeconomic	Household expenditure	Total and per-capita expenditure; food expenditure; health and medicine; transport; housing and repairs; other item-wise expenditure	Measures consumption welfare and identifies whether improved resilience reduces emergency, health, transport or repair costs.
Socioeconomic	Savings, investment and indebtedness	Savings; productive investment; outstanding loans; borrowing source; debt servicing where recorded	Assesses financial resilience, capacity to absorb shocks and dependence on distress borrowing.
Socioeconomic	Food security and nutrition	Food deficit; weekly food consumption; food-expenditure share; dietary items; per-capita calorie intake; calorie-poverty category	Tracks food-security improvement and distributional change, including moderate and severe calorie deprivation.
Socioeconomic	Energy, water and sanitation	Energy source; drinking and domestic water source; sanitation facilities; water availability and quality	Measures household service conditions and changes in access, reliability and environmental health.
Socioeconomic	Livestock and productive assets	Ownership, number and value of cattle, goats, poultry and other livestock; livestock losses	Measures productive-asset accumulation and protection of household assets during floods.
Health and vulnerability	Disease and treatment burden	Disease incidence; treatment seeking; treatment location; treatment and medicine cost; lost workdays where recorded	Measures changes in health burden and out-of-pocket medical costs, a priority benefit pathway for future impact assessment.
Disaster exposure	Type of hazard	Riverine flood; flash flood; cyclone; tidal surge; storm; heavy rainfall;	Establishes hazard-specific exposure so that outcomes are

		waterlogging; drought; riverbank erosion and other hazards	compared among households facing comparable events.
Disaster exposure	Frequency and duration	Number of events; recurrence; days affected; years or seasons affected; flood duration	Separates project resilience effects from differences in hazard frequency between baseline and follow-up periods.
Disaster exposure	Depth, coverage and intensity	Flood depth at homestead and agricultural land; share of locality affected; high, medium or low intensity	Provides the hazard-intensity variables needed to normalize damage and disruption outcomes.
Disaster impacts	Household and infrastructure damage	Damage to houses, roads, crops, ponds, aquaculture, livestock, poultry, fish and other property; estimated value of losses	Measures avoided damage and asset protection, with results disaggregated by hazard intensity and household category.
Disaster impacts	Human and livelihood consequences	Death or injury; disease outbreak; snakebite; food crisis; loss of income source; days of work or schooling lost	Captures direct and indirect welfare effects and supports valuation of avoided health, income and education losses.
Coping and evacuation	Household coping strategy	Movement to shelter; temporary migration to relatives; remaining at home; use of raised land, roads or embankments; plinth raising	Measures whether households shifted from high-risk coping practices to safer and less disruptive responses.
Shelter access	Availability and use of shelter	Knowledge of nearby shelter; distance and travel time; access route; use during flood; length of stay; household members sheltered	Measures effective access to RIVER shelters rather than construction outputs alone.
Shelter services	Facilities and inclusiveness	Water; sanitation; electricity; privacy; safety; space; accessibility for women, children, older people, persons with disabilities and livestock	Assesses shelter quality, inclusion and adequacy for vulnerable household members and productive animals.
Connectivity and services	Road access and service continuity	Condition and passability of shelter-connecting and community roads; access to markets, schools, health facilities and emergency services	Measures whether resilient connectivity reduced isolation, travel time and disruption during floods.
Community water resources	Surface-water sources and seasonality	River, khal, beel, pond and other sources; seasonal or year-round availability; existing water-resource projects and structures	Provides environmental and infrastructure context and identifies co-interventions that may influence measured outcomes.
Institutional preparedness	Awareness, management and maintenance	Awareness of RIVER and other projects; implementing agency; project status; O&M arrangements; community participation	Measures institutional capacity and helps identify implementation exposure, contamination and sustainability conditions.

2.3.4 Selection of the Sampling Community

The sampling communities were selected to represent the three principal types of RIVER intervention: (i) new flood shelters; (ii) shelter-connecting roads; and (iii) community infrastructure roads. The selection combined purposive coverage of the intervention types with proportional geographic allocation across the 14 project districts. The shelter catchment formed the primary project-area community unit. Control communities were located outside the direct influence of RIVER interventions, generally in the same or an adjacent upazila, and were selected for broadly comparable disaster exposure, geography and sociocultural conditions.

2.3.5 Sample Size for the Baseline Survey

A statistical sample-size calculation was used as a reference for the household survey. The operational sample was fixed at 5,000 households—3,750 in the project area and 1,250 in control areas—covering 250 project shelter catchments and the selected control localities. This large sample supported disaggregation by district, landholding category and other baseline characteristics required for future impact assessment.

The household census covered households within the selected shelter catchments and control localities and created the sampling frame used for final selection. Because no current household list was available before fieldwork, the preliminary census identified eligible households and recorded the characteristics required for proportional and representative selection. The same general procedure was applied in project and control areas.

- Selection of 250 flood shelters across 14 districts using proportional allocation.
- Selection of 3750 beneficiary respondents and 1250 control respondents through a household census survey.
- Ensuring representation by age, gender, economic status, and vulnerability.

Sampling Technique and Distribution of Sample

A three-stage stratified sampling procedure with proportional allocation was used. At the first stage, 250 shelter locations were selected proportionately from the wider set of proposed shelters across the 14 districts. At the second stage, the associated catchment communities and comparable control localities were identified. At the third stage, households were selected from the census-generated household lists, with representation maintained across landholding and vulnerability categories. The respondent sample-size calculation used in the report is reproduced below.

$n = (z^2 \times p(1-p)) / e^2 \times deff = 5,633$

The final operational sample comprised 3,750 project-area households and 1,250 control-area households. The project sample yielded an average of 15 surveyed households for each of the 250 selected shelter catchments. The control sample was distributed across the selected control villages in accordance with the district-wise allocation shown in Table 2.2.

$n = (z^2 \times p(1-p)) / e^2 \times deff = 5,633$, where $p = 0.85$ represented the assumed population proportion associated with the project benefits; $z = 1.96$ represented the value at the 95% confidence level; $deff = 1.15$ represented the design effect; and $e = 0.01$ represented the stated precision level.

Sample-size determination

The statistical calculation produced a reference sample size of **5,633 households** based on the stated assumptions regarding confidence level, population proportion, precision and design effect. For field implementation, however, an operational sample of **5,000 households** was adopted, comprising **3,750 project area and 1,250 control area households**, in accordance with the approved district-wise survey distribution. The operational design retained broad geographic coverage across 14 districts and 250 sampled shelter catchments and provided sufficient observations for project–control comparison and disaggregated baseline analysis by district, landholding category and other key household characteristics. The difference between the calculated reference size and the adopted operational sample should therefore be understood as a practical survey-design adjustment rather than a recalculation of the statistical formula.

The adopted sample therefore consisted of 5,000 households: 3,750 project-area households and 1,250 control-area households. The project households were selected from the census lists prepared for the 250 sampled shelter catchments. Control households were selected from the census lists prepared for 83 control villages located outside the direct project influence area.

Sample allocation and representativeness. The district-wise allocation reflected the distribution of selected shelters and the intended coverage of the 14 RIVER districts. The resulting sample supported estimates at overall project and control levels and permitted structured comparison by district, division, landholding class and other vulnerability characteristics. Estimates for smaller subgroups nevertheless remained sensitive to the number of observations within each cell, particularly among large farmers and less common livelihood or hazard categories.

Baseline comparability. The project-control design provided a counterfactual reference, but the control sample was smaller and was not selected as a simple one-to-one match for every project household. Baseline equivalence therefore depended on comparing observed characteristics—including location, landholding, household size, literacy, livelihood, income, expenditure, asset ownership and hazard exposure—and retaining those variables in subsequent adjusted analysis. Unadjusted differences measured at one point in time did not constitute project impact.

Longitudinal identification. The 5,000 completed household interviews established the baseline observation set. The census lists and Annex 3 respondent records provided the link between each interview and its household, catchment or control locality, district and baseline category. This linkage supports household-level change analysis and permits attrition, replacement and migration to be documented separately rather than absorbed into an unexplained change in sample composition.

District- and Upazila-wise sample distribution is presented in Table 2.2.

Table 2.2: District- and Upazila-wise Sample Distribution

Sl.	District	Sample Upazilas	Shelters	Beneficiary Respondents	Control Respondents
1	Bogura	Gabtali, Sariakandi	11	165	45
2	Pabna	Chatmohar, Sujanagar	11	165	60
3	Sirajganj	Kazipur, Ullapara, Tarash	11	165	60
4	Gaibandha	Gobindaganj, Saghata, Sundarganj	17	255	90
5	Kurigram	Kurigram Sadar, Rajarhat, Raumari, Ulipur	28	420	135
6	Lalmonirhat	Lalmonirhat Sadar, Hatibandha	12	180	60
7	Nilphamari	Nilphamari Sadar, Domar	13	195	75
8	Rangpur	Pirganj, Taraganj	12	180	60
9	Habiganj	Habiganj Sadar, Baniachong	13	195	60
10	Sunamganj	Sunamganj Sadar, Dharmapasha, Jagannathpur, Dowarabazar	29	435	135
11	Gopalganj	Gopalganj Sadar, Kotalipara, Muksudpur	33	495	165
12	Faridpur	Faridpur Sadar, Alfadanga, Bhanga, Sadarpur	21	315	120
13	Madaripur	Kalkini, Shibchar	28	420	135
14	Rajbari	Goalanda, Baliakandi	11	165	50
	Total	38 upazilas	250	3750	1250

2.3.6 Recruitment, Orientation and Training of Field Investigators

SODEV Consult International recruited 27 male and female 'Field Investigators (FIs)' for field data collection within the defined timeframe. Qualifications of the FIs were at least a bachelor's degree and more than five years of work experience in data collection of similar projects.

SODEV Consult International organized a two-day training programme on 14–15 June 2026 for 30 prospective Field Investigators. The training covered the survey objectives, meaning of each question, respondent-selection procedures, interview ethics, use of the Bangla questionnaire, and practical operation of the KoboToolbox form. Participants repeatedly practised opening records, entering and revising responses, following programmed question sequences, checking completeness, saving interviews and submitting completed forms. Performance during the classroom exercises and field test supported the selection of 27 investigators for data collection. A third-day field test was conducted on 16 June 2026 in a school catchment at Keraniganj Upazila, Dhaka. The selected investigators were organized into five district groups, each supported by a Field Supervisor, while senior M&E team members guided the training, field test and subsequent deployment.

2.3.7 Field Data Collection through KoboToolbox

The trained Field Investigators administered the household questionnaire electronically using the finalized KoboToolbox form. Each selected household was assigned to the relevant project or control area, district, upazila, shelter catchment

or control locality and household category. Responses were entered directly during the interview rather than first being recorded on paper and later re-entered. Investigators reviewed each record for completeness before final submission.

The completed electronic records were synchronized with the central KoboToolbox project and consolidated into a common survey dataset. This procedure removed a separate manual data-entry stage and reduced transcription errors. Submission status and incoming records were available to the Study Coordinator and supervisory team for monitoring while fieldwork was in progress.

Village Census and Selection of the Ultimate Household Respondent

The household—not a person—was the ultimate sampling unit for the quantitative survey. Selection proceeded through a documented sequence: selection of the shelter or control locality; delineation of the community or catchment; preparation of a census-based household list; classification of listed households; selection of the required households from that list; and completion of one household interview for each selected household.

Project-area household frame. For each selected flood-shelter-cum-school, the survey team treated the surrounding influence area as the sampling catchment. The operational catchment extended approximately 1.5 km from the centre of the proposed infrastructure and included communities associated with the shelter, the shelter-connecting road and relevant community roads. Field Investigators conducted a preliminary census in the catchment and prepared the list from which the final households were drawn.

Household stratification. The census information classified households by cultivable landholding: landless (0.01–0.49 acre), marginal farmer (0.50–0.99 acre), small farmer (1.00–2.49 acres), medium farmer (2.50–7.49 acres) and large farmer (more than 7.49 acres). The final selection retained representation of these categories and considered household location within the catchment so that the sample was not concentrated near the proposed infrastructure.

Final selection in project areas. Fifteen households were selected from the census frame for each of the 250 sampled shelter catchments, producing 3,750 completed project-area household interviews. The source report refers to the final procedure as both systematic and random selection. Operationally, the census list served as the frame, the required number was drawn from that frame, and category and spatial representation were maintained. Because the report did not record the random start, sampling interval or stratum-specific draw in sufficient detail, these elements require confirmation from the field census sheets before the baseline sampling protocol is formally locked for panel replication.

Control-area selection. Control localities were situated beyond the direct influence of RIVER interventions and were selected in the same or adjacent upazilas in consultation with project stakeholders. They were required to be disaster-prone and broadly similar to the corresponding project areas in sociocultural and geographic characteristics. A census-based list was prepared in each control locality and the same landholding categories and representative-selection principle were applied. The adopted control sample comprised 1,250 households distributed across 83 control villages according to Table 2.2.

Selection of the person interviewed. The available methodology identified the selected household as the ultimate respondent unit and did not document a separate probabilistic procedure for choosing one individual within that household. The questionnaire collected consolidated household information; therefore, the interview represented the selected household rather than a randomly selected household member. The surveyed shelter-location list, household census frame and respondent-identification records were maintained as part of the baseline survey administrative and data archive for the project and control households and to serve as the principal record for household identification and subsequent tracing. The evaluation database requires a continuous linkage among the household identifier, location, interviewed person and baseline classification so that every subsequent observation matches the correct baseline household.

Non-response and replacement documentation. The supplied source did not explicitly record callbacks, refusal rates, absent-household procedures or replacement rules. These items were therefore not reconstructed as if they had occurred. Their absence remains a documentation limitation because undocumented replacement can affect baseline comparability and panel-attrition analysis. Field logs, Kobo audit records and supervisor registers, where available, provide the appropriate evidence for resolving this limitation in the final archived methodology.

FGDs: A total of 28 FGDs @ 2 FGDs at 2 Upazilas of each of the 14 RIVER project districts, listed in Table 2.3) were conducted for the baseline survey with male and female vulnerable community people, community leaders, owners of

livestock, male/ female UP members, school teachers, guardians of students, religious leaders, etc. FGD Report in detail has been furnished in qualitative report B1 in this Baseline Survey Report.

KIIs: A total of 40 KIIs were conducted with the selected respondents at different UZs of 14 RIVER project districts (Table 2.3). KII Report in detail is furnished in qualitative report B2 of the Baseline Survey Report.

Table 2.3: Sample Size for Qualitative Data Collection

District	FGDs	KIIs
Faridpur	2	3
Gopalganj	2	3
Madaripur	2	3
Rajbari	2	2
Kurigram	2	3
Lalmonirhat	2	2
Rangpur	2	3
Nilphamari	2	3
Gaibandha	2	3
Sirajganj	2	3
Pabna	2	3
Bogura	2	3
Habiganj	2	3
Sunamganj	2	3
Total	**28**	**40**

2.4 Field Monitoring and Supervision

The five household-survey teams were guided by the M&E Consultant team and supported by five Field Supervisors. Each supervisor assigned and reviewed the team's daily workload and reported progress to the Study Coordinator. Completed interviews were submitted to the central KoboToolbox project, allowing the Study Coordinator and supervisors to review the volume, location and status of incoming records. The monitoring process examined whether the planned project and control samples were being achieved by district and locality and whether submitted records contained missing, inconsistent or unusual values. Queries were communicated to the relevant field team for verification while the team remained in or near the survey location. Supervisors also conducted field observations and random interview checks and coordinated with local RIVER personnel and other stakeholders.

2.5 Quality Control

Quality control was integrated into questionnaire programming, field supervision and central data review. The finalized KoboToolbox form standardized response codes and the sequence of questions and reduced avoidable omissions during the interview. During fieldwork, investigators checked each electronic record before submission; Field Supervisors reviewed completed interviews and carried out random verification; and the Study Coordinator reviewed the consolidated submissions for completeness, consistency, duplicate or invalid identification, unexpected values and achievement of the planned sample distribution. Confirmed corrections were made against the electronic record and available field evidence before the analytical dataset was finalized. No separate manual entry into SPSS was undertaken.

2.6 KoboToolbox Data Processing, Consolidation and Cleaning

KoboToolbox served as the principal platform for electronic data capture and initial data processing. Every submitted interview entered the central project dataset with the identification and response fields contained in the programmed form. The platform therefore consolidated records from all field teams without a separate paper registration and manual data-entry operation.

Submission management and consolidation. The survey-management team monitored the number and status of Kobo submissions and checked them against the district, shelter-catchment, control-locality and investigator assignments. Project and control records were maintained within a common structure so that the same variables,

response codes and recall periods were directly comparable. Household identifiers and geographic and sampling classifications were preserved for disaggregation and later linkage to the baseline household frame.

Data validation and editing. The consolidated data were screened for incomplete records, invalid or duplicate identifiers, out-of-range values, inconsistent responses across related questions and apparent enumerator or coding errors. Where verification was possible, the team checked questionable values against the original Kobo submission, field notes and supervisor feedback. Corrections were made only after verification, and unresolved anomalies remained identifiable during analysis rather than being silently altered.

Coding and treatment of responses. Closed-ended response categories were represented through the codes embedded in the Kobo form. Open-ended and "other—specify" responses were reviewed and, where analytically appropriate, grouped into consistent categories. Variable names, value labels, missing-value treatment and derived indicators were standardized before statistical analysis. Project/control status, district, division, landholding category and other required disaggregation variables were retained in the cleaned dataset.

Data export and analytical file preparation. After completion of validation and cleaning in the Kobo-based workflow, the consolidated dataset was exported in a compatible tabular format for statistical analysis in SPSS and MS Excel. The export was checked for record count, variable completeness, category labels and consistency with the approved sample totals. The resulting cleaned analytical file—not a separately re-entered dataset—was used to generate the report tables and figures.

Data preservation for impact assessment. The cleaned baseline dataset preserved the household and locality identifiers required to connect each observation to its census frame, project or control status and baseline characteristics. This structure provides the basis for household tracing, consistent variable matching and measurement of change in subsequent RIVER impact assessment. The Kobo form version, exported data, coding structure and cleaning decisions form part of the baseline data archive required for reproducibility.

2.7 Data Analysis and Report Writing

After completion of KoboToolbox consolidation, validation and cleaning, the exported quantitative dataset was analysed using SPSS and MS Excel. Univariate, bivariate and multivariate tabulations were prepared to describe baseline levels and compare project and control areas. Results were further disaggregated by district, division, landholding category and other relevant household characteristics. MS Excel was used to prepare graphical presentations of the quantitative findings. SPSS and Excel were used for analysis and presentation; they did not replace KoboToolbox as the platform used for primary data collection and initial processing.

Qualitative data consisted of interview accounts, field notes and observations. The research team organized similar evidence from FGDs and KIIs and interpreted it using content, narrative and discourse analysis. Qualitative findings were used to explain household and institutional conditions, triangulate quantitative results and document contextual factors relevant to the interpretation of later project outcomes.

After completion of the analysis, the report was prepared from the quantitative and qualitative findings. Tables and figures were used to present the survey evidence. The analytical dataset and documented baseline definitions constituted the reference point for subsequent measurement of change and impact.

2.7.1 Poverty and Calorie-intake Analysis

Poverty was assessed using the Direct Calorie Intake method. Household food-consumption information referred to the year immediately preceding the baseline survey, and monetary consumption and expenditure values were expressed using the corresponding price base. Reported food quantities were converted into calorie equivalents and adjusted for household size and the applicable consumption-reference period to estimate per capita daily calories.

Households were classified into four intake bands: above 2,122 kcal, 1,805–2,122 kcal, 1,600–1,805 kcal and below 1,600 kcal per person per day. Households consuming 2,122 kcal or less per person per day were treated as falling below the calorie-based poverty threshold. Household calorie-band percentages represented the proportion of households in each category, while population poverty incidence represented the proportion of individuals living in households below the threshold and was therefore weighted by household size. Percentages were independently rounded, so the displayed calorie bands could total 99–101%.

CHAPTER 3 | DETAILED ANALYTICAL FINDINGS

This chapter examines the socioeconomic baseline of 5,000 surveyed households—3,750 in project areas and 1,250 in control areas—and interprets the results as the pre-intervention reference for subsequent assessment of the Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project. The analysis proceeds from landholding and demography to occupation, land use, livestock assets, income and expenditure. For every theme, the chapter distinguishes the level observed at baseline, the distribution of that level across socioeconomic groups and locations, and the degree of similarity or difference between project and control samples.

Interpretive convention. Percentage-point differences compare shares directly. Monetary values are reported in Bangladeshi taka (Tk). "All" rows provide the principal project–control benchmark, while district and landholding-class variation identifies where averages conceal substantial heterogeneity.

The project–control comparison is descriptive and establishes the counterfactual starting point; it is not an estimate of project impact. Future impact assessment should measure change from these baseline values in both areas and examine whether the change in project locations exceeds the change recorded in controls. Because the two samples differ in size and show some district and landholding-composition imbalance, impact estimates should retain the baseline stratifies and apply adjusted project–control analysis rather than relying only on unadjusted endline averages.

3.1 Household Landholding Structure

Table 3.1: Percentage of households by landholding category

Category	Project N	Project %	Control N	Control %	Total N	Total %
Landless (0-0.49) (LL)	1825	48.67	614	49.12	2439	48.78
Marginal farmer (0.50-0.99) (MRF)	613	16.35	234	18.72	847	16.94
Small farmer (1.00-2.49) (SF)	862	22.99	297	23.76	1159	23.18
Medium farmer (2.50-7.49) (MF)	402	10.72	98	7.84	500	10.00
Large farmer (7.50 +) (LF)	48	1.28	7	0.56	55	1.10
All	**3750**	**100.00**	**1250**	**100.00**	**5000**	****100.00****

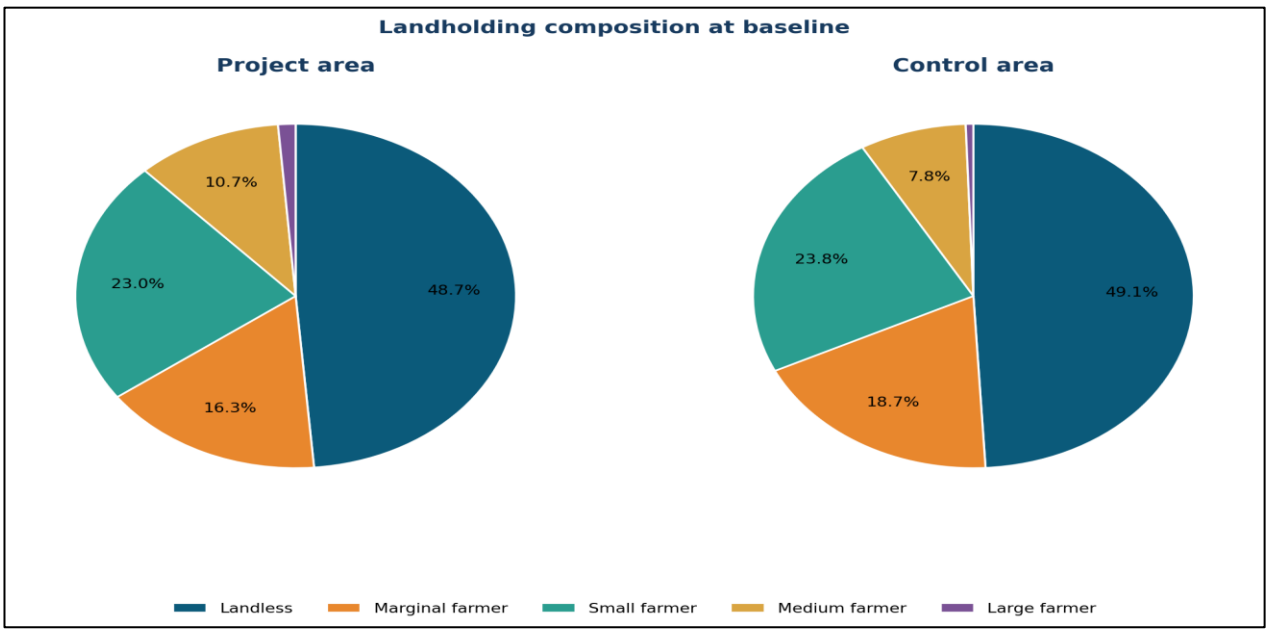


Figure 3.1: Landholding distribution in project and control areas

Landlessness is the defining feature of the sample. Landless households account for 48.67% of project households and 49.12% of control households, a narrow 0.45 percentage-point gap. When marginal farmers are added, 65.02% of project households and 67.84% of control households occupy the bottom two landholding groups. This concentration indicates that the baseline population is structurally exposed to land scarcity and likely depends heavily on wage labour, tenancy arrangements and non-farm income.

Small farmers form the next largest group—22.99% in project areas and 23.76% in controls—while medium and large farmers are a relatively small minority. Medium farmers are more prevalent in project areas (10.72%) than in controls (7.84%), a 2.88 percentage-point difference. Large farmers represent only 1.28% and 0.56%, respectively. Consequently, averages of land, assets, income or expenditure can be pulled upward by a small group and should always be read alongside category-specific results.

The close project–control alignment among landless and small households supports broad baseline comparability, but the higher project-area representation of medium and large farmers signals modest compositional imbalance at the upper end. Later economic comparisons should therefore distinguish class effects from area effects.

Distributional interpretation. The concentration of landlessness and marginal farming means that the typical baseline household entered the project with a limited productive-asset base. Project households classified as landless or marginal farmers represented 65.02% of the sample, compared with 67.84% in controls. Conversely, medium and large farmers represented 12.00% of project households but only 8.40% of controls. This 3.60 percentage-point difference at the upper end is large enough to affect unconditional averages for land-based production, livestock, income and expenditure.

3.2 Geographic Variation in Landholding

Table 3.2A: District-wise Percentage Distribution by Landholding Category — Project Area

District	Landless	Marginal	Small	Medium	Large	Total
Kurigram	70.48	15.71	12.38	1.43	0.00	100.00
Lalmonirhat	56.11	20.56	17.78	5.00	0.56	100.00
Rangpur	52.78	15.56	16.67	13.33	1.67	100.00
Nilphamari	53.85	23.59	18.97	3.08	0.51	100.00
Gaibandha	57.25	19.22	17.65	4.71	1.18	100.00
Sirajganj	47.27	18.79	22.42	9.70	1.82	100.00
Pabna	33.94	17.58	35.15	11.52	1.82	100.00
Bogura	55.15	18.79	15.15	10.30	0.61	100.00
Gopalganj	28.28	15.15	35.76	19.60	1.21	100.00
Rajbari	33.33	21.82	32.73	12.12	0.00	100.00
Madaripur	50.48	13.33	24.52	11.19	0.48	100.00
Faridpur	42.86	13.65	30.48	12.38	0.63	100.00
Sunamganj	50.11	12.64	18.39	14.94	3.91	100.00
Habiganj	49.74	15.90	18.46	12.82	3.08	100.00
All	**48.67**	**16.35**	**22.99**	**10.72**	**1.28**	**100.00**

Table 3.2B: District-wise Percentage Distribution by Landholding Category — Control Area

District	Landless	Marginal	Small	Medium	Large	Total
Kurigram	68.15	11.11	20.00	0.74	0.00	100.00
Lalmonirhat	48.33	21.67	23.33	6.67	0.00	100.00

Rangpur	40.00	35.00	20.00	5.00	0.00	100.00
Nilphamari	52.00	16.00	29.33	2.67	0.00	100.00
Gaibandha	52.22	23.33	16.67	7.78	0.00	100.00
Sirajganj	41.67	18.33	26.67	11.67	1.67	100.00
Pabna	35.00	21.67	38.33	5.00	0.00	100.00
Bogura	60.00	17.78	17.78	4.44	0.00	100.00
Gopalganj	37.78	20.56	32.22	9.44	0.00	100.00
Rajbari	32.00	22.00	36.00	10.00	0.00	100.00
Madaripur	52.50	20.83	14.17	11.67	0.83	100.00
Faridpur	45.83	21.67	23.33	9.17	0.00	100.00
Sunamganj	55.56	10.37	20.74	10.37	2.96	100.00
Habiganj	55.00	11.67	18.33	13.33	1.67	100.00
All	**49.12**	**18.72**	**23.76**	**7.84**	**0.56**	**100.00**

Table 3.2C: Division-wise Percentage Distribution by Landholding Category

Division	Area	Landless	Marginal	Small	Medium	Large	Total
Rangpur	Project	60.41	18.37	15.93	4.63	0.65	100.00
	Control	55.00	19.52	21.43	4.05	0.00	100.00
Rajshahi	Project	45.45	18.38	24.24	10.51	1.41	100.00
	Control	44.24	19.39	28.48	7.27	0.61	100.00
Dhaka	Project	38.85	15.05	30.82	14.55	0.72	100.00
	Control	42.98	21.06	25.74	10.00	0.21	100.00
Sylhet	Project	50.00	13.65	18.41	14.29	3.65	100.00
	Control	55.38	10.77	20.00	11.28	2.56	100.00

Note: Figures are percentages.

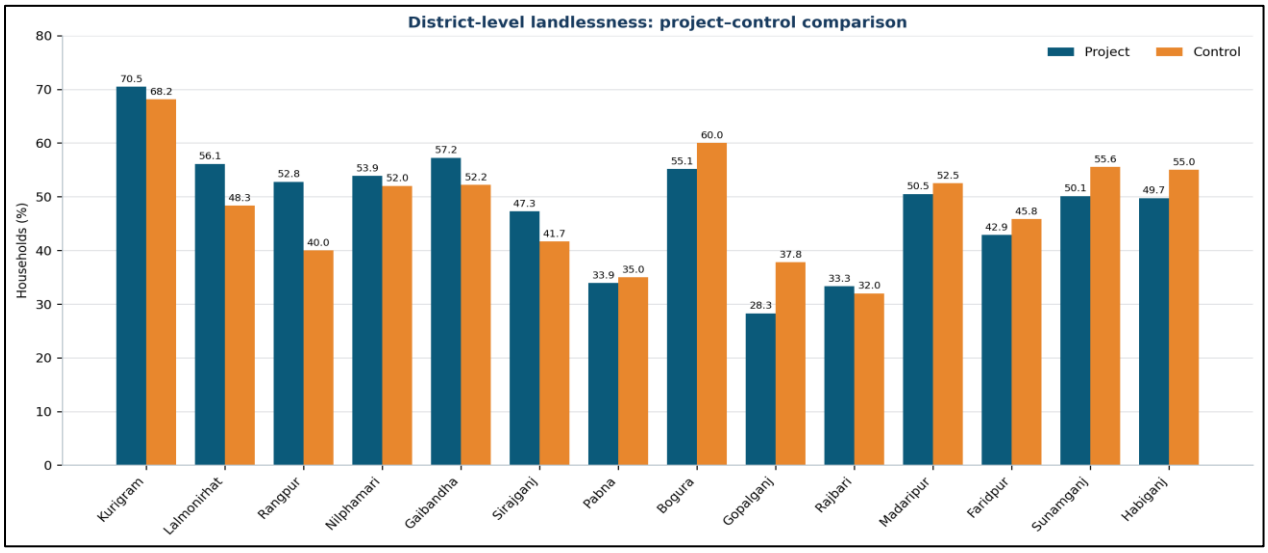


Figure 3.2: District-level concentration of landless households

District averages reveal much wider variation than the overall figures. In project areas, the landless share ranges from 28.28% in Gopalganj to 70.48% in Kurigram, a spread of 42.20 percentage points. The control range is also wide—from 32.00% in Rajbari to 68.15% in Kurigram. Kurigram therefore emerges as the most land-constrained district in both samples, while Gopalganj and Rajbari have comparatively larger small- and medium-farmer segments.

Several districts show meaningful project–control differences. Rangpur records 52.78% landless households in the project area compared with 40.00% in control area; Lalmonirhat shows 56.11% versus 48.33%; and Gopalganj moves

in the opposite direction at 28.28% versus 37.78%. These differences matter for district-level outcome comparisons because landholding composition is closely associated with livelihood strategy, income and capacity to absorb shocks.

At division level, Rangpur has the highest project-area landlessness (60.41%), followed by Sylhet (50.00%), Rajshahi (45.45%) and Dhaka (38.85%). Dhaka has the largest combined small- and medium-farmer presence, while Sylhet shows the largest project-area large-farmer share (3.65%). The divisional pattern reinforces the need to target poverty and resilience interventions geographically rather than applying a uniform household profile.

Geographic heterogeneity. The district comparison shows that an overall project–control difference of only 0.45 percentage points in landlessness masks much larger local gaps. The project share exceeds the control share by 12.78 points in Rangpur, 7.78 points in Lalmonirhat and 5.60 points in Sirajganj, whereas it is 9.50 points lower in Gopalganj and more than 5 points lower in both Sunamganj and Habiganj. These differences may reflect the local household frame as well as real variation in agrarian structure.

Regional baseline. At division level, the largest project–control gap in landlessness occurs in Rangpur Division (60.41% compared with 55.00%), while project landlessness is lower than control landlessness in Dhaka and Sylhet. The share of large farmers is highest in Sylhet in both samples, although it remains small. The result confirms that a single pooled landholding effect would conceal materially different regional exposure and capacity.

3.3 Demographic Characteristics by Household Category

Table 3.3A: Demographic Characteristics by Household Category - Project Area

Category	Male N	Male %	Female N	Female %	Total N	Total %	F:M	Dependency Ratio	HH Size
Landless	3740	50.84	3617	49.16	7357	100.00	0.97	2.28	4.03
Marginal Farmer	1373	52.99	1218	47.01	2591	100.00	0.89	2.06	4.23
Small Farmer	2030	52.23	1857	47.77	3887	100.00	0.91	2.14	4.51
Medium Farmer	983	51.96	909	48.04	1892	100.00	0.92	2.11	4.71
Large Farmer	134	52.76	120	47.24	254	100.00	0.90	2.10	5.29
All	**8260**	**51.69**	**7721**	**48.31**	**15981**	**100.00**	**0.93**	**2.18**	**4.26**

Table 3.3B: Demographic Characteristics by Household Category - Control Area

Category	Male N	Male %	Female N	Female %	Total N	Total %	F:M	Dependency Ratio	HH Size
Landless	1267	51.59	1189	48.41	2456	100.00	0.94	2.25	4.00
Marginal Farmer	506	50.65	493	49.35	999	100.00	0.97	2.32	4.27
Small Farmer	687	52.97	610	47.03	1297	100.00	0.89	2.01	4.37
Medium Farmer	264	53.44	230	46.56	494	100.00	0.87	2.25	5.04
Large Farmer	14	41.18	20	58.82	34	100.00	1.43	2.40	4.86
All	**2738**	**51.86**	**2542**	**48.14**	**5280**	**100.00**	**0.93**	**2.20**	**4.22**

Note: N = number of persons; F:M = female-to-male ratio; HH = household.

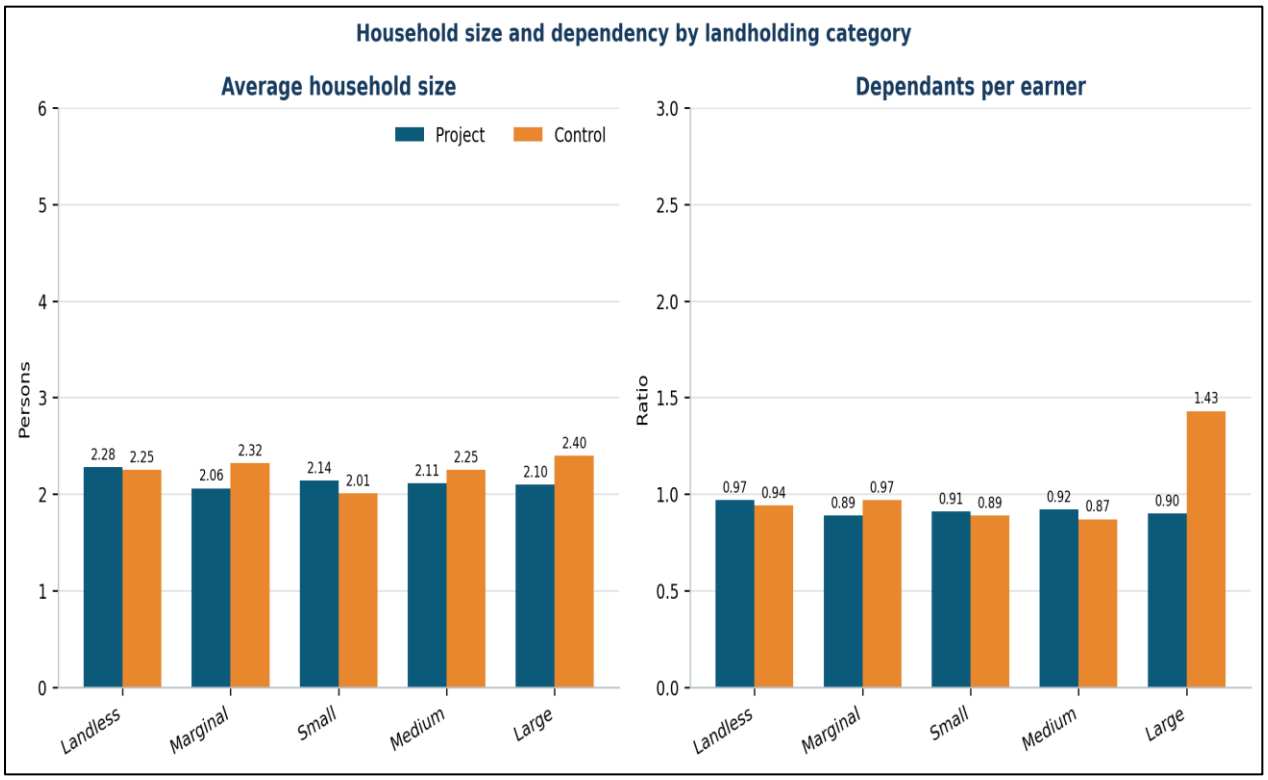


Figure 3.3: Household size and dependency by landholding category

The total enumerated population is 15,981 in project area households and 5,280 in control area households. Males constitute 51.69% of the project area population and 51.86% of the control area population, yielding the same overall female-to-male ratio of 0.93. This near-identical aggregate balance supports demographic comparability, although the control large-farmer group is an exception: females account for 58.82% and the F: M ratio reaches 1.43, based on only 34 people. That estimate is highly sample-sensitive and should not be generalised.

Average household size increases with landholding in the project area sample, from 4.03 among landless households to 5.29 among large farmers. The control area pattern is broadly similar but less monotonic, rising from 4.00 among landless households to 5.04 among medium farmers and 4.86 among large farmers. The overall means are close—4.26 and 4.22—so broad area comparisons are unlikely to be driven by household size alone.

Dependency per earner is 2.18 in the project area and 2.20 in the control area. Landless project households have the highest project dependency ratio (2.28), while marginal farmers have the lowest (2.06). In control areas, large farmers show the highest ratio (2.40) and small farmers the lowest (2.01). Because the measure is dependents per earner rather than a purely age-based dependency ratio, it reflects both demographic composition and labour-force participation.

Household composition. The overall female share is almost identical—48.31% in project area households and 48.14% in controls—while average household size differs by only 0.04 person and dependants per earner by 0.02. These small aggregate gaps strengthen the usefulness of the control sample for demographic comparison. Within landholding groups, however, the control medium-farmer household is 0.33 person larger than its project counterpart, and the large-farmer comparison is unstable because only seven control households fall in that category.

Vulnerability interpretation. A dependency ratio above two means that each earner, on average, supported more than two household members in both areas. For landless project households the ratio reaches 2.28, combining limited land assets with the greatest project-area dependency burden. Household size also rises from 4.03 among project landless households to 5.29 among large farmers, showing that per-household totals must be interpreted together with per-capita measures.

3.4 Household Size, Dependency and Literacy by Location

Table 3.4A: District-level household size, dependency and literacy

District / Division	Project HH size	Project Dependency Ratio	Project Literacy %	Control HH size	Control Dependency Ratio	Control Literacy %
Kurigram	3.92	2.19	85.63	3.77	2.14	89.89
Lalmonirhat	4.51	2.31	87.61	4.47	2.35	83.13
Rangpur	3.83	1.75	85.13	3.58	2.12	88.14
Nilphamari	4.24	2.11	85.85	4.32	2.48	85.87
Gaibandha	3.56	2.29	85.16	3.71	2.67	85.66
Sirajganj	3.88	2.25	94.66	4.23	2.06	95.98
Pabna	4.26	2.36	95.25	4.12	2.21	94.66
Bogura	3.59	2.40	92.95	3.29	2.70	89.15
Gopalganj	4.48	2.21	92.01	4.39	1.90	89.87
Rajbari	4.31	2.19	96.34	4.88	2.21	94.81
Madaripur	4.20	2.15	93.73	4.25	2.52	95.48
Faridpur	4.61	1.89	89.45	4.38	2.04	86.89
Sunamganj	4.73	2.32	88.64	4.70	2.15	89.44
Habiganj	4.94	2.33	90.29	4.60	2.17	90.08
All	4.26	2.18	89.81	4.22	2.20	89.88

Table 3.4B: Division-level household size, dependency and literacy

Division	Project HH size	Project Depend.	Project Literacy %	Control HH size	Control Depend.	Control Literacy %
Rangpur	3.97	2.14	85.13	3.93	2.33	86.93
Rajshahi	3.91	2.34	94.36	3.93	2.25	93.92
Dhaka	4.40	2.11	92.41	4.41	2.10	91.09
Sylhet	4.80	2.32	89.16	4.67	2.16	89.63
All	4.26	2.18	89.81	4.22	2.20	89.88



Figure 3.4: District variation in literacy and household size

Overall household size and dependency are nearly identical across areas, but district dispersion is substantial. Project household size ranges from 3.56 in Gaibandha to 4.94 in Habiganj; control household size ranges from 3.29 in Bogura to 4.88 in Rajbari. Dependency per earner varies from 1.75 in project Rangpur to 2.40 in project Bogura, and from 1.90 in control Gopalganj to 2.70 in control Bogura. These differences point to locally distinct labour availability and caregiving burdens.

The table reports an overall literacy rate of 89.81% in project areas and 89.88% in controls. Project literacy is highest in Rajbari (96.34%), followed by Pabna (95.25%) and Sirajganj (94.66%); the lowest tabled rate is Rangpur (80.23%). Control literacy peaks in Sirajganj (95.98%) and is lowest in Lalmonirhat (83.13%). The overall gap is negligible, but district gaps are not: Rangpur controls exceed the project sample by 7.91 percentage points, whereas Lalmonirhat's project sample exceeds controls by 4.48 points.

At division level, Rajshahi has the highest project literacy rate (94.36%), while Rangpur has the lowest (85.13%). Sylhet has the largest household size in both project and control samples. This combination of larger households and moderate literacy suggests that household-level service demand may be especially pronounced in Sylhet, while literacy-focused diagnostics may be more relevant in Rangpur.

Scale of spatial variation. District literacy gaps are much larger than the overall 0.07 percentage-point difference. Project literacy is 7.91 points below control literacy in Rangpur and 4.26 points below in Kurigram, but 4.48 points above control in Lalmonirhat and 4.06 points above in Bogura. Household size ranges over 1.38 persons among project districts and 1.59 persons among control districts, while dependency also varies sufficiently to influence per-capita welfare estimates.

3.5 Primary Occupation of Working Household Members

Table 3.5: Primary occupation of working household members

Occupation	Project N	Project %	Control N	Control %
Agriculture	1721	34.30	607	36.79
Agriculture Day Labour	538	10.72	167	10.12
Non-agriculture Day Labour	676	13.47	204	12.36
Business	773	15.40	257	15.58
transport	218	4.34	81	4.91
Fishing	18	0.36	13	0.79
Livestock Rearing	61	1.22	12	0.73
Government Service	239	4.76	44	2.67
Private Service	572	11.40	212	12.85
Others (Expatriate, Barber, Lawyer, Etc.)	202	4.03	53	3.21
Total (N)	5018	100	1650	100

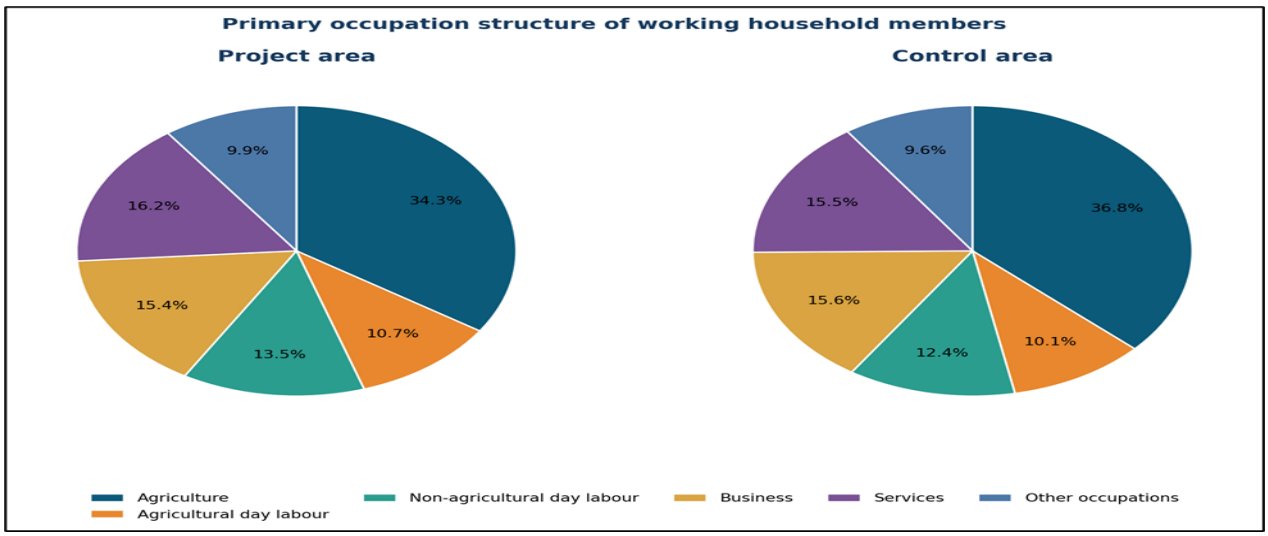


Figure 3.5: Primary occupation structure of working household members

Agriculture is the largest single primary occupation, accounting for 34.30% of the working population in project households and 36.79% in controls. Agricultural day labour adds 10.72% and 10.12%, respectively. Taken together, direct agricultural work supports 45.02% of project-area workers and 46.91% of control-area workers, confirming the centrality of climate-sensitive rural livelihoods.

Business is the second-largest project-area category at 15.40%, followed by non-agricultural day labour at 13.47% and private service at 11.40%. The control pattern is similar: business represents 15.58%, private service 12.85% and non-agricultural day labour 12.36%. Government service remains limited at 4.76% in project areas and 2.67% in controls, while fishing and livestock rearing each account for comparatively small shares.

The occupation distribution is broadly balanced between the two samples, but it also signals income volatility. Agricultural and non-agricultural daily labour together account for 24.19% of project workers and 22.48% of controls; these occupations can be seasonal and shock-sensitive. Livelihood diversification and continuity of market access during floods are therefore central resilience concerns.

Project–control structure. Direct agriculture and agricultural day labour together account for 45.02% of project workers and 46.91% of control workers. When non-agricultural day labour is added, 58.49% of project workers and 59.27% of control workers are concentrated in agriculture or casual labour. The overall structures are therefore close, although the project sample has a 2.09 percentage-point higher government-service share and a 1.45-point lower private-service share.

Resilience interpretation. The baseline occupation profile indicates several channels through which resilient infrastructure may affect welfare: maintaining access to fields and markets, reducing workdays lost during floods, enabling livestock evacuation, and supporting continuity of small business and transport services. Day labourers may benefit from improved access but remain vulnerable to temporary demand collapse and wage loss; agricultural households additionally face crop and livestock losses.

3.6 Land Ownership and Operational Holding

Table 3.6: Land Ownership and Operational Holding by Landholding Size

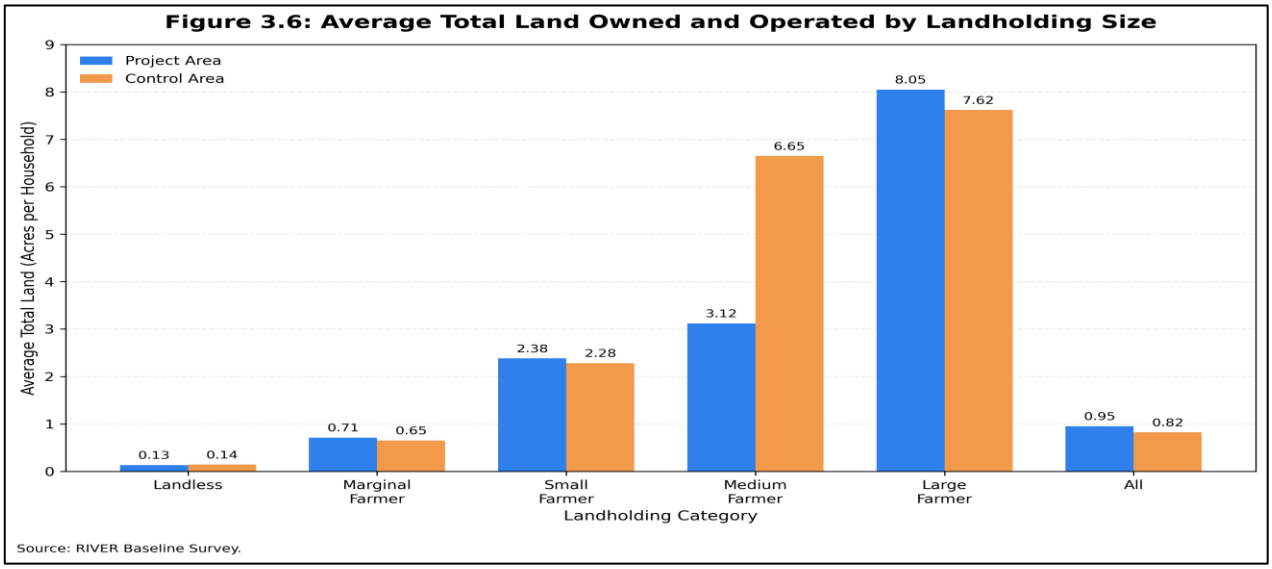
A: Project Area

Household Category	Sample (n)	Homestead	Farming	Orchard	Pond	Fallow	Share-cropped in	Share-cropped out	Total
Landless	1,825	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.13
Marginal Farmer	613	0.10	0.54	0.01	0.01	0.00	0.05	0.00	0.71
Small Farmer	862	0.14	1.00	0.02	0.05	0.00	1.17	0.00	2.38
Medium Farmer	402	0.21	3.01	0.06	0.13	0.03	1.82	0.24	3.12
Large Farmer	48	0.30	9.90	0.11	0.72	0.08	0.00	3.05	8.05
All	**3,750**	**0.11**	**0.79**	**0.01**	**0.04**	**0.00**	**0.14**	**0.14**	**0.95**

B: Control Area

Household Category	Sample (n)	Homestead	Farming	Orchard	Pond	Fallow	Share-cropped in	Share-cropped out	Total
Landless	614	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.14
Marginal Farmer	234	0.10	0.55	0.00	0.00	0.00	0.07	0.07	0.65
Small Farmer	297	0.13	1.04	0.02	0.02	0.00	1.20	0.13	2.28
Medium Farmer	98	0.20	5.47	0.04	0.04	0.00	1.84	0.94	6.65
Large Farmer	7	0.14	10.40	0.29	0.02	0.09	0.00	3.07	7.62
All	**1,250**	**0.10**	**0.70**	**0.01**	**0.01**	**0.00**	**0.12**	**0.12**	**0.82**

Note: Figures are average acres per household within each landholding category.
Source: RIVER Baseline Survey.



Land is a critical productive asset in the RIVER project area, influencing household livelihood opportunities, agricultural production, income generation and capacity to cope with climate- and flood-related shocks. Table 3.6 shows a pronounced landholding gradient in both the project and control areas. Average total land owned and operated increases progressively from landless households through marginal and small farmers to medium and large farmers. This pattern highlights substantial differences in the productive asset base across household categories and provides an important structural context for interpreting subsequent variations in income, expenditure, livelihood diversification and household resilience.

The data show that **landless households have only 0.13 acre of land on average in the project area and 0.14 acre in the control area**, essentially representing very limited land access. Among marginal farmers, average landholding increases to **0.71 acres in the project area and 0.65 acres in the control area**, while small farmers average **2.38 acres and 2.28 acres**, respectively. The differences between project and control households are therefore relatively modest among the landless, marginal and small-farmer categories.

A more substantial project–control difference is evident among **medium farmers**. Their average land owned and operated is **3.12 acres in the project area compared with 6.65 acres in the control area**. In contrast, large farmers report comparatively similar holdings, although the project-area average is somewhat higher, at **8.05 acres compared with 7.62 acres in the control area**. The large difference observed for medium farmers should be interpreted with reference to the number of households represented in each category, since category averages based on relatively small samples can be influenced by a limited number of comparatively large holdings.

Across all landholding categories, households in the project area report an average of **0.95 acres of total land owned and operated**, compared with **0.82 acres in the control area**. The difference of 0.13 acre indicates that the project sample has a somewhat larger average landholding overall. However, this aggregate difference should not be interpreted as evidence that project households consistently possess more land. As Figure 2.6 demonstrates, the direction and magnitude of the project–control difference vary considerably across landholding categories, particularly among medium farmers.

Landholding gradient and livelihood implications. The steep progression in landholding size demonstrates substantial variation in households' agricultural resource base. Landless and marginal households have very limited capacity to depend on own-land cultivation and are therefore likely to rely more heavily on wage employment, tenancy arrangements, non-farm activities and other livelihood sources. Small, medium and large farmers, by contrast, have progressively greater scope for agricultural production, crop diversification, investment in productive assets and commercialization. Landholding status is therefore an important variable for analysing differences in livelihood strategies, household income, food security and resilience to flood-related disruption.

Project–control interpretation. The broadly comparable holdings of landless, marginal and small farmers provide a useful baseline for subsequent project–control analysis. At the same time, the marked difference among medium farmers demonstrates why comparisons should be undertaken within landholding categories rather than relying exclusively on the overall sample averages.

Implications for RIVER interventions. The landholding pattern also points to differentiated resilience needs. Landless and marginal households are less able to rely on land-based livelihood strategies and may benefit particularly from improved access to flood shelters, connectivity, wage and non-farm livelihood opportunities and protection of household assets during disasters. Households with larger operational holdings may derive additional benefits from resilient access infrastructure, reduced disruption to agricultural activities and improved protection of productive assets.

3.7 Livestock and Poultry Ownership and Average Number Owned

Table 3.7: Livestock and poultry ownership

Animal	Project HH %	Project Present no.	Control HH %	Control Present no.
Bullock (Castrated OX)	6.32	1.57	6.64	1.66
Milch Cow	30.93	1.68	27.68	1.63
Other Cows	7.31	1.61	7.52	1.57
Ox	7.44	1.60	7.36	1.45
Calf (less than 1 year)	19.12	1.30	16.16	1.31
Buffalo	0.03	1.00	0.08	3.00
Goat	18.13	2.62	16.96	2.61
Sheep	0.51	3.95	0.88	3.82
Pigeon	1.68	17.56	2.00	15.56
Chicken	37.41	11.88	34.96	11.13
Duck	23.65	9.37	23.84	11.04
Others (Specify)	0.11	6.50	0.08	22.00
Total	**64.59**	**5.61**	**61.36**	**5.78**

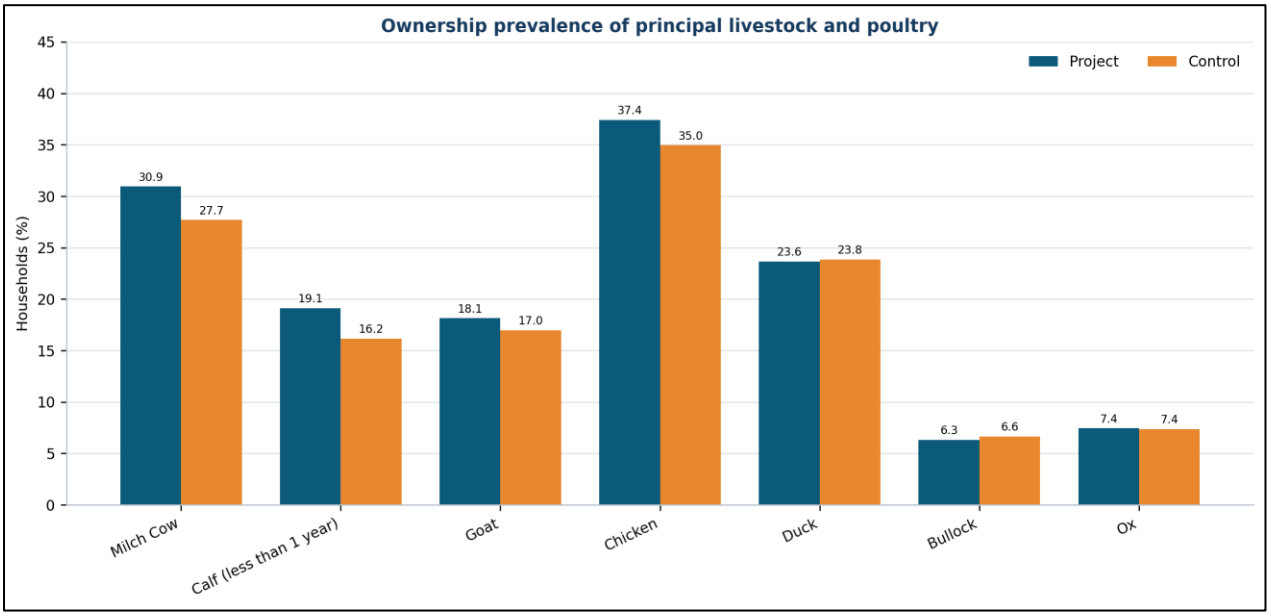


Figure 3.7: Livestock and poultry ownership prevalence

Livestock and poultry provide both productive assets and a liquid buffer against shocks. The ownership percentages show which species are widely distributed, while the reported numbers and values indicate the scale of the asset base. High-prevalence poultry categories typically spread small amounts of value across many households; cattle and larger animals tend to be less widely held but carry much higher value per owning household.

Project–control differences are species-specific rather than uniformly favouring one area. This matters because resilience is shaped not only by total livestock value but also by portfolio composition, disease exposure, fodder availability and the ease with which an animal can be sold. A household with several poultry birds faces a different risk and liquidity profile from one holding a cow or buffalo.

Future monitoring should track both ownership and losses after hazard events. Flooding can destroy sheds, constrain feed supply and force distress sales even when animals survive. Linking livestock support to elevated shelters, veterinary services and accessible evacuation routes would protect an asset category that many rural households use as precautionary savings.

Ownership prevalence. Livestock and poultry ownership was widespread in both survey areas. At least one livestock or poultry asset was reported by 64.59% of project-area households and 61.36% of control-area households. Chickens were the most commonly reported asset, owned by 37.41% of project households and 34.96% of control households, followed by milch cows at 30.93% and 27.68%, respectively. Duck ownership was almost identical, at 23.65% in the project area and 23.84% in the control area. The differences varied by animal category but generally indicate broadly comparable ownership patterns, with somewhat higher project-area ownership of cattle, goats and chick

3.8 Average Livestock Value by Location

Table 3.8A: District-wise average livestock value

District	Project Tk	Control Tk
Kurigram	44,219	35,862
Lalmonirhat	78,297	63,797
Rangpur	93,510	81,011
Nilphamari	85,537	67,733
Gaibandha	69,967	57,687
Sirajganj	133,890	110,364
Pabna	77,056	62,650
Bogura	80,320	59,738
Gopalganj	104,271	75,639
Rajbari	75,668	80,258
Madaripur	34,872	41,083
Faridpur	97,083	78,721
Sunamganj	98,036	89,573
Habiganj	64,304	41,512
All	79,091	66,767

Table 3.8B: Division-wise average livestock value

Division	Project Tk	Control Tk
Rangpur	68,308	56,671
Rajshahi	97,089	79,206
Dhaka	78,371	68,094
Sylhet	87,595	74,785
All	79,090.5	66,767

Note: The table presents the reported average value of household livestock and poultry assets by district and division. Values are descriptive baseline estimates based on the calculation method applied consistently to project and control-area records.

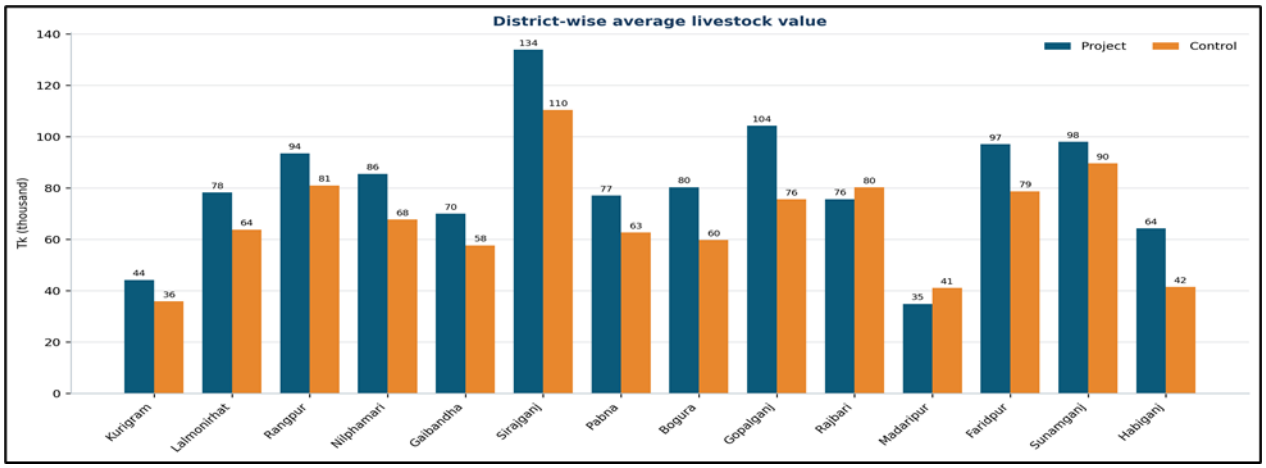


Figure 3.8: District-wise average livestock value

Average livestock value differs markedly across districts, indicating uneven capacity to use animals as a productive asset or emergency reserve. Districts with higher averages may have greater wealth tied up in animals, but they also face larger potential losses when floods disrupt housing, feed, transport or veterinary access. Lower-value districts may instead reflect limited ability to accumulate livestock assets in the first place. The project–control gap varies by district, so the all-area average should not be treated as a universal baseline relationship. Division summaries smooth some of this volatility but still show distinct regional livestock economies. Programme monitoring should therefore compare like locations and, where possible, disaggregate by animal type as well as value.

Magnitude of the baseline gap. Average livestock value is Tk 79,091 in project areas and Tk 66,767 in controls, a difference of Tk 12,324 or 18.5%. The project mean exceeds the control mean in 12 of 14 districts; the exceptions are Rajbari and Madaripur. The largest absolute gaps occur in Gopalganj, Habiganj and Bogura, while Sirajganj records the highest average value in both samples.

3.9 Annual Household Income by Source and Landholding Category

Table 3.9A: Project-area annual household income by source and landholding category

Source	Landless Tk	Landless %	Marginal Tk	Marginal %	Small Tk	Small %	Medium Tk	Medium %	Large Tk	Large %	All Tk	All %
Agriculture	24,722	9.96	72,020	25.63	114,773	33.34	159,450	35.76	245,833	41.37	70,426	23.38
Livestock	18,333	7.39	25,948	9.23	45,232	13.14	73,147	16.40	138,938	23.38	33,181	11.01
Wage	94,596	38.12	71,088	25.30	49,786	14.46	40,468	9.07	47,975	8.07	74,054	24.58
Business/ industry	44,635	17.99	44,367	15.79	41,770	12.13	49,614	11.13	50,333	8.47	44,539	14.78
Rent/Lease/ Mortgage/ sale etc.	3,190	1.29	3,352	1.19	3,673	1.07	11,823	2.65	23,438	3.94	4,512	1.50
Paid jobs/Service	14,341	5.78	13,700	4.88	11,268	3.27	13,604	3.05	12,500	2.10	13,427	4.46
Government sources	2,189	0.88	2,062	0.73	1,255	0.36	1,965	0.44	298	0.05	1,906	0.63
Gathering/Collecting	4,536	1.83	17,853	6.35	25,498	7.41	40,340	9.05	64,354	10.83	16,135	5.36
Miscellaneous	41,627	16.77	30,615	10.89	51,042	14.82	55,525	12.45	10,625	1.79	43,084	14.30
Total	248,169	100.00	281,005	100.00	344,299	100.00	445,936	100.00	594,294	100.00	301,265	100.00

Project-area per-capita income

Measure	Landless	Marginal	Small	Medium	Large	All
Per capita income	61,562	66,482	76,353	94,750	112,307	70,693

Table 3.9B: Control-area annual household income by source and landholding category

Source	Landless Tk	Landless %	Marginal Tk	Marginal %	Small Tk	Small %	Medium Tk	Medium %	Large Tk	Large %	All Tk	All %
Agriculture	26,614	10.75	74,318	25.99	116,761	35.16	186,561	37.84	242,857	38.44	70,714	23.87
Livestock	15,230	6.15	28,171	9.85	45,574	13.72	62,847	12.75	50,000	7.91	28,790	9.72
Wage	104,703	42.30	78,526	27.46	44,194	13.31	33,704	6.84	17,143	2.71	79,369	26.80
Business/ industry	46,355	18.73	38,120	13.33	31,195	9.39	79,602	16.15	178,571	28.26	44,558	15.04
Rent/Lease/ Mortgage/ sale etc.	2,212	0.89	1,658	0.58	7,579	2.28	17,735	3.60	20,000	3.17	4,700	1.59
Paid jobs/Service	10,448	4.22	3,915	1.37	4,976	1.50	6,918	1.40	0	0.00	7,590	2.56
Government sources	746	0.30	3,071	1.07	1,777	0.54	4,978	1.01	371	0.06	1,756	0.59
Gathering/Collecting	5,636	2.28	12,824	4.48	32,896	9.91	60,378	12.25	92,857	14.70	18,239	6.16
Miscellaneous	35,563	14.37	45,368	15.86	47,114	14.19	40,298	8.17	30,000	4.75	40,483	13.67
Total	247,507	100.00	285,971	100.00	332,066	100.00	493,020	100.00	631,800	100.00	296,199	100.00

Control-area per-capita income

Measure	Landless	Marginal	Small	Medium	Large	All
Per capita income	61,877	66,984	76,040	97,806	149,574	70,123

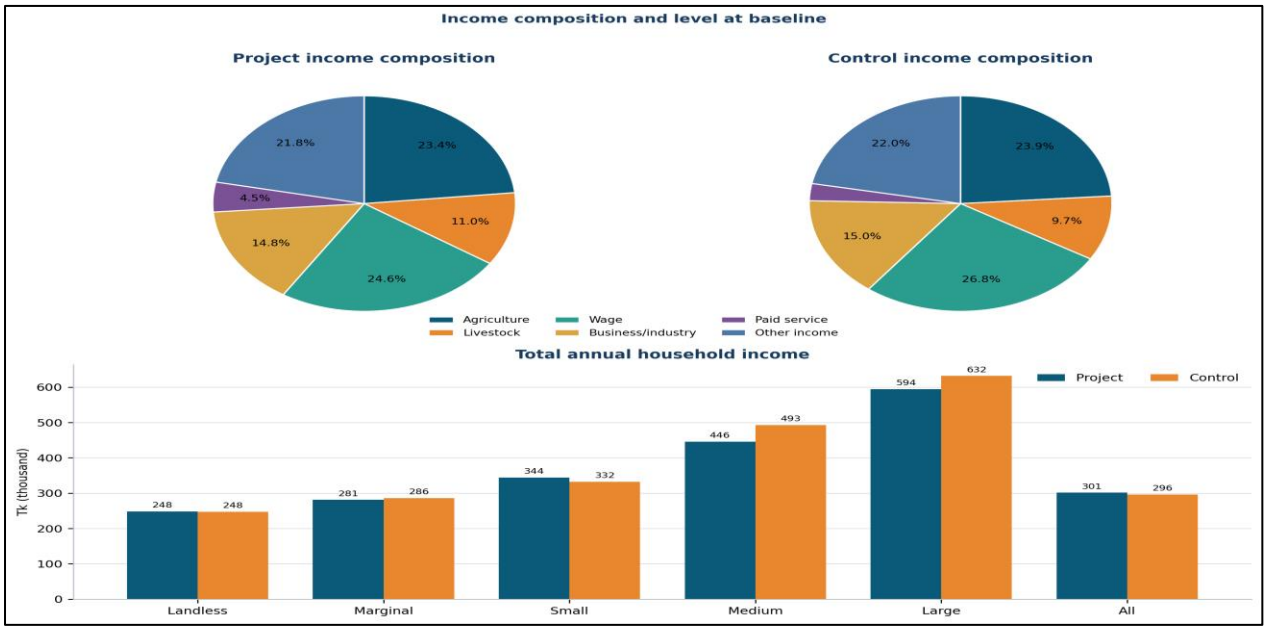


Figure 3.9: Income composition and total income by landholding category

The income table demonstrates two simultaneous patterns: diversification by source and a steep landholding gradient in total resources. Agriculture contributes a larger share as landholding increases, while wage income is more important among landless and marginal households. Business, paid employment, livestock and miscellaneous activities provide diversification, but their relative importance varies across classes and between project and control samples.
Total annual household income rises strongly from landless to large-farmer categories. This progression is not only a level difference: it reflects access to productive land, capital, higher-value activities and the ability to combine multiple income streams. Per-capita income follows the same broad direction, confirming that the class gradient is not explained solely by larger household size among better-off landholding groups.

The "All" percentages in the chart show the portfolio of an average area, while the detailed columns reveal who receives income from each source. For programme targeting, the wage-dependent lower categories need reliable employment and physical access to markets during shocks. Farming households need resilient production, storage and transport. Business and service households depend on local demand and network continuity. A single livelihood intervention would therefore reach these groups unevenly. Project–control comparisons should be interpreted alongside the compositional differences identified in Tables 3.1 and 3.2. The slightly larger medium- and large-farmer share in project areas can influence unconditional mean income. Category-specific and location-adjusted comparisons will provide a cleaner baseline for later evaluation.

Overall income comparison. Average annual household income is Tk 301,265 in project areas and Tk 296,199 in controls, leaving a modest project advantage of Tk 5,066 or 1.7%. Per-capita income is similarly close—Tk 70,693 and Tk 70,123—so aggregate income levels are broadly comparable. The category-specific pattern is not uniform: project income is higher among landless and small farmers but lower among marginal, medium and large farmers than in the corresponding control categories.

Income composition. Wages are the largest project income source overall (24.58%), narrowly ahead of agriculture (23.38%); controls are even more wage-dependent (26.80%) while agriculture contributes 23.87%. Agriculture and livestock together rise sharply with landholding, reaching 64.75% of project large-farmer income. Landless households depend much more on wages—38.12% in project areas and 42.30% in controls—making continuity of access to work a central resilience issue.

Distribution and risk. The project total increases from Tk 248,169 for landless households to Tk 594,294 for large farmers; control income rises from Tk 247,507 to Tk 631,800. This gradient confirms that mean income alone conceals substantial inequality. It also shows different risk portfolios: lower groups are exposed to work interruption, whereas larger farmers have more income tied to crops and livestock that may suffer asset losses.

3.10 Annual Household Expenditure by Item and Landholding Category

Table 3.10A: Project-area annual household expenditure by item and landholding category

Item	Landless Tk	Landless %	Marginal Tk	Marginal %	Small Tk	Small %	Medium Tk	Medium %	Large Tk	Large %	All Tk	All %
Food and daily necessities	121,719	55.91	130,132	53.62	144,467	50.14	175,572	47.03	196,000	39.03	135,047	52.28
Cloth /Shoes/Socks/etc.	9,180	4.22	9,898	4.08	13,947	4.84	19,720	5.28	18,763	3.74	11,646	4.51
Bed sheet/Quilt	794	0.36	1,087	0.45	1,061	0.37	1,375	0.37	2,500	0.50	987	0.38
Furniture	988	0.45	1,178	0.49	2,553	0.89	2,175	0.58	3,718	0.74	1,541	0.60
Utensils	576	0.26	730	0.30	676	0.23	799	0.21	1,290	0.26	657	0.25
Livestock feed and treatments	4,511	2.07	9,473	3.90	14,230	4.94	20,233	5.42	74,588	14.85	10,138	3.93
Poultry feed	45	0.02	137	0.06	185	0.06	269	0.07	10,750	2.14	253	0.10
Wax (candle)/fuel wood	1,697	0.78	1,575	0.65	2,289	0.79	1,947	0.52	2,238	0.45	1,847	0.72
Health and medicine	16,112	7.40	15,360	6.33	20,555	7.13	32,200	8.63	28,863	5.75	18,898	7.32
Electricity bill	7,869	3.61	9,225	3.80	11,561	4.01	15,691	4.20	19,122	3.81	9,922	3.84
Soap and Cosmetics	3,818	1.75	3,769	1.55	3,771	1.31	4,375	1.17	4,833	0.96	3,872	1.50
Education of Children	8,759	4.02	12,206	5.03	15,254	5.29	19,735	5.29	27,125	5.40	12,227	4.73
Tiffin	1,653	0.76	2,035	0.84	2,134	0.74	2,209	0.59	3,025	0.60	1,903	0.74
HH repair	3,094	1.42	2,805	1.16	5,170	1.79	7,543	2.02	5,500	1.10	4,032	1.56
House rent	66	0.03	0	0.00	146	0.05	67	0.02	0	0.00	73	0.03
Tube well installation	39	0.02	19	0.01	260	0.09	54	0.01	13	0.00	88	0.03
Latrine installation/maintenance	42	0.02	17	0.01	80	0.03	19	0.01	63	0.01	45	0.02
Tax/Vat etc	59	0.03	197	0.08	211	0.07	223	0.06	125	0.02	135	0.05
Credit installment	8,682	3.99	6,319	2.60	6,162	2.14	7,345	1.97	12,500	2.49	7,622	2.95
Recreation	311	0.14	834	0.34	887	0.31	952	0.26	475	0.09	600	0.23
Refreshment	822	0.38	1,032	0.43	1,463	0.51	2,377	0.64	4,780	0.95	1,221	0.47
Court cases	0	0.00	82	0.03	52	0.02	90	0.02	0	0.00	35	0.01
Gift/dowry	1,434	0.66	2,767	1.14	2,344	0.81	2,511	0.67	1,500	0.30	1,977	0.77
Salary of Servants	453	0.21	673	0.28	1,627	0.56	5,119	1.37	11,250	2.24	1,397	0.54
Transport	12,344	5.67	15,179	6.25	19,426	6.74	26,300	7.04	32,625	6.50	16,191	6.27
Fuel	6,924	3.18	7,092	2.92	6,136	2.13	8,212	2.20	15,513	3.09	7,018	2.72
Religious Festivals	5,680	2.61	8,836	3.64	10,621	3.69	15,733	4.21	24,775	4.93	8,654	3.35
Others (Specify)	42	0.02	20	0.01	863	0.30	478	0.13	250	0.05	276	0.11
Total	217,714	100.00	242,679	100.00	288,132	100.00	373,322	100.00	502,179	100.00	258,304	100.00

Project-area per-capita expenditure

Measure	Landless	Marginal	Small	Medium	Large	All
Per capita all expenditure	54,007	57,415	63,897	79,321	94,900	60,612

Table 3.10B: Control-area annual household expenditure by item and landholding category

Item	Landless Tk	Landless %	Marginal Tk	Marginal %	Small Tk	Small %	Medium Tk	Medium %	Large Tk	Large %	All Tk	All %
Food and daily necessities	120,726	55.01	123,337	49.75	138,438	50.08	195,005	46.93	219,916	42.91	131,802	51.62
Cloth /Shoes/Socks/etc.	10,600	4.83	11,497	4.64	13,933	5.04	28,800	6.93	23,143	4.52	13,057	5.11
Bed sheet/Quilt	708	0.32	735	0.30	936	0.34	1,452	0.35	2,057	0.40	833	0.33
Furniture	1,073	0.49	1,919	0.77	1,932	0.70	2,120	0.51	17,571	3.43	1,610	0.63
Utensils	536	0.24	668	0.27	804	0.29	1,433	0.34	514	0.10	694	0.27
Livestock feed and treatments	3,516	1.60	10,274	4.14	13,891	5.03	15,741	3.79	11,486	2.24	8,249	3.23
Poultry feed	11	0.00	62	0.02	424	0.15	98	0.02	0	0.00	125	0.05
Wax (candle)/fuel wood	2,216	1.01	1,735	0.70	2,018	0.73	2,987	0.72	0	0.00	2,127	0.83
Health and medicine	14,090	6.42	15,845	6.39	14,089	5.10	45,269	10.89	88,286	17.23	17,278	6.77
Electricity bill	7,742	3.53	9,304	3.75	11,847	4.29	15,474	3.72	17,143	3.35	9,669	3.79
Soap and Cosmetics	3,864	1.76	3,503	1.41	4,134	1.50	6,003	1.44	10,200	1.99	4,064	1.59
Education of Children	9,385	4.28	14,966	6.04	14,234	5.15	23,192	5.58	46,971	9.17	12,875	5.04
Tiffin	1,444	0.66	1,762	0.71	1,452	0.53	2,198	0.53	857	0.17	1,561	0.61
HH repair	1,899	0.87	4,213	1.70	2,230	0.81	3,233	0.78	2,571	0.50	2,519	0.99
House rent	450	0.20	0	0.00	0	0.00	0	0.00	0	0.00	221	0.09
Tube well installation	23	0.01	3	0.00	2	0.00	0	0.00	0	0.00	12	0.00
Latrine installation/maintenance	19	0.01	33	0.01	1	0.00	37	0.01	0	0.00	19	0.01
Tax/Vat etc	61	0.03	108	0.04	424	0.15	251	0.06	0	0.00	170	0.07
Credit installment	10,495	4.78	12,359	4.98	8,528	3.09	1,396	0.34	0	0.00	9,604	3.76
Recreation	291	0.13	405	0.16	331	0.12	924	0.22	0	0.00	370	0.14
Refreshment	1,276	0.58	1,368	0.55	1,706	0.62	2,590	0.62	1,714	0.33	1,501	0.59
Court cases	29	0.01	0	0.00	0	0.00	0	0.00	0	0.00	14	0.01
Gift/dowry	1,005	0.46	1,056	0.43	2,006	0.73	1,053	0.25	3,429	0.67	1,270	0.50
Salary of Servants	6	0.00	215	0.09	6,525	2.36	3,429	0.83	0	0.00	1,862	0.73
Transport	12,620	5.75	14,874	6.00	17,448	6.31	32,927	7.92	39,600	7.73	15,932	6.24
Fuel	6,901	3.14	6,128	2.47	6,285	2.27	11,008	2.65	16,200	3.16	6,984	2.74
Religious Festivals	8,364	3.81	11,567	4.67	12,711	4.60	17,957	4.32	10,800	2.11	10,762	4.21
Others (Specify)	107	0.05	0	0.00	81	0.03	980	0.24	0	0.00	149	0.06
Total	219,456	100.00	247,937	100.00	276,410	100.00	415,556	100.00	512,459	100.00	255,335	100.00

Control-area per-capita expenditure

Measure	Landless	Marginal	Small	Medium	Large	All
Per capita all expenditure	54,864	58,075	63,295	82,438	105,506	60,449

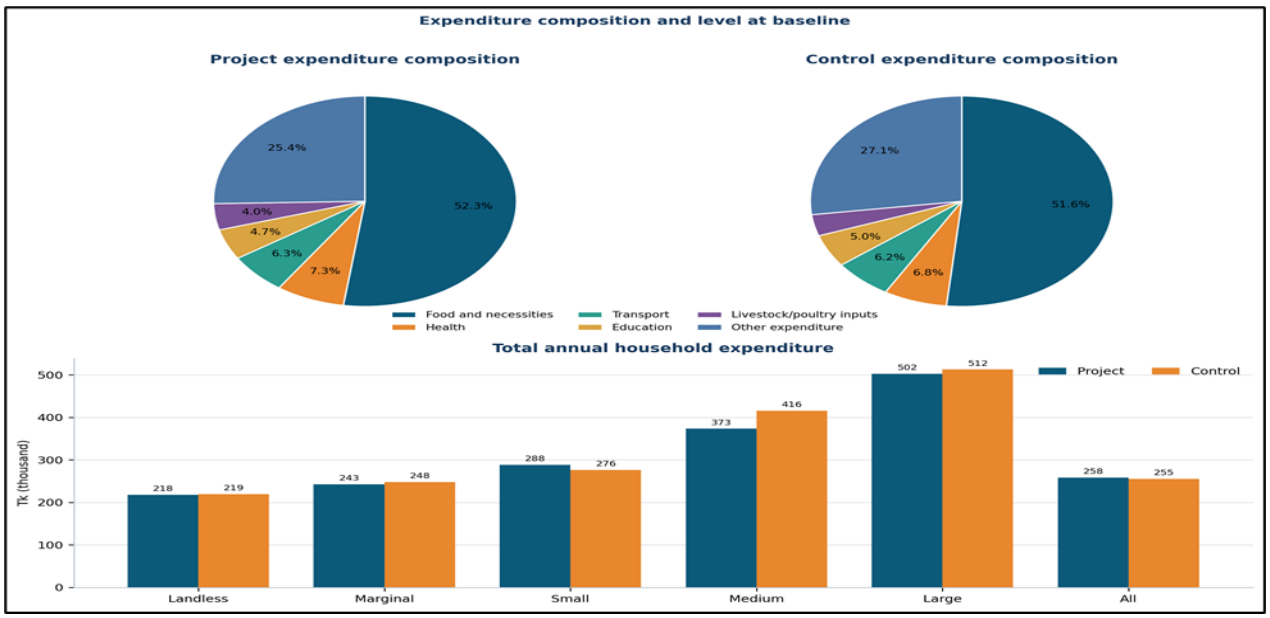


Figure 3.10: Largest expenditure shares and total expenditure by landholding category

Household expenditure is dominated by essential consumption, with food-related items taking the largest combined share for poorer households. As landholding and income rise, total expenditure increases and the budget becomes more diversified. The percentage columns are therefore as important as the taka amounts: they show the pressure each item places on the household budget, not merely the absolute amount spent.

Health and medicine expenditure deserves particular attention. It represents a direct welfare cost and can become catastrophic when illness coincides with flood-related income loss, damaged transport links or reduced access to facilities. Even where the average health share is not the largest item, households with severe illness may face far higher burdens than the mean. Baseline monitoring should therefore supplement mean spending with indicators of borrowing, asset sales, deferred care and out-of-pocket shock expenditure.

The landholding gradient in total and per-capita expenditure broadly mirrors the income gradient in Tables 3.9A and 3.9B. However, a higher expenditure level is not automatically a stronger welfare outcome: it may reflect larger household needs, higher prices, productive spending or unavoidable costs. Comparing income and expenditure together is necessary to identify savings capacity, deficits and vulnerability to adverse events.

Project–control differences by item can also reflect local price levels and service availability. District-adjusted analysis would help distinguish consumption behaviour from cost-of-living effects. For future evaluation, the baseline expenditure categories provide a detailed framework for tracking whether improved resilient infrastructure reduces transport losses, protects food security and moderates emergency health or repair costs.

Overall expenditure comparison. Average annual household expenditure is Tk 258,304 in project areas and Tk 255,335 in controls, a difference of Tk 2,969 or 1.2%. Per-capita expenditure is almost identical—Tk 60,612 in project areas and Tk 60,449 in controls. Subtracting reported expenditure from reported income gives a descriptive residual of approximately Tk 42,961 per project household and Tk 40,864 per control household; this is not a formal savings measure because income and expenditure may have different recall errors and may omit transfers, debt movements or irregular purchases.

Essential-consumption burden. Food and daily necessities absorb 52.28% of the average project budget and 51.62% of the control budget. Among landless households the shares rise to 55.91% and 55.01%, showing limited room to absorb a shock without reducing essential consumption, borrowing or selling assets. Food shares fall as landholding increases, consistent with greater capacity to allocate resources to productive inputs, services and discretionary items.

Health-cost baseline. Health and medicine expenditure averages Tk 18,898 in project households and Tk 17,278 in controls. The project amount is Tk 1,620, or 9.4%, higher and represents 7.32% of the project budget compared with 6.77% in controls. These averages should be linked to illness prevalence, treatment seeking, transport costs and flood timing. The very high control expenditure among large farmers is based on only seven households and should not be generalized.

Integrated Analytical Conclusions

Across the ten tables, three structural findings stand out. First, the sample is predominantly land-poor: roughly two-thirds of households are landless or marginal farmers. Second, livelihoods are highly exposed to agriculture and daily labour, making household welfare sensitive to seasonal employment, market access and climatic shocks. Third, district variation is often much larger than the overall project–control difference, so geographically disaggregated monitoring is essential. The project and control samples are broadly similar on aggregate household size, sex composition, dependency, literacy and the lower end of the landholding distribution. Nevertheless, differences in upper landholding categories and several district profiles mean that future impact estimates should adjust for baseline household category and location. Small control subsamples—especially large farmers—should be interpreted cautiously.

Equity and resilience focus. The baseline points to landless and marginal households, daily labourers, high-dependency households and livestock-dependent families as priority groups. Impact reporting should examine whether these groups experienced safer evacuation, fewer days of isolation, lower losses, improved continuity of schooling and work, reduced health-access costs and stronger recovery. Average project effects should be accompanied by subgroup and distributional results so that gains among better-off households do not conceal limited progress among the most vulnerable.

Household Economic Welfare; Distribution and Food Security; Water-Resource Access and Infrastructure; and Exposure to Natural Hazards.

3.11 Baseline Household and Per-Capita Income

Table 3.11: Income analysis by landholding size

Class	Project HH Tk	Control HH Tk	Gap Tk	Gap %	Project PC Tk	Control PC Tk	Gap Tk	Gap %
LL	248,169	247,507	663	0.27%	61,562	61,877	-315	-0.51%
MRF	281,005	285,971	-4,966	-1.74%	66,482	66,984	-502	-0.75%
SF	344,299	332,066	12,232	3.68%	76,353	76,040	313	0.41%
MF	445,936	493,020	-47,084	-9.55%	94,750	97,806	-3,056	-3.12%
LF	594,294	631,800	-37,506	-5.94%	112,307	130,076	-17,769	-13.66%
All	301,265	296,199	5,066	1.71%	70,693	70,123	570	0.81%



Figure 3.11: Annual household income by landholding class

Aggregate baseline income is closely balanced: project households average Tk. 301,265 against Tk. 296,199 in controls, only 1.71% higher. Per-capita income is even closer—Tk. 70,693 versus Tk. 70,123, a gap of 0.81%. These small overall differences are useful for future attribution, but the class pattern is not uniform. Small farmers are 3.68% ahead in household income, whereas project medium and large farmers are 9.55% and 5.94% below their control counterparts. The per-capita deficit reaches 13.66% among large farmers.

Income rises steeply with landholding in both areas. Project large-farmer household income is 2.39 times the landless average; the control ratio is 2.55. Project income exceeds control income for small farmers by Tk. 12,232 (3.68%) but is lower for marginal, medium and large farmers, with the largest absolute gap among medium farmers (Tk. 47,084). At per-capita level, the overall difference is only Tk. 570, while the large-farmer control value is Tk. 17,769 higher. Thus, the close overall average coexists with pronounced class gradients and some upper-category imbalance.

Baseline balance. The overall household-income gap of 1.71% and per-capita gap of 0.81% are small relative to the differences across landholding classes. The near equality among landless households is especially clear: project household income is only 0.27% higher, while project per-capita income is 0.51% lower. The “All” values therefore provide a balanced aggregate baseline, but they do not erase the socioeconomic gradient.

3.12 Baseline Household and Per-Capita Expenditure

Table 3.12: Expenditure analysis by landholding size

Class	Project HH Tk	Control HH Tk	Gap Tk	Gap %	Project PC Tk	Control PC Tk	Gap Tk	Gap %
LL	239,815	236,957	2,858	1.21%	59,489	59,239	250	0.42%
MRF	266,456	268,794	-2,337	-0.87%	63,040	62,961	80	0.13%
SF	308,838	295,368	13,470	4.56%	68,489	67,636	853	1.26%
MF	386,850	415,556	-28,706	-6.91%	82,195	82,438	-243	-0.29%
LF	502,179	512,459	-10,280	-2.01%	94,900	105,506	-10,606	-10.05%
All	279,156	272,340	6,816	2.50%	65,505	64,474	1,031	1.60%

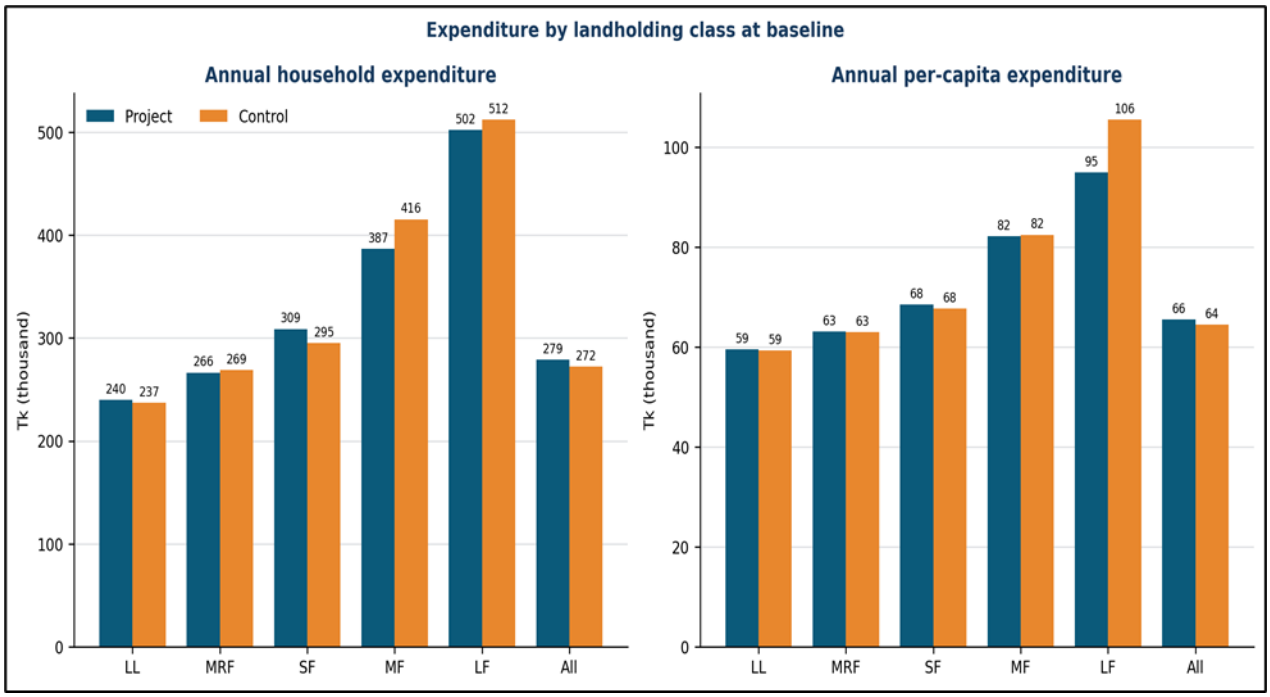


Figure 3.12: Annual household expenditure by landholding class

Overall annual expenditure is Tk. 279,156 in project areas and Tk. 272,340 in controls, a baseline gap of Tk. 6,816 or 2.50%. Per-capita expenditure is Tk. 65,505 and Tk. 64,474, respectively, leaving a similarly modest project advantage of 1.60%. Class-specific differences remain more pronounced: project small-farmer households spend 4.56% more than controls, while medium farmers spend 6.91% less and large farmers 2.01% less.

Expenditure increases with landholding but remains below income in every class. Project household expenditure rises from Tk. 239,815 among landless households to Tk. 502,179 among large farmers, while control expenditure rises from Tk. 236,957 to Tk. 512,459. The project–control relationship changes by class: project expenditure is higher among landless, small and marginal households on a per-capita basis, but slightly lower among medium farmers and substantially lower among large farmers. The close overall average therefore coexists with clear socioeconomic variation.

Budget gradient. The ratio of large- to landless-household expenditure is 2.09 in project areas and 2.16 in controls, below the corresponding income ratios of 2.39 and 2.55. Spending therefore rises strongly with landholding, but less steeply than income. The largest project–control divergence occurs among medium farmers, where project household expenditure is Tk. 28,706 lower.

3.13 Geographic Variation in Income and Expenditure

Table 3.13A: District-level income and expenditure

District/Division	Project income	Project income CV%	Control income	Control income CV%	Project expend.	Proect expend. CV%	Control expend.	Control expend. CV%
Kurigram	240,057	63.76	254,555	59.16	230,682	60.69	243,775	53.60
Lalmonirhat	249,980	58.36	249,989	73.70	235,196	54.15	236,360	55.25
Rangpur	236,893	90.46	285,088	57.49	215,787	82.65	277,146	51.33
Nilphamari	260,834	57.49	226,133	65.85	244,628	53.98	212,192	58.11
Gaibandha	224,806	72.37	330,900	62.01	212,793	72.47	299,025	59.61
Sirajganj	299,134	68.39	238,980	68.22	280,960	64.58	224,016	68.81
Pabna	352,258	78.16	218,830	65.50	318,898	73.55	190,636	69.87
Bogura	261,535	76.58	197,644	59.50	235,350	70.19	167,650	58.51
Gopalganj	354,895	71.53	328,041	65.16	318,930	70.10	289,079	62.38
Rajbari	329,366	66.78	313,880	73.66	301,501	62.66	277,185	72.29
Madaripur	372,856	59.40	397,513	55.11	342,218	57.36	369,829	47.23
Faridpur	346,883	62.91	325,276	81.82	326,391	59.87	294,104	82.11
Sunamganj	308,420	55.25	323,665	60.66	290,093	53.46	307,102	59.77
Habiganj	268,777	56.00	258,408	43.44	249,466	43.96	240,513	38.33
All	**301,265**	**68.78**	**296,199**	**67.42**	**279,156**	**65.16**	**272,340**	**63.81**

Table 3.13B: Division-level income and expenditure

District/Division	Project income	Project income CV%	Control income	Control income CV%	Project expend.	Project expend. CV%	Control expend.	Control expend. CV%
Rangpur	241,178	68.04	269,549	64.24	227,665	64.36	253,682	57.19
Rajshahi	304,309	76.19	220,379	65.65	278,403	71.32	196,505	68.33
Dhaka	355,474	65.48	343,566	67.75	325,565	63.15	309,714	64.90
Sylhet	296,150	55.85	303,586	58.34	277,518	51.79	286,613	57.13
All	301,265	68.78	296,199	67.42	279,156	65.16	272,340	63.81

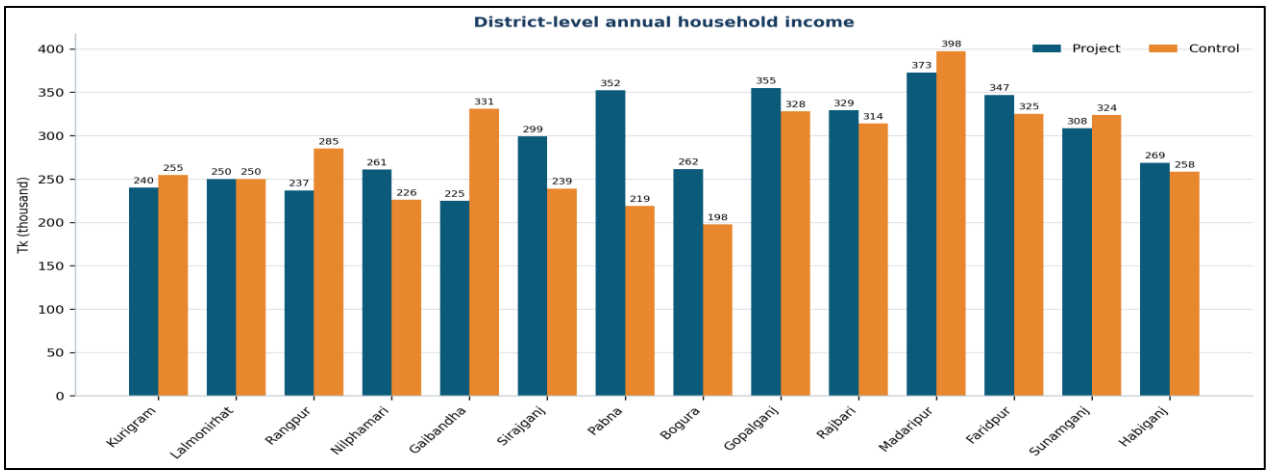


Figure 3.13: District-level annual household income

District variation is much larger than the all-area difference. Project income ranges from Tk. 224,806 in Gaibandha to Tk. 372,856 in Madaripur; control income ranges from Tk. 197,644 in Bogura to Tk. 397,513 in Madaripur. Project expenditure ranges from Tk. 212,793 in Gaibandha to Tk. 342,218 in Madaripur, while control expenditure ranges from Tk. 167,650 in Bogura to Tk. 369,829 in Madaripur. High coefficients of variation—about 69% overall for income and 64–65% for expenditure—show that district means summarize widely dispersed household outcomes.

The direction of the project–control income gap varies geographically. Project income is higher in eight districts and lower in six. The largest project advantage occurs in Pabna, followed by Bogura and Sirajganj, while the largest control

advantage occurs in Gaibandha and Rangpur. Division averages show a particularly large project advantage in Rajshahi Division, whereas Rangpur Division begins below its control counterpart. The coefficients of variation, which mostly exceed 55%, demonstrate substantial within-location dispersion around each mean.

Dispersion around district means. The overall coefficient of variation for income is 68.78% in project areas and 67.42% in controls; expenditure variation is 65.16% and 63.81%. Rangpur project areas record the highest income CV (90.46%) and a very high expenditure CV (82.65%), while Habiganj controls record the lowest values for both income (43.44%) and expenditure (38.33%). The averages therefore represent distributions with considerable household-level spread.

3.14 Baseline Income–Expenditure Surplus

Table 3.14: Average surplus/deficit by landholding size

Class	Project income	Project expend.	Project surplus	Project ratio	Control income	Comtrol expend.	Control surplus	Control ratio
LL	248,169	239,815	8,354	1.03	247,507	236,957	10,550	1.04
MRF	281,005	266,456	14,548	1.05	285,971	268,794	17,177	1.06
SF	344,299	308,838	35,461	1.11	332,066	295,368	36,698	1.12
MF	445,936	386,850	59,086	1.15	493,020	415,556	77,465	1.19
LF	594,294	502,179	92,114	1.18	631,800	512,459	119,341	1.23
All	301,265	279,156	22,108	1.08	296,199	272,340	23,859	1.09

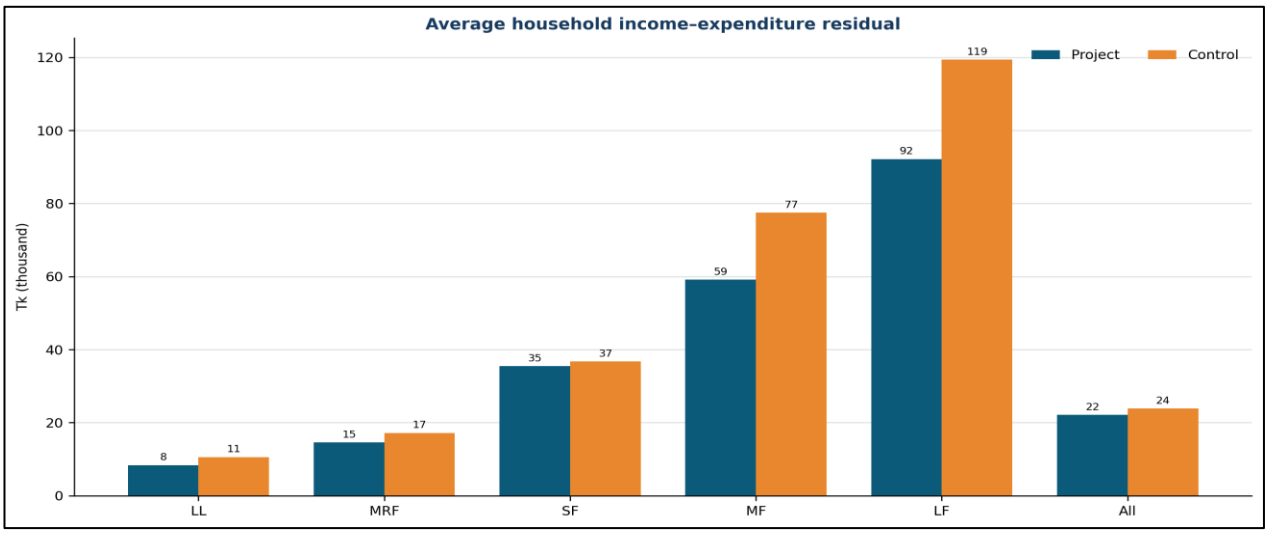


Figure 3.14: Household income surplus by landholding class

Using the expenditure figures, every landholding class records a positive average income–expenditure residual. The overall residual is Tk. 22,108 in project areas and Tk. 23,859 in controls. Project residuals rise from Tk. 8,354 among landless households to Tk. 92,114 among large farmers; control residuals rise from Tk. 10,550 to Tk. 119,341. The control residual is larger in every landholding class, and the aggregate control advantage is Tk. 1,751.

An average positive residual does not mean that every household saved. Income and expenditure were recalled separately, and the averages may combine households with substantial surpluses and households in deficit. The income-to-expenditure ratio ranges from 1.03 among project landless households to 1.18 among project large farmers; the control range is 1.04 to 1.23. The reported residual is therefore an accounting margin from average flows, not a direct measure of household cash saving.

Class pattern in the residual. The residual rises consistently with landholding in both areas, from less than Tk. 15,000 among landless and marginal households to more than Tk. 90,000 among large farmers. The gap between project and control residuals is small in the lower three classes but widens sharply among medium and large farmers, reflecting their lower reported project-area expenditure and income relative to controls in different proportions.

3.15 Distribution of Income by Decile

Table 3.15: Amount and percentage share of income

Decile	Project amount Tk	Project %	Control amount Tk	Control %
Decile 1	29,862,150	2.64	9,916,700	2.68
Decile 2	48,867,600	4.33	16,083,461	4.34
Decile 3	62,750,715	5.55	20,915,130	5.65
Decile 4	75,921,340	6.72	25,457,000	6.88
Decile 5	89,838,120	7.95	30,151,300	8.14
Deciles: 1–5	307,239,925	27.20	102,523,591	27.69
Decile 6	104,766,340	9.27	34,018,600	9.19
Decile 7	120,890,600	10.70	39,362,900	10.63
Decile 8	142,850,738	12.64	46,043,400	12.44
Decile 9	172,424,246	15.26	56,883,700	15.36
Decile 10	281,570,950	24.92	91,416,300	24.69
Deciles: 6–10	822,502,874	72.80	267,724,900	72.31
D10:D1 ratio	9.43		9.22	

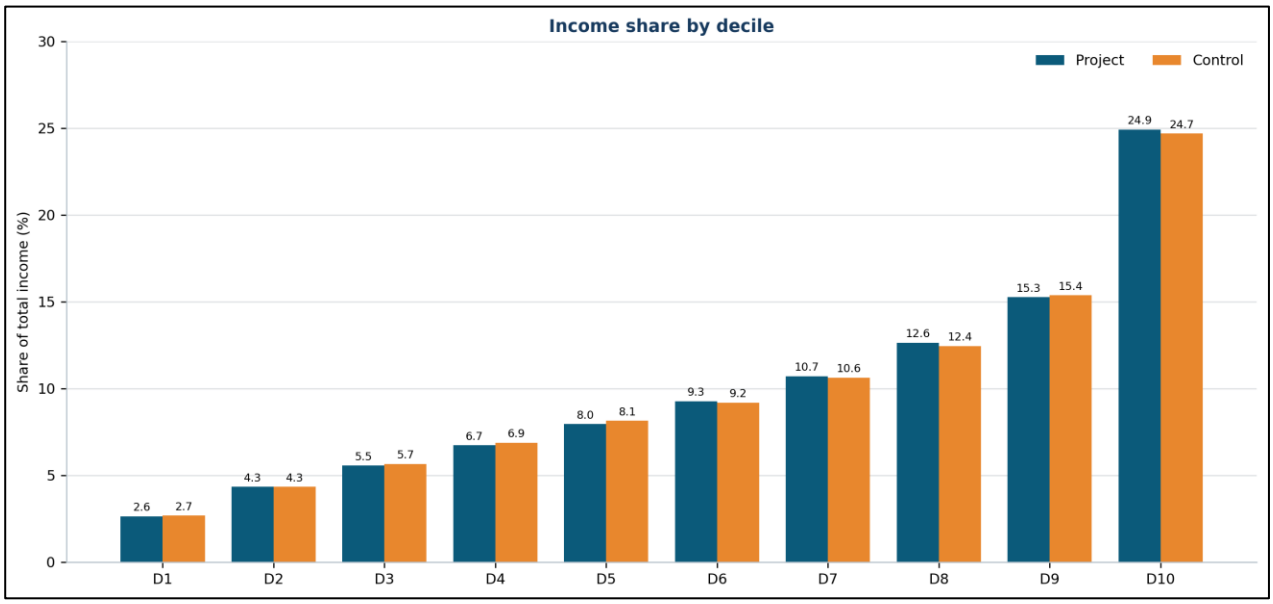


Figure 3.15A: Income share by decile

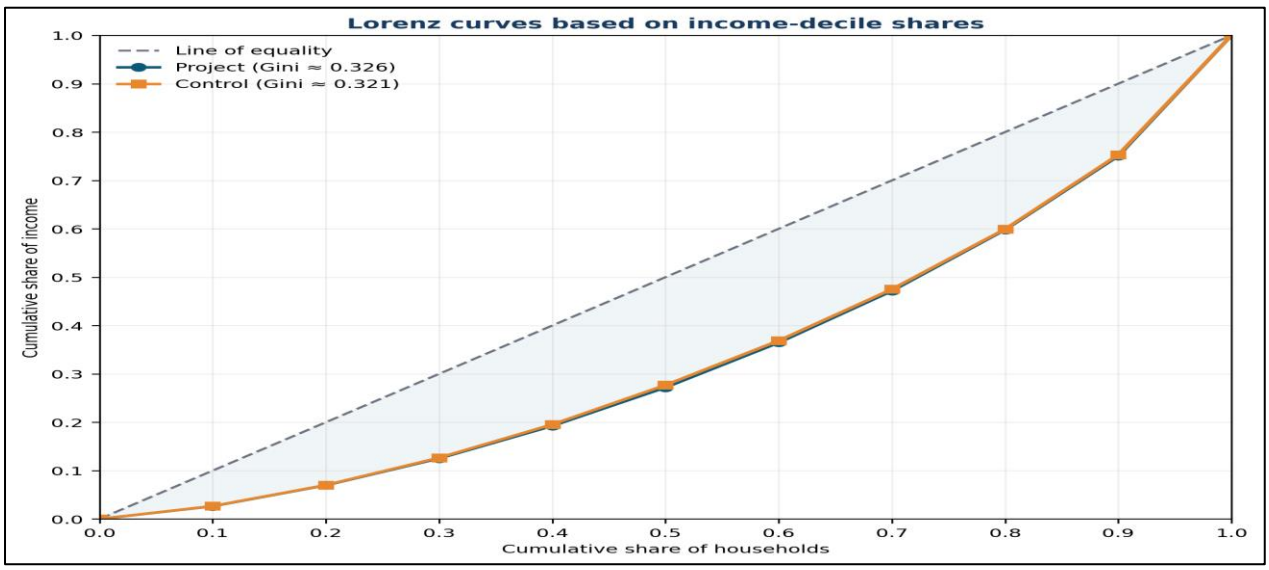


Figure 3.15B: Lorenz curves and grouped-decile Gini coefficients

The bottom five deciles receive 27.20% of project-area income and 27.69% of control-area income, while the top five receive 72.80% and 72.31%. The top decile alone receives 24.92% and 24.69%, around 9.43 and 9.22 times the share of the bottom decile. The project distribution is marginally more concentrated at the top: the cumulative share reaches 27.19% for the bottom half and 75.06% for the bottom nine deciles, leaving almost one-quarter of income with the richest tenth.

The Lorenz curves translate the decile shares into cumulative distributions. Both curves lie below the 45-degree line of equality, confirming unequal income distribution. The grouped-decile Gini coefficient is approximately 0.326 for project areas and 0.321 for controls; both round to 0.33, consistent with Table 3.15. The project curve lies only slightly farther from the equality line over most of the distribution, so the two areas have very similar overall inequality, with marginally greater concentration in the project sample. Because the calculation uses grouped decile shares rather than household-level incomes, it is an approximation and may understate within-decile inequality.

Cumulative income shares. The bottom 10% of households receive only 2.64% of project income and 2.68% of control income. The bottom 30% receive 12.52% and 12.67%, while the bottom 80% receive 59.80% and 59.95%. Conversely, the top 20% receive 40.20% of project income and 40.05% of control income. These cumulative shares explain why the two Lorenz curves nearly overlap.

3.16 District Income Inequality

Table 3.16: Decile ratio and Gini coefficient by district

District	Project D10:D1	Project Gini Coefficient	Control D10:D1	Control Gini Coefficient
Kurigram	8.55	0.33	8.43	0.30
Lalmonirhat	8.23	0.31	11.09	0.35
Rangpur	13.74	0.43	8.54	0.30
Nilphamari	7.79	0.30	8.91	0.33
Gaibandha	9.85	0.37	11.90	0.33
Sirajganj	9.84	0.33	7.97	0.33
Pabna	12.10	0.38	8.18	0.35
Bogura	11.18	0.39	12.04	0.33
Gopalganj	7.24	0.30	7.60	0.32
Rajbari	11.22	0.35	9.82	0.38
Madaripur	6.33	0.29	6.01	0.28
Faridpur	6.85	0.30	7.63	0.33
Sunamganj	5.48	0.27	6.08	0.28
Habiganj	5.21	0.27	4.40	0.23
All	**9.43**	**0.33**	**9.22**	**0.33**

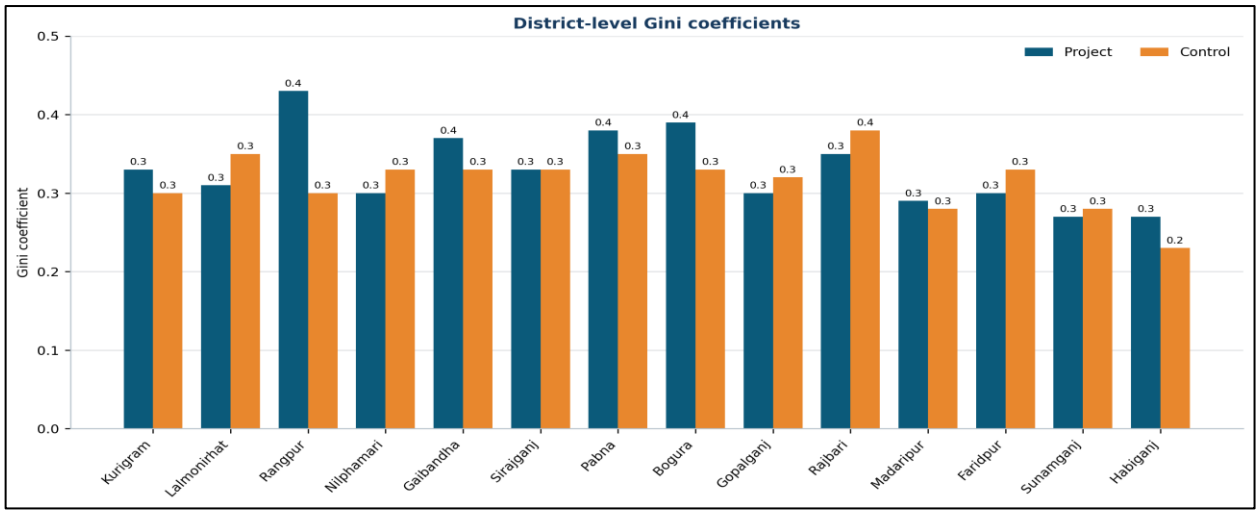


Figure 3.16: Income inequality by district

The overall Gini coefficient is 0.33 in both areas, but district inequality varies materially. Project Gini values range from 0.27 in Sunamganj and Habiganj to 0.43 in Rangpur; control values range from 0.23 in Habiganj to 0.35 in Lalmonirhat and Pabna. Rangpur's project D10:D1 ratio of 13.74 is the highest observed, signalling a particularly unequal baseline distribution.

Equal overall Gini values do not imply equal distributional structure in every district. Project-area inequality is highest in Rangpur (0.43), Bogura (0.39) and Pabna (0.38), while it is lowest in Sunamganj and Habiganj (0.27). Control inequality is highest in Rajbari (0.38) and reaches 0.35 in Lalmonirhat and Pabna. The project Gini exceeds the control Gini most strongly in Rangpur and Bogura, whereas control inequality is higher in Lalmonirhat, Gopalganj, Rajbari and Faridpur. These local contrasts are concealed by the identical rounded overall coefficient.

Decile ratio and Gini together. The D10:D1 ratio measures only the two ends of the distribution, whereas the Gini coefficient uses the whole income distribution. Districts can therefore have similar Gini values but different top-to-bottom ratios. For example, Pabna and Rajbari display different project–control patterns across the two measures, illustrating why neither statistic alone fully describes local inequality.

3.17 Household Food Consumption Pattern

Table 3.17: Weekly household food consumption

Food item	Project Tk	Project %	Control Tk	Control %
Rice	633	18.15	610	17.61
Atta/Flour	103	2.96	103	2.98
Bread, biscuit, chira and muri	200	5.75	212	6.13
Vegetables	232	6.64	224	6.46
Potato	68	1.95	68	1.97
Pulses	69	1.98	67	1.94
Fish	566	16.23	535	15.44
Meat	507	14.53	522	15.07
Egg	105	3.01	98	2.84
Milk and milk products	167	4.78	170	4.91
Edible oil	185	5.29	185	5.34
Salt	17	0.50	17	0.50
Onion	50	1.44	49	1.42
Other spices	129	3.69	119	3.43
Gur/Sugar	80	2.28	82	2.37
Fruits	273	7.81	262	7.55
Other food	105	3.01	140	4.04
All weekly food	3,488	100	3,465	100
Annual food cost/HH	181,875		180,655	
Average household members	4.26		4.22	

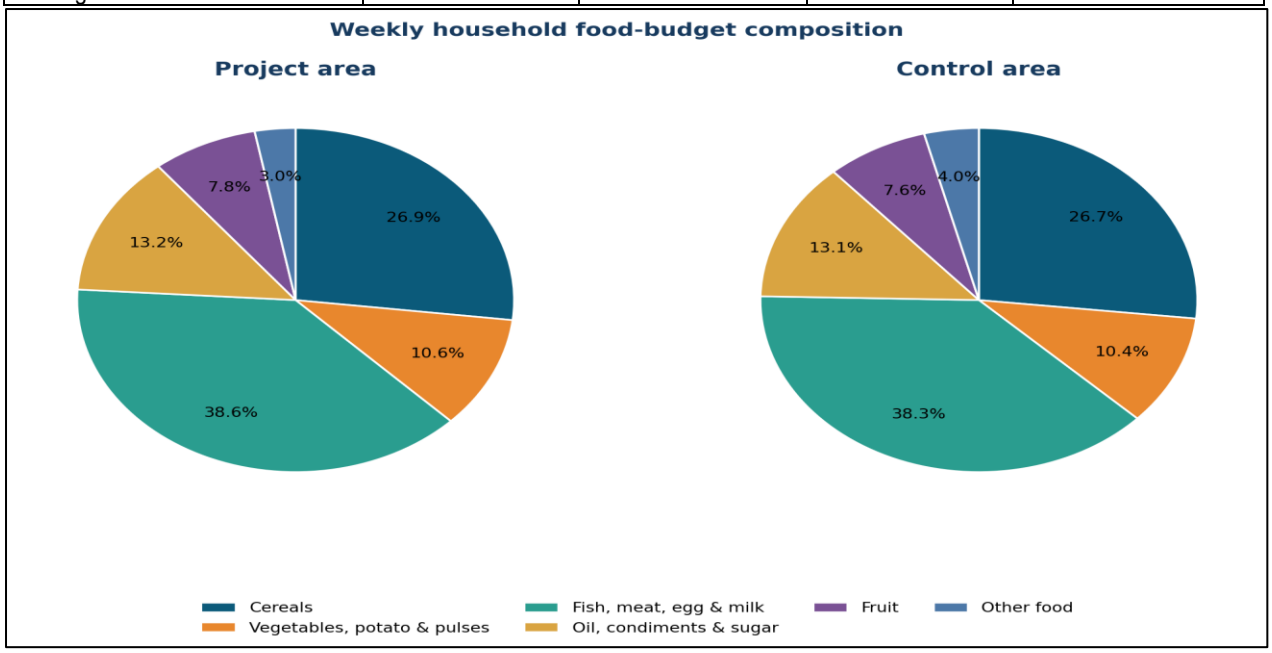


Figure 3.17: Weekly food budget composition

Weekly food expenditure is nearly identical—Tk. 3,488 in project households and Tk. 3,465 in controls—equivalent to annual costs of Tk. 181,875 and Tk. 180,655. Rice is the largest single item (18.15% and 17.61%), followed by fish (16.23% and 15.44%) and meat (14.53% and 15.07%). The overall similarity strengthens baseline comparability in food budgets.

The grouped food budget is also highly concentrated. Cereals account for about 26.9% of weekly project expenditure and 26.7% in controls, while fish, meat, eggs and milk together account for about 38.6% and 38.3%. Fruit represents 7.81% and 7.55%. The project–control composition is remarkably similar, although project households allocate slightly more to fish and slightly less to meat and miscellaneous foods. Expenditure composition reflects both quantities and prices and is therefore a measure of budget allocation rather than nutrient adequacy by itself.

Absolute weekly budget. The project weekly food budget exceeds the control budget by only Tk. 23, or 0.66%. Rice, fish and meat together account for 48.91% of the project food budget and 48.12% of the control budget. This concentration means that modest price changes in these three items can materially alter the total food bill even when consumption quantities remain unchanged.

3.18 Food and Total Expenditure Pressure

Table 3.18: Food expenditure and expenditure-to-income ratio

Area	Food / total expenditure %	Total expenditure / total income %
Project area	65.15	92.66
Control area	66.33	91.95

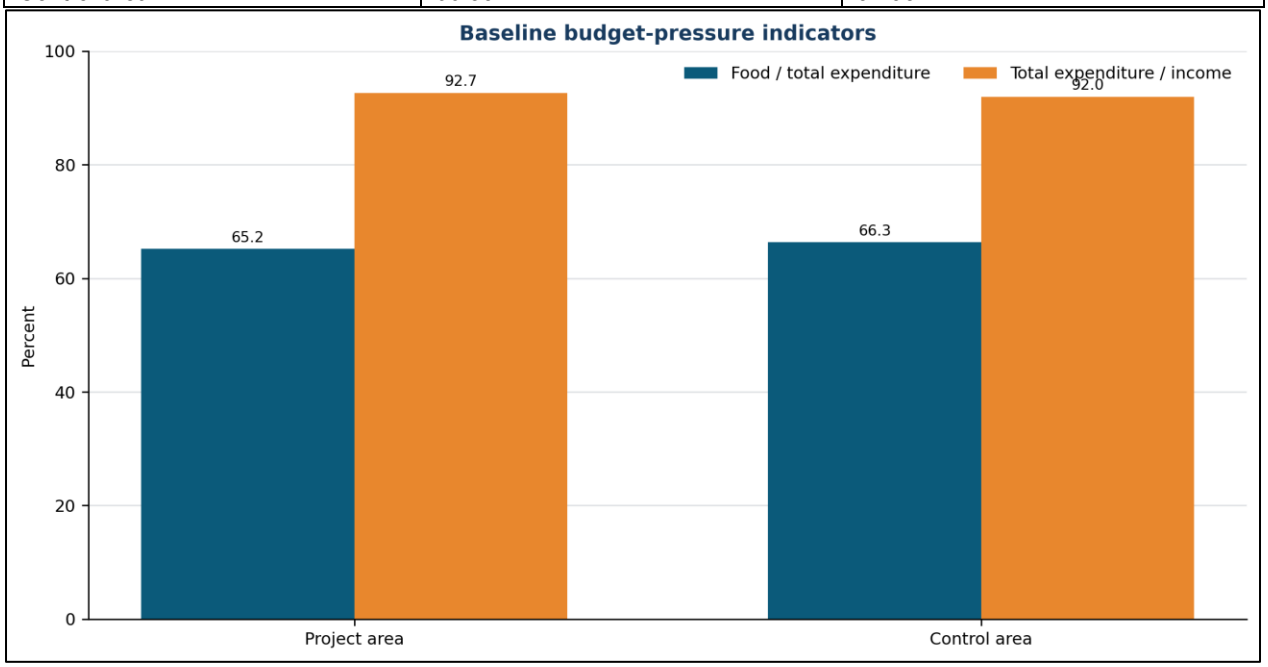


Figure 3.18: Baseline budget pressure indicators

Food absorbs 65.15% of total expenditure in project areas and 66.33% in controls. Total expenditure represents 92.66% and 91.95% of income, respectively. Thus, the control food share is 1.18 percentage points higher, while the project expenditure-to-income ratio is 0.71 points higher. Both areas devote nearly two-thirds of expenditure to food and retain only a narrow accounting margin between income and total expenditure.

Baseline overview: average calorie intake was 2,155 kcal per person per day in the project area and 2,123 kcal in the control area. The overall averages were close to the 2,122 kcal reference, but household-level distributions show that 49% of households in each area remained below that level.

3.19 Per Capita Income, Expenditure and Daily Calorie Intake

Table 3.19 presents three linked dimensions of household welfare: per capita annual income, per capita annual expenditure and per capita daily calorie intake. Results are shown for five landholding categories—landless (LL), marginal farmer (MRF), small farmer (SF), medium farmer (MF) and large farmer (LF)—as well as the full sample. Reading these indicators together is important because rising monetary resources do not translate proportionately into higher calorie intake at every point of the landholding distribution.

Table 3.19: Per Capita Income, Expenditure and Daily Calorie Intake by Landholding Size

HH category	Project area			Control area		
	Income (Tk./year)	Expenditure (Tk./year)	Calories (Kcal/day)	Income (Tk./year)	Expenditure (Tk./year)	Calories (Kcal/day)
LL	61,562	59,489	2,111	61,877	59,239	2,100
MRF	66,482	63,040	2,162	66,984	62,961	2,054
SF	76,353	68,489	2,164	76,040	67,636	2,175
MF	94,750	82,195	2,279	97,806	82,438	2,215
LF	112,307	94,900	2,276	130,076	105,506	2,397
All	**70,693**	**65,505**	**2,155**	**70,123**	**64,474**	**2,123**

Landholding-stratum sample sizes: project area—LL n=1,825; MRF n=613; SF n=862; MF n=402; LF n=48. Control area—LL n=614; MRF n=234; SF n=297; MF n=98; LF n=7. The very small control-area LF sample requires particular caution when interpreting its averages.

Overall project–control comparison

At the aggregate level, per capita annual income was Tk. 70,693 in the project area and Tk. 70,123 in the control area. The difference of Tk. 570, or about 0.8%, is small. Per capita annual expenditure was Tk. 65,505 in the project area and Tk. 64,474 in the control area, a difference of Tk. 1,031, or approximately 1.6%. Average calorie intake was correspondingly close: 2,155 Kcal in the project area compared with 2,123 Kcal in the control area. The project-area average exceeded the control-area average by 32 Kcal, equivalent to about 1.5%.

The aggregate expenditure-to-income ratio was 92.66% in the project area and 91.95% in the control area. Thus, average expenditure absorbed more than nine-tenths of per capita income in both areas. The corresponding annual margins between income and expenditure were Tk. 5,188 and Tk. 5,649 per person. These averages describe a narrow monetary margin at the population level, although the size of that margin increased substantially with landholding.

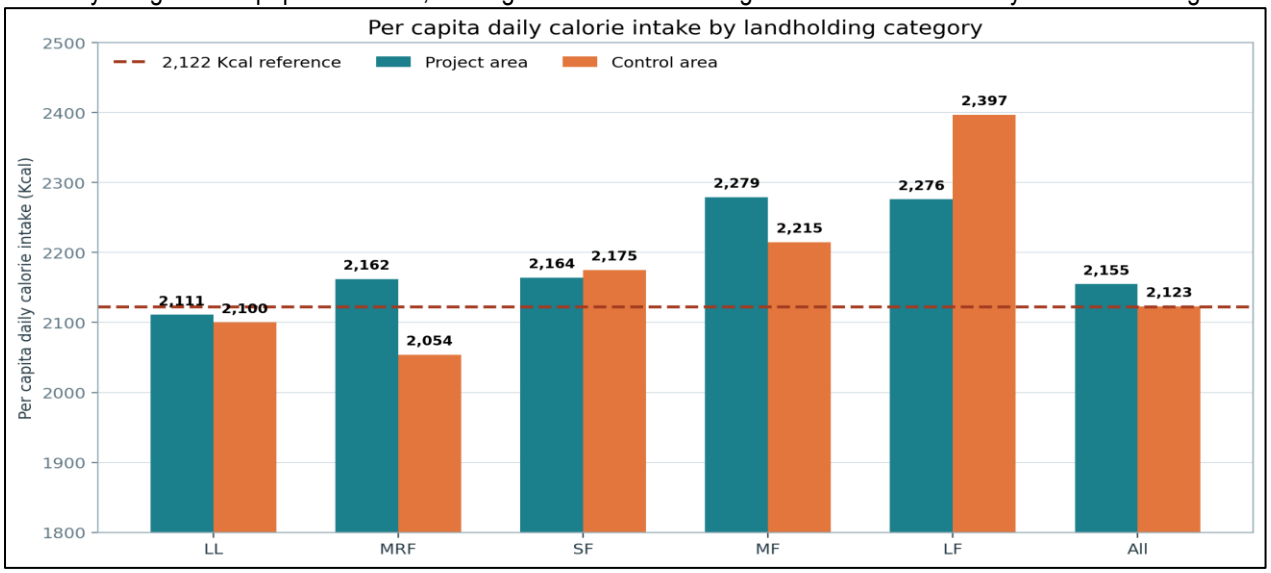


Figure 3.19A: Per capita daily calorie intake by landholding category and survey area

Calorie intake across landholding categories

In the project area, average intake increased from 2,111 Kcal among landless households to 2,162 Kcal among marginal farmers and 2,164 Kcal among small farmers. It then rose more clearly to 2,279 Kcal among medium farmers and remained almost unchanged at 2,276 Kcal among large farmers. Relative to the 2,122 Kcal reference, the landless average was 11 Kcal below, while the marginal and small-farmer averages were 40–42 Kcal above. Medium and large farmers recorded averages approximately 154–157 Kcal above the reference.

The control area shows a less even pattern. Landless households averaged 2,100 Kcal, 22 Kcal below the reference, while marginal farmers averaged only 2,054 Kcal, a deficit of 68 Kcal. Intake then increased to 2,175 Kcal among small farmers, 2,215 Kcal among medium farmers and 2,397 Kcal among large farmers. The high value for control-area large farmers should be read cautiously because this category contained very few sampled households in the broader baseline tabulations.

Project–control differences vary by landholding group rather than following one consistent direction. Project-area intake was higher by 11 Kcal among landless households, 108 Kcal among marginal farmers and 64 Kcal among medium farmers. Control-area intake was higher by 11 Kcal among small farmers and 121 Kcal among large farmers. The particularly large marginal-farmer difference is the most pronounced project advantage, whereas the large-farmer difference favours the control area.

Landholding gradient and nutritional differentiation

The spread between landless and large-farmer calorie intake was 165 Kcal in the project area, compared with 297 Kcal in the control area. The control sample therefore exhibits a steeper landholding-related calorie gradient. In the project area, the calorie increase largely levels off after the medium-farmer category, whereas the control-area series continues upward through the large-farmer group. This pattern suggests that the relationship between economic position and calorie quantity is present in both areas but is stronger and more linear in the control sample.

The limited increase in calorie intake at higher income levels is not unexpected. Once basic energy requirements are approached, additional income may be allocated to food quality, dietary diversity, non-food consumption, savings or other household priorities rather than to substantially larger quantities of calories. For this reason, calorie intake should be interpreted as one dimension of food security rather than as a complete measure of diet quality or nutritional status.

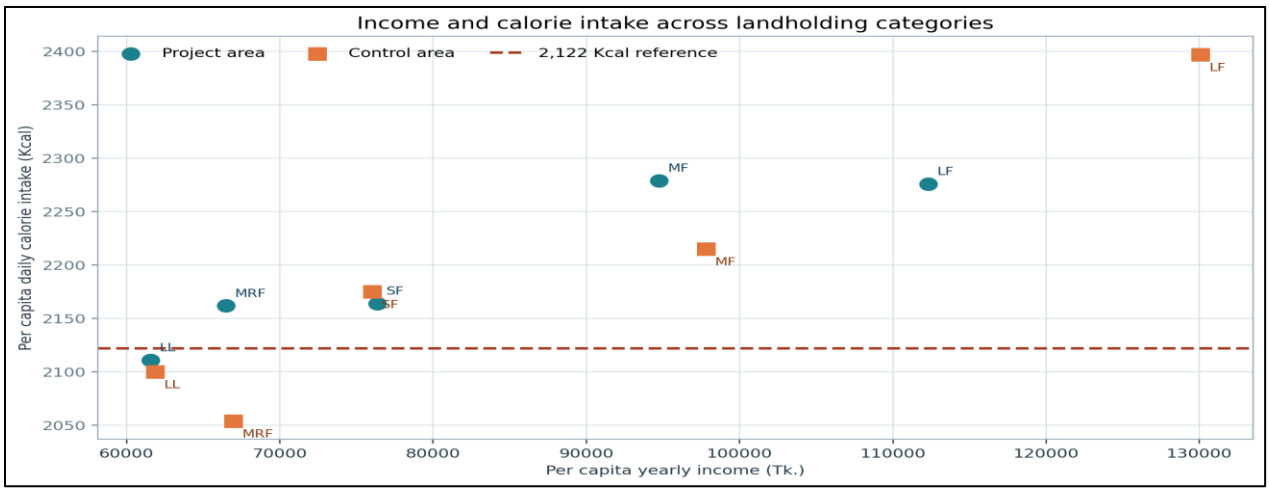


Figure 3.19B: Relationship between per capita income and calorie intake across landholding categories

Income, expenditure and calorie intake

The income–calorie plot confirms a broadly positive association across landholding categories, but the relationship is neither proportional nor identical between the two areas. In the project area, income rose by about 82% between landless and large-farmer households, while calorie intake rose by only about 7.8%. In the control area, income more than doubled across the same categories, while calorie intake increased by about 14.1%. The much smaller percentage change in calories illustrates the tendency for calorie quantity to respond less strongly than income once households approach basic dietary energy levels.

Per capita expenditure also increased consistently with landholding. The project-area expenditure-to-income ratio declined from approximately 96.6% among landless households to 84.5% among large farmers. In the control area it declined from about 95.7% to 81.1%. Consequently, the absolute income–expenditure margin increased from Tk. 2,073 to Tk. 17,407 in the project area and from Tk. 2,638 to Tk. 24,570 in the control area. This widening margin indicates stronger monetary capacity among larger landholders, although the calorie response was comparatively modest. Marginal farmers warrant particular attention in the descriptive results. Their income and expenditure were similar across areas, but calorie intake differed by 108 Kcal: 2,162 Kcal in the project area and 2,054 Kcal in the control area. Because the monetary indicators alone do not explain this difference, it may reflect variation in household composition, food prices, own-production, dietary choices, seasonal conditions or measurement. The table does not permit these possible explanations to be separated.

3.20 Calorie-Intake Distribution and Incidence of Poverty

Table 3.20: Per Capita Daily Calorie Intake and Incidence of Poverty

Area/category	Average calories Kcal/day	Households by daily calorie-intake band (%)				Poverty and calorie-shortfall indicators (%)	
		>2,122	1,805–2,122	1,600–1,805	<1,600	Poverty	Below 2,122*
Project area							
Landless	2,111	48%	22%	13%	17%	57%	52%
Marginal	2,162	53%	21%	12%	14%	53%	47%
Small	2,164	53%	23%	13%	11%	53%	47%
Medium	2,279	58%	24%	11%	8%	46%	42%
Large	2,276	58%	27%	10%	4%	47%	42%
All	**2,155**	**51%**	**22%**	**13%**	**14%**	**54%**	**49%**
Control area							
Landless	2,100	49%	19%	13%	19%	55%	51%
Marginal	2,054	47%	22%	16%	15%	58%	53%
Small	2,175	54%	20%	13%	13%	52%	46%
Medium	2,215	56%	21%	12%	10%	52%	44%
Large	2,397	57%	29%	0%	14%	47%	43%
All	**2,123**	**51%**	**20%**	**13%**	**16%**	**55%**	**49%**

Landholding-stratum sample sizes: project area—LL n=1,825; MRF n=613; SF n=862; MF n=402; LF n=48. Control area—LL n=614; MRF n=234; SF n=297; MF n=98; LF n=7. The very small control-area LF sample requires particular caution when interpreting its percentages.

*Below 2,122 Kcal is calculated as 100% minus the reported share above 2,122 Kcal. The four intake-band percentages were independently rounded to whole percentages; therefore, their displayed row total may differ from 100% by one percentage point. No unrounded household counts were available in the report table to support arbitrary redistribution of the rounding residual.

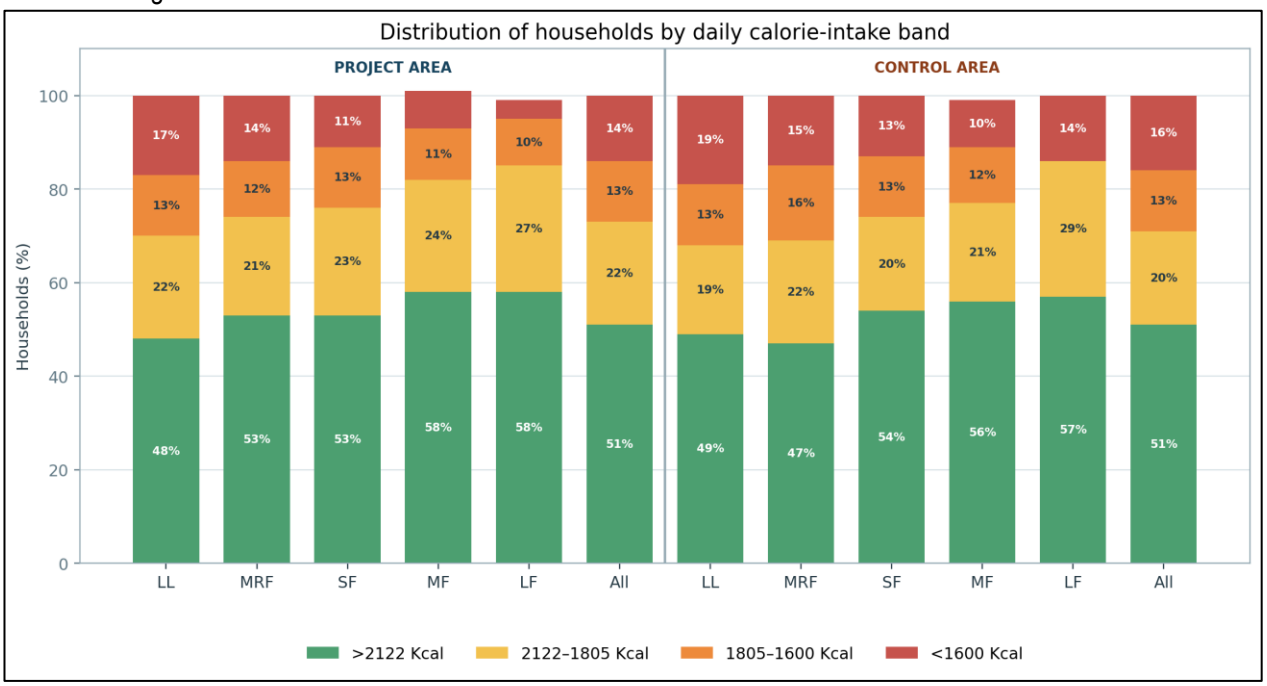


Figure 3.20A: Household distribution across daily calorie-intake bands

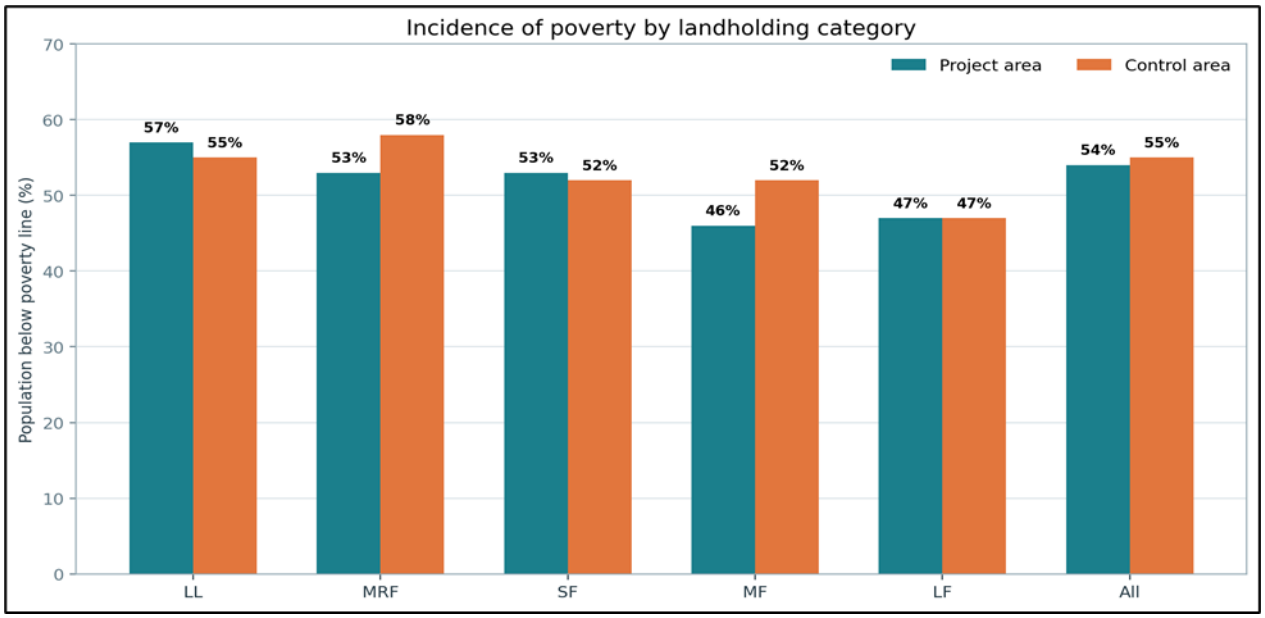


Figure 3.20B: Population below the poverty line by landholding category

Calorie Intake by Household Category

Calorie intake was broadly similar in the project and control areas, although a clear socioeconomic pattern was evident across household categories. Average per capita daily calorie intake was **2,155 kcal in the project area and 2,123 kcal in the control area**. In both areas, **51% of households consumed more than 2,122 kcal per person per day, while 49% were at or below this level**. In the project area, the proportion consuming more than 2,122 kcal generally increased with landholding, from **48% among landless households to 58% among medium and large farmers**. The control area showed a broadly similar pattern, although marginal farmers recorded relatively low calorie intake. The large-farmer results for the control area should be interpreted cautiously because this category contained only seven households. Overall, calorie adequacy tended to improve with landholding status, while aggregate calorie-consumption conditions were very similar between the project and control areas.

Incidence of Poverty

The estimated population poverty incidence was **54% in the project area and 55% in the control area**, indicating virtually identical poverty conditions in the two survey areas at baseline. Poverty was generally higher among households with limited landholdings and tended to decline among the better-off landholding categories, although the pattern was not uniform across all groups. The relatively high incidence should be viewed in the context of the geographic and socioeconomic characteristics of the surveyed communities. The RIVER Project covers highly flood-prone riverine and floodplain areas where recurrent flooding and riverbank erosion can cause repeated losses of crops, housing and productive assets, disrupt livelihoods and employment, and impose substantial recovery costs on households, thereby contributing to persistent economic vulnerability. The baseline estimate should also not be directly compared with national poverty estimates, as this survey applies the **Direct Calorie Intake (DCI) method** and covers specifically selected flood-vulnerable communities rather than a nationally representative population. Furthermore, the 54–55% poverty incidence represents the **proportion of the population** living in households below the calorie-based poverty threshold, whereas the 49% shown in the calorie-intake distribution represents the **proportion of households** at or below 2,122 kcal; the difference therefore reflects household-size weighting. Overall, the very similar poverty incidence in the project and control areas suggests that the observed high level of poverty reflects the broader socioeconomic vulnerability of the surveyed flood-prone communities rather than a condition specific to the project sample.

Integrated interpretation

Taken together, Tables 3.19 and 3.20 portray project and control areas with very similar overall monetary and calorie conditions. Average income, expenditure and calorie intake differ only modestly, and the overall share of households above 2,122 Kcal is identical. These close aggregate values indicate broadly comparable baseline conditions at the area level.

The landholding disaggregation nevertheless reveals important internal differentiation. Larger landholdings are associated with higher income, expenditure and calorie intake, but the increase in calories is much smaller than the increase in monetary resources. Landless and marginal households are more frequently concentrated in the lower calorie bands, while medium and large farmers generally show higher adequacy. The pattern is clearer and steeper in the control area, although the small control sample among large farmers produces unstable percentages.

The distributional analysis also shows why averages should not be used alone. An overall mean near or slightly above 2,122 Kcal coexists with 49% of households at or below that level and with 14–16% below 1,600 Kcal. The project-area mean is somewhat higher, but the broad prevalence of calorie shortfall is the same; the main aggregate difference lies in the slightly lower share experiencing the most severe shortfall.

Finally, calorie intake measures the quantity of dietary energy and does not establish dietary diversity, micronutrient adequacy, intra-household food allocation or individual nutritional status. The findings are therefore best read alongside food-consumption composition, household expenditure, health and demographic indicators already presented elsewhere in the baseline report.

3.21 Reported Occurrence of Natural Calamities

Table 3.21: Usual natural calamities in the locality

Calamity	Project no.	Control no.	Project % of HH	Control % of HH	Difference (pp)
Flood	3,152	1,018	84.1	81.4	+2.6
Storm	2,444	807	65.2	64.6	+0.6
Heavy rainfall	2,680	861	71.5	68.9	+2.6
Drought	1,660	554	44.3	44.3	0.0
Cyclone	867	272	23.1	21.8	+1.4
Tidal surge	513	139	13.7	11.1	+2.6
Other	93	30	2.5	2.4	+0.1

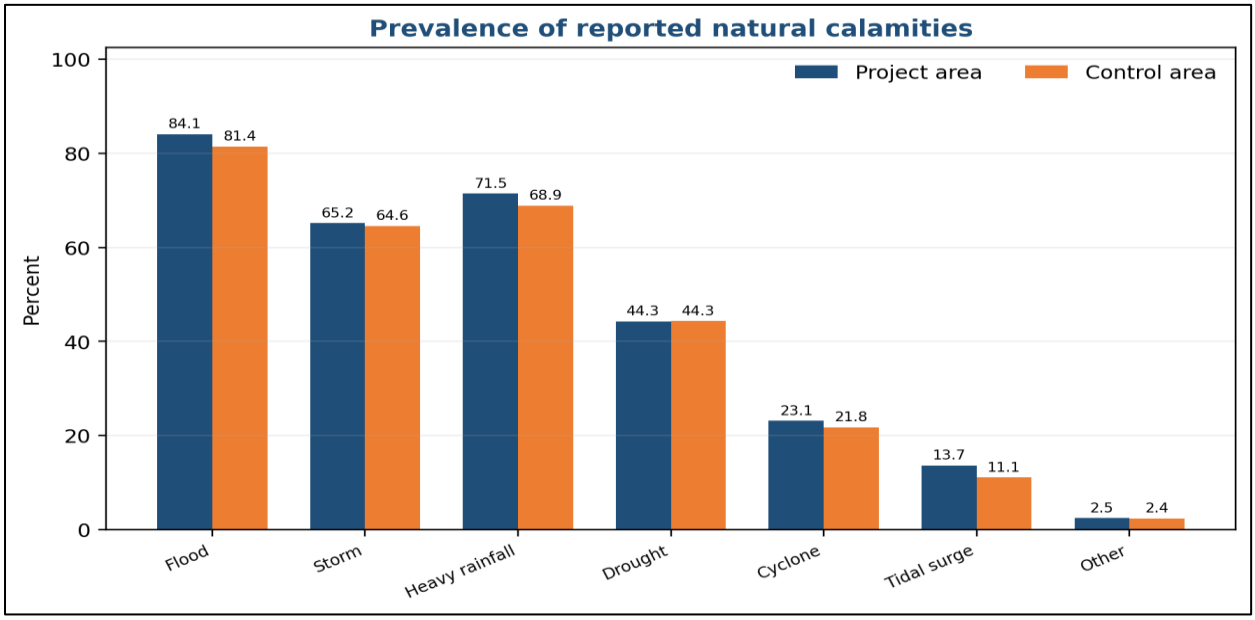


Figure 3.21: Reported calamity types in project and control areas

Flooding was the dominant hazard in both areas. It was reported by 3,152 project-area households, equivalent to 84.1% of the project sample, and by 1,018 control households, or 81.4%. Heavy rainfall was the next most widespread event (71.5% and 68.9%), followed by storms (65.2% and 64.6%). The ordering is therefore highly similar across the two areas and shows that the baseline setting was characterized by recurrent hydro-meteorological exposure rather than by a single isolated hazard.

The detailed frequency distribution reinforces the chronic nature of the exposure. In the project area, 2,226 of the 3,152 flood responses placed flooding in the “after a few years” category, while 838 reported annual flooding and 88 reported

several occurrences. The corresponding control counts were 698, 280 and 40. Flood damage was rated high by 1,613 project responses (51.2% of project flood responses) and 502 control responses (49.3%). Thus, the two areas were close in both occurrence and perceived severity, although the project area recorded slightly higher flood prevalence and high-damage shares.

Coverage was also extensive: 1,309 project respondents described floods as affecting the total area and 1,235 described most of the area, together representing 80.7% of flood responses. In the control area, the equivalent total- or most-area share was 77.3%. Drought, cyclone and tidal surge were less universal and displayed larger low-damage shares, but they broadened the risk profile and show that household vulnerability was multi-hazard.

3.22 Lightning occurrence during the last year

Table 3.22 records respondents' reports of whether lightning occurred in their locality during the preceding year and the reported locality-level averages for occurrences and associated human and livestock deaths. These values describe events and losses in the respondent's area rather than deaths within the respondent household. The results indicate that lightning was a widespread hazard in both survey areas, but its reported prevalence and intensity were higher overall in the project area.

Indicator	Project area	Control area	Difference
Respondents reporting lightning	84.85% (3,182)	79.76% (997)	+5.09 percentage points
Average reported locality-level lightning occurrences	10.33	6.97	+3.36 times
Average reported locality-level human deaths	2.48	1.65	+0.83
Average reported locality-level livestock deaths	3.09	1.66	+1.43

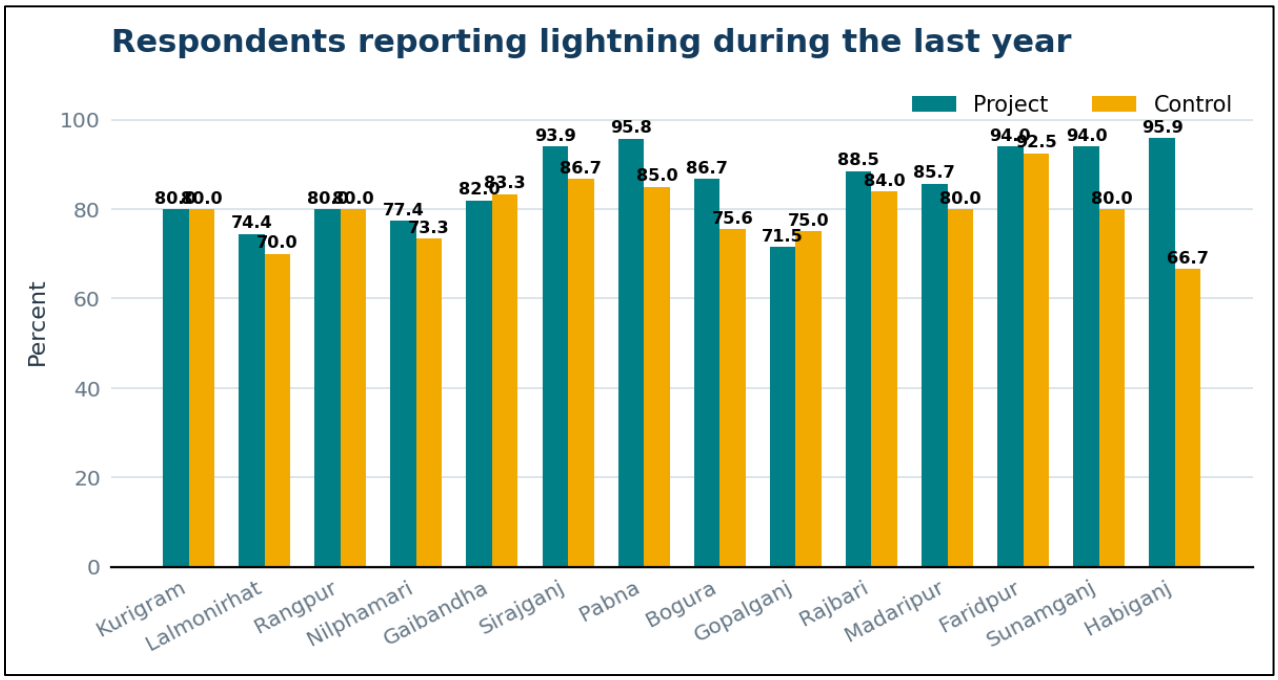


Figure 3.22A: District-level percentage reporting lightning occurrence during the last year

Overall, 84.85% of project-area respondents and 79.76% of control-area respondents reported that lightning had occurred, a difference of 5.09 percentage points. The high shares in both samples show that lightning was not confined to a small number of localities. Rather, it formed a broadly experienced environmental hazard across the 14 surveyed districts.

District variation was nevertheless substantial. In the project area, affirmative responses ranged from 71.52% in Gopalganj to 95.90% in Habiganj. Pabna, Sunamganj, Faridpur and Sirajganj also exceeded 93%. In the control area, Faridpur recorded the highest share at 92.50%, while Habiganj recorded the lowest at 66.67%.

District variation in the frequency of lightning

The reported number of lightning occurrences varied more sharply than the yes/no occurrence rate. The project-area average was 10.33 occurrences during the year, compared with 6.97 in the control area. Thus, the project mean was 3.36 occurrences higher and approximately 1.48 times the control mean. The district results show that this overall difference was strongly influenced by a small group of high-frequency districts.

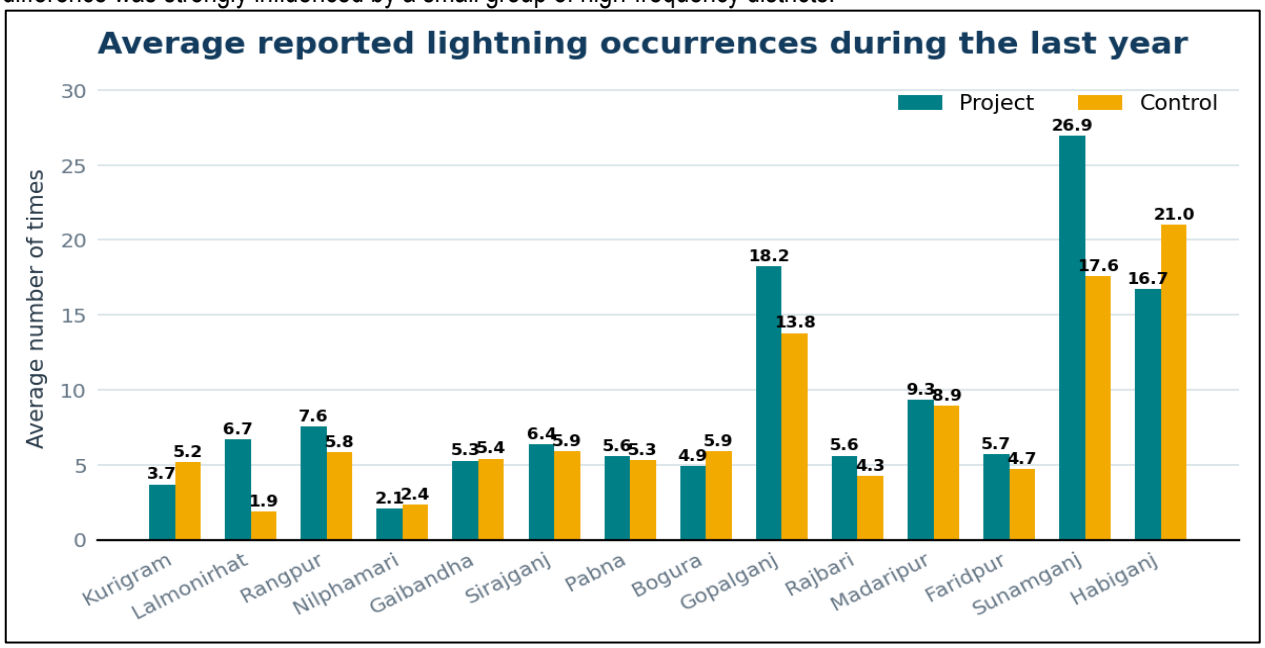


Figure 3.22B: District-level average reported number of lightning occurrences during the last year

High-frequency districts

Sunamganj recorded the highest project-area average at 26.94 occurrences, followed by Gopalganj at 18.25 and Habiganj at 16.71. Madaripur ranked next at 9.33. The lowest project-area average was reported in Nilphamari at 2.06. This range—from 2.06 to 26.94—indicates pronounced geographic concentration of reported lightning activity.

The control-area pattern was similar in identifying Sylhet-region districts as high-frequency locations, although the district ranking differed. Habiganj recorded the highest control average at 21.00, followed by Sunamganj at 17.58 and Gopalganj at 13.78. Lalmonirhat had the lowest control average at 1.86. Project averages exceeded control averages in 9 of the 14 districts; the control average was higher in Kurigram, Nilphamari, Gaibandha, Bogura and Habiganj, while the two areas were relatively close in several other districts.

Largest project-control differences

The largest positive gaps occurred in Sunamganj (+9.36 occurrences), Lalmonirhat (+4.83), Gopalganj (+4.47), Rangpur (+1.73) and Rajbari (+1.33). Habiganj moved in the opposite direction: the control average exceeded the project average by 4.29 occurrences. These contrasts show that the aggregate project-control difference did not apply uniformly across the study area.

Reported human and livestock losses

Respondents also reported locality-level average numbers of people and livestock that died in association with lightning. At the aggregate level, the reported human-loss average was 2.48 in the project area and 1.65 in the control area. The corresponding livestock-loss averages were 3.09 and 1.66. These are community/locality reports rather than per-household mortality rates; consequently, they indicate perceived local severity and should not be multiplied by the household sample to estimate total deaths.

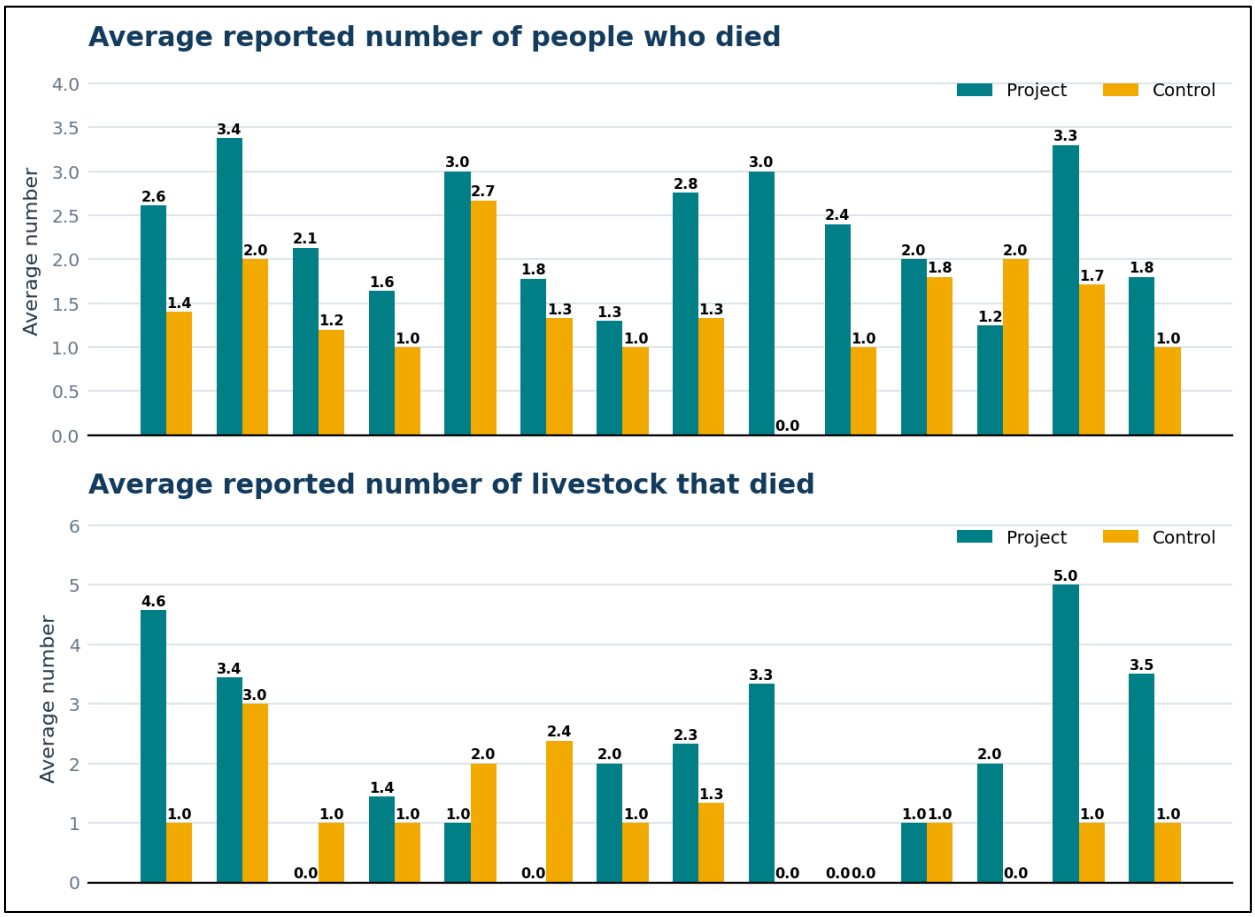


Figure 3.22C: District-level average reported human and livestock deaths associated with lightning

The reported averages for human and livestock deaths relate to respondents' reported locality-level lightning events during the reference period. They do not represent average deaths per surveyed household

Human losses

Reported locality-level human deaths were highest in the project-area samples of Lalmonirhat (3.38), Sunamganj (3.30), Gaibandha and Gopalganj (3.00 each), and Bogura (2.76). Faridpur (1.25) and Pabna (1.30) reported the lowest project values. In controls, Gaibandha recorded the highest average at 2.67; Gopalganj reported zero, and several districts reported averages of one person. Project values exceeded control values in most districts, although Faridpur recorded a higher control average. Because multiple respondents could have referred to the same locality-level event, these averages are descriptive rather than additive estimates of district mortality.

Livestock losses

Livestock losses showed greater dispersion. Sunamganj recorded the highest project-area average at 5.00, followed by Kurigram (4.57), Habiganj (3.50), Lalmonirhat (3.44) and Gopalganj (3.33). Zero project averages were reported in Rangpur, Sirajganj and Rajbari. In controls, Lalmonirhat had the highest average at 3.00, followed by Sirajganj at 2.38 and Gaibandha and Rajshahi at 2.00. The overall project average was about 1.86 times the control average.

Division-level pattern and consolidated interpretation

Division-level aggregation clarifies the broad geographic pattern. Sylhet Division recorded the highest project-area occurrence rate and the highest average number of events. Rajshahi also had a very high reported occurrence rate, while Rangpur recorded lower event frequency despite widespread affirmative reporting. Dhaka occupied an intermediate position in occurrence but had the second-highest project frequency.

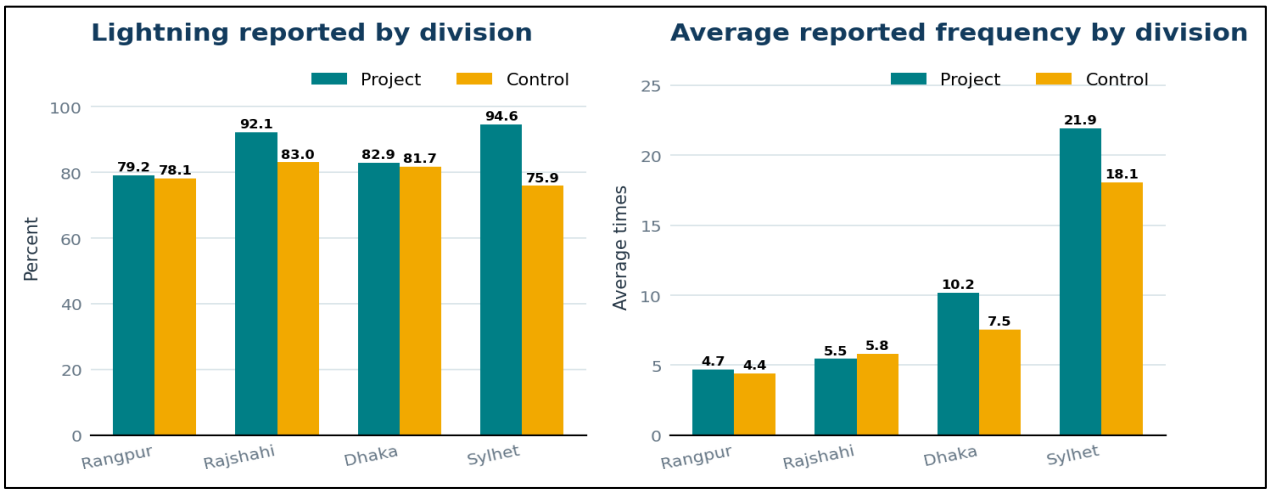


Figure 3.22D: Division-level lightning occurrence and average reported frequency

Division	Occurrence: project/control	Frequency: project/control	Human deaths: project/control	Livestock deaths: project/control
Rangpur	79.19% / 78.10%	4.70 / 4.42	2.59 / 1.89	3.05 / 1.64
Rajshahi	92.12% / 83.03%	5.45 / 5.81	2.18 / 1.27	2.25 / 2.00
Dhaka	82.87% / 81.70%	10.19 / 7.53	2.06 / 1.56	2.00 / 1.00
Sylhet	94.60% / 75.90%	21.93 / 18.07	3.00 / 1.63	4.47 / 1.00

The most pronounced division-level difference concerned Sylhet: project-area occurrence exceeded control occurrence by 18.70 percentage points, and the average number of reported events was 3.86 higher. Rajshahi showed a 9.09-point occurrence gap, although its control frequency was slightly higher. Rangpur and Dhaka had closely aligned occurrence rates, but Dhaka's project-area event frequency remained higher.

Consolidated finding

Taken together, Table 3.22 identifies lightning as a highly prevalent and spatially uneven hazard. The project area recorded higher aggregate occurrence, frequency and reported losses, but district-level differences varied in direction and magnitude. Sunamganj, Habiganj and Gopalganj formed the clearest high-frequency cluster, while high occurrence rates without equally high frequency were evident in several Rajshahi districts. This distinction is important: the percentage reporting any lightning measures geographic reach, whereas the average number of occurrences describes reported intensity.

3.23 Flood Impacts by Asset Type

Table 3.23: Frequency with which household assets were affected by floods during the last 25 years

Asset/exposure	Project respondents	Project avg. times	Control respondents	Control avg. times	Avg. difference
Homestead	2214	2.05	645	1.77	0.28
Agricultural land	2061	2.96	624	2.59	0.37
Water bodies	1300	4.91	412	4.01	0.9

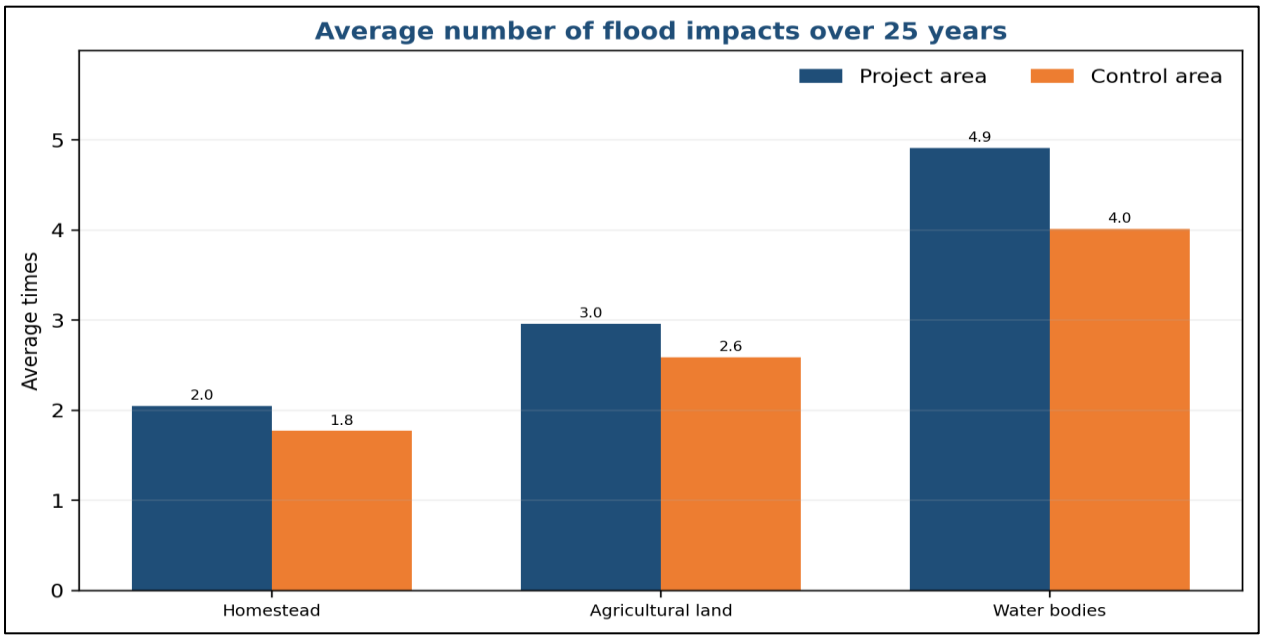


Figure 3.23: Reported flood impacts by asset type

Flood effects were repeated rather than one-off. Among households reporting each form of exposure, homesteads were affected an average of 2.05 times in the project area and 1.77 times in the control area. Agricultural land was affected more frequently—2.96 and 2.59 times—while water bodies recorded the highest recurrence at 4.91 and 4.01 times. The project–control gaps were positive for all three assets, with the largest difference for water bodies (0.90 event).

The division-level pattern was uneven. In the project area, average water-body impacts reached 11.47 times in Sylhet and 7.02 in Rajshahi, compared with 3.43 in Rangpur and 2.52 in Dhaka. Control-area water-body exposure was similarly concentrated, reaching 11.39 in Sylhet and 9.33 in Rajshahi. This close geographic correspondence indicates that repeated losses to ponds and other water bodies were strongly associated with the regional flood environment shared by project and control communities.

The number of affected respondents also differed by asset. Homestead effects were reported by 2,214 project and 645 control respondents, agricultural-land effects by 2,061 and 624, and water-body effects by 1,300 and 412. The lower response count for water bodies reflects the smaller ownership or use base; however, the much higher average recurrence among affected households indicates substantial cumulative exposure for aquaculture-dependent households.

3.24 Flood-depth Profile in Homesteads and Agricultural Land

Table 3.24: Flood depth in homesteads and agricultural land during the last 25 years

Depth category	Project no.	Project %	Control no.	Control %
Homestead—high	868	32.39	230	31.21
Homestead—medium	1034	38.58	248	33.65
Homestead—low	803	29.96	261	35.41
Agricultural land—high	2618	93.63	761	94.65
Agricultural land—medium	153	5.47	36	4.48
Agricultural land—low	65	2.32	14	1.74

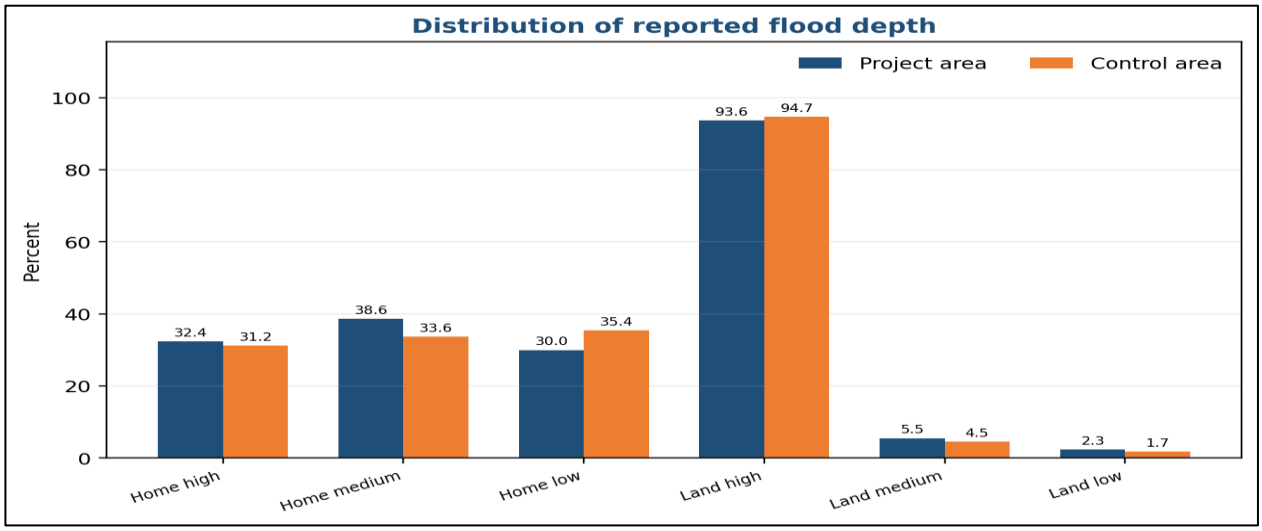


Figure 3.24 Flood-depth profile in homesteads and agricultural land

Homestead flood depths were distributed across all three categories. Medium depth (one to two feet) was most common in the project area at 38.6%, followed by high depth above two feet at 32.4% and low depth below one foot at 30.0%. In the control area, low depth was most common at 35.4%, medium depth accounted for 33.7%, and high depth for 31.2%. The project area therefore showed a 4.9 percentage-point greater concentration in the medium category, while the control area showed 5.5 points more in the low category.

The agricultural-land depth profile was much more concentrated. Water exceeding three feet accounted for 93.6% of project responses and 94.7% of control responses. Medium and low depths together represented only about 7.8% in the project area and 6.2% in the control area. This indicates that when agricultural land was inundated, the typical episode was deep enough to submerge crops extensively rather than merely saturate field surfaces.
The year-specific observations were irregular, reflecting the episodic character of major floods. Large response clusters appeared around widely experienced flood years such as 2004, 2007 and 2022, whereas several intervening years contained relatively few observations. The table should therefore be read as a historical exposure profile recalled by respondents, with the aggregate depth distribution providing the most stable baseline summary.

3.25 Crop Area Damaged by Crop Type

Table 3.25: Crop production damaged by flooding during the last 25 years

Crop	Project area damaged (decimal)	Project loss (Tk)	Control area damaged (decimal)	Control loss (Tk)
Aus	36805	21820000	6697	4398500
Aman	116122	46003115	29058	15900708
Boro/Rabi	247633	83151950	77566	20762500

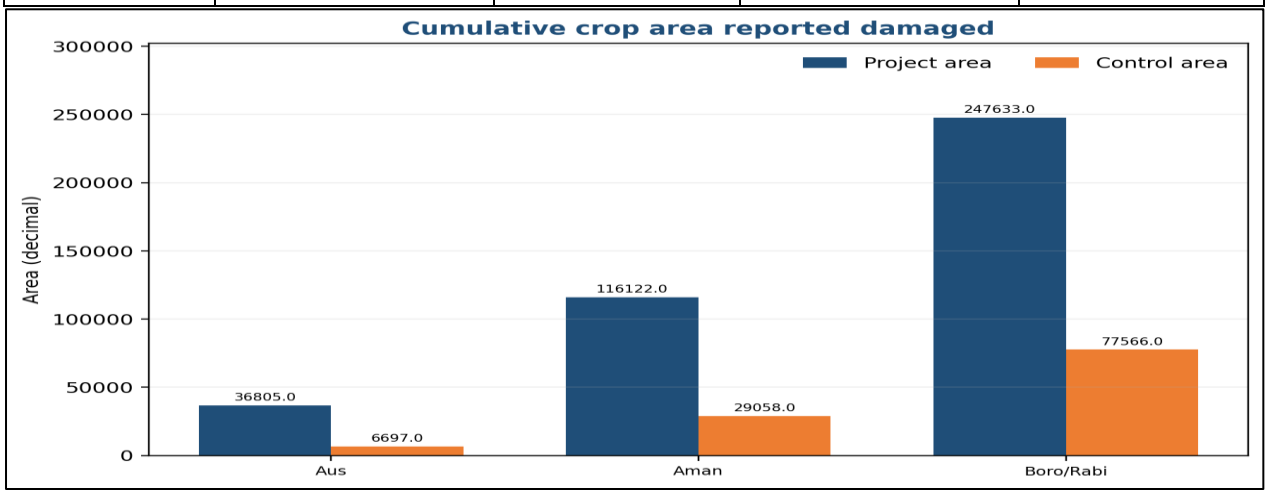


Figure 3.25: Cumulative reported crop area damaged by crop type

The cumulative figures show that Boro/Rabi crops bore the greatest reported physical exposure. Project-area respondents reported 247,633 decimals damaged, more than twice the Aman area (116,122 decimals) and nearly seven times the Aus area (36,805 decimals). The control-area pattern was similar: 77,566 decimals of Boro/Rabi land, 29,058 decimals of Aman and 6,697 decimals of Aus were reported damaged. The consistency in ranking indicates that seasonal cropping patterns and the timing or persistence of inundation shaped losses in both areas.

Reported crop losses in the project area were valued at Tk. 21.82 million for Aus, Tk. 46.00 million for Aman, and Tk. 83.15 million for Boro/Rabi crops. The overall pattern of monetary loss broadly corresponded with the extent of the reported damaged area, although the estimated loss per decimal varied across crops and flood years. In the control area, the corresponding monetary losses amounted to Tk. 44.00 million for Aus, Tk. 16.00 million for Aman, and Tk. 20.80 million for Boro/Rabi crops. While both areas experienced substantial crop losses, the distribution differed: Boro/Rabi accounted for the largest monetary loss in the project area, whereas Aus represented the largest loss in the control area.

The year-wise series was highly concentrated. Particularly large Boro/Rabi areas and losses were associated with years such as 2007, 2022 and 2026, while Aman losses were prominent in several of the same high-impact years. The historical totals combine events of different severity and recall periods; they demonstrate accumulated exposure but should not be interpreted as a uniform annual loss rate.

3.26 Households Reporting Fish-production Impacts

Table 3.26: Water bodies and fish production affected by flooding

Area	Water-body incidents	Aquaculture responses	Natural fish responses	Shrimp responses	Total fish-type responses
Project area	24	110	109	42	285
Control area	2	26	30	17	75

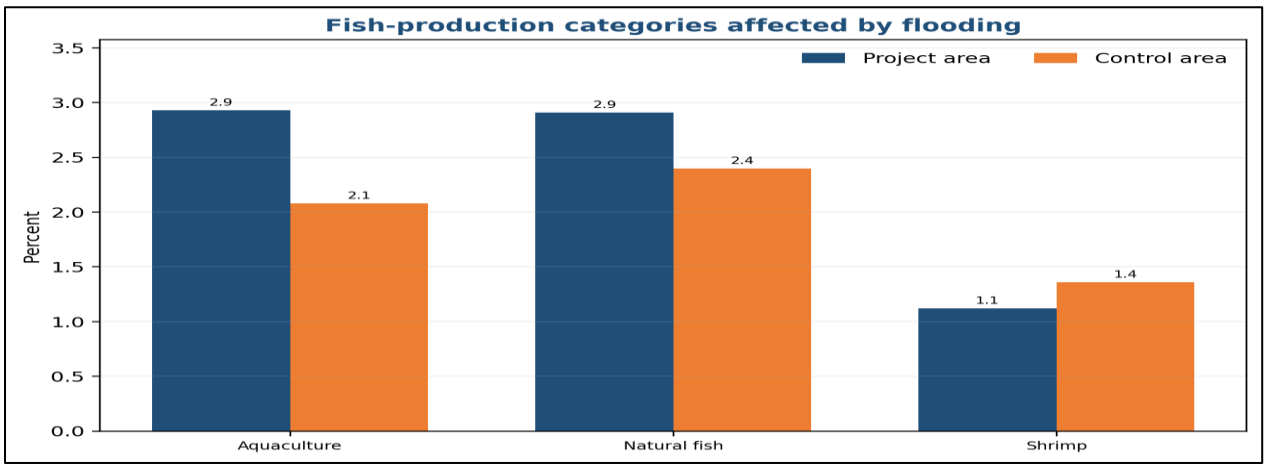


Figure 3.26: Share of households reporting fish-production impacts

The source table recorded 285 project-area fish-type responses and 75 control-area responses over the historical flood years. Relative to the full samples, aquaculture damage was reported by 2.93% of project households and 2.08% of control households; natural-fish damage by 2.91% and 2.40%; and shrimp damage by 1.12% and 1.36%. Aquaculture and natural-fish impacts were therefore modestly more prevalent in the project area, while shrimp impacts were slightly more prevalent in the control area.

The annual records show episodic rather than continuous losses. In the project area, particularly large affected water-body areas and financial losses were recorded for 2007, 2020 and 2022; the 2022 entry alone reported 4,387 decimals and Tk 6.826 million in damage. Control-area losses were also concentrated in a small number of years, notably 2017 and 2022. This clustering is consistent with major flood events creating disproportionate damage to ponds and cultured fish stocks.

Only 7.60% of project households and 6.00% of control households contributed any fish-type damage response in the summary line. The relatively small household share should not obscure the livelihood intensity of the losses: affected aquaculture households may experience simultaneous damage to pond infrastructure, stocked fish and foregone production income.

3.27 Composition of Drinking-water Sources

Table 3.27: Sources of water in the locality

Drinking-water source	Project %	Control %	Difference (pp)
Government tube well	4.16	2.72	+1.44
Own tube well	75.95	76.48	-0.53
Other household tube well	10.21	9.20	+1.01
Well	0.00	0.00	+0.00
River	0.08	0.08	+0.00
Pond	0.05	0.08	-0.03
Ditch	0.00	0.00	+0.00
Canal/khal	0.05	0.08	-0.03
Treatment plant	0.03	0.00	+0.03
Deep tube well	7.17	7.04	+0.13
Rainwater	0.16	0.08	+0.08
Tap water	1.84	3.52	-1.68
Bottled/potable	0.29	0.16	+0.13

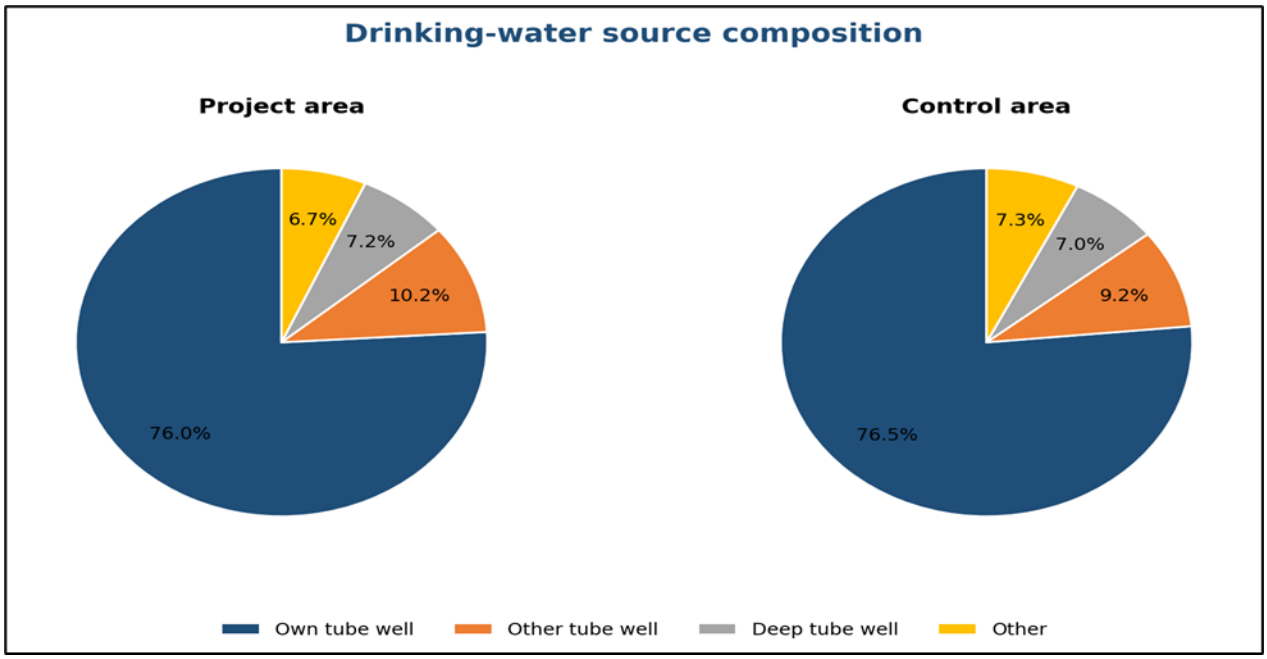


Figure 3.27: Composition of drinking-water sources

Own tube wells dominated drinking-water supply in both samples, accounting for 75.95% of project households and 76.48% of control households. Other households' tube wells supplied a further 10.21% and 9.20%, while deep tube wells supplied 7.17% and 7.04%. Taken together, these three groundwater sources accounted for approximately 93.3% of project drinking-water use and 92.7% of control use, demonstrating very similar source structures.

Surface-water use for drinking was negligible, but its importance increased for washing, bathing, irrigation and cattle bathing. In the project area, ponds supplied 8.77% of bathing water, while deep tube wells supplied 40.21% of irrigation responses and own/other tube wells together supplied 37.74%. In the control area, ponds supplied 9.44% of bathing water and deep tube wells 41.90% of irrigation responses. The functional pattern therefore shifted from concentrated groundwater dependence for domestic consumption toward a more diversified mix for productive and hygiene uses.

The project–control differences were generally small. The control area relied somewhat more on tap water for drinking (3.52% versus 1.84%), while the project area recorded a larger government-tube-well share (4.16% versus 2.72%). These differences identify modest variations in service configuration rather than fundamentally different water systems

3.28 Household Assessment of Drinking-water Quality

Table 3.28: Reported condition of drinking water

Condition	Project no.	Project %	Control no.	Control %
Good	2012	53.65	632	50.56
Fair	1547	41.25	559	44.72
Bad	178	4.75	59	4.72
Very bad	13	0.35	0	0.0

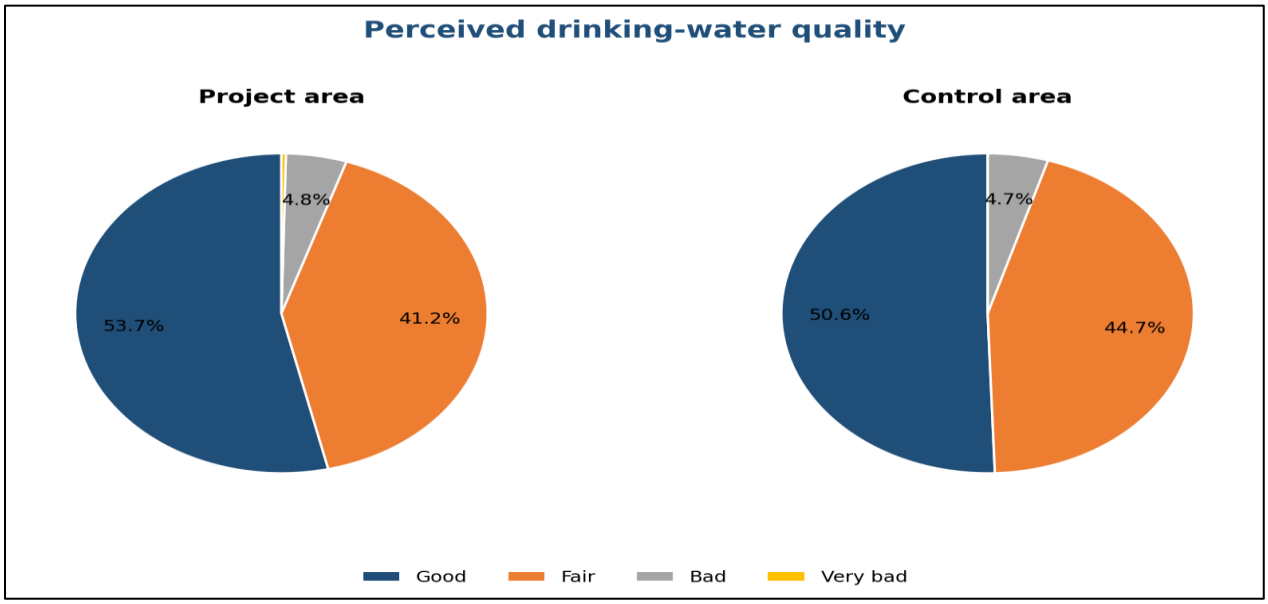


Figure 3.28: Household assessment of drinking-water quality

A slim majority rated drinking water as good: 53.65% in the project area and 50.56% in the control area. Fair ratings accounted for 41.25% and 44.72%, respectively. Combining good and fair responses produces almost identical favourable-or-acceptable shares—94.90% in the project area and 95.28% in the control area—showing broadly comparable perceived water quality at baseline.

Negative assessments were limited but not absent. Bad or very bad ratings totalled 5.10% in the project area and 4.72% in the control area. The project area's good rating exceeded the control by 3.09 percentage points, but this was largely offset by a lower fair rating. The distribution therefore reflects a modest shift between adjacent categories rather than a large difference in perceived safety or acceptability.

These figures describe respondent perception, which may reflect taste, colour, odour, reliability or prior experience and is not equivalent to laboratory testing. The near-identical combined distribution nevertheless provides a useful descriptive comparison of household confidence in local drinking-water conditions.

3.29 Responsibility for Maintenance of Shared Water Sources

Table 3.29: Responsibility for maintaining water sources

Maintenance arrangement	Project no.	Project %	Control no.	Control %
Self	1090	54.04	390	55.32
Government/local government	88	4.36	18	2.55
NGO	0	0	2	0.28
O&M committee	40	1.98	5	0.71
Local people	799	39.61	290	41.13

Sample base: *households providing a valid response on responsibility for water-source maintenance (project n=2,017; control n=705), not the full survey sample.*

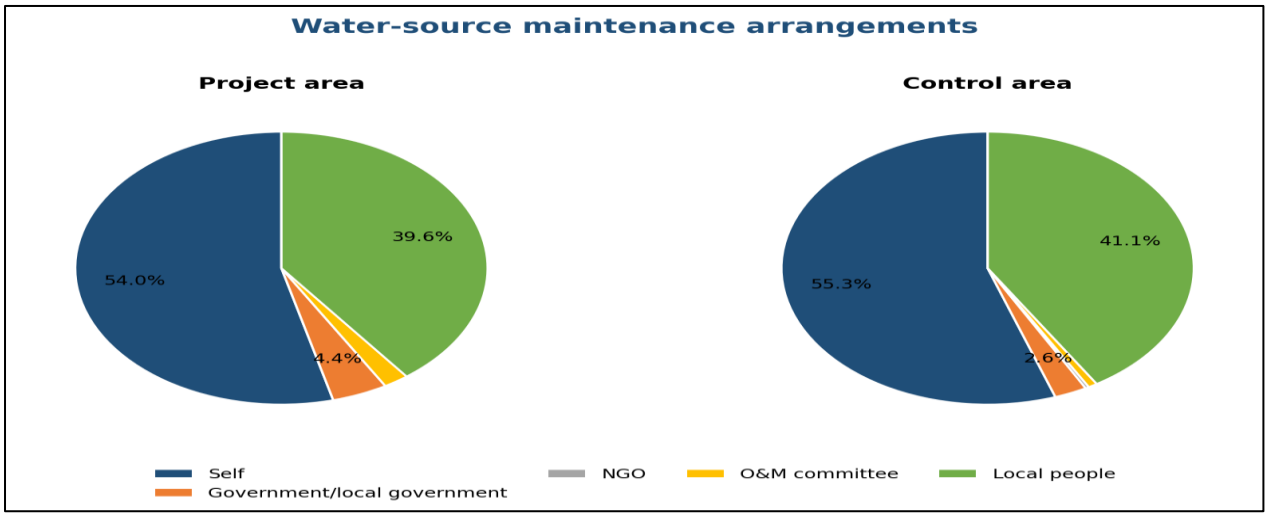


Figure 3.29: Responsibility for maintenance of shared water sources

Maintenance was overwhelmingly household- or community-based. Self-maintenance accounted for 54.04% of project responses and 55.32% of control responses, while local people collectively accounted for 39.61% and 41.13%. Together these categories represented 93.65% of project arrangements and 96.45% of control arrangements.

Formal institutional involvement was limited. Government or local government accounted for 4.36% of project responses and 2.55% of control responses. Operation and maintenance committees accounted for 1.98% and 0.71%, while NGOs were absent in the project responses and represented only 0.28% in the control area. The project area therefore showed slightly greater formal public and committee participation, although these arrangements remained a small minority.

Division-level figures show the same broad pattern but with varying emphasis. Self-maintenance was especially prominent in Dhaka and Rangpur in absolute terms, while community maintenance was substantial in all four divisions. The baseline thus depicts a decentralized maintenance system that depends primarily on users and neighbouring residents

3.30 Shelter-location Choices During Homestead Inundation

Table 3.30: Usual shelter location when homesteads are flooded

Shelter location	Project no.	Project %	Control no.	Control %	Difference (pp)
Own homestead	915	41.33	297	46.05	-4.72
Raised land	248	11.20	60	9.30	+1.90
Relatives	315	14.23	112	17.36	-3.13
Community centre	9	0.41	4	0.62	-0.21
Road/embankment	204	9.21	43	6.67	+2.54
School/government building	511	23.08	125	19.38	+3.70
Other	12	0.54	4	0.62	-0.08

Sample base: respondents whose homesteads had flooded and who identified a usual shelter location (project n=2,214; control n=645).

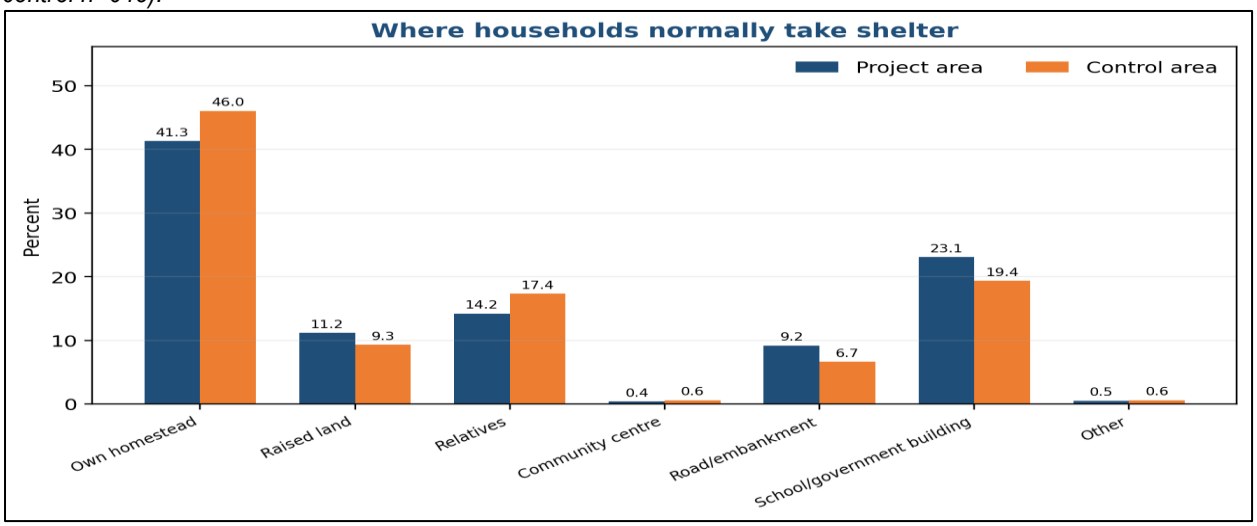


Figure 3.30: Shelter-location choices during homestead inundation

Remaining on one's own homestead was the most common response in both areas, reported by 41.33% of project respondents and 46.05% of control respondents. Schools or government buildings ranked second in the project area at 23.08%, compared with 19.38% in the control area. Relatives' homesteads accounted for 14.23% and 17.36%, while raised land accounted for 11.20% and 9.30%.

The project area showed greater reliance on institutional or public-space options. Use of schools/government buildings was 3.70 percentage points higher and use of roads or embankments was 2.54 points higher than in the control area. Conversely, the control area was 4.72 points more likely to remain at the household's own homestead and 3.13 points more likely to use relatives' homes. Nearby community centres were almost unused in either area.
The distribution indicates that evacuation did not necessarily mean movement to a purpose-built shelter. A large share stayed on homesteads, moved to relatives, or used roads and embankments. The reported 23.08% project and 19.38% control use of schools or government buildings shows the importance of multipurpose public buildings within the existing shelter landscape.

3.31 Whether Cattle and Birds Accompany Evacuated Households

Table 3.31: Location of cattle and birds when households take shelter elsewhere

Livestock arrangement	Project no.	Project %	Control no.	Control %
Taken to shelter	1089	83.83	282	81.03
Left at home	191	14.7	61	17.53
No cattle/birds at that time	19	1.46	5	1.44

Sample base: flooded households reporting arrangements for cattle or birds when sheltering elsewhere (project n=1,299; control n=348).

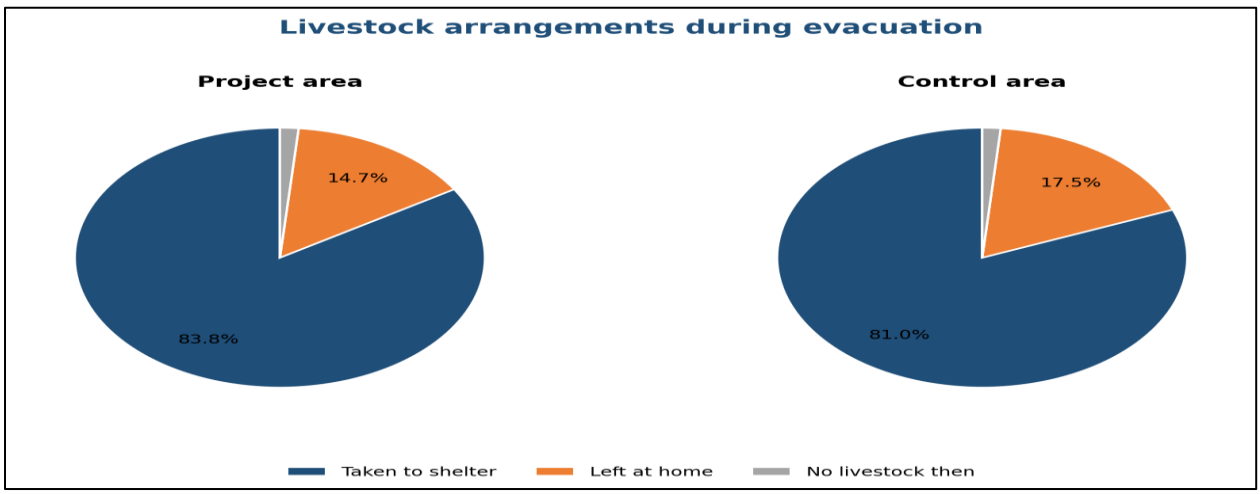


Figure 3.31: Whether cattle and birds accompany evacuated households

Most livestock-owning households took cattle or birds with them when seeking shelter: 83.83% in the project area and 81.03% in the control area. Leaving animals at home was reported by 14.70% and 17.53%, respectively, while only about 1.45% had no livestock at the relevant time. The project–control pattern was therefore closely aligned, with a modest 2.80 percentage-point greater tendency to bring animals in the project area.

The district data reveal much stronger variation than the overall averages. Gaibandha, Gopalganj, Bogura and several other districts reported almost universal movement of animals with households, whereas Kurigram and Sunamganj recorded comparatively large numbers leaving animals behind. At division level, Sylhet had the highest project-area count left at home (77 of 312 relevant responses), compared with no such cases recorded in Rajshahi.

The very high share taking animals to shelter indicates that household evacuation decisions were closely connected to livestock protection. Shelter destinations therefore served human and livelihood-protection functions simultaneously in the reported baseline behaviour.

3.32 Availability of a Government Flood-shelter

Table 3.32: Presence of a specified government-built flood shelter nearby

Response	Project no.	Project %	Control no.	Control %	Difference (pp)
Yes	187	4.99	28	2.24	+2.75
No	3563	95.01	1222	97.76	-2.75

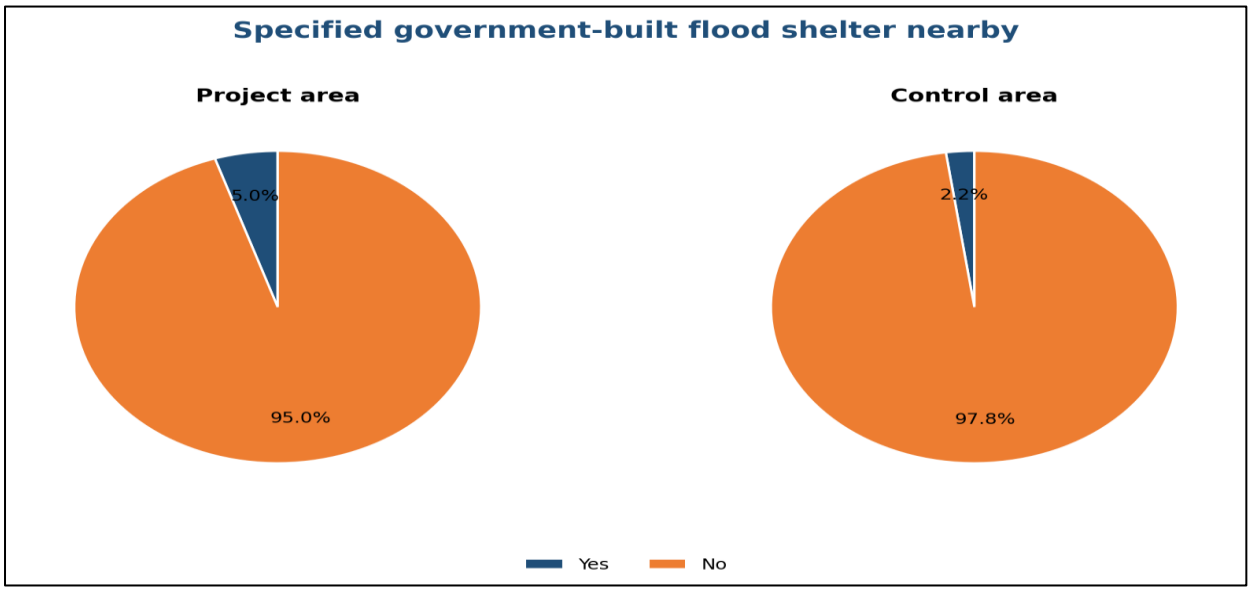


Figure 3.32: Reported nearby availability of a government flood shelter

Only 4.99% of project-area households and 2.24% of control-area households reported a specified government-built flood shelter near their village. Accordingly, 95.01% and 97.76% reported none. Although reported availability was 2.75 percentage points higher in the project area, the dominant baseline condition in both samples was the absence of a recognized purpose-built shelter nearby.

Availability varied geographically. In the project area, Faridpur and Sunamganj each recorded 33 affirmative responses, while Nilphamari recorded 26 and Sirajganj 20. At division level, Rangpur recorded 66 yes responses, Dhaka 53, Rajshahi 34 and Sylhet 34. These counts partly reflect different sample sizes; even in the division with the largest affirmative count, the no response remained overwhelming.

The low shelter-presence rate is consistent with Table 3.29 where households described reliance on homesteads, relatives, embankments and ordinary school/government buildings. The two tables together characterize a baseline shelter environment dominated by improvised or multipurpose locations

3.33 Awareness of Nearby LGED School-cum-Shelter Development

Table 3.33: Knowledge of LGED development of a nearby school-cum-flood shelter

District	Yes	No	Aware (%)
Kurigram	412	8	98.1
Lalmonirhat	129	51	71.7
Rangpur	144	36	80.0
Nilphamari	125	70	64.1
Gaibandha	230	25	90.2
Sirajganj	44	121	26.7
Pabna	1	164	0.6
Bogura	74	91	44.8
Gopalganj	330	165	66.7
Rajbari	1	164	0.6
Madaripur	258	162	61.4
Faridpur	165	150	52.4
Sunamganj	385	50	88.5
Habiganj	161	34	82.6
All	2459	1291	65.57

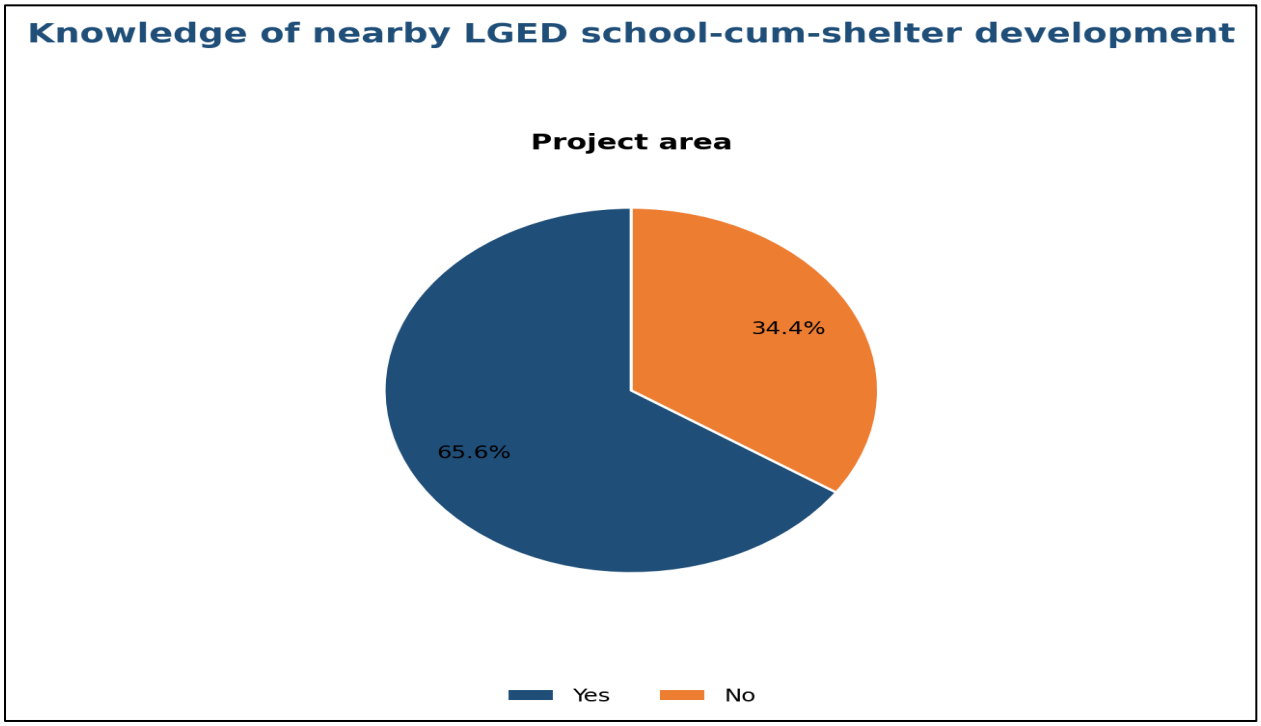


Figure 3.33: Awareness among project-area households

Overall, 65.57% of project-area respondents knew that LGED was developing a nearby school as a flood shelter, while 34.43% did not. Awareness was therefore the majority position, but more than one-third of households remained unaware at the time of the baseline survey.

District differences were pronounced. Awareness exceeded 90% in Kurigram and Gaibandha, and was also high in Sunamganj and Habiganj. In contrast, awareness was below 1% in Pabna and Rajbari, around 26.7% in Sirajganj and 44.8% in Bogura. At division level, awareness was strongest in Sylhet (86.7%) and Rangpur (84.6%), compared with 54.1% in Dhaka and 24.0% in Rajshahi.

The breadth of this variation means the overall average conceals very different local information environments. The table describes project-specific awareness and therefore has no control-area counterpart; comparison is appropriately made across project districts and divisions rather than between treatment status groups.

3.34 Public Consultation among Respondents

Table 3.34: Community consultation during shelter preparation and design

District	Consulted	Not consulted	Consulted (%)
Kurigram	321	91	77.9
Lalmonirhat	69	60	53.5
Rangpur	105	39	72.9
Nilphamari	81	44	64.8
Gaibandha	207	23	90.0
Sirajganj	32	12	72.7
Pabna	1	0	100.0
Bogura	72	2	97.3
Gopalganj	220	110	66.7
Rajbari	1	0	100.0
Madaripur	226	32	87.6
Faridpur	137	28	83.0
Sunamganj	303	82	78.7
Habiganj	161	0	100.0
All	1936	523	78.73

Sample base: *project-area respondents aware of the school-cum-shelter development (n=2,459). District percentages based on very small aware subgroups—notably Pabna and Rajbari (n=1 each)—are descriptive counts and should not be treated as stable district estimates.*

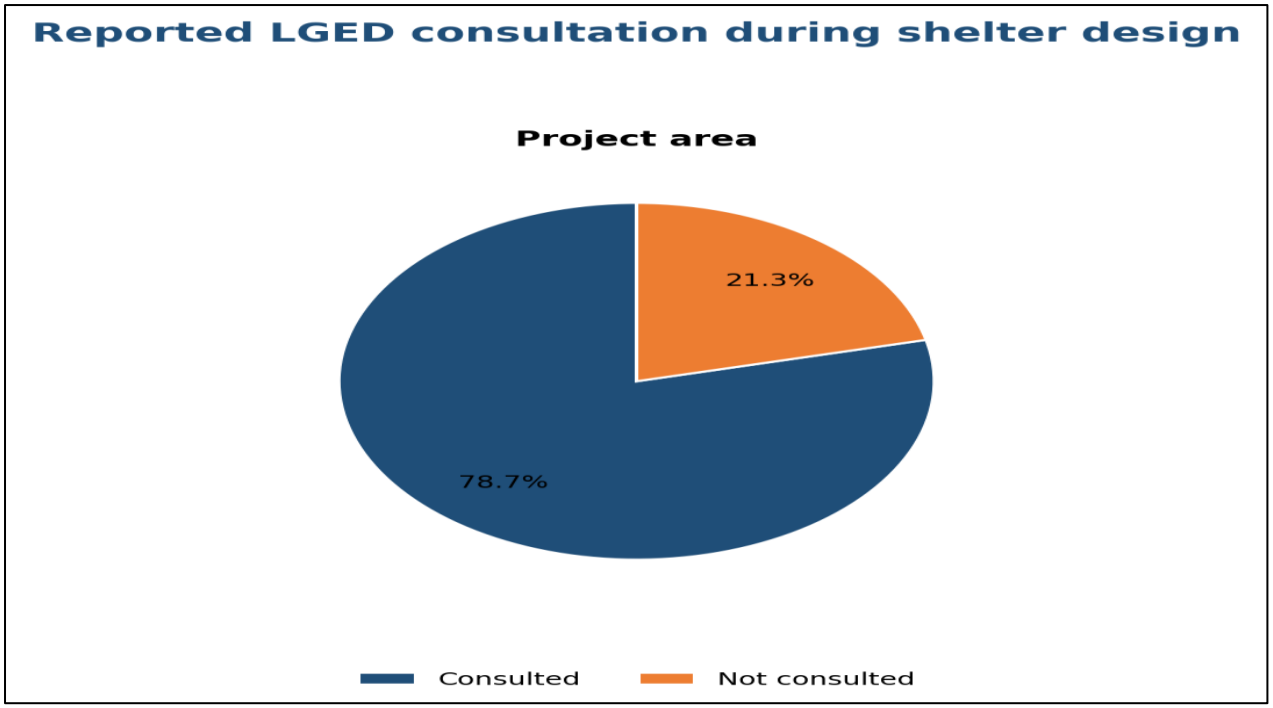


Figure 3.34: Consultation among respondents aware of shelter development

Among the 2,459 respondents who knew about the nearby shelter development, 1,936 (78.73%) reported that LGED had consulted them or their neighbours during preparation and design; 523 (21.27%) reported no consultation. The denominator is therefore the awareness subgroup rather than the full project sample.

Consultation rates varied considerably. Gaibandha recorded 90.0%, Bogura 97.3%, Madaripur 87.6%, Faridpur 83.0% and Habiganj 100%. Rates were lower in Lalmonirhat (53.5%), Nilphamari (64.8%) and Gopalganj (66.7%). Pabna and Rajbari each had only one aware respondent, so their 100% consultation values should not be interpreted as broad district coverage.

At division level, consultation was highest in Rajshahi at 88.2% and Sylhet at 85.0%, followed by Dhaka at 77.5% and Rangpur at 75.3%. The overall result indicates that consultation was widely reported among aware households, but the approximately one-fifth not consulted and the district dispersion remain important features of the baseline evidence.

3.35 Perceived Benefit among Respondents

Table 3.35: Opinion on whether the under-construction shelter would benefit the community

District	Yes	No	Yes (%)
Kurigram	411	1	99.8
Lalmonirhat	128	1	99.2
Rangpur	134	10	93.1
Nilphamari	125	0	100.0
Gaibandha	230	0	100.0
Sirajganj	43	1	97.7
Pabna	1	0	100.0
Bogura	74	0	100.0
Gopalganj	319	11	96.7
Rajbari	1	0	100.0
Madaripur	255	3	98.8
Faridpur	164	1	99.4
Sunamganj	383	2	99.5
Habiganj	160	1	99.4
All	**2428**	**31**	**98.74**

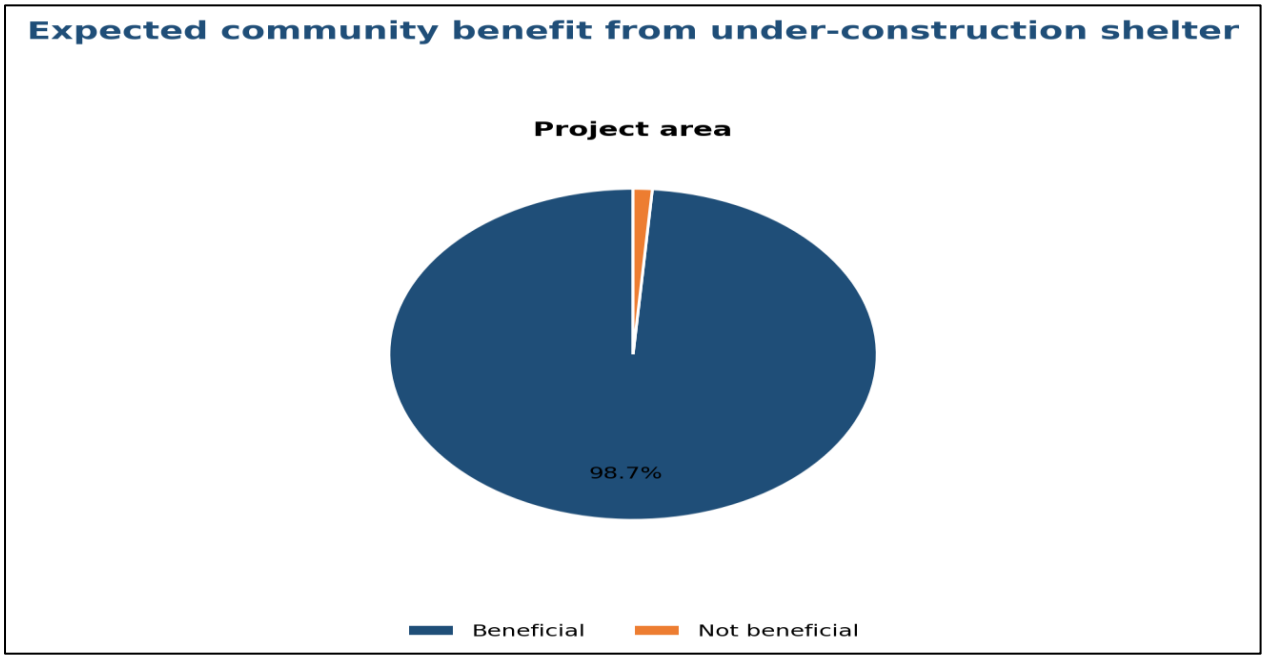


Figure 3.35: Perceived benefit among respondents aware of shelter development

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Perceived benefit was nearly universal among aware respondents. Of 2,459 respondents, 2,428 (98.74%) believed that the under-construction shelter would benefit their community, while only 31 (1.26%) disagreed. The result was consistently positive across all four divisions, ranging from 98.0% in Dhaka to 99.5% in Sylhet.

At district level, eight districts recorded no negative responses. The largest numbers of negative responses occurred in Gopalganj (11) and Rangpur (10), but even their affirmative shares remained 96.7% and 93.1%, respectively. Because the question was posed to those aware of the shelter, the result represents perceptions within an informed subgroup rather than all surveyed households.

The strong consensus distinguishes perceived usefulness from current physical availability. Table 3.32 shows that only a small share reported an existing government-built shelter nearby, whereas this table shows very high confidence in

the usefulness of the shelter under construction. Together, the findings describe both the scarcity of recognized facilities and the favourable community perception of the new development

3.36 Disaster-management Training Coverage

Table 3.36: Disaster-management training received

Response	Project no.	Project %	Control no.	Control %	Difference (pp)
Yes	26	0.69	2	0.16	+0.53
No	3724	99.31	1248	99.84	-0.53

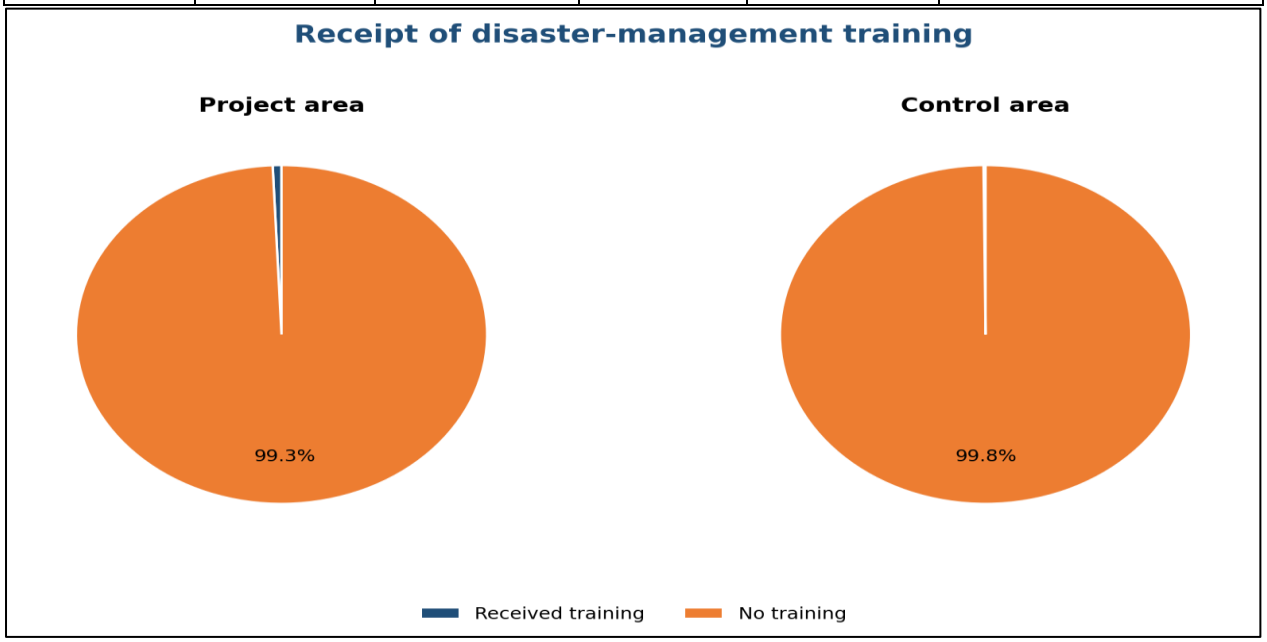


Figure 3.36: Disaster-management training coverage

Formal disaster-management training was extremely rare in both areas. Only 26 project-area respondents (0.69%) and two control-area respondents (0.16%) reported having received training. More than 99% of both samples reported no training. Although the project proportion was 0.53 percentage points higher, the substantive baseline finding is the near-universal absence of training.

Training was geographically concentrated. In the project area, Kurigram accounted for 10 trained respondents and Sunamganj for 11; the remaining five were distributed across Lalmonirhat, Rangpur, Gopalganj and Madaripur. No trained project respondents were recorded in eight districts. The two control-area respondents were located in Lalmonirhat and Sunamganj.

At division level, Rangpur and Sylhet accounted for 23 of the 26 trained project respondents, while Rajshahi recorded none and Dhaka recorded three. These very small counts mean that percentage comparisons between individual districts should be treated cautiously. The overall evidence clearly establishes low household exposure to structured disaster-management training at baseline.

Cross-table synthesis of baseline conditions

The combined tables describe communities exposed to recurrent flooding, heavy rainfall and storms, with repeated effects on homesteads, agricultural land and water bodies. The project and control samples generally shared the same hazard ranking and similar levels of reported flood depth. Project-area values were often somewhat higher, especially for repeated water-body impacts, but the geographic pattern across divisions was at least as important as the overall treatment-status difference.

Households relied heavily on groundwater for drinking and on household or community action to maintain water sources. Perceived water quality was mostly good or fair in both areas. During inundation, many households stayed on their homestead or used relatives, roads, embankments, schools and government buildings; very few reported a specified

government-built flood shelter nearby. Livestock commonly accompanied households to shelter, demonstrating the close relationship between safety decisions and livelihood protection.

Within the project area, knowledge of nearby school-cum-shelter development was substantial but uneven; consultation was widely reported among those aware, and perceived community benefit was almost universal. In contrast, formal disaster-management training coverage was negligible in both the project and control areas. These results collectively provide a detailed descriptive baseline of hazard exposure, infrastructure access, household behaviour, awareness, participation and preparedness.

3.37 Distribution of Training Providers

Table 3.37: Organization providing disaster-management training

Provider	Project no.	Project %	Control no.	Control %
DDM	2	7.69	1	50.0
LGED under RIVER	7	26.92	1	50.0
NGO	17	65.38	0	0.0

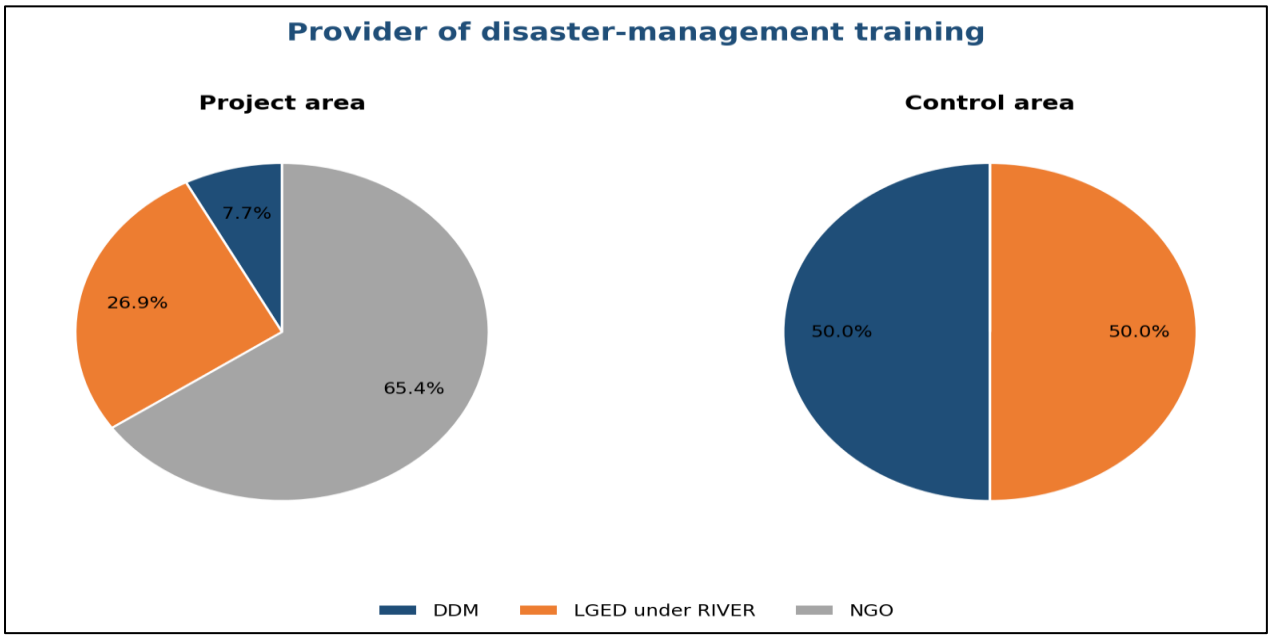


Figure 3.37: Distribution of training providers among trained respondents

Among the 26 trained respondents in the project area, NGOs trained 17 (65.38%), LGED under RIVER trained seven (26.92%), and the Department of Disaster Management trained two (7.69%). The two trained control respondents were divided equally between DDM and LGED under RIVER. Because the control denominator is only two, its percentages should be read as counts rather than as stable population estimates.

Training was also geographically concentrated. Kurigram accounted for ten NGO-trained respondents; Sunamganj accounted for all two DDM trainees, three LGED trainees and six NGO trainees. Gopalganj contributed two LGED trainees, while Lalmonirhat and Madaripur contributed one each. The distribution confirms the extremely narrow reach already identified in Table 3.36 and shows that most recorded training exposure came from NGOs rather than public agencies.

3.38 Fatalistic Perception of Flood Risk

Table 3.38: Belief that floods are natural calamities against which nothing can be done

Response	Project no.	Project %	Control no.	Control %	Difference (pp)
Yes—fatalistic view	2125	56.67	661	52.88	+3.79
No—action is possible	1625	43.33	589	47.12	-3.79

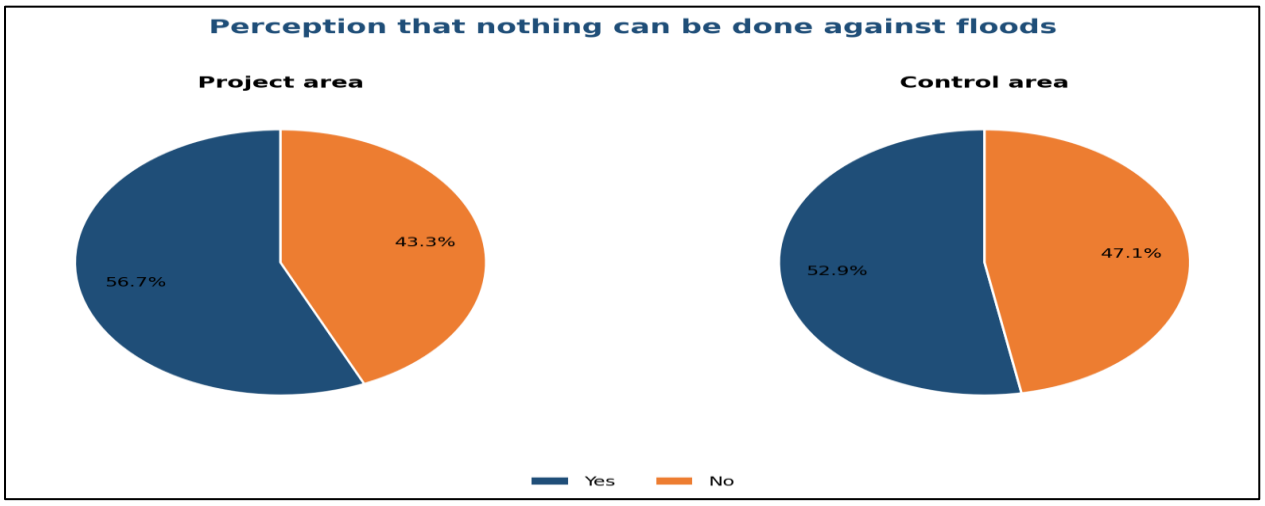


Figure 3.38: Fatalistic perception of flood risk

A majority in both areas agreed with the fatalistic statement that floods are natural disasters, and nothing can be done to save lives and property. The share was 56.67% in the project area and 52.88% in the control area, a project–control difference of 3.79 percentage points. At the same time, a substantial minority—43.33% and 47.12%—rejected the statement, indicating that beliefs were divided rather than uniformly fatalistic.

Division-level variation was pronounced. In the project area, agreement was very high in Rangpur (76.4%) and Sylhet (63.2%) but much lower in Rajshahi (38.0%) and Dhaka (42.9%). The control area followed the same broad ordering: 74.0% in Rangpur and 54.9% in Sylhet, compared with 16.4% in Rajshahi and 46.0% in Dhaka. This correspondence points to big geographic differences in disaster beliefs shared across the two samples.

At district level, agreement exceeded 90% in Kurigram and 87% in Nilphamari, but fell below one-third in Bogura and Rajbari. Such dispersion is more informative than the overall average because it shows that perceptions of agency and preventability varied greatly across local settings

3.39 Preferred Preparation and Precaution

Table 3.39: Preparations and precautions identified by respondents rejecting the fatalistic view

Preparation/precaution	Project no.	Project %	Control no.	Control %	Difference (pp)
Move to flood shelter	324	19.94	87	14.77	+5.17
Stay at home	1116	68.68	438	74.36	-5.68
Move to relatives	185	11.38	64	10.87	+0.51

Sample base: *respondents who rejected the view that nothing could be done against floods (project n=1,625; control n=589). Percentages are conditional on this subgroup.*

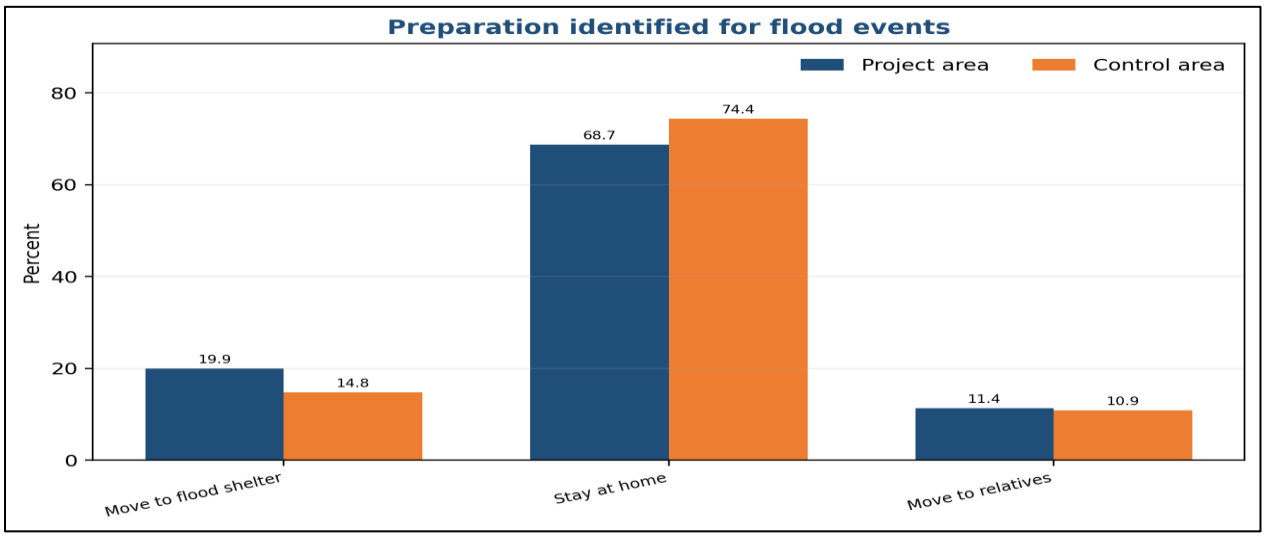


Figure 3.39: Preferred preparation or precaution

Among respondents who believed action was possible, staying at home was still the most frequently identified preparation: 68.68% in the project area and 74.36% in the control area. Moving to a flood shelter accounted for 19.94% and 14.77%, while moving to relatives' homes accounted for 11.38% and 10.87%. The project area was therefore 5.17 percentage points more likely to identify movement to a flood shelter, whereas the control area was 5.68 points more likely to remain at home.

The overall pattern concealed major geographic differences. In project-area Rangpur division, moving to a shelter and staying home were nearly balanced (51.0% and 47.6%), whereas staying home dominated in Rajshahi (95.8%) and Dhaka (72.2%). Sylhet showed a relatively large preference for relatives' homes (38.4%). The control sample showed comparable regional contrasts, including 96.4% staying home in Rajshahi and 30.7% moving to relatives in Sylhet.

The dominance of staying at home, even among respondents who rejected complete fatalism, indicates that belief in preparedness did not automatically translate into evacuation. The response may reflect confidence in household-level measures, reluctance to leave property and livestock, or limited access to suitable shelters; the table itself does not distinguish among these motivations

3.40 Access to an Early-warning System

Table 3.40: Availability of an early-warning system

Response	Project no.	Project %	Control no.	Control %	Difference (pp)
Yes	610	16.27	231	18.48	-2.21
No	3140	83.73	1019	81.52	+2.21

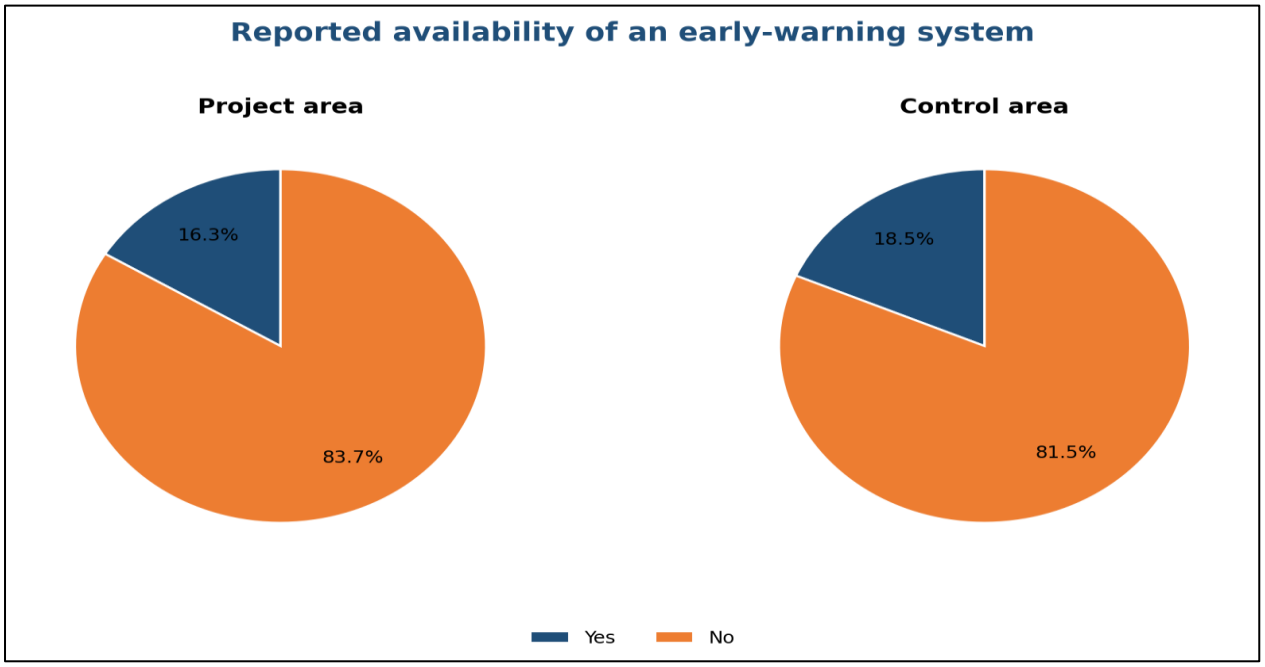


Figure 3.40: Access to an early-warning system

About 16.27% of project-area respondents and 18.48% of control-area respondents reported an early-warning system for floods, cyclones or other disasters. More than four-fifths in each sample reported no system. The control share was 2.21 percentage points higher, but the main baseline finding is limited warning-system coverage in both areas.

Availability differed widely by location. Project-area awareness was highest in Habiganj (36.9%), Sunamganj (29.2%), Lalmonirhat (28.3%), Kurigram (24.5%) and Madaripur (23.6%). Pabna and Rajbari recorded no affirmative responses. At division level, Sylhet had the highest project share (31.6%), followed by Rangpur (18.9%), Dhaka (11.3%) and Rajshahi (4.0%). The control-area ordering was similar, with Sylhet highest and Rajshahi lowest

3.41 Early-warning message channels

Table 3.41: Sources through which early-warning messages were disseminated

Message source	Project no.	Project %	Control no.	Control %
Radio/TV	369	60.49	149	64.5
Newspaper	109	17.87	44	19.05
Virtual media	374	61.31	134	58.01
LGED	97	15.9	33	14.29
NGO	94	15.41	35	15.15
Other	34	5.57	5	2.16

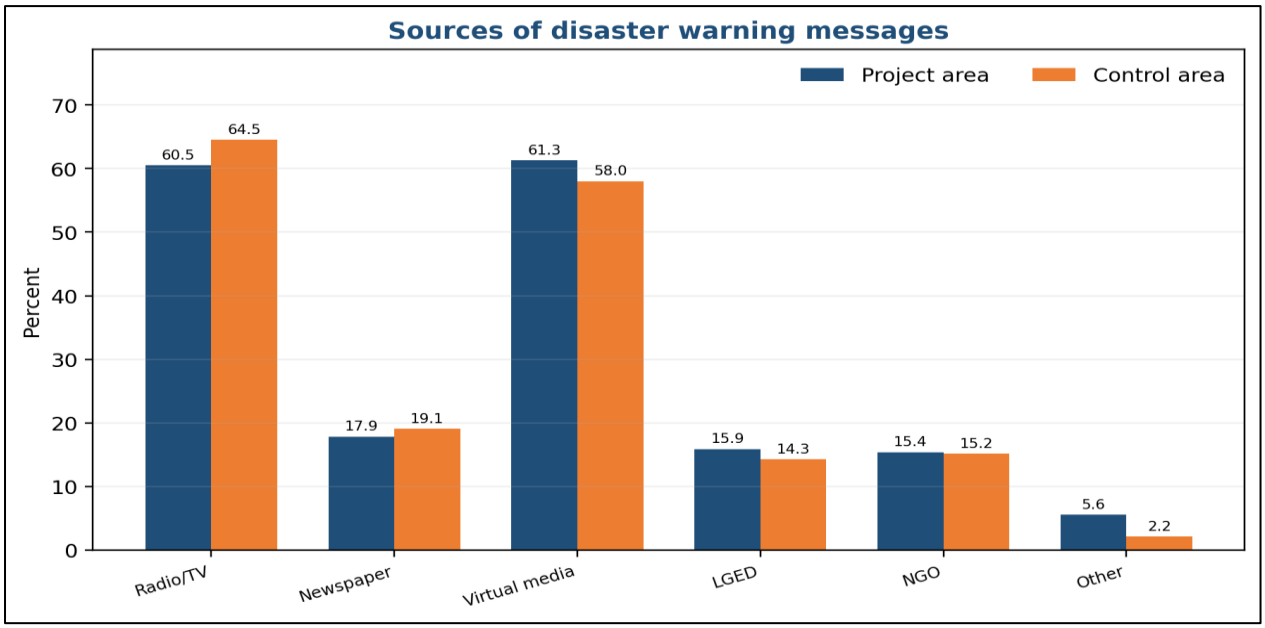


Figure 3.41: Early-warning message channels

Among respondents reporting access to an early-warning system, virtual media and radio/television were the principal channels. In the project area, 61.31% mentioned virtual media and 60.49% radio/TV; in the control area, the corresponding shares were 58.01% and 64.50%. Because respondents could identify more than one channel, these percentages do not sum to 100%.

Newspapers were mentioned by 17.87% of project and 19.05% of control respondents. Institutional channels had similar reach in the two areas: LGED was mentioned by 15.90% and 14.29%, while NGOs were mentioned by 15.41% and 15.15%. Other channels accounted for 5.57% and 2.16%. The near-parallel distributions indicate a common communications environment dominated by broadcast and digital media rather than by a single official messenger

3.42 Use of Warnings and Perceived Benefit

Table 3.42: Usefulness and perceived benefit of early-warning messages

Indicator	Project %	Control %	Difference (pp)
Used warning messages—Yes	14.99	16.00	-1.01
Warnings beneficial—Yes	89.32	90.50	-1.18

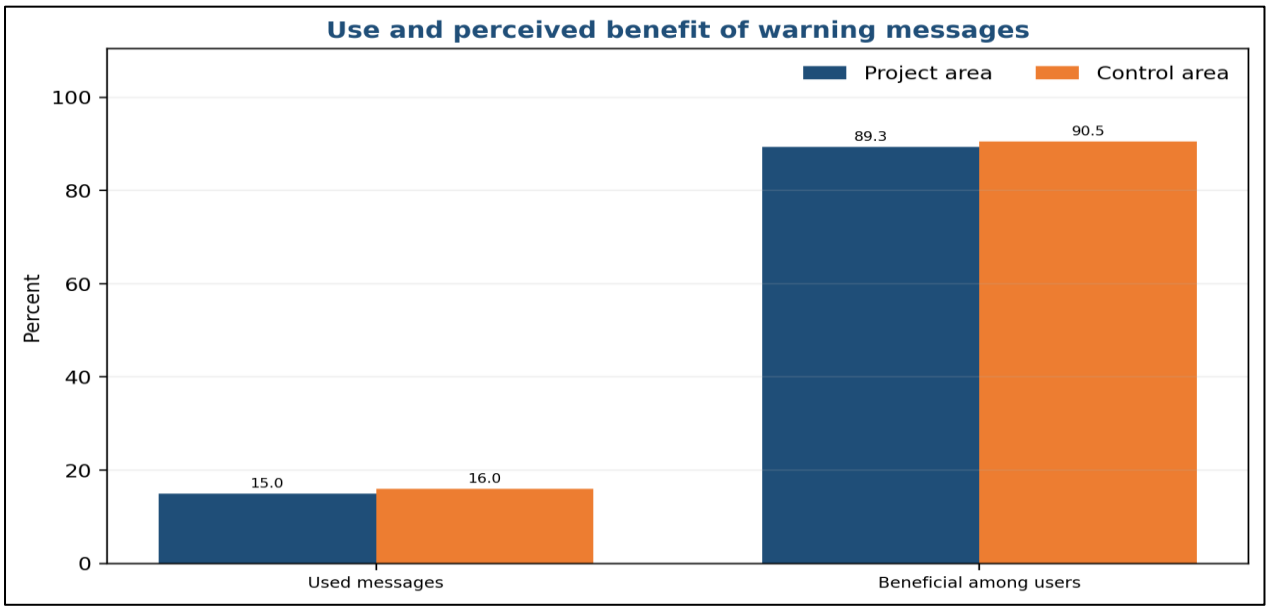


Figure 3.42: Use of warnings and perceived benefit

3.43 Perceived Need and Effectiveness of Multipurpose Shelters

Table 3.43: Need for multipurpose flood shelters and perceived effectiveness in reducing suffering

Indicator	Project %	Control %	Difference (pp)
Multipurpose shelter needed—Yes	93.28	92.16	+1.12
Shelter effective—Yes	95.31	95.44	-0.13

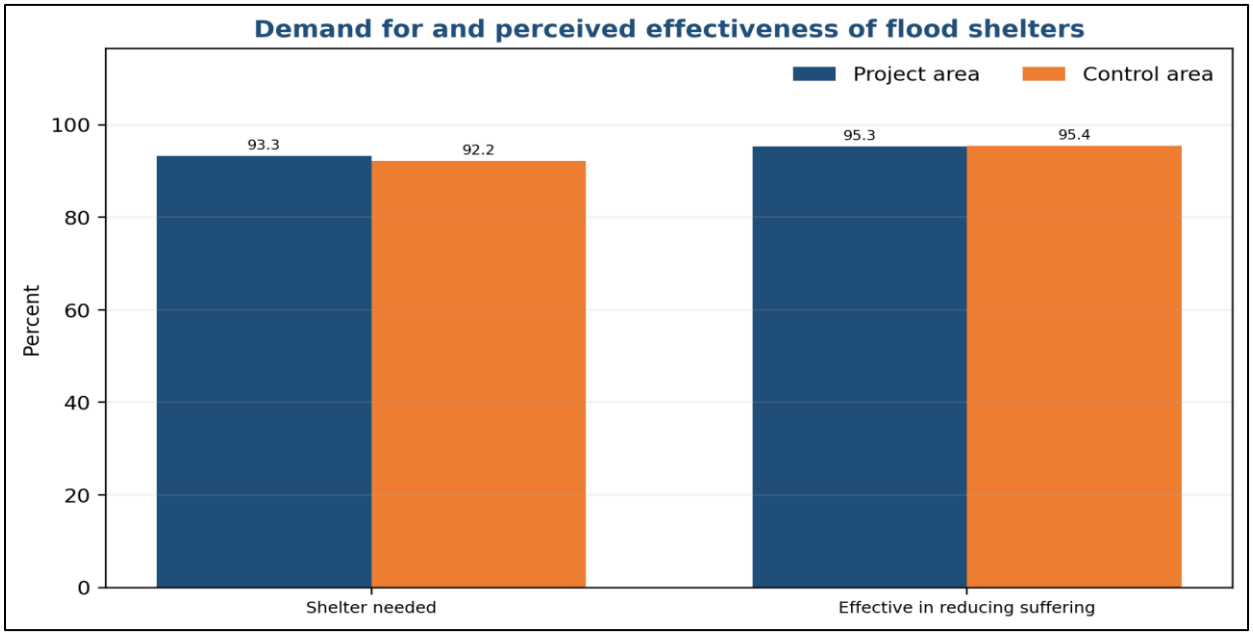


Figure 3.43: Perceived need and effectiveness of multipurpose shelters

Support for multipurpose flood shelters was very strong. A shelter was considered necessary by 93.28% of project respondents and 92.16% of control respondents. Perceived effectiveness in reducing suffering was even higher at 95.31% and 95.44%. The project–control differences were only 1.12 and −0.13 percentage points, indicating a common baseline view across the two areas.

District support was generally above 85%, with Rangpur the principal exception: 67.78% of project respondents and 75.00% of control respondents considered a shelter necessary. Despite this lower demand measure, 72.22% and 78.33% in Rangpur still considered shelters effective. Sylhet division recorded the strongest results in both samples, with need and effectiveness close to or above 97%.

The combination of high stated need and high expected effectiveness is consistent with the earlier finding that purpose-built shelters were rarely reported nearby. It also demonstrates that favourable opinions were not confined to project locations, since the control sample expressed almost identical views

3.44 Stated Willingness to Use a Shelter and Alternative Arrangements

Table 3.44: Willingness to move to a shelter during flooding and reasons for not moving

Indicator	Project %	Control %	Difference (pp)
Would move to shelter—Yes	94.83	93.92	+0.91
Stay in own house (among No)	87.63	81.58	+6.05
Move to higher place (among No)	6.70	14.47	-7.77
Move to relatives (among No)	5.15	2.63	+2.52
Use embankment (among No)	0.52	1.32	-0.80

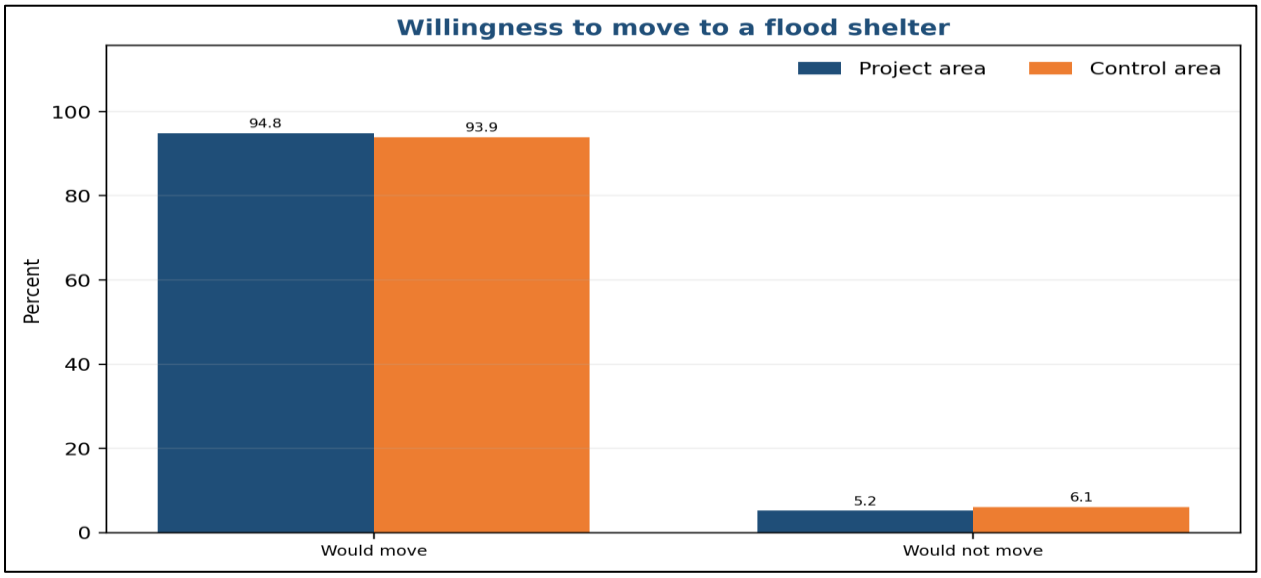


Figure 3.44: Stated willingness to use a shelter and alternative arrangements

Stated willingness to move to a shelter during flooding was high: 94.83% in the project area and 93.92% in the control area. The difference was less than one percentage point. This broad willingness coexisted with the earlier finding that many households historically stayed at home or used other locations, illustrating a distinction between stated willingness under the question scenario and recalled behaviour under past flood conditions.

Among the 194 project respondents and 76 control respondents who would not move, staying in one's own house dominated the reasons, accounting for 87.63% and 81.58%. Higher ground accounted for 6.70% and 14.47%, relatives' homes for 5.15% and 2.63%, and embankments for less than 1.5%. These subgroup percentages should not be applied to the full samples.

Rangpur district recorded the lowest willingness in both areas—64.44% in the project sample and 70.00% in the control sample—while most other districts exceeded 90%. Madaripur control also stood out at 84.17%. The shared Rangpur pattern suggests that local evacuation preferences differed materially from the otherwise high regional consensus

3.45 Shelter Satisfaction Dimensions

Table 3.45: Satisfaction with conditions of existing flood shelters

Satisfaction reason/assessment	Project % (n=2,514)	Control % (n=28)
Accessible	26.33	25.00
Adequate facilities	39.98	46.43
Adequate space	30.91	25.00
Safe	36.44	46.43
Not satisfied	41.65	25.00

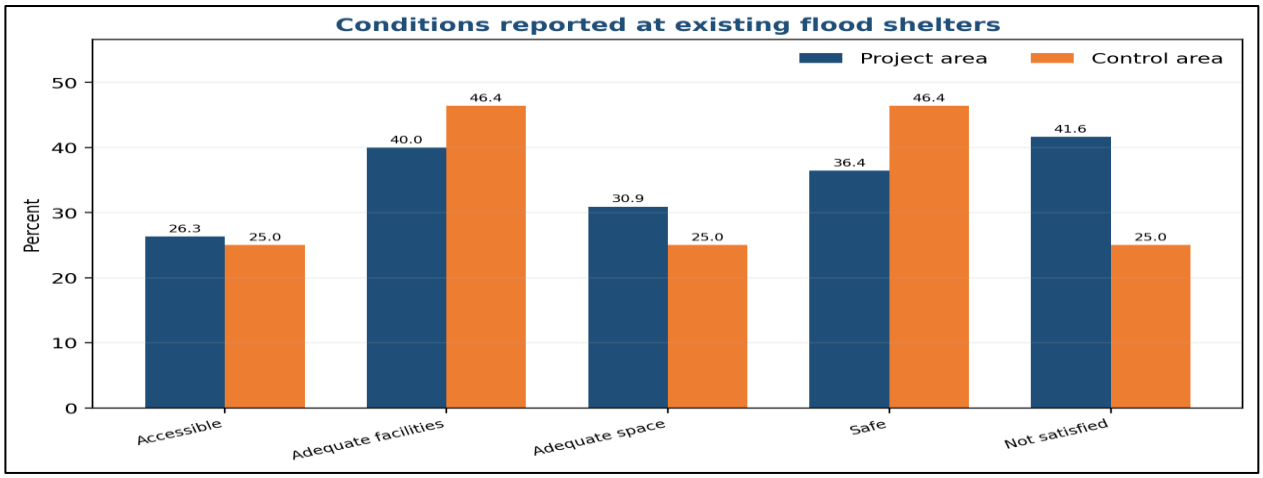


Figure 3.45: Shelter satisfaction dimensions

Shelter users reported mixed conditions. In the project area, 39.98% cited adequate facilities, 36.44% safety, 30.91% adequate space and 26.33% accessibility; however, 41.65% reported that they were not satisfied. Because the table permits multiple reasons, favourable percentages and the not-satisfied percentage are not mutually exclusive and do not sum to 100%.

The control-area results were 46.43% for adequate facilities and safety, 25.00% for accessibility and space, and 25.00% not satisfied. These values are based on only 28 respondents, so each response changes the percentage substantially. Direct project–control inference is therefore weaker for this table than for the full-sample tables.
Project-area dissatisfaction varied markedly: it reached 100% in Rajbari, 85.96% in Faridpur, 65.17% in Gopalganj and 59.32% in Sirajganj, but was below 5% in Gaibandha and Bogura. Divisionally, dissatisfaction was highest in Dhaka (62.45%), followed by Sylhet (44.96%), Rajshahi (27.21%) and Rangpur (26.63%).

3.46 Demand for Designated Livestock Shelter Space

Table 3.46: Need for designated livestock shelters and arrangements where none is needed

Indicator	Project %	Control %	Difference (pp)
Livestock shelter needed—Yes	96.53	96.72	-0.19
Own house (among No)	74.62	82.93	-8.31
Higher land (among No)	14.62	12.20	+2.42
Embankment (among No)	10.77	2.44	+8.33
Sell animals (among No)	0.00	2.44	-2.44

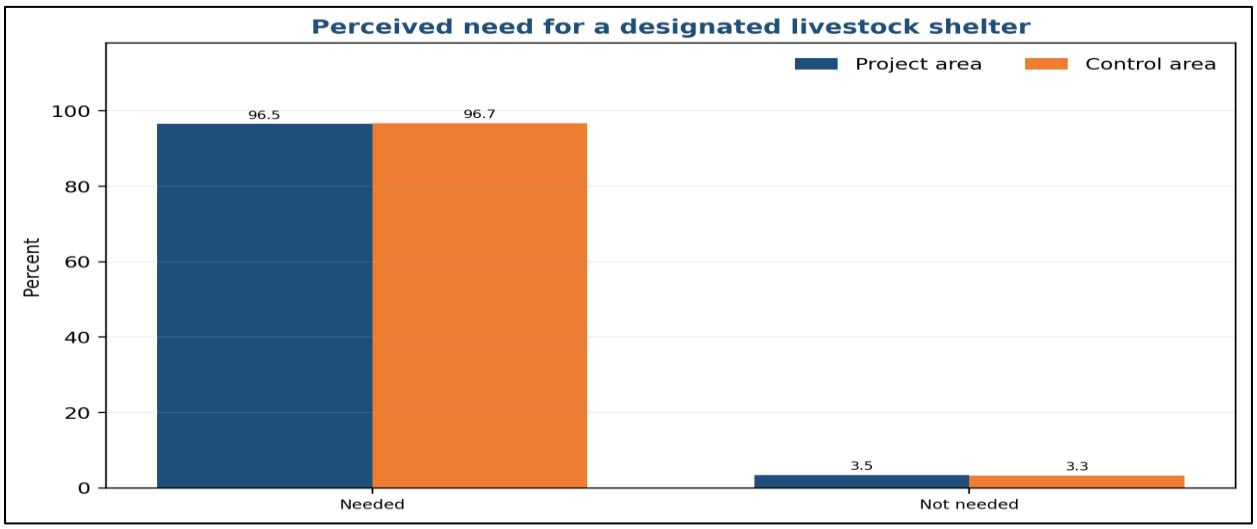


Figure 3.46: Demand for designated livestock shelter space

Demand for a designated livestock shelter was nearly universal: 96.53% in the project area and 96.72% in the control area. The 0.19 percentage-point difference is negligible and indicates a shared perception that flood shelter arrangements must accommodate animals as well as people.

Among the small groups saying a livestock shelter was unnecessary—130 project and 41 control respondents—the usual alternative was the household's own house (74.62% and 82.93%). Higher land accounted for 14.62% and 12.20%; embankments accounted for 10.77% and 2.44%. Only the control group recorded selling animals, at 2.44% of its no subgroup.

District-level demand exceeded 90% almost everywhere. Rangpur was again the main exception, particularly in the project area at 72.78%, while the Rangpur control figure was 85.00%. The convergence of the overall project and control results, combined with the high proportion taking animals during evacuation in Table 3.30, underscores the centrality of livestock in household shelter decisions

3.47 Constraints Affecting Shelter Use

Table 3.47: Problems experienced when using disaster shelters

Problem	Project %	Control %	Difference (pp)
Congestion	14.77	13.28	+1.49
Insufficient infrastructure	54.35	56.80	-2.45
No WASH	89.52	87.28	+2.24
Inadequate facilities for women	72.99	71.12	+1.87
Other	1.20	1.76	-0.56

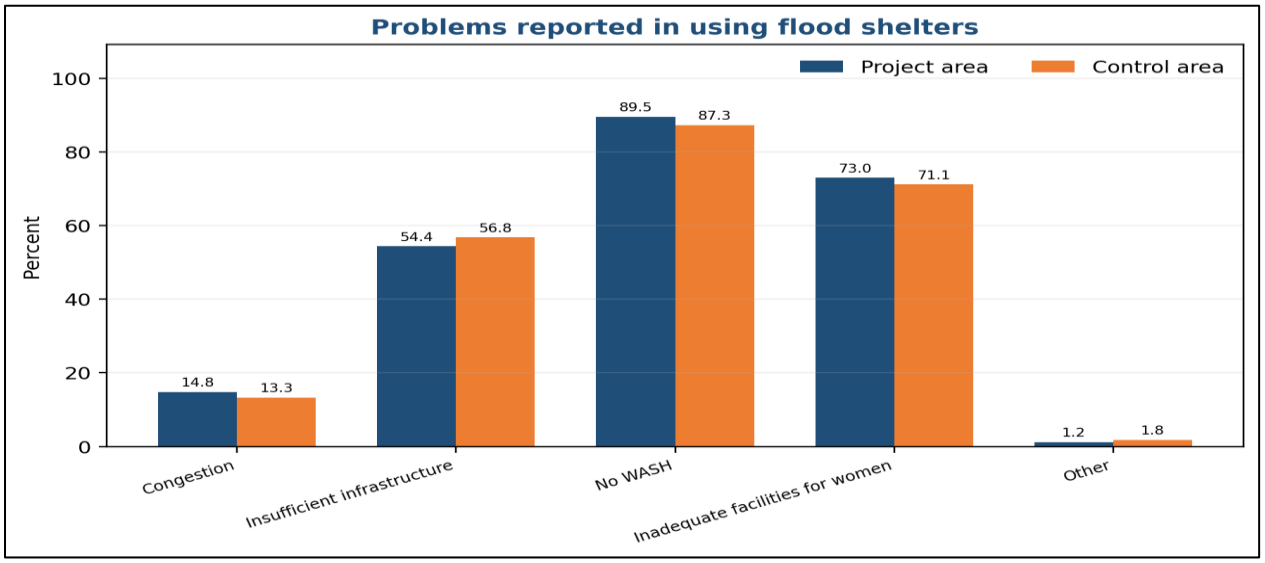


Figure 3.47: Constraints affecting shelter use (multiple response)

The absence of WASH facilities was the most widely reported shelter problem: 89.52% in the project area and 87.28% in the control area. Inadequate facilities for women followed at 72.99% and 71.12%, while insufficient infrastructure was reported by 54.35% and 56.80%. Congestion was less common at 14.77% and 13.28%, and other problems accounted for less than 2%.

The project–control profiles were remarkably similar. The largest absolute difference was only 2.45 percentage points for insufficient infrastructure, which was higher in the control area. No-WASH reports were 2.24 points higher in the project area, and inadequate facilities for women were 1.87 points higher. The consistency across samples indicates that these were widespread characteristics of existing shelter conditions rather than isolated site-level complaints.

Division-level data show that No-WASH reports remained very high everywhere, from 80.79% in project-area Sylhet to 96.50% in Rangpur. Inadequate facilities for women ranged from 65.56% in Sylhet to 82.08% in Dhaka. Infrastructure limitations were most prominent in Dhaka and Rajshahi, while congestion was highest in Sylhet. The multiple-response structure means respondents could experience several constraints simultaneously.

Cross-table synthesis of baseline conditions

The tables depict a baseline in which formal disaster-management training and early-warning access were limited, while fatalistic beliefs remained common. Nevertheless, respondents who received warnings generally considered them beneficial, and a large majority believed multipurpose shelters were needed and effective. This contrast shows that positive attitudes toward preparedness and shelters coexisted with limited institutional reach.

Stated willingness to use shelters was high for both people and livestock, but satisfaction with existing facilities was mixed. The dominant reported problems—absence of WASH facilities, inadequate facilities for women and insufficient infrastructure—were nearly identical in project and control areas. Geographic variation was substantial in beliefs, warning access, evacuation intentions and shelter satisfaction, with Rangpur repeatedly displaying distinctive patterns.

3.48 Reported Condition of Connecting Roads and Bridges/culverts

Table 3.48: Condition of shelter-connecting roads and bridges/culverts

Infrastructure component	Condition	No.	Percent
Connecting road	Good	266	7.09
Connecting road	Moderate	1340	35.73
Connecting road	Bad	2144	57.17
Bridge/culvert	Good	470	12.53
Bridge/culvert	Moderate	718	19.15
Bridge/culvert	Bad	1175	31.33
Bridge/culvert	None on road	1387	36.99

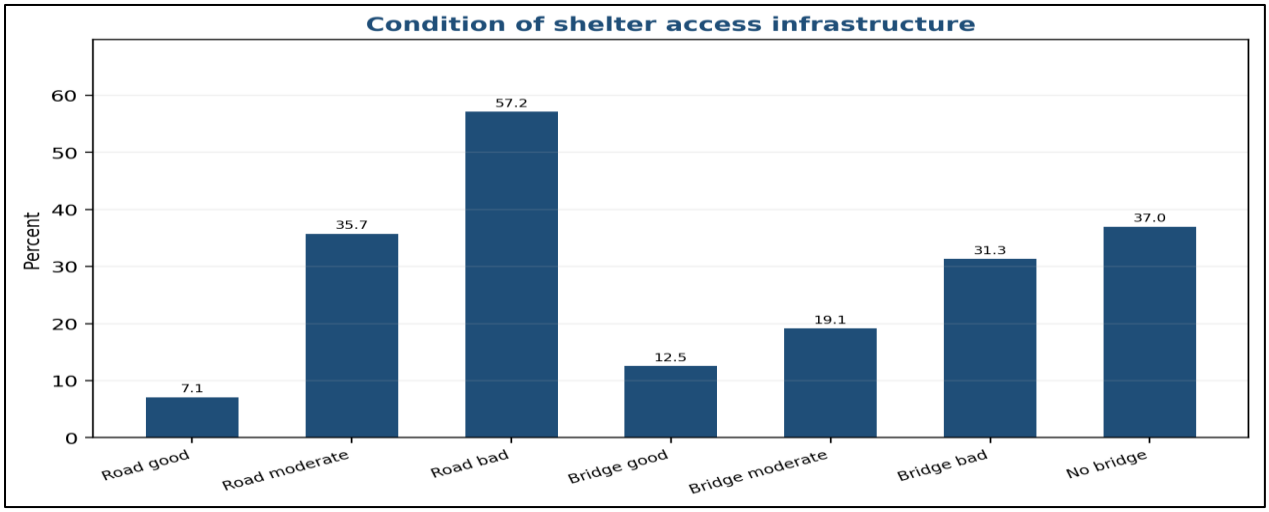


Figure 3.48: Reported condition of connecting roads and bridges/culverts

The condition of shelter-connecting roads was generally poor. Of 3,750 respondents, 2,144 (57.17%) rated the road bad, 1,340 (35.73%) rated it moderate, and only 266 (7.09%) rated it good. Thus, more than nine in ten respondents placed the connecting road below the good category, with bad conditions alone forming the majority.

Bridge and culvert provision revealed two distinct constraints. A bridge or culvert was absent from the connecting road for 36.99% of respondents, while another 31.33% rated an existing structure as poor. Only 12.53% reported good conditions and 19.15% moderate conditions. Combining absence and poor condition yields 68.32%, indicating that structural crossings were either unavailable or deficient for more than two-thirds of respondents.

Division-level Road conditions varied substantially. Bad roads accounted for 70.9% of responses in Rangpur and 59.7% in Sylhet, compared with 60.8% in Rajshahi and 42.7% in Dhaka. Dhaka recorded the highest moderate-road share (49.4%) and good-road share (8.0%). For bridges and culverts, absence was highest in Sylhet (54.0%) and Dhaka (45.9%), whereas Rajshahi had the highest good-condition share (27.5%).

District results identify particularly severe road deficits in Kurigram, where 85.5% rated the road bad, and Habiganj, where 80.0% did so. Madaripur had the strongest good-road result at 23.3%, while Gopalganj was dominated by moderate ratings. The pattern demonstrates that access quality was highly uneven and that road and crossing constraints did not always coincide in the same districts.

3.49 Assessments of Access-route Services

Table 3.49: Street lighting, water supply and sanitation on shelter access routes

Indicator	No.	Percent
Street light available—Yes	55	1.47
Street light unavailable—No	3695	98.53
Water supply adequate	122	3.25
Water supply inadequate	3628	96.75
Sanitation good	149	3.97
Sanitation bad	3601	96.03

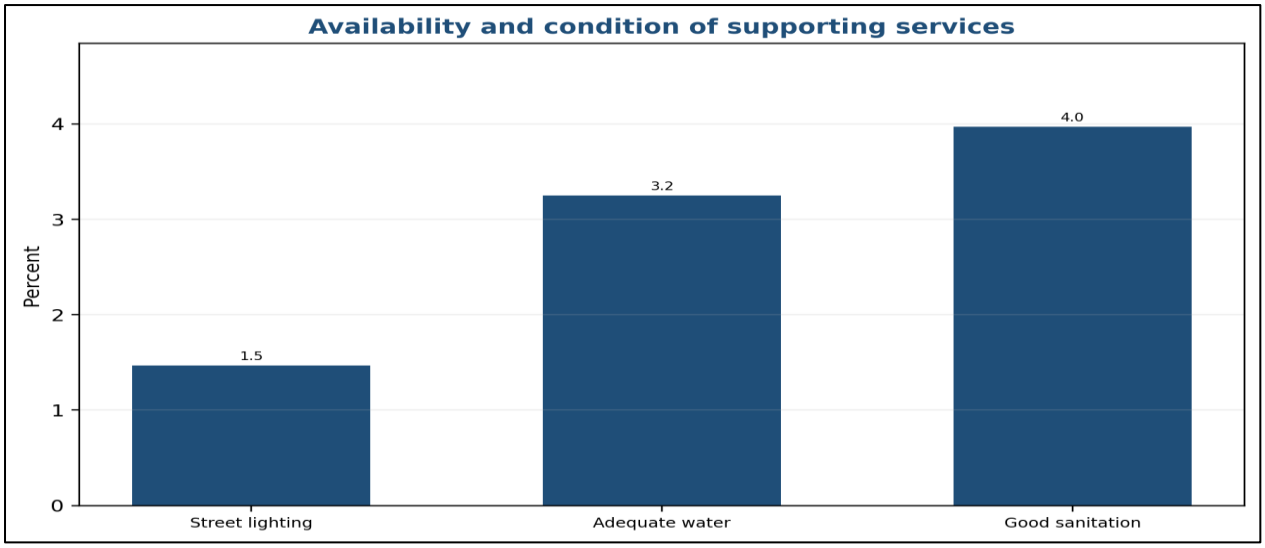


Figure 3.49: Positive assessments of access-route services

Supporting services were almost universally absent or inadequate. Street lighting was available to only 55 respondents (1.47%), leaving 98.53% without lighting. Water supply was considered adequate by 3.25%, while 96.75% considered it inadequate. Sanitation was rated good by 3.97% and bad by 96.03%. These three indicators present a consistent picture of very limited basic-service provision around shelter access routes.

Positive ratings were low in every division. Street-light availability ranged from 0.8% in Rajshahi to 1.7% in Dhaka and Sylhet. Adequate water supply was highest in Rangpur (5.8%) and Sylhet (5.1%) but fell to 0.8% in Rajshahi and 1.1% in Dhaka. Good sanitation ranged from 2.7% in Dhaka to 5.2% in Rangpur. Even the highest divisional values remained below 6%.

At district level, no street lighting was reported in Bogura or Faridpur, and only isolated affirmative responses were recorded in most other districts. Kurigram reported no adequate water supply and only one good-sanitation response among 420 respondents. Gopalganj, despite the largest district sample, recorded only three adequate-water and three good-sanitation responses. The low values are therefore widespread rather than driven by a few poorly served districts.

3.50 Space for Women and Animals

Table 3.50: Available shelter space for women and household animals

Space provision	Yes no.	Yes %	No no.	No %
Separate/available space for women	217	5.79	3533	94.21
Space for household animals	208	5.55	3542	94.45

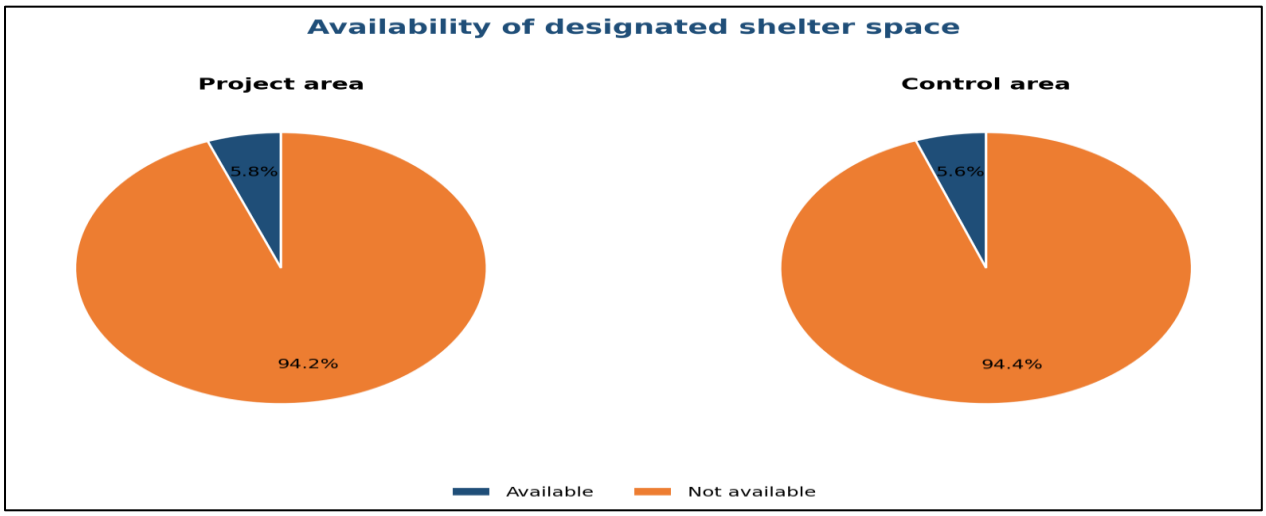


Figure 3.50: Space for women (left) and animals (right)

Only 5.79% of respondents reported available space for women, while 94.21% reported none. Space for household animals was similarly scarce: 5.55% reported availability and 94.45% reported no space. The 0.24 percentage-point difference between the two positive shares is negligible, indicating parallel deficiencies in accommodation for gender-specific privacy and livestock protection.

Dhaka recorded the highest animal-space share at 7.0%, followed by Sylhet at 7.9%, while Rajshahi and Rangpur reported 3.2% and 3.7%. For women's space, Sylhet was highest at 7.1%, followed by Dhaka at 5.9%, Rangpur at 6.2% and Rajshahi at 2.6%. Despite this variation, all divisions reported non-availability above 92%.

Madaripur stood out with 15.5% reporting women's space and 18.8% reporting animal space. Rangpur district also recorded a relatively higher women's-space share of 12.2%. By contrast, most districts reported positive shares below 6%, and Gopalganj—despite 495 respondents—recorded only eight affirmative responses for each category.

3.51 Composition of Connecting-road Types

Table 3.51: Community roads connecting schools-cum-shelters

Indicator	No./average	Percent
Community road available—Yes	1132	30.19
Community road unavailable—No	2618	69.81
Average length where reported (km)	1.93	—
Earthen road	583	51.5
Paved road	115	10.16
Blacktop road	412	36.4
RCC road	22	1.94

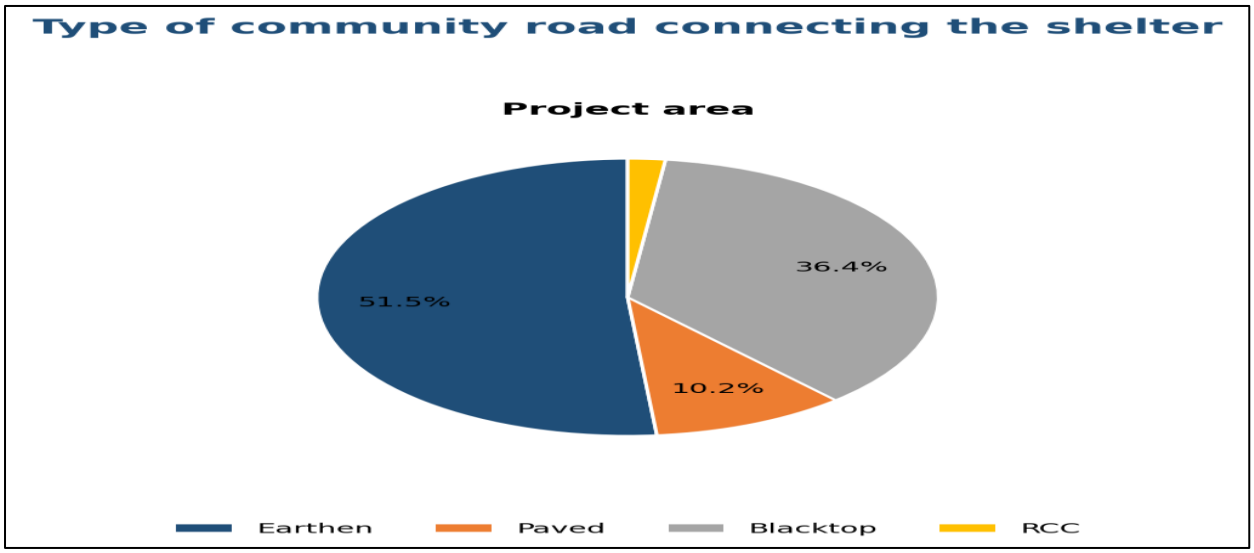


Figure 3.51: Composition of reported connecting-road types

A community road connecting the school-cum-shelter was reported by 1,132 respondents (30.19%), while 2,618 (69.81%) reported no such road. Where a road was reported, the average length was 1.93 km. The road network was therefore limited in coverage, and the average connection represented a material travel distance rather than a very short frontage link.

Earthen roads formed the largest share of reported connections at 51.50%. Blacktop roads accounted for 36.40%, paved roads for 10.16% and RCC roads for only 1.94%. Accordingly, slightly more than half of the connecting roads were unsealed earthen routes, while less than half had a paved, blacktop or RCC surface.

Availability varied sharply across divisions: 53.3% in Rangpur and 36.0% in Rajshahi, compared with 17.1% in Sylhet and 13.6% in Dhaka. Dhaka nevertheless recorded the longest average connection at 3.55 km, followed by Sylhet at 2.08 km, Rajshahi at 1.87 km and Rangpur at 1.45 km. Thus, the divisions with lower reported road availability tended to have longer connections where roads existed.

Bogura had the highest district availability at 86.1%, followed by Gaibandha at 73.3%, while Gopalganj and Rajbari reported almost no connecting roads. Gopalganj's single road produced a 5.00 km average and should not be treated as representative. Madaripur combined a moderate availability rate (40.7%) with a comparatively long average distance of 3.65 km.

3.52 Average Daily Movement by Mode and User Group

Table 3.52: Daily movement on shelter-connecting roads

Mode/user group	Overall daily average
Movement on foot—total	1498
Movement on foot—female	495
Movement on foot—youth	354
Rickshaw/CNG/bike—total	657
Rickshaw/CNG/bike—female	245
Rickshaw/CNG/bike—youth	218

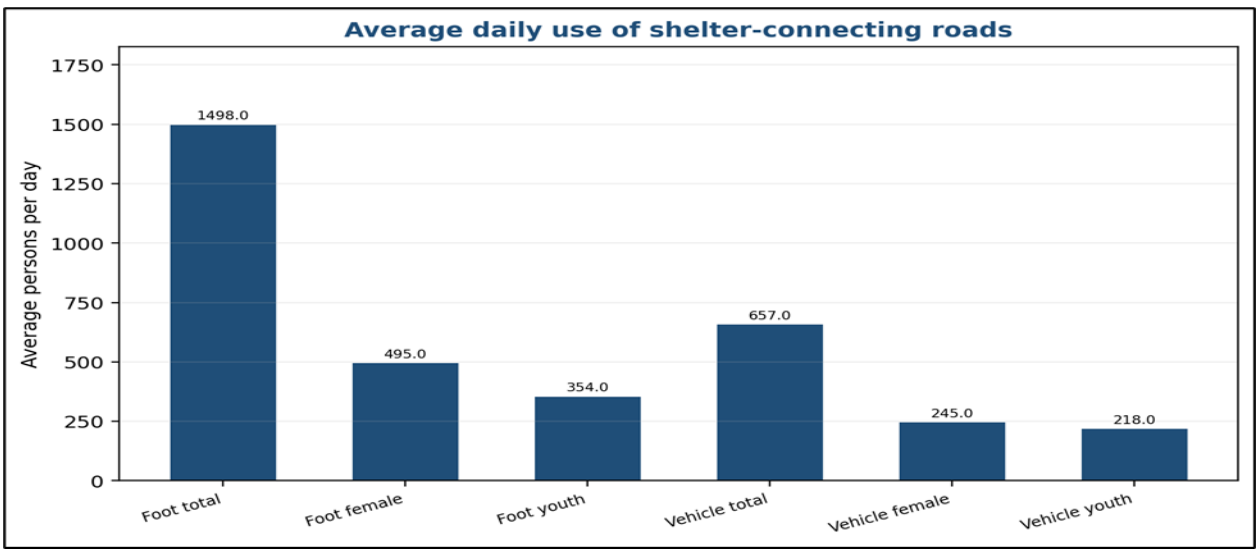


Figure 3.52: Average daily movement by mode and user group

The reported connecting roads served substantial everyday movement. Average daily pedestrian movement was 1,498 persons, including 495 women and 354 youth. Average movement by rickshaw, CNG or motorcycle was 657 persons, including 245 women and 218 youth. Pedestrian volume was therefore about 2.28 times motorized or para-transit volume, demonstrating the importance of the routes for walking access.

Women represented approximately 33.0% of pedestrian movements and 37.3% of rickshaw/CNG/bike movements. Youth represented 23.6% of pedestrian movements and 33.2% of vehicle movements. These subgroup figures may overlap with one another and should not be added to derive a remainder; they describe participation within the overall movement totals.

Rajshahi recorded the highest divisional averages for both walking (2,634 per day) and vehicle movement (1,260), driven strongly by the high values reported in Bogura. Rangpur averaged 1,411 pedestrians and 483 vehicle users, Dhaka 1,101 and 775, and Sylhet 973 and 488. Gopalganj and Rajbari recorded zero movement, consistent with the near-absence of connecting roads in Table 3.52 rather than evidence of zero general mobility.

3.53 Reported Availability of Solar Energy

Table 3.53: Provision of solar energy in schools-cum-shelters

Response	No.	Percent
Solar energy available—Yes	41	1.09
Solar energy unavailable—No	3709	98.91

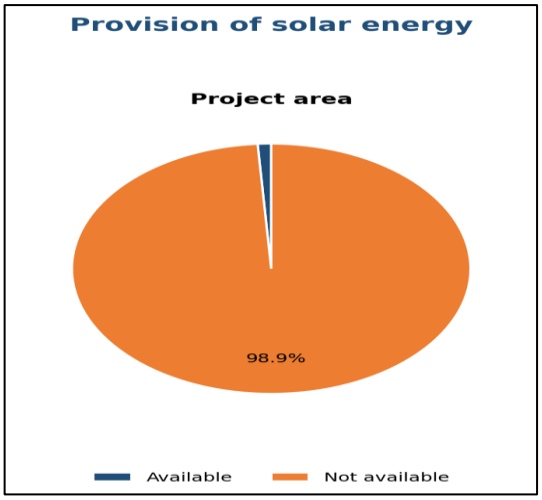


Figure 3.53: Reported availability of solar energy

Solar-energy provision was extremely limited. Only 41 respondents (1.09%) reported solar energy at the school-cum-shelter, while 3,709 (98.91%) reported none. The scale of non-provision was similar to the lack of street lighting identified in Table 3.53, indicating little evidence of alternative-energy support for lighting or other essential services.

At division level, affirmative reports numbered 16 in Dhaka, 11 in Sylhet, nine in Rajshahi and five in Rangpur. In percentage terms, Rajshahi had the highest share at 1.82%, followed by Sylhet at 1.75%, Dhaka at 1.15% and Rangpur at 0.41%. Sirajganj and Madaripur each reported nine affirmative responses; Pabna, Bogura and Rajbari reported none.

3.54 Reported School-facility Deficits

Table 3.54: School enrolment, adequacy of facilities and facilities lacking

Indicator	Value/percent
Average current enrolment	159.14
Facilities adequate—Yes (%)	15.25
Facilities adequate—No (%)	84.75
Insufficient classrooms/teachers' rooms (%)	60.53
Inadequate furniture (%)	61.15
No or poor WASH facilities (%)	66.45
Inadequate playground (%)	43.49
Inadequate road network (%)	37.09

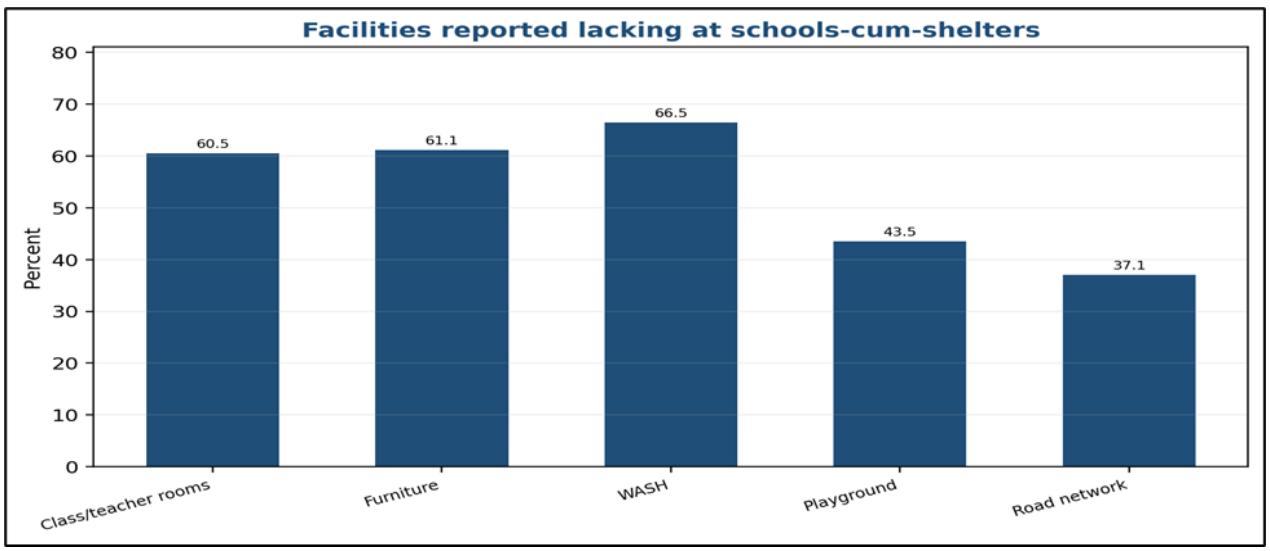


Figure 3.54: Reported school-facility deficits (multiple response)

Average current enrolment was 159.14 students. Only 15.25% of respondents considered school facilities adequate, while 84.75% considered them inadequate. The result indicates that the schools' normal educational function was already operating under substantial facility constraints in the baseline period.

No or poor WASH facilities were the most frequently identified deficit at 66.45%, followed by inadequate furniture at 61.15% and insufficient classrooms or teachers' rooms at 60.53%. Playground limitations were identified by 43.49% and inadequate road networks by 37.09%. Because respondents could report multiple deficits, the percentages do not sum to 100% and indicate overlapping constraints.

Rajshahi recorded the highest divisional average enrolment at 198.93, followed by Rangpur at 157.30, Dhaka at 153.75 and Sylhet at 143.42. Facility adequacy was highest in Rangpur at 20.7% and lowest in Rajshahi at 13.3%, while Dhaka and Sylhet recorded 11.6% and 14.1%. The relationship between enrolment and adequacy was therefore not linear: the division with the highest enrolment did not have the highest adequacy rating.

The pattern of deficits also differed by division. WASH was most frequently identified in Rangpur (70.3%) and Sylhet (57.9%), while insufficient rooms were particularly prominent in Dhaka (73.3%) and Rajshahi (75.8%). Playground limitations were most prominent in Sylhet (69.2%), and road-network limitations also peaked in Sylhet (61.0%). These differences indicate that school constraints varied in type as well as overall severity.

Cross-table synthesis of infrastructure and access conditions

The seven tables present a consistent baseline picture of weak physical access and limited supporting services around schools-cum-shelters. Most connecting roads were rated bad, bridge or culvert access was frequently absent or deficient, and community-road connections were reported by less than one-third of respondents. Where connections existed, earthen roads were dominant and daily use was substantial, particularly on foot.

Street lighting, adequate water supply, good sanitation, designated spaces for women and animals, and solar energy were all reported by fewer than 6% of respondents. These low positive shares align closely with the shelter problems reported in Table 3.47, especially the lack of WASH and facilities for women. The infrastructure tables therefore provide more detailed evidence on the physical and service conditions underlying those user assessments.

Schools also faced significant constraints in their everyday educational role. More than four-fifths of respondents considered facilities inadequate, with WASH, furniture and classroom or teachers' rooms the most frequently cited deficits. District and division comparisons show that weaknesses were widespread but varied in form, with some locations experiencing particularly poor roads, others long connections, and others severe school-facility or service gaps.

Women's Welfare

3.55 Position of Women Respondents Within the Household

Table 3.55: Women respondents' relationship to the household head

Relationship	Project no.	Project %	Control no.	Control %
Household head	34	21.12	3	9.68
Wife	103	63.98	23	74.19
Daughter	13	8.07	3	9.68
Mother	1	0.62	0	0
Daughter-in-law	8	4.97	2	6.45
Sister	1	0.62	0	0
Mother-in-law	1	0.62	0	0

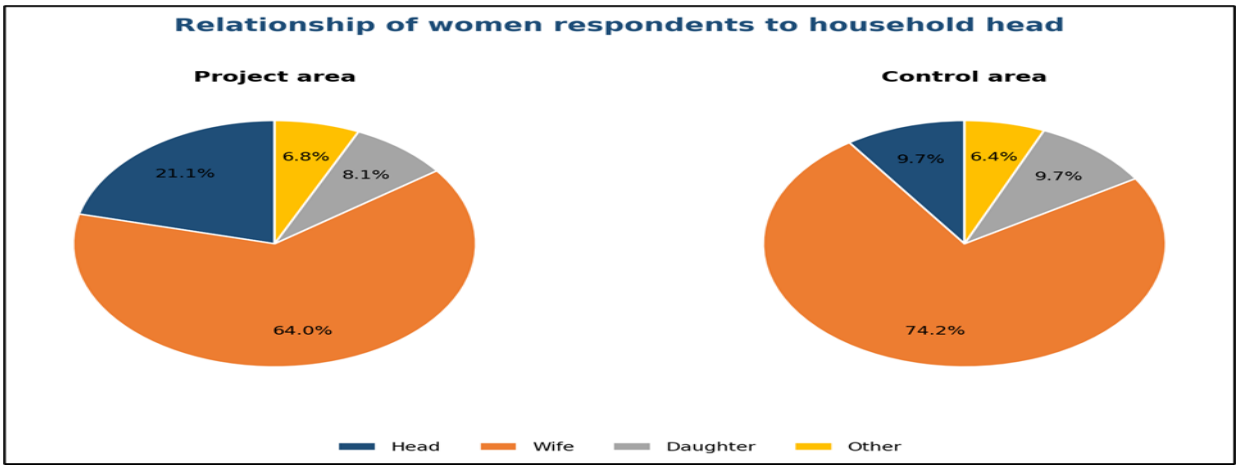


Figure 3.55: Position of women respondents within the household

Wives of household heads formed the majority of respondents in both areas: 63.98% in the project area and 74.19% in the control area. Women who were themselves household heads represented 21.12% and 9.68%, respectively, producing an 11.44 percentage-point higher project-area share. Daughters represented about 8–10%, while all other relationships were individually uncommon.

The higher share of women household heads in the project sample indicates a somewhat different respondent composition. Because household status may be associated with age, marital status, economic responsibility and decision-making roles, this compositional difference should be kept in view when reading later project–control comparisons from the women's module.

3.56 Educational Attainment of Women Respondents

Table 3.56: Educational qualification of women respondents

Education	Project no.	Project %	Control no.	Control %	Difference (pp)
Primary	26	16.15	5	16.13	+0.02
Secondary	22	13.66	6	19.35	-5.69
SSC	8	4.97	4	12.9	-7.93
HSC	11	6.83	1	3.23	+3.60
Graduate	29	18.01	2	6.45	+11.56
Masters	20	12.42	5	16.13	-3.71
Illiterate	22	13.66	1	3.23	+10.43
Can sign	23	14.29	7	22.58	-8.29

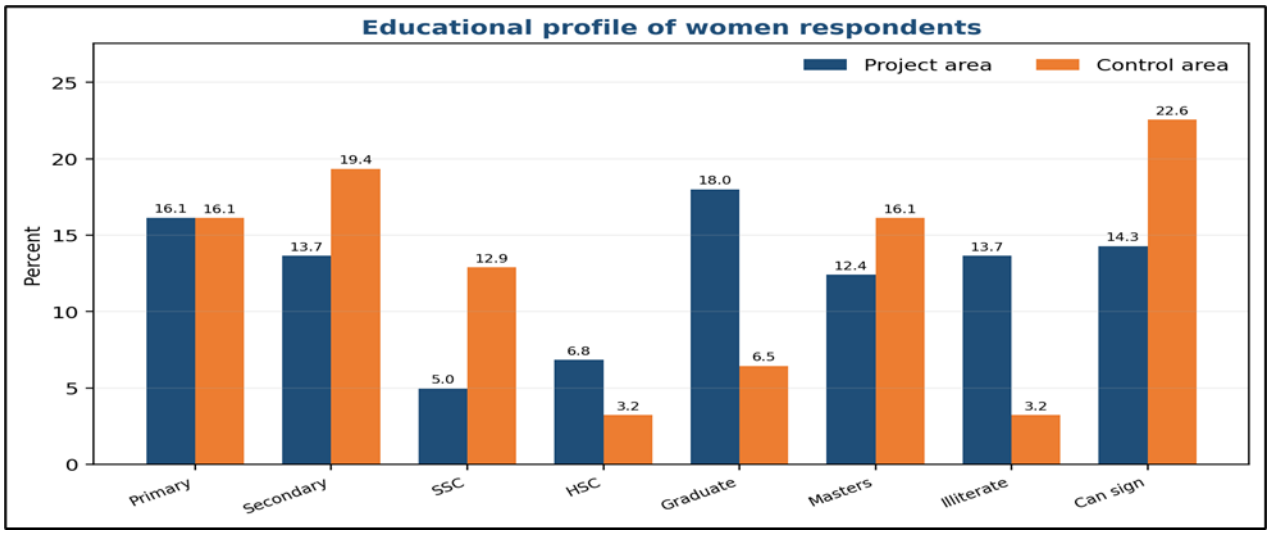


Figure 3.56: Educational attainment in project and control samples

The project-area education profile was widely distributed. Graduates formed the largest single group at 18.01%, followed by primary education at 16.15%, the ability to sign only at 14.29%, secondary education and illiteracy at 13.66% each, and master's degrees at 12.42%. In the control area, the largest group could sign only (22.58%), followed by secondary education (19.35%) and master's degrees (16.13%).

Project respondents were more likely to be graduates (+11.56 percentage points) and illiterate (+10.43 points), while control respondents were more likely to have SSC (+7.93 points), secondary education (+5.69 points), and signature-only literacy (+8.29 points). The distribution is therefore not a simple project advantage or disadvantage; it shows greater project-area concentration at both the graduate and no-schooling ends.

3.57 Annual Income in Selected Women's Occupations

Table 3.57: Employment profile, work intensity and annual income

Work category	Project days	Project hrs	Project income Tk	Control days	Control hrs	Control income Tk
Overall average	21	7	135123	21	7	112097
Day labour—earthwork/road repair	17	7	28667	20	5	32000
Domestic maid	18	5	42212	3	5	7000
Agricultural worker—other land	12	7	27029	2	8	11750
Poultry/duck rearing	30	4	19367	30	8	27500
Business/shop/hawking	28	9	114667	29	10	120000
Tailoring	18	3	32600	22	3	37000

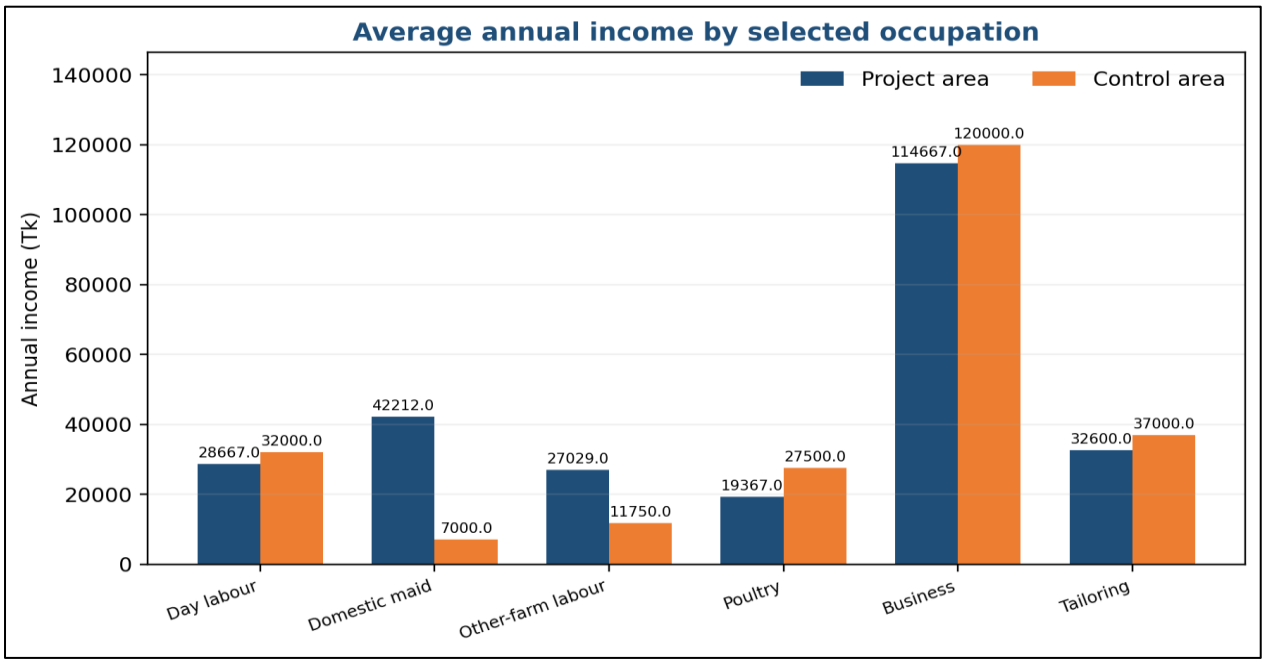


Figure 3.57: Annual income in selected women's occupations

Across all reported occupations, women worked an average of 21 days per month and seven hours per day in both areas. Average annual income was Tk 135,123 in the project area and Tk 112,097 in the control area, a project-area difference of Tk 23,026 or 20.5%. This overall average is strongly influenced by higher-paying salaried and business activities.

Income varied sharply by occupation. Project-area business, shopkeeping or hawking produced Tk 114,667 annually, compared with Tk 19,367 for poultry rearing, Tk 27,029 for agricultural labour on others' land and Tk 28,667 for day labour. The hours and days worked did not rise proportionally with earnings, showing large differences in returns to labour across occupations.

The source lists “Government job” twice with different work and income values, suggesting a duplicated or mislabeled occupational category. The values are retained in the source but not combined in this summary because their intended distinction is unclear.

3.58 Women’s Work Duration by Household Category

Table 3.58: Duration of women’s work by household category

Landholding stratum	Project days/month	Project hrs/day	Control days/month	Control hrs/day
Landless	19.29	6.39	19.05	7.68
Marginal	20.2	7.2	27.33	7.67
Small farm	25.13	6.88	21.29	5.86
Medium farm	25.48	7.48	25.0	6.5
Large farm	23.5	6.0	0	0
All	21.13	6.7	20.74	7.19

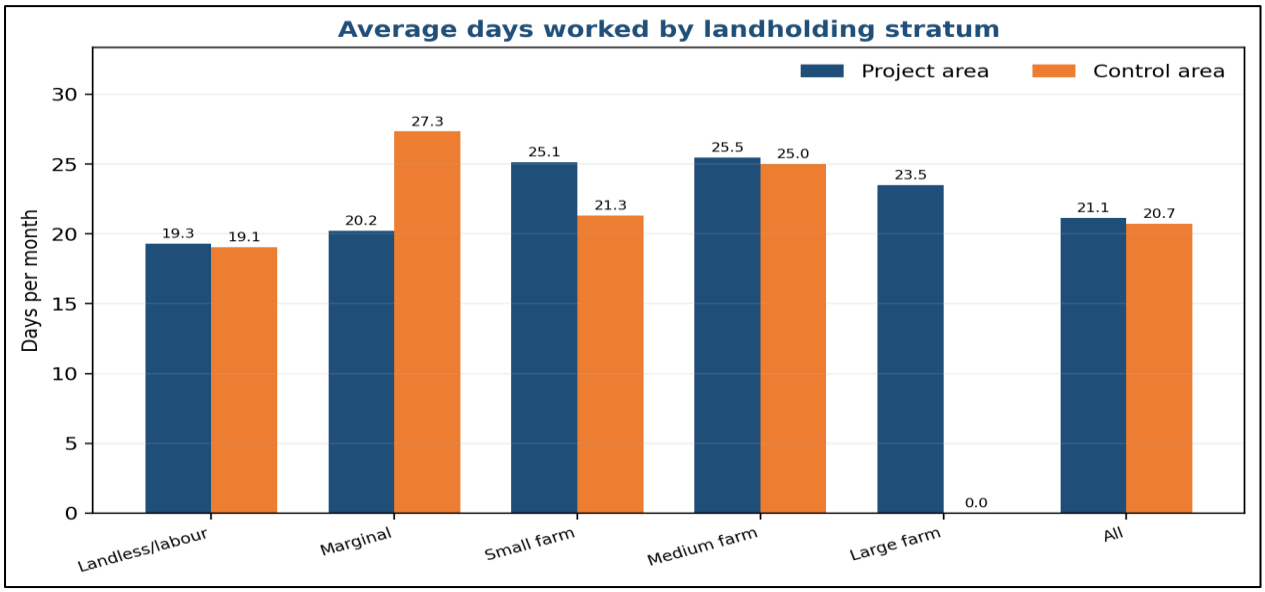


Figure 3.58: Women’s work duration by household landholding

Women in the project area worked an average of 21.13 days per month and 6.70 hours per day, compared with 20.74 days and 7.19 hours in the control area. Project respondents therefore reported slightly more working days but about half an hour fewer per day.

Within the project area, medium-farm and small-farm households recorded the most working days at 25.48 and 25.13, while the landless/labour group recorded 19.29. Control-area marginal-farm households recorded 27.33 days, the highest value in either sample. The large-farm control value was zero, indicating no observation rather than evidence that women in such households did not work.

3.59 Share of Total Income Attributed to Women, Husbands and Others

Table 3.59: Sources of household annual income

Income source	Project households	Project income Tk	Project share %	Control households	Control income Tk	Control share %
Women respondents	161	24235850	46.16	31	4176000	41.86
Husbands	115	21126400	40.24	27	5361000	53.73
Others	32	7137000	13.59	6	440000	4.41
Total	—	52499250	100	—	9977000	100

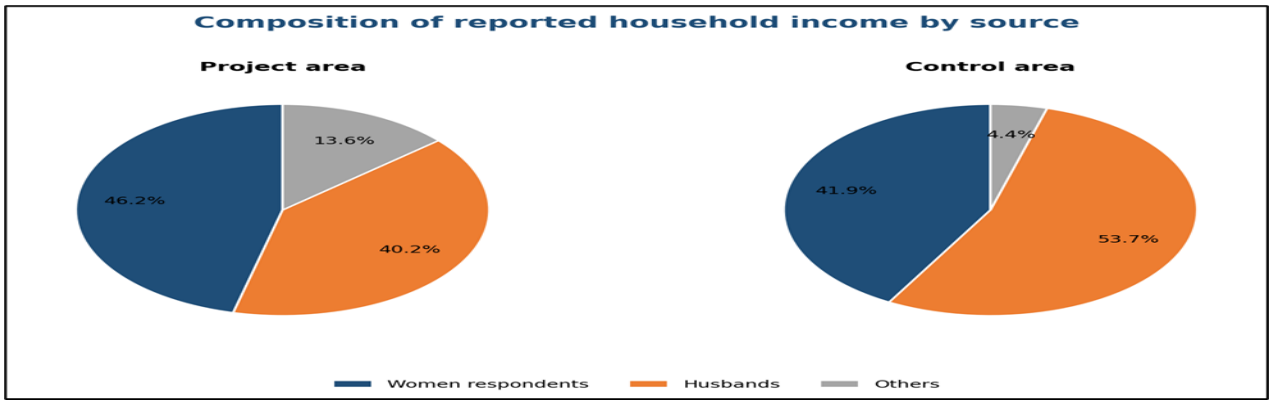


Figure 3.59: Share of total income attributed to women, husbands and others

Women respondents generated 46.16% of the reported project-area income total, exceeding husbands' 40.24% share. In the control area, women generated 41.86% and husbands 53.73%. Women's share was therefore 4.30 percentage points higher in the project area, while husbands' share was 13.49 points lower.

Other household members accounted for 13.59% of project income but only 4.41% of control income. The source heading describes the percentages as household distributions, but the percentages correspond to each income amount divided by total reported income. They are therefore interpreted as income composition, while household counts are shown separately and treated as multiple responses.

3.60 Seasonal Intensity of Women's Workload

Table 3.60: Seasonal level of women's involvement during the previous year

Month	Project very busy %	Control very busy %	Difference (pp)
Baishakh	50.31	45.16	+5.15
Jaistha	49.69	38.71	+10.98
Ashar	29.81	25.81	+4.00
Sraban	26.71	25.81	+0.90
Bhadra	26.09	19.35	+6.74
Ashwin	29.81	29.03	+0.78
Kartik	31.68	32.26	-0.58
Agrahayan	40.37	32.26	+8.11
Poush	42.24	25.81	+16.43
Magh	36.65	29.03	+7.62
Falgun	34.78	32.26	+2.52
Chaitra	32.92	22.58	+10.34

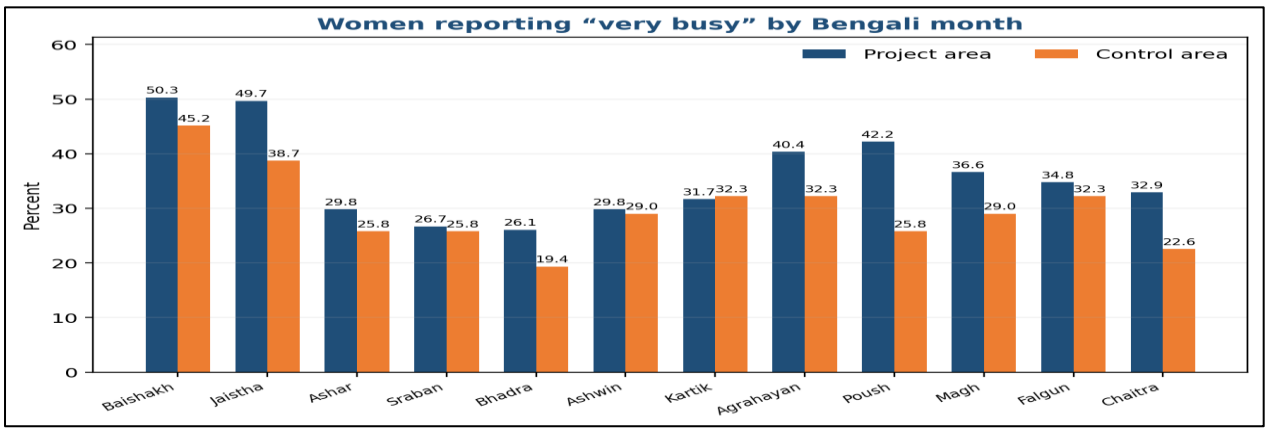


Figure 3.60: Seasonal intensity of women's workload

Women's workload showed a clear seasonal cycle. In the project area, the "very busy" share peaked in Baishakh (50.31%) and Jaistha (49.69%), declined through Ashar–Bhadra to around 26–30%, and rose again in Agrahayan and Poush to above 40%. The control area displayed a similar early-year peak and mid-year decline, though its second peak was less pronounced.

Project-area “very busy” shares exceeded control shares in ten of twelve months. The largest gaps appeared in Poush (+16.43 percentage points), Chaitra (+10.34), Jaistha (+10.98) and Agrahayan (+8.11). These patterns indicate that annual averages alone would obscure periods of particularly high time pressure.

3.61 Women’s Daily Time Use in Selected Activities

Table 3.61: Average hours spent on day-to-day household activities

Activity	Project hrs/day	Control hrs/day	Difference
Crop production	4.34	3.33	+1.01
Livestock/poultry	2.05	2.29	-0.24
Gardening	1.48	1.5	-0.02
Cooking	2.63	2.76	-0.13
Water/fuel	1.39	1.43	-0.04
Washing	1.6	1.9	-0.30
Nursing	2.36	1.18	+1.18
Child care	1.61	1.58	+0.03
Education support	1.82	1.36	+0.46
Elder care	1.68	1.38	+0.30
Husband care	1.71	1.7	+0.01
Rest	2.65	2.43	+0.22
Sleep	7.27	7.55	-0.28
Other	4.03	4.7	-0.67

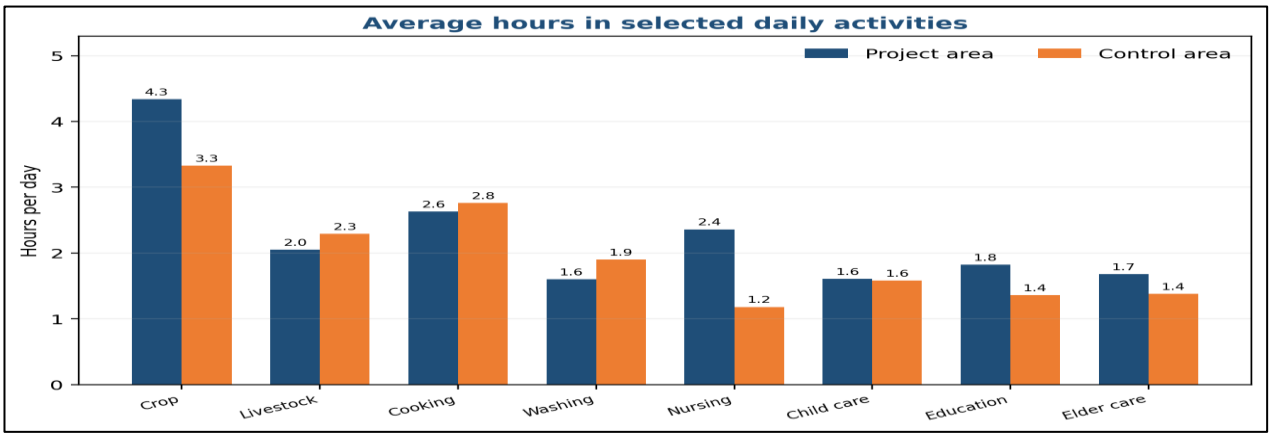


Figure 3.61: Women’s daily time use in selected activities

Crop production required the most non-sleep time among the listed activities: 4.34 hours per day in the project area and 3.33 hours in the control area. Cooking required 2.63 and 2.76 hours, livestock and poultry 2.05 and 2.29 hours, and nursing 2.36 and 1.18 hours. Sleep averaged 7.27 and 7.55 hours.

Project women reported substantially more time in crop production (+1.01 hours), nursing (+1.18 hours), supporting children’s education (+0.46 hours) and elder care (+0.30 hours). Control women reported more washing time (+0.30), poultry/livestock time (+0.24) and other activities (+0.67). Because activities may occur on different days or overlap, the multiple-response hours should not be summed into a strict 24-hour budget.

3.62 Use of Earnings of Women

Table 3.62: Use and allocation of women’s earnings

Indicator	Project	Control
Spend all earnings on family—Yes (%)	70.81	64.52
Do not spend all—No (%)	29.19	35.48
Average proportion of income spent (%)	51.06	45.45
Deposit in bank (responses)	24	5
Purchase necessities (responses)	44	11
Help parents (responses)	20	4

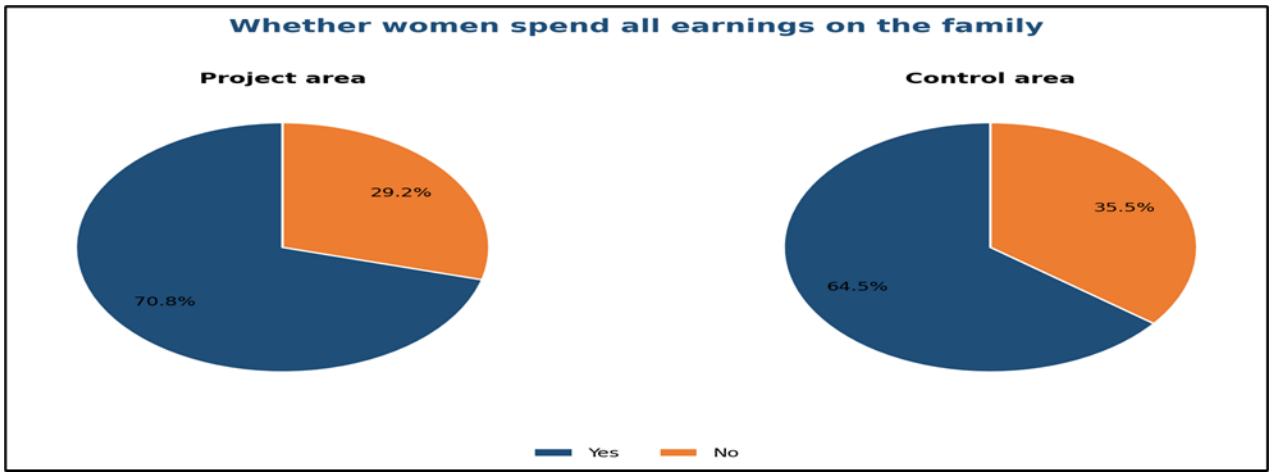


Figure 3.62: Women's reported use of earnings

A majority reported spending all earnings on the family: 70.81% in the project area and 64.52% in the control area. The project share was 6.29 percentage points higher. The reported average proportion of income spent was 51.06% in the project area and 45.45% in the control area, though the coexistence of this figure with "spend all" responses suggests it applies to a subgroup or was summarized differently in the source.

Among reported uses of retained income, purchasing necessities was most common, followed by deposits in banks and assistance to parents. These are multiple-response categories and therefore describe possible uses rather than an exclusive allocation of savings.

3.63 Perceived Increase in Male and Female Agricultural Workload

Table 3.63: Perceived workload changes from modern agricultural technology

Activity	Male workload increasing %	Female workload increasing %	Workload same %
Land preparation	51.92	9.62	30.77
Planting	30.77	15.38	38.46
Weeding	28.85	17.31	40.38
Harvest/yielding	40.38	7.69	34.62
Threshing	55.77	3.85	26.92
Processing	38.46	11.54	36.54

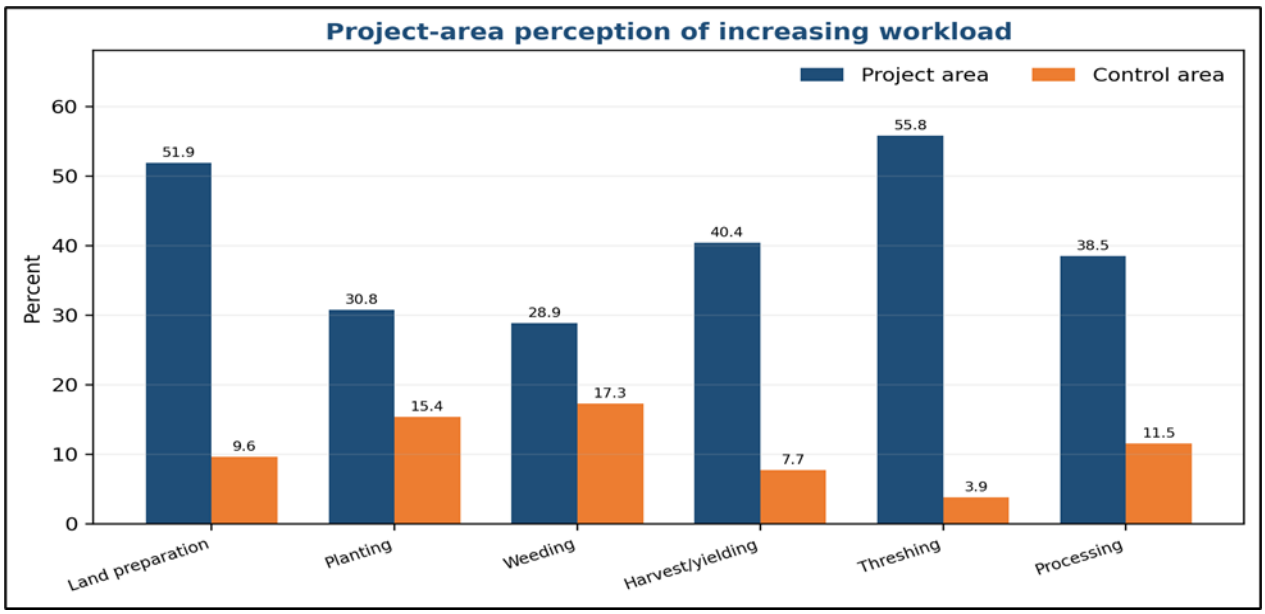


Figure 3.63: Perceived increase in male and female agricultural workload

Project-area respondents most often associated modern technology with increasing male workloads in threshing (55.77%), land preparation (51.92%) and harvesting/yielding (40.38%). Female workload increases were reported much less frequently, peaking at 17.31% for weeding and 15.38% for planting. A substantial share perceived no change, ranging from 26.92% to 40.38% across activities.

The control sample was very small and produced coarse 20-percentage-point increments. It generally reported male workload increases of 40–80% in several activities, while female increases were usually zero or 20%. Those values should be read cautiously and not treated as precise differences from the project sample.

3.64 Women's Flood-related Problems

Table 3.64: Problems faced by women during floods

Problem	Project %	Control %	Difference (pp)
Educational disadvantage	52.8	64.52	-11.72
Insecurity	20.5	35.48	-14.98
Lack of capital	50.93	70.97	-20.04
Limited decision autonomy	45.96	35.48	+10.48
Limited economic activity	64.6	45.16	+19.44
Limited organization	27.33	41.94	-14.61
Early marriage/dowry	45.96	45.16	+0.80
Inadequate health services	29.19	25.81	+3.38

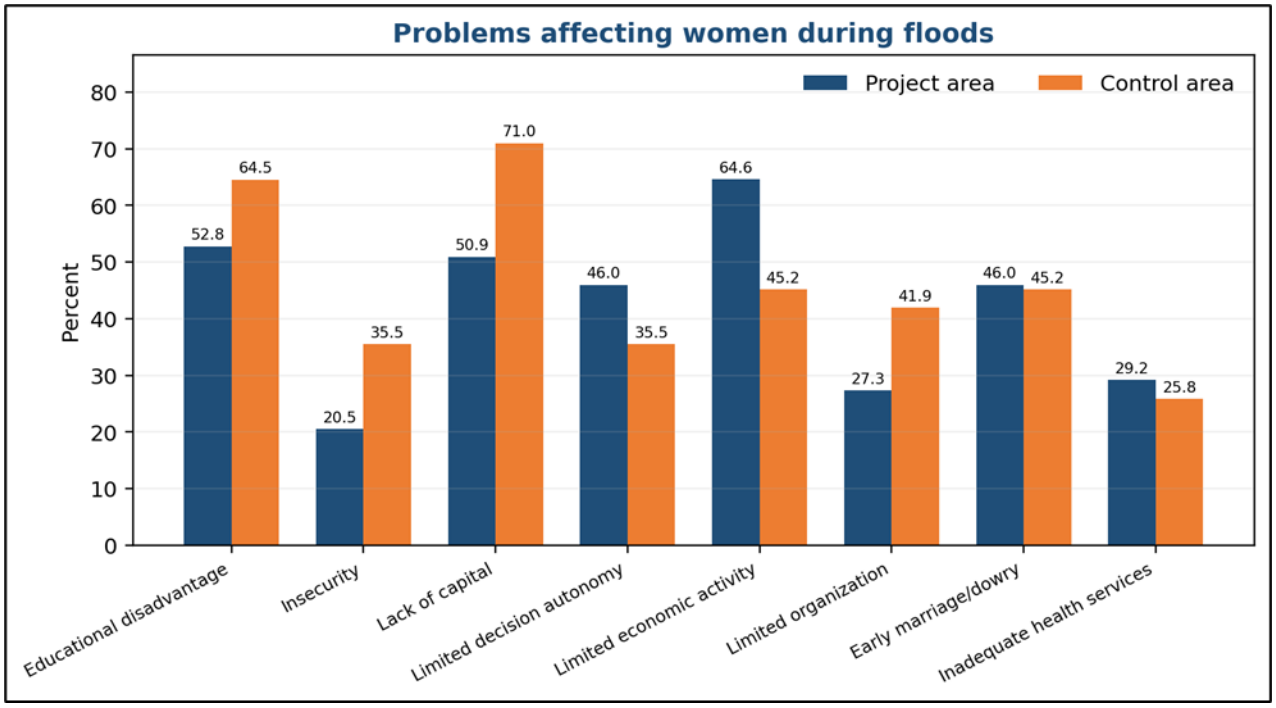


Figure 3.64: Women's reported flood-related problems (multiple response)

Limited economic activities were the most frequently identified project-area problem at 64.60%, followed by educational disadvantage (52.80%), lack of capital (50.93%), limited decision autonomy (45.96%) and early marriage/dowry-related oppression (45.96%). In the control area, lack of capital ranked first at 70.97%, followed by educational disadvantage at 64.52%.

The control area reported substantially higher lack of capital (+20.04 percentage points), insecurity (+14.98 percentage points), educational disadvantage (+11.72 percentage points) and limited organizational activity (+14.61). The project area reported higher limited economic activity (+19.44) and decision constraints (+10.48). Since the question allowed multiple responses, the findings describe overlapping vulnerabilities rather than a ranked partition of women.

3.65 Use of Major Treatment Sources and Costs Involved

Table 3.65: Treatment sources and average costs during the previous year

Treatment source	Project persons	Project avg. Tk	Control persons	Control avg. Tk
Homeopath	24	1145	7	1893
Traditional healer	3	1733	2	2250
Quack	180	1057	32	833
MBBS	806	20445	262	20429
Union health centre	24	3728	7	1986
Health/family welfare centre	20	8340	3	483
Upazila/Thana centre	199	4141	83	5320
DMC/clinic/hospital	106	38858	20	21668
Pharmacy	1016	645	340	720
Other	14	10478	5	7604

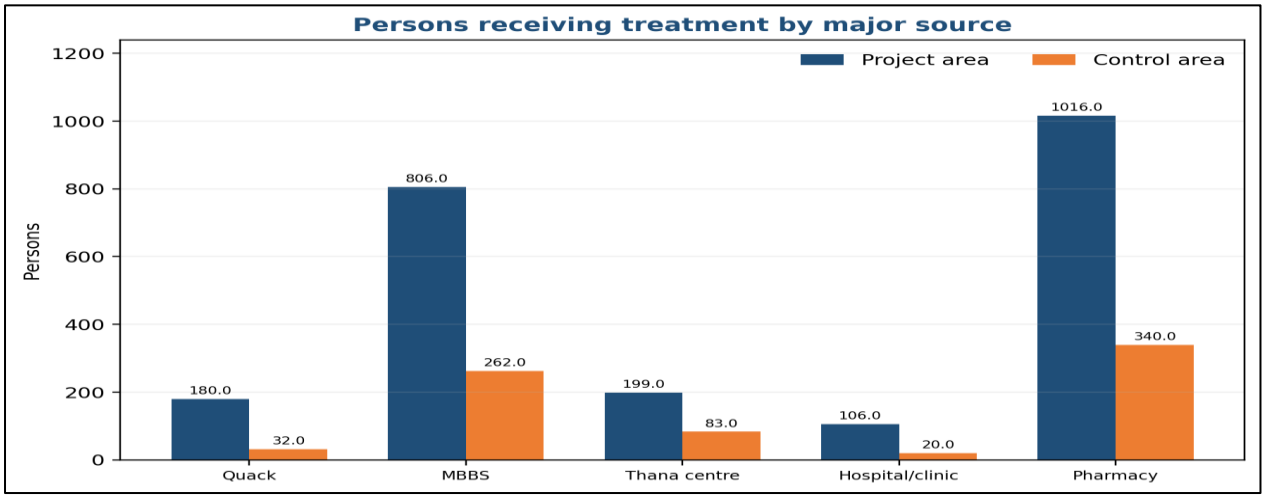


Figure 3.65: Use of major treatment sources

Pharmacies were the most frequently reported treatment source, serving 1,016 project and 340 control persons, followed by MBBS providers with 806 and 262 persons. Thana or upazila health centres served 199 and 83 persons, while quacks served 180 and 32. Formal hospital/clinic use was less frequent, at 106 and 20 persons.

Average costs varied enormously by provider. Project MBBS treatment averaged Tk 20,445 and hospital/clinic treatment Tk 38,858, compared with Tk 645 at pharmacies and Tk 1,057 for quacks. The control hospital/clinic average was Tk 21,685—far above all other values and likely influenced by a few costly cases within only 20 observations. "Other" treatment also had high averages in both samples.

3.66 Illness Profile by Major Category

Table 3.66: Household members suffering from major diseases during the previous three months

Disease/condition	Project persons	Control persons
Cough/flu/fever	1575	496
Diarrhoea	105	26
Dysentery	22	9
Chicken pox/measles	24	3
Malaria	3	0
Tuberculosis	16	3
Typhoid	53	12
Asthma	123	38
Injury/trauma	156	54
Other	332	124

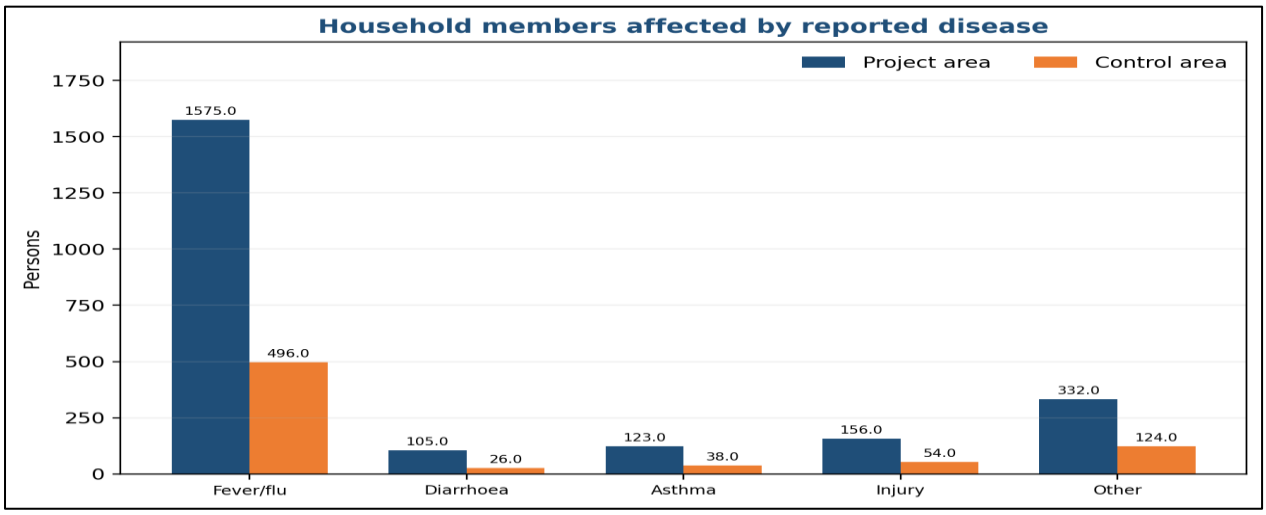


Figure 3.66: Reported illness burden by major category

Cough, flu or fever dominated the reported disease burden, affecting 1,575 project-area and 496 control-area household members. "Other" diseases ranked second with 332 and 124 persons, followed by injury or trauma (156 and 54), asthma (123 and 38), and diarrhoea (105 and 26).

The relative profiles were broadly similar across the two samples, with respiratory or febrile illness far more common than any named alternative. Rare conditions produced unstable percentages: malaria had three project cases and no control cases, making the control percentage undefined. Counts are therefore more informative than percentage comparisons for low-frequency diseases.

3.67 Disaster-related Problems Identified by Women

Table 3.67: Three major problems women faced during natural disasters

Perceived problem	Project %	Control %	Difference (pp)
Insecurity	52.8	64.52	-11.72
Lack of capital	20.5	35.48	-14.98
Limited decision autonomy	50.93	70.97	-20.04
Limited economic activity	45.96	35.48	+10.48
Limited organization	64.6	45.16	+19.44
Early marriage/dowry	27.33	41.94	-14.61
Inadequate health services	45.96	45.16	+0.80

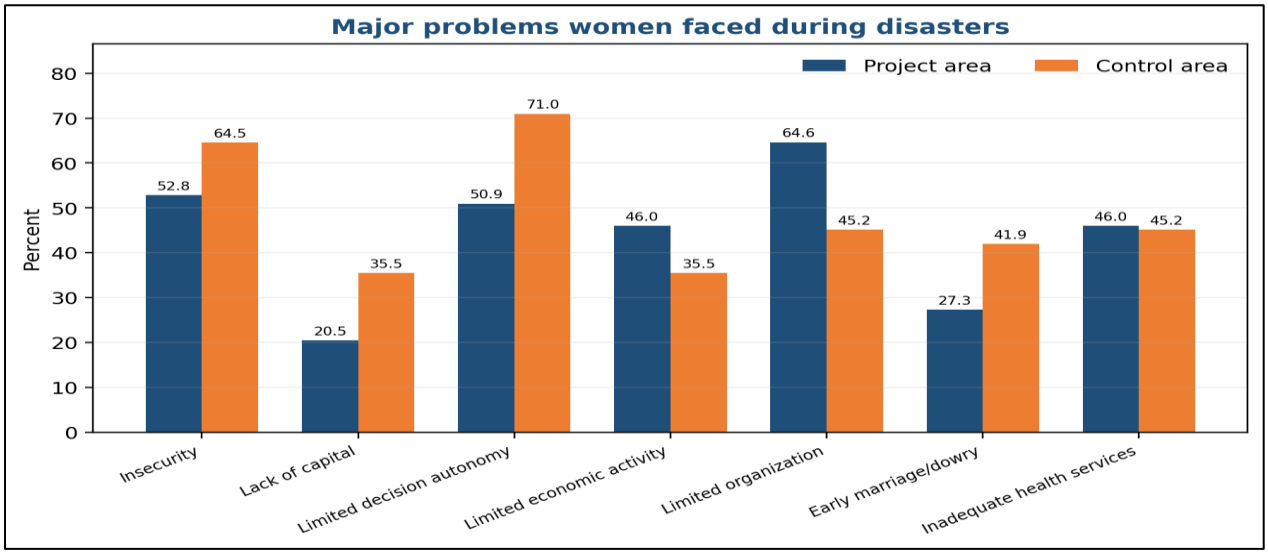


Figure 3.67: Disaster-related problems identified by women

Table 3.67 and Figure 3.67 show that women in both areas faced overlapping organizational, decision-making, financial, security and service constraints during disasters. In the project area, limited organization was most frequently reported (64.60%), followed by insecurity (52.80%), limited decision-making autonomy (50.93%), and limited economic activity and inadequate health services (45.96% each). In the control area, limited decision-making autonomy was most prominent (70.97%), followed by insecurity (64.52%), limited organization and inadequate health services (45.16% each), and early marriage or dowry pressure (41.94%). The largest project–control gaps concerned limited decision-making autonomy (−20.04 percentage points), limited organization (+19.44 points), lack of capital (−14.98 points), early marriage or dowry pressure (−14.61 points), insecurity (−11.72 points), and limited economic activity (+10.48 points). Reports of inadequate health services were nearly identical (+0.80 points). Because respondents could identify more than one problem, the percentages are multiple-response measures and do not sum to 100%.

The control area reported higher levels of insecurity, lack of capital, limited decision-making autonomy, and early marriage or dowry pressure, whereas the project area reported higher limited organization and limited economic activity. District counts varied considerably, indicating that the composition of women's disaster-related concerns was locally specific even where aggregate percentages were similar.

Cross-table synthesis of women's baseline conditions

The women's module describes a respondent group with diverse educational backgrounds, substantial paid and unpaid work responsibilities, and pronounced seasonal changes in workload. Women contributed a large share of reported household income, yet earnings were commonly directed toward family needs and occupational returns varied sharply.

Women's unpaid work extended across crop production, domestic work, care, water and fuel collection, and support for children and elderly household members. The project and control profiles shared many broad features but differed in respondent composition, education, selected time-use activities and reported constraints. Small control samples limit the precision of several percentage comparisons.

During floods and other disasters, women reported overlapping economic, social, safety and health constraints. Treatment patterns relied heavily on pharmacies and MBBS providers, while illness data were dominated by fever-like conditions. Together, these tables provide a multidimensional baseline covering women's household position, human capital, livelihoods, agency, time burden, health and disaster vulnerability.

B. QUALITATIVE BASELINE REPORT

1. Focus Group Discussion Report (FGD)

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Baseline Survey | 28 FGDs across 14 project districts

Commissioning agency	**Local Government Engineering Department (LGED)**
Project coverage	**81 upazilas in 14 flood-prone districts**
Report date	**August 2026**

Prepared as part of the RIVER Baseline Survey

Table of Contents

Executive Summary **101**
1. Introduction **102**
Project Background 102
1.2 Project Development Objective 102
1.3 Project Components Relevant to the FGDs 102
1.4 Purpose and Objectives of the FGDs 102
1.5 Scope and Use of the Report 102
2. Methodology **102**
2.1 Study Coverage and FGD Locations 102
2.2 Participant Selection and Composition 103
2.3 Discussion Guide 104
2.4 Facilitation Process 104
2.5 Analytical Approach 104
2.6 Quality Assurance and Limitations 104
3. Detailed Findings and Interpretation **104**
3.1 Flood Exposure and Consequences 104
3.2 Existing Shelter Arrangements and Capacity 104
3.3 Shelter-Connecting Roads, Crossings and Mobility 105
3.4 Drainage and Waterlogging 105
3.5 Water, Sanitation, Hygiene and Health 105
3.6 Electricity, Lighting and Communication 105
3.7 Gender, Disability, Age and Personal Safety 105
3.8 Livestock and Household Asset Protection 105
3.9 Early Warning, Awareness and Preparedness 106
3.10 School Continuity and Multipurpose Use 106
3.11 Community Governance, Operation and Maintenance 106
4. Cross-Cutting Synthesis **106**
4.1 Areas of Strong Convergence 106
4.2 Geographic and Contextual Variation 106
4.3 Integrated Resilience Pathway 107
4.4 Relationship with the Household Baseline Survey 107
5. Participant Priorities and Suggested Measures **107**
6. Conclusions **108**

Executive Summary

This report presents the qualitative findings from 28 focus group discussions (FGDs) conducted in 28 upazilas across all 14 RIVER project districts. Two FGDs were held in each district. The discussions complemented the household baseline survey by documenting how community members described flood exposure, access to safe shelter, road and drainage constraints, service deficiencies, preparedness practices, and priorities for resilient infrastructure.

The attendance schedule recorded 295 male and 170 female participants, giving a recalculated sex-disaggregated total of 465 participants. Women represented 36.6% of the recorded participants. Participants included vulnerable community members, Union Parishad representatives, teachers, guardians, livestock owners and local leaders, with ages and occupations intentionally varied. The attendance table contained three inconsistent displayed totals; this revised report therefore uses the sum of the male and female fields and documents the discrepancy in the methodology and Annex 1. The discussions showed strong convergence around a connected set of vulnerabilities. Participants described recurrent flooding as a threat not only to houses and crops, but also to mobility, schooling, drinking-water safety, sanitation, livestock protection, health and personal security. Existing refuge arrangements were commonly described as inadequate or improvised, while access routes could become submerged, damaged or difficult to use during the period when safe movement was most critical.

Participants consistently linked the usefulness of a shelter to the reliability of the surrounding access and service system. A structurally safe building alone was not regarded as sufficient. The expected facility package included elevated access roads, bridges and culverts, drainage, safe drinking water, gender-separated sanitation, lighting and backup solar power, space and privacy for women, accessibility for older people and persons with disabilities, and provision for livestock. This systems perspective is the principal qualitative finding of the FGDs.

Central finding: Community members viewed flood resilience as an integrated chain—warning, safe access, inclusive shelter, essential services and local management. Failure in any one link could reduce the practical value of the entire system.

The FGDs also highlighted preparedness and governance needs. Participants called for timely, understandable and locally disseminated warnings; clearer community roles; inclusive shelter-management arrangements; and routine operation and maintenance. The findings establish a qualitative account of conditions and perceptions at baseline. They complement, but do not statistically represent, the household survey population because participants were purposively selected and the source file did not contain coded frequencies or verbatim transcripts.

Summary of Baseline Findings

Theme	Baseline qualitative finding
Flood exposure	Flooding affected assets, livelihoods, health, safety, mobility and continuity of education.
Shelter availability	Communities reported an urgent need for safe, multi-storey, multipurpose school-cum-shelters.
Access and drainage	Submerged or damaged roads, inadequate crossings and waterlogging constrained access during floods.
Essential services	Safe water, sanitation, electricity and lighting were treated as core shelter functions rather than optional additions.
Inclusion and safety	Women, children, older people and persons with disabilities required privacy, accessibility, lighting and protection measures.
Livestock protection	Household willingness and ability to relocate depended partly on having safe space for cattle and other animals.
Preparedness	Communities emphasized timely warnings, local dissemination, awareness and clearly understood response arrangements.
Management	Participants supported inclusive local committees and clear responsibility for upkeep and operational readiness.

1. Introduction

Project Background

Bangladesh faces recurrent riverine and flash flooding that damages agriculture, housing, roads, public facilities and livelihoods. Flood impacts are unevenly distributed: women, children, older people, persons with disabilities and economically marginalized households can face greater difficulty in receiving warnings, moving to safety, maintaining privacy and sanitation, and protecting livestock and essential assets. The RIVER Project was designed in this context to strengthen community-level resilience through flood shelters, access infrastructure, services, capacity building and emergency-response support.

The Government of Bangladesh, with support from the World Bank, implemented the RIVER Project through the Local Government Engineering Department (LGED). The project covered 81 upazilas in 14 flood-prone districts: Kurigram, Lalmonirhat, Rangpur, Nilphamari, Gaibandha, Sirajganj, Pabna, Bogura, Gopalganj, Rajbari, Madaripur, Faridpur, Sunamganj and Habiganj.

1.2 Project Development Objective

The Project Development Objective was to reduce the vulnerability of targeted communities to riverine and flash floods and to enhance national capacity in disaster preparedness and response.

1.3 Project Components Relevant to the FGDs

Component 1: Resilient flood shelters and community infrastructure. Construction or upgrading of 500 primary schools as resilient flood shelters; solar photovoltaic nano-grid systems; land raising at selected sites; shelter-connecting and community roads; bridges and culverts; solar streetlights; and lightning-protection systems.
Component 2: Capacity building and technical assistance. Capacity strengthening for LGED and communities and strategic studies related to resilience.
Component 3: Project management, design, supervision and monitoring. Implementation support, monitoring, engineering oversight and integration of climate adaptation and mitigation measures.
Component 4: Contingency Emergency Response Component. A mechanism through which resources could be reallocated rapidly following an eligible emergency.

1.4 Purpose and Objectives of the FGDs

The FGDs formed the qualitative component of the baseline survey. They were used to interpret local conditions and priorities that could not be understood fully through structured household questions alone. Specifically, the FGDs were conducted to:

- document community descriptions of flood severity, consequences and preparedness practices;
- record perceptions of existing shelters, access roads, drainage, water, sanitation, electricity and safety;
- identify the needs of women, children, older people, persons with disabilities and livestock-owning households;
- capture community awareness and expectations regarding the proposed RIVER interventions; and
- triangulate and contextualize findings from the household baseline survey.

1.5 Scope and Use of the Report

The report summarizes the shared themes recorded across the 28 FGDs and presents the participant profile, discussion domains and intervention priorities. The results provide a qualitative baseline of perceptions and reported conditions at the time of the survey. They should be read alongside the household survey, key-informant interviews and engineering or site assessments. The FGDs were not designed to generate statistically representative prevalence estimates, and the absence of coded transcript frequencies limits numerical comparison across districts.

2. Methodology

2.1 Study Coverage and FGD Locations

A total of 28 FGDs were conducted—two in each of the 14 project districts and one in each of 28 selected upazilas. The discussion locations were associated with primary schools or proposed school-cum-shelter sites. The coverage included the Rangpur, Rajshahi, Dhaka and Sylhet divisions. Annex 1 provides the site-level location and attendance schedule.

2.2 Participant Selection and Composition

Participants were selected purposively with field-level coordination to obtain a cross-section of locally relevant perspectives. The selection sought representation from vulnerable residents, Union Parishad members, teachers, guardians, livestock owners and local leaders. Gender, age and occupational diversity were included as selection considerations. This approach was appropriate for gathering informed local explanations and contrasting experiences, but it did not constitute a probability sample.

Based on the sex-disaggregated entries in the attendance schedule, the 28 FGDs involved 465 recorded participants: 295 men (63.4%) and 170 women (36.6%). Group size ranged from 11 to 46 participants, with an average of 16.6 participants per FGD. The comparatively lower female share should be considered when interpreting findings on privacy, safety, caregiving and gender-specific shelter needs.

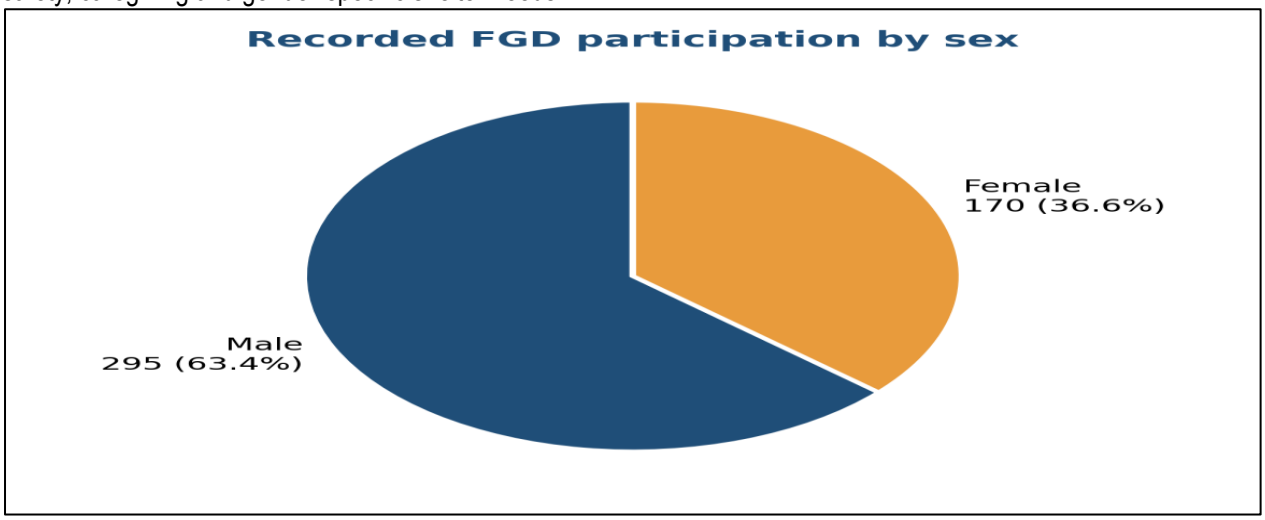


Figure 2.1: Recorded FGD participation by sex (recalculated from male and female attendance fields)

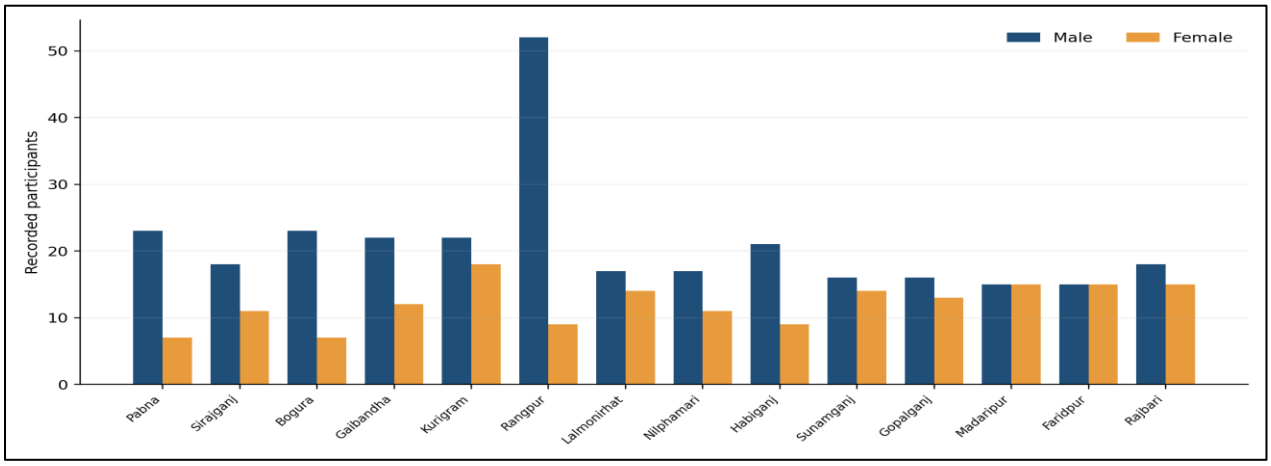


Figure 2.2: Recorded FGD participants by district and sex

Attendance-data note: Three displayed row totals in the source schedule did not equal the sum of the male and female fields. The analytical total and figures in this report therefore use the sex-disaggregated counts. The affected rows and both values are identified in Annex 1; signed attendance sheets should be checked before final publication.

2.3 Discussion Guide

A semi-structured discussion guide was used to maintain consistency while allowing participants to elaborate on local experience. The guide covered flood incidence and consequences; preparedness and early warning; existing refuge and shelter use; shelter-connecting and community roads; waterlogging and drainage; water, sanitation and electricity; safety and inclusion; schooling; livestock; perceived RIVER interventions; and other locally important concerns. The guide is reproduced in Annex 3.

2.4 Facilitation Process

The discussions were conducted in Bengali by members of the M&E Consultant team. Each session lasted approximately 45 minutes. The use of the local language supported direct participation and allowed technical issues to be expressed in locally familiar terms. Annex 4 identifies the consultant team members assigned to each district and upazila.

2.5 Analytical Approach

The report organized the recorded observations into thematic domains corresponding to the discussion guide. Statements that appeared repeatedly in the source narrative were treated as areas of convergence; distinct or location-specific concerns were retained as contextual variation where the source permitted. The analysis compared themes across four functional stages of flood response: receiving information, reaching safety, staying safely in a shelter, and returning to normal community and school functions.

2.6 Quality Assurance and Limitations

The FGD findings were reviewed for internal consistency and were interpreted together with the stated scope of the baseline survey. Several limitations require explicit recognition:

- Purposive selection supported depth and diversity but did not produce statistically representative estimates.
- The supplied source file did not contain verbatim transcripts, respondent quotations, systematic thematic codes or theme-frequency counts.
- Participants could influence one another during group discussion, and more vocal participants could shape the apparent consensus.
- Women constituted 36.6% of the sex-disaggregated attendance count, which may have limited the breadth of gender-specific perspectives.
- The source attendance table contained three inconsistent displayed totals; recalculated totals are used transparently in this report..

3. Detailed Findings and Interpretation

The FGD findings are presented as connected dimensions of community flood vulnerability. The emphasis is on what participants reported at baseline and on how different infrastructure and service constraints interacted. The analysis does not assign statistical weights to themes because coded frequencies were not available.

3.1 Flood Exposure and Consequences

Participants described flooding as a recurring, multidimensional disruption. The reported consequences extended beyond the direct inundation of houses and land to losses of crops, livestock, household assets and income; interruption of work and schooling; contamination of water sources; sanitation difficulties; and increased health and safety risks. These accounts indicate that flood severity was understood in terms of both depth or duration and the number of essential functions that failed simultaneously.

The qualitative baseline therefore portrays vulnerability as cumulative. A household that lost road access, safe water and income at the same time faced a materially different burden from a household affected only by temporary waterlogging. This helps explain why participants placed strong emphasis on integrated rather than stand-alone infrastructure.

3.2 Existing Shelter Arrangements and Capacity

Across the discussions, participants emphasized the need for multi-storey, multipurpose flood shelters linked to primary schools. Existing refuge arrangements were perceived as insufficient in capacity, safety, services or accessibility. School buildings, embankments, elevated houses and other local structures could provide temporary refuge, but their suitability depended on structural condition, elevation, crowding, sanitation, water, lighting and the ability to reach them during inundation.

Participants viewed a school-cum-shelter as a dual-purpose public asset. During normal periods it supported education; during floods it was expected to provide organized, safe refuge. This dual role created a requirement for design choices that protected educational functionality while also allowing rapid conversion to emergency use.

3.3 Shelter-Connecting Roads, Crossings and Mobility

The need for elevated, flood-resilient shelter-connecting roads was one of the clearest themes. Participants reported that roads and pathways could be submerged, eroded, muddy or otherwise difficult to use during floods. Missing or inadequate bridges and culverts could further interrupt movement. These constraints were especially consequential for children, older people, pregnant women, persons with disabilities, people carrying essential belongings and households moving livestock.
The discussions treated accessibility as a condition of shelter effectiveness. A safe shelter provided limited protection if households could not reach it at the required time. Road elevation, pavement condition, slope protection and cross-drainage were therefore understood as part of the shelter system rather than as separate transport improvements.

3.4 Drainage and Waterlogging

Participants linked prolonged waterlogging to silted canals, blocked drainage routes and insufficient cross-drainage. Poor drainage delayed the removal of floodwater from roads, settlements and school surroundings, extended disruption and could damage road surfaces. Re-excavation of canals and removal of structural blockages were repeatedly identified as practical responses.

This theme distinguishes river flooding from the local persistence of water after the peak event. Even where the wider flood level receded, inadequate drainage could prolong isolation, unsafe access and sanitation problems. Drainage performance was therefore a major determinant of recovery time at community level.

3.5 Water, Sanitation, Hygiene and Health

Safe drinking water and functional sanitation were treated as essential shelter services. Participants emphasized flood-proof water supply, an alternative source when the normal system failed, and toilets that remained accessible, adequately lit and separated by gender. These concerns reflected both immediate health risks and the practical acceptability of remaining in a shelter for several days.
The findings show the close relationship between infrastructure quality and shelter use. Inadequate water or sanitation could discourage early movement to a shelter, intensify the burden on women and caregivers, and create health risks within a crowded facility. WASH reliability was consequently central to perceived shelter adequacy.

3.6 Electricity, Lighting and Communication

Participants requested reliable electricity and off-grid backup through solar photovoltaic or nano-grid systems. Lighting was associated with safe movement, use of toilets at night, protection of women and children, communication, charging of phones and continuity of essential shelter functions during grid failure.

Solar streetlights along access routes and dependable internal lighting were viewed as complementary measures. The emphasis on backup power indicates that participants expected normal electricity supply to become unreliable precisely when the shelter was most heavily used.

3.7 Gender, Disability, Age and Personal Safety

The discussions recognized that shelter access and use were not experienced equally. Women and adolescent girls required privacy, gender-separated sanitation and safe lighting. Older people and persons with disabilities required accessible routes and internal movement arrangements. Children needed safe spaces and continuity of care. These were described as core functional requirements rather than supplementary features.
The participant composition included women but did not achieve parity. The findings on gender and personal safety should therefore be interpreted as important qualitative signals that warrant preservation in design and management discussions, while recognizing that additional women-only or disability-focused consultation could deepen the evidence.

3.8 Livestock and Household Asset Protection

Livestock represented both an economic asset and an important part of household recovery capacity. Participants requested elevated livestock-protection areas or killas near shelter sites. Without a safe arrangement for animals, some households could delay evacuation, separate family members or remain in unsafe locations to protect their assets.

This finding demonstrates that evacuation decisions were shaped by livelihood considerations as well as personal safety. The practical attractiveness of a shelter depended partly on whether it allowed households to protect the assets on which post-flood recovery relied.

3.9 Early Warning, Awareness and Preparedness

Participants discussed the availability and effectiveness of early warning information and the measures taken before a flood. They supported multi-channel dissemination that combined formal information from relevant agencies with SMS, radio and local volunteers. Community plans, drills and awareness activities were also considered important.

The baseline narrative suggests that warning effectiveness depended on reach, trust, clarity and the time available to act. Information alone was insufficient if recipients did not understand the message, lacked transport or could not access a safe shelter. Warning systems were thus connected directly to access infrastructure and local preparedness arrangements.

3.10 School Continuity and Multipurpose Use

Participants recognized primary education as an important community service and expected the proposed facilities to operate as schools during normal periods. They identified furniture, classrooms, teachers' space, water, toilets, electricity, playgrounds and access roads as relevant to everyday school functioning.

The school-cum-shelter model required careful management of the transition between education and emergency use. A facility that remained well maintained as a school was more likely to be operational during a flood; conversely, prolonged shelter occupation could affect the resumption of classes. The baseline therefore established both disaster-resilience and education-service considerations.

3.11 Community Governance, Operation and Maintenance

Participants supported inclusive shelter-management arrangements with meaningful representation of women and persons with disabilities. The proposed role included routine maintenance, readiness checks, safety, access management, sanitation oversight and coordination during shelter occupation.

The findings indicate that physical investment and local institutional capacity were mutually dependent. Clear responsibility for operation and maintenance was required to keep water, sanitation, solar power, lighting and access facilities functional between flood events.

4. Cross-Cutting Synthesis

4.1 Areas of Strong Convergence

The source report described strong convergence across the 28 FGDs on the need for multi-storey school-cum-shelters, elevated access roads, improved drainage, reliable water and sanitation, solar-backed electricity and inclusive management. The consistency of these priorities across geographically diverse districts indicates that communities understood flood protection as a system of mutually dependent facilities and services.

4.2 Geographic and Contextual Variation

Although the main priorities converged, the relative importance and physical form of individual measures likely varied by local flood regime, settlement pattern, road condition, drainage network and existing school infrastructure. The supplied report did not include a coded district-by-theme matrix or complete district-level problem–solution annex. It is therefore not methodologically appropriate to rank districts or claim that every issue was reported in every FGD. Site-specific engineering and social records should remain the authoritative basis for location-level decisions.

4.3 Integrated Resilience Pathway

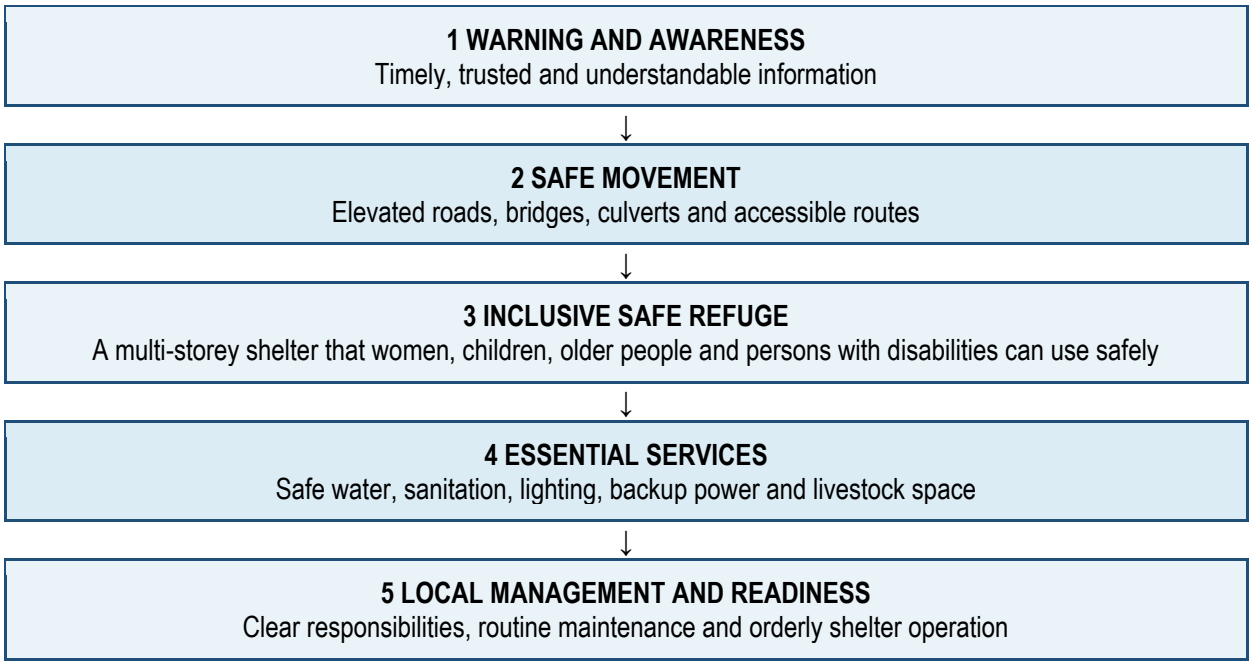


Figure 4.1: Community-defined functional chain for flood resilience

The pathway shows why the FGDs did not treat project inputs independently. A warning had value only if households could act on it; movement depended on passable routes; refuge depended on an accessible and inclusive building; continued occupation depended on essential services; and long-term reliability depended on local management and maintenance.

4.4 Relationship with the Household Baseline Survey

The FGDs added explanatory depth to household indicators on flood exposure, shelter availability, road condition, water and sanitation, electricity, early warning, evacuation and preparedness. Where the household survey measured the proportion of respondents reporting a condition, the FGDs helped explain why that condition mattered, how constraints interacted and what community members considered an acceptable service standard. The two evidence streams should therefore be interpreted as complementary rather than interchangeable.

5. Participant Priorities and Suggested Measures

The following measures consolidate priorities expressed through the FGDs. They are presented as participant-informed actions rather than as statistically ranked preferences:

Priority area	Participant-informed measure
Resilient school-cum-shelters	Construct or upgrade multi-storey, multipurpose facilities with adequate capacity, safe internal circulation and rapid conversion between school and emergency functions.
Access and connectivity	Elevate and improve shelter-connecting and community roads, with appropriate bridges, culverts, slope protection and all-weather surfaces.
Drainage	Re-excavate silted canals, remove blockages and provide sufficient cross-drainage to reduce prolonged waterlogging.
Water and sanitation	Provide flood-proof drinking-water systems, backup water arrangements and accessible, gender-separated, well-lit toilets.
Energy and lighting	Provide dependable internal power, solar backup and streetlighting along critical shelter-access routes.
Inclusive safety	Incorporate privacy, security and accessibility measures for women, children, older people and persons with disabilities.
Livestock protection	Provide elevated, safely managed areas for cattle and other household animals near shelters.
Preparedness and warning	Strengthen multi-channel warning dissemination, volunteer networks, awareness, community plans and drills.
Operation and maintenance	Establish inclusive management arrangements with clear responsibilities, routine inspections and readiness procedures.

6. Conclusions

The 28 FGDs established a coherent qualitative baseline of how communities in the 14 RIVER districts understood flood vulnerability and resilient infrastructure needs. The discussions indicated that the principal challenge was not simply the absence of shelter buildings. Vulnerability arose from the interaction of recurrent hazard exposure, unsafe or inadequate refuge, interrupted access, poor drainage, unreliable water and sanitation, electricity failure, exclusion risks and limited local preparedness.

The strongest conclusion was that a resilient shelter must operate as part of an integrated local system. Participants consistently connected the shelter to elevated roads and crossings, drainage, lighting, safe water, sanitation, livestock protection, early warning and inclusive management. They also emphasized the dual function of the facilities as primary schools in normal periods and emergency shelters during floods.

These findings complement the quantitative household baseline by documenting the reasoning behind community priorities and the practical conditions under which infrastructure would be considered usable. Because the evidence was generated through purposive group discussions and the supplied file did not include transcripts or coded frequencies, the report does not quantify the prevalence of individual views. Its value lies in the breadth of geographic coverage, the consistency of the main themes and the detailed account of how community members linked infrastructure, services, inclusion and preparedness.

2. Key Informant Interview (KII) Report

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Baseline Survey | 40 KIIs across 14 project districts

Commissioning agency	**Local Government Engineering Department (LGED)**
Qualitative method	**Key Informant Interviews**
Report date	**August 2026**

Prepared as part of the RIVER Baseline Survey

Table of Contents

Executive Summary 110
1. Introduction 111
1.1 Background 111
1.2 Purpose of the KII Component 111
1.3 Objectives 111
1.4 Scope and Interpretation 111
2. Methodology 111
2.1 Coverage and Informant Categories 111
2.2 Selection Approach 111
2.3 Interview Domains 112
2.4 Analytical Approach 112
2.5 Data Quality and Limitations 112
3. Detailed KII Findings and Interpretation 112
3.1 Existing Flood-Shelter Facilities and Practices 112
3.2 Access Roads, Bridges and Culverts 113
3.3 Livestock and Disaster Vulnerability 113
3.4 Disaster Preparedness and Early Warning 114
3.5 Educational Facilities and Multipurpose Use 114
3.6 Expected Community and Livelihood Benefits 114
3.7 Environmental and Social Considerations 115
3.8 Operation, Maintenance and Institutional Sustainability 115
4. Cross-Theme Synthesis 115
4.1 Infrastructure and Institutional Interdependence 115
4.2 Areas of Convergence 116
4.3 Areas Requiring Qualification 116
4.4 Relationship with Other Baseline Evidence 116
5. Participant-Informed Recommendations 116
6. Conclusions 117
6.1 Consolidated KII Indicator Tables 117

Executive Summary

This report presents findings from 40 Key Informant Interviews (KIIs) conducted with local government representatives and sector stakeholders across the 14 RIVER Project districts. The interviews provided qualitative evidence on existing flood-shelter arrangements, road access and connectivity, livestock protection, disaster preparedness and early warning, educational facilities, anticipated community benefits, environmental and social considerations, and operation and maintenance (O&M).

The KIIs indicated a substantial gap between community exposure to flooding and the availability of purpose-designed shelter facilities. In most interviewed upazilas, designated flood shelters were reported to be unavailable. During flood emergencies, residents relied on their own homesteads where possible and then on schools, embankments, elevated land and houses on higher ground. Schools used informally as shelters were reported to accommodate about 1,100–1,200 people on average, with some users travelling as far as approximately 2 km.

The evidence also showed that shelter effectiveness depended on access. Among respondents associated with new shelter areas, 85% described the existing approach as kutcha or damaged pucca road, while 15% reported no access road. Forty percent stated that a bridge or culvert was required but unavailable. These values show why shelter buildings, approach roads, drainage and crossings should be treated as one functional access system.

Livestock protection emerged as a major livelihood concern. Informants estimated an average of about 1,650 animals within a shelter catchment—approximately four animals per household—and identified shortages of shelter space, feed, water, evacuation knowledge and transport arrangements. The loss or abandonment of livestock would directly affect household assets, food security and recovery capacity.

Existing institutional channels for early warning included BWDB, DDM, upazila administrations, Union-level disaster-management structures, the Bangladesh Red Crescent Society, NGOs, community announcements and volunteers. Informants nevertheless described community preparedness arrangements as limited and uneven. Warning dissemination, evacuation support, shelter management and assistance to vulnerable groups therefore needed to function as a connected local system.

Expectations regarding the proposed school-cum-shelters were strongly positive. Education officers anticipated better classrooms, teachers' rooms, furniture, WASH facilities, access and student safety. Informants also expected increased employment or livelihood opportunities, particularly through livestock and poultry activities, although only 35% anticipated business or organizational opportunities directly associated with the shelters. These were baseline expectations, not observed project results.

O&M was the most prominent institutional sustainability issue: 55% classified it as a major concern and 30% as a medium concern. Informants emphasized assigned institutional responsibility, reliable financing, routine maintenance and community participation. The KII evidence therefore defined resilience as a chain linking warning, access, functional shelter, essential services and sustainable operation.

Central conclusion: The qualitative evidence did not support viewing a shelter as a stand-alone building. Its practical value depended on safe access, inclusive services, preparedness, livestock arrangements and a financed O&M system.

Key Baseline Messages

Theme	KII baseline message
Shelter gap	Most interviewed locations lacked a designated flood shelter and relied on schools or other elevated places.
Access constraint	Road condition and missing crossings could prevent safe movement during the period of greatest need.
Livestock vulnerability	Shelter space, movement, feed and water arrangements for animals were inadequate.
Preparedness gap	Warning channels existed, but local protocols, plans, drills and inclusive evacuation support were uneven.
Education opportunity	Stakeholders expected multipurpose buildings to strengthen both emergency refuge and the normal school environment.
Sustainability risk	O&M responsibility and financing were not sufficiently defined and were widely viewed as serious concerns.

1. Introduction

1.1 Background

Riverine and flash floods repeatedly disrupt settlements, agriculture, transport, public services and livelihoods in Bangladesh. The burden is especially severe where communities lack safe refuge, roads become impassable, warning information does not reach vulnerable households, and essential water, sanitation and electricity services fail. The Government of Bangladesh, supported by the World Bank, implemented the RIVER Project through LGED to reduce the vulnerability of targeted communities and strengthen disaster preparedness and response capacity.

The project covered 81 upazilas in Kurigram, Lalmonirhat, Rangpur, Nilphamari, Gaibandha, Sirajganj, Pabna, Bogura, Gopalganj, Rajbari, Madaripur, Faridpur, Sunamganj and Habiganj. Its principal physical interventions included resilient school-cum-shelters, land raising, shelter-connecting and community roads, bridges and culverts, solar systems, streetlighting and lightning protection, supported by capacity building, project management and emergency-response arrangements.

1.2 Purpose of the KII Component

The KII component complemented the household survey and FGDs by obtaining informed perspectives from officials and sector actors who had direct knowledge of local infrastructure, service delivery, education, livestock, disaster management and institutional arrangements. The interviews were intended to explain existing conditions, identify implementation constraints and record stakeholder expectations at baseline.

1.3 Objectives

- document the availability and use of existing flood shelters and informal refuge locations;
- assess road access, bridges, culverts and community connectivity around proposed shelter areas;
- describe livestock exposure and the arrangements required during evacuation and shelter occupation;
- review existing warning, preparedness and emergency-support mechanisms;
- record education-sector expectations regarding multipurpose school-cum-shelters;
- identify perceived community, livelihood, environmental and social considerations; and
- assess institutional concerns relating to O&M and long-term functionality.

1.4 Scope and Interpretation

The report presents qualitative stakeholder evidence and descriptive percentages reproduced from the supplied KII summary tables. It does not measure observed project impacts. The KIIs were selected for knowledge and institutional relevance rather than statistical representation; consequently, percentages summarize the responding KII group or subgroup and should not be generalized to the entire population of the 14 districts.

2. Methodology

2.1 Coverage and Informant Categories

Forty KIIs were conducted across the 14 project districts. The supplied narrative identifies Union Parishad Chairpersons and Members, NGO representatives, Upazila Livestock Officers and Upazila Education Officers among the informants. It also refers to agencies and local structures involved in warning dissemination and emergency response. The attached source did not provide a complete interview roster by district, date, sex or designation; this omission is recorded as a documentation limitation rather than reconstructed through assumption.

2.2 Selection Approach

Key informants were selected purposively because of their official responsibilities, technical knowledge or practical familiarity with local flood conditions and public services. This approach was appropriate for institutional and sector analysis, but it did not constitute random sampling. Different questions were relevant to different respondent categories; therefore, not every indicator necessarily used all 40 interviews.

2.3 Interview Domains

Domain	Principal information sought
Shelter facilities	Existing designated or informal shelters, capacity, catchment and current use
Connectivity	Road condition, access gaps, bridges, culverts and flood-time usability
Livestock	Animal population, shelter space, movement, feed, water and emergency care
Preparedness	Warning generation and dissemination, volunteers, evacuation and response coordination
Education	Awareness, expected school facilities, safety, enrollment and attendance expectations
Community benefits	Catchment population, complementary infrastructure, business and livelihood expectations
Environmental and social issues	Perceived risks, inclusion, land, safety, drainage, waste and construction concerns
O&M	Institutional responsibility, financing, routine maintenance and local participation

2.4 Analytical Approach

The analysis grouped the supplied observations into thematic domains and examined how physical infrastructure, public services and institutional arrangements interacted. Percentages were retained exactly as presented in the source tables. Narrative statements were interpreted as reported stakeholder perceptions and were not converted into prevalence estimates. Anticipated benefits were separated explicitly from existing baseline conditions.

2.5 Data Quality and Limitations

- The attached source reported 40 interviews but did not provide the complete KII roster or distribution by district and informant category.
- The three percentage tables did not state their indicator-specific denominators. The values are therefore presented as percentages only and are not converted into counts.
- Some indicators were evidently addressed to specialized informant groups or respondents in new shelter areas, so the applicable sample base could differ by table.
- The report did not contain verbatim transcripts, quotations, coding frequencies or interview-level records from which theme prevalence could be independently reconstructed.
- Stakeholder expectations concerning benefits were perceptions recorded at baseline and were not evidence of achieved outcomes.
- Statements that informants did not anticipate significant environmental or social impacts did not replace formal assessment and risk-management instruments.

Denominator caution: Unless the underlying KII database confirms the applicable n, Tables 3.1–3.3 and their graphics should be cited as respondent percentages reported in the source summary, not as percentages of all 40 interviews.

3. Detailed KII Findings and Interpretation

3.1 Existing Flood-Shelter Facilities and Practices

Designated flood shelters were reported to be generally unavailable across most interviewed project upazilas. Communities therefore depended first on their homesteads where conditions permitted and then on nearby primary or secondary schools, embankments, elevated locations and the houses of relatives or community members on higher ground. These arrangements provided practical refuge but were not necessarily designed for emergency occupancy, universal access, privacy, WASH, backup power or livestock protection.

Informants estimated that schools used as temporary shelters could accommodate about 1,100–1,200 people on average and that some users travelled up to approximately 2 km. Capacity and distance should be interpreted as reported local estimates rather than measurements from a facility inventory. Even so, the estimates show that schools already performed a significant informal emergency function and that travel distance could become consequential when roads were inundated or households included people with limited mobility.

Selected purpose-built facilities were reported. Five three-storey flood shelter-cum-school buildings, each with an estimated capacity of 250–300 people, were under construction in Gaibandha under LGED's PROVATI Project. Three three-storey flood shelter-cum-school facilities constructed by DDM were also reported in Sariakandi Upazila of Bogura. These examples demonstrated that specialized facilities existed in limited locations but did not remove the broader shelter gap described by informants.

3.2 Access Roads, Bridges and Culverts

Dedicated shelter-access roads had generally not developed where designated shelters did not exist. Existing and proposed sites were connected through a mixture of kutcha and pucca local roads, some of which were low-lying, damaged or broken. Flood-time accessibility was therefore determined by the weakest section of the route rather than by the nominal existence of a road.

Among informants associated with new shelter areas, 85% described the access route as kutcha or damaged pucca road, while 15% reported no access road. Forty percent considered a bridge or culvert required but unavailable; 60% did not identify an additional structure requirement. The results show that road rehabilitation alone would not resolve every access constraint and that crossings required site-specific technical assessment.

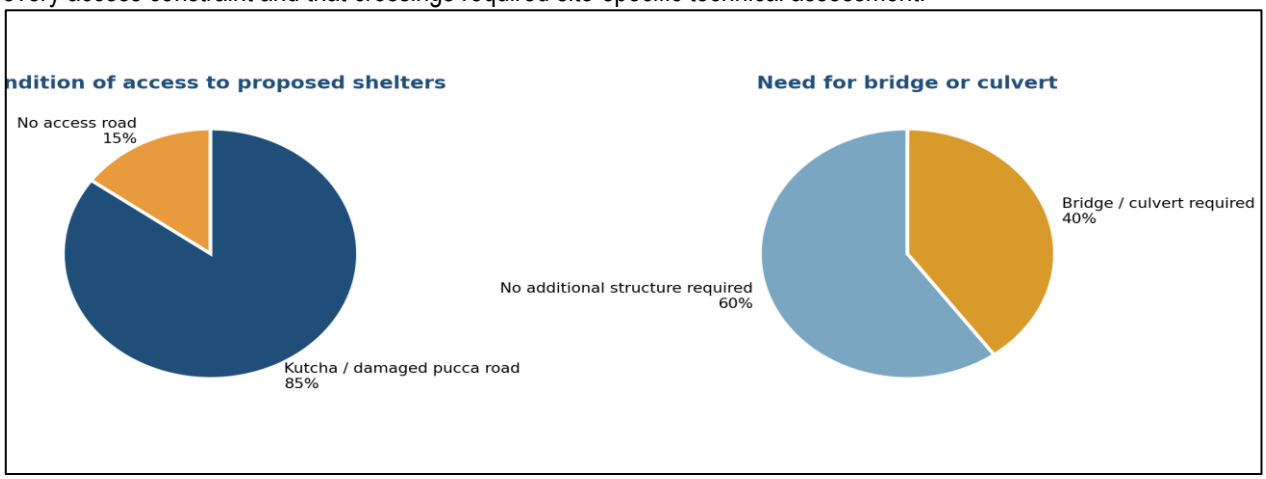


Figure 3.1: Reported shelter-access condition and bridge/culvert requirement

Table 3.1: Key informants' perceptions of shelter access and crossing requirements

Indicator	Response	New shelter area (%)
Access road condition	No access road	15
	Kutcha or damaged pucca road	85
Bridge/culvert requirement	No additional bridge/culvert required	60
	Required but unavailable	40

3.3 Livestock and Disaster Vulnerability

Union Parishad representatives and NGO informants estimated an average of approximately 1,650 animals within a flood-shelter catchment, equivalent to about four animals per household. Cattle, goats, sheep, poultry and other animals were important household assets and sources of food and income. The estimate indicates the scale of the potential shelter-management challenge, although the source did not provide the number of catchments or the calculation base. Upazila Livestock Officers identified a connected group of constraints: limited or absent animal-shelter space; difficulty moving animals safely; inadequate owner knowledge of emergency feeding and care; and shortages of feed and safe water during prolonged flooding. These constraints could discourage or delay household evacuation because families might remain behind to protect productive assets.

Livestock arrangements therefore formed part of human safety and livelihood resilience. Appropriate design and management required segregated elevated space, safe approach routes, water, feed storage, waste management and clear responsibility for animal supervision. The KIIs did not establish one uniform capacity requirement; catchment-specific livestock inventories and spatial assessments remained necessary.

3.4 Disaster Preparedness and Early Warning

Formalized community preparedness mechanisms were described as limited and uneven, but informants identified an existing institutional chain for warning and response. Flood information from BWDB was communicated through DDM, upazila administrations, Union-level disaster-management structures, the Bangladesh Red Crescent Society and NGOs. Local dissemination included mosque and community announcements, while government, Red Crescent and NGO volunteers assisted households with evacuation and emergency support.

The strength of the system lay in the presence of multiple channels and trusted local actors. Its weakness was the absence of consistently described protocols linking warning receipt to household action, assistance for vulnerable people, route selection, shelter opening and management. The qualitative baseline therefore distinguished between the existence of warning channels and the operational effectiveness of an end-to-end preparedness system.

3.5 Educational Facilities and Multipurpose Use

All interviewed Upazila Education Officers were reported to be aware of the RIVER Project and to hold positive expectations regarding the proposed four-storey flood shelter-cum-school buildings. They anticipated improvements in classroom space, teachers' rooms, furniture, WASH, access roads and associated school infrastructure. Better facilities were also expected to strengthen student safety and create conditions supportive of enrollment and attendance.
These statements represented professional expectations rather than measured educational change. The dual-purpose design created both opportunity and management requirements: facilities needed to function well as schools in normal periods, convert safely during emergencies, protect educational materials and return to school use promptly after shelter occupation.

3.6 Expected Community and Livelihood Benefits

Informants estimated that approximately 2,500 people per shelter catchment could benefit from associated village-level interventions. Suggested complementary investments included solar streetlights, landing stages, lightning-protection systems, access improvements and other community infrastructure. The estimate was a stakeholder approximation; the source did not provide catchment boundaries or the underlying population calculation.

Expectations were strongest for employment and livelihood opportunities, including livestock and poultry rearing: the source table reported a positive response of 100%. Expectations of shelter-associated business or organizational development were more cautious, with 35% responding positively and 65% negatively. Respondents reported no expectation of significant adverse social or ethnic issues or significant adverse environmental challenges. The latter results should be interpreted as perceived absence of major impacts, not as technical confirmation that risk was absent.

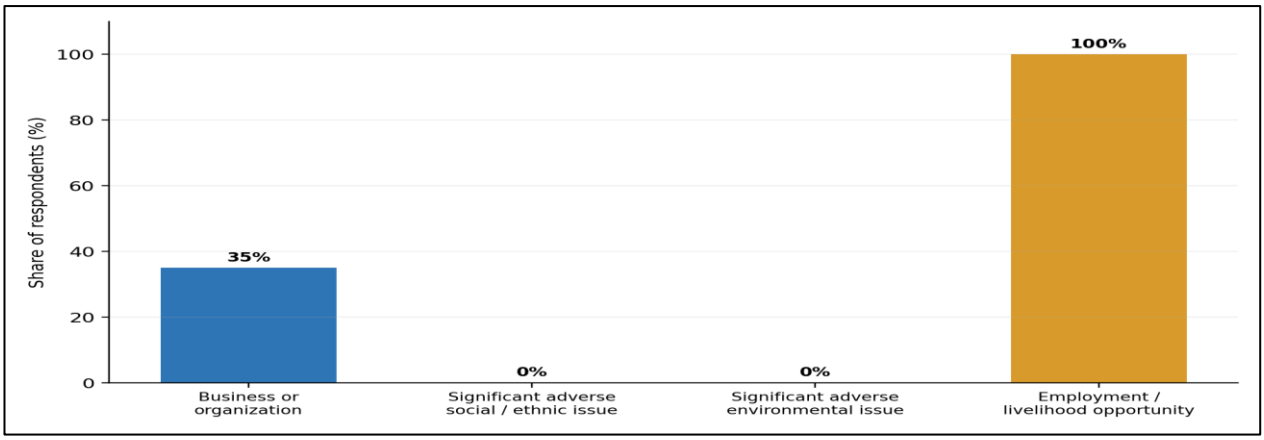


Figure 3.2: Key informants' baseline expectations concerning selected project outcomes

Table 3.2: Key informants' perceptions of potential RIVER Project outcomes

Indicator	Yes (%)	No (%)
Potential shelter-associated business or organization	35	65
Expected significant adverse social or ethnic issue	–	100
Expected significant adverse environmental challenge	–	100
Potential increased employment or livelihood opportunity	100	–

3.7 Environmental and Social Considerations

Informants generally did not anticipate significant long-term adverse environmental or social effects and considered potential impacts to be localized and associated mainly with construction. This perception suggested broad stakeholder acceptance, but it did not demonstrate that all risks had been identified or that no mitigation was required.

Construction impacts, drainage, waste, occupational and community safety, universal accessibility, vulnerable groups, land-related issues and site-specific environmental conditions required assessment through the Project's applicable environmental and social instruments. The KII evidence was therefore useful for understanding stakeholder concern and awareness, but it remained complementary to formal screening, assessment, consultation and management procedures.

3.8 Operation, Maintenance and Institutional Sustainability

O&M was the strongest institutional concern in the supplied KII evidence. Fifty-five percent assessed it as a major issue and 30% as a medium issue; together, these categories accounted for 85% of the reported responses. Five percent viewed it as minor and 10% identified other concerns. The absence of a dedicated or clearly defined O&M budget was specifically identified as a risk.

The responses indicated that sustainability depended on more than periodic repair. The institutional model needed to assign responsibility for school maintenance, emergency shelter operation, access roads, solar systems, WASH, livestock areas, post-event cleaning and restoration. Financing, inspection schedules, reporting lines and community participation had to align with those responsibilities.

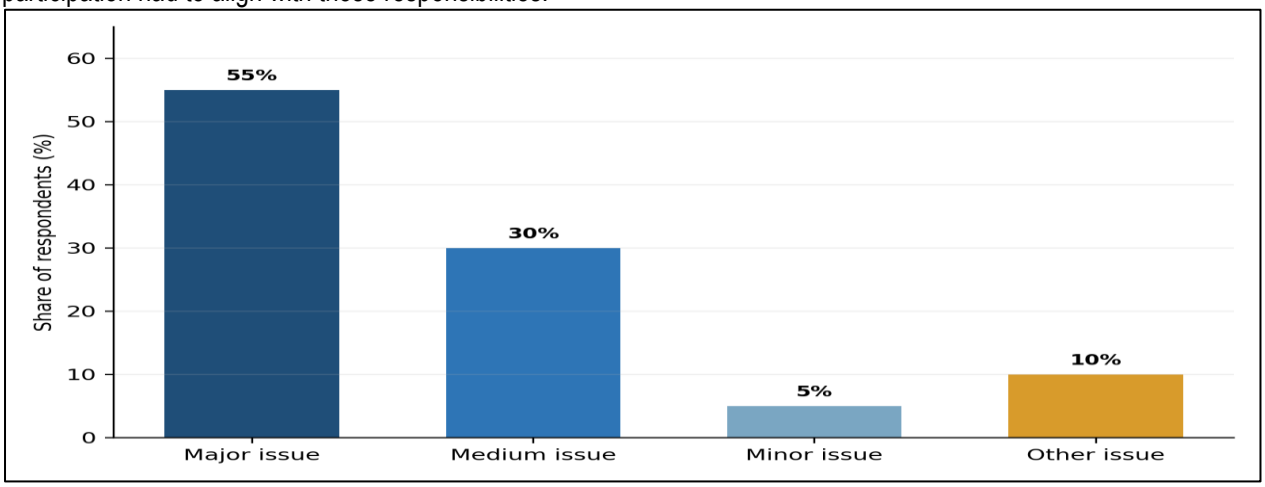


Figure 3.3: Key informants' assessment of the seriousness of O&M issues

Table 3.3: Key informants' assessment of O&M issues

Assessment of O&M issue	New shelter area (%)
Major issue	55
Medium issue	30
Minor issue	5
Other issue	10
Total	100

4. Cross-Theme Synthesis

4.1 Infrastructure and Institutional Interdependence

The KII findings converged on a systems interpretation of resilience. Warning information had to trigger timely action; people needed safe routes and assistance; shelters required capacity and inclusive services; schools needed continuity; livestock required protection; and all facilities needed responsible institutions and financing. A failure at any stage could reduce the value of investments at the other stages.

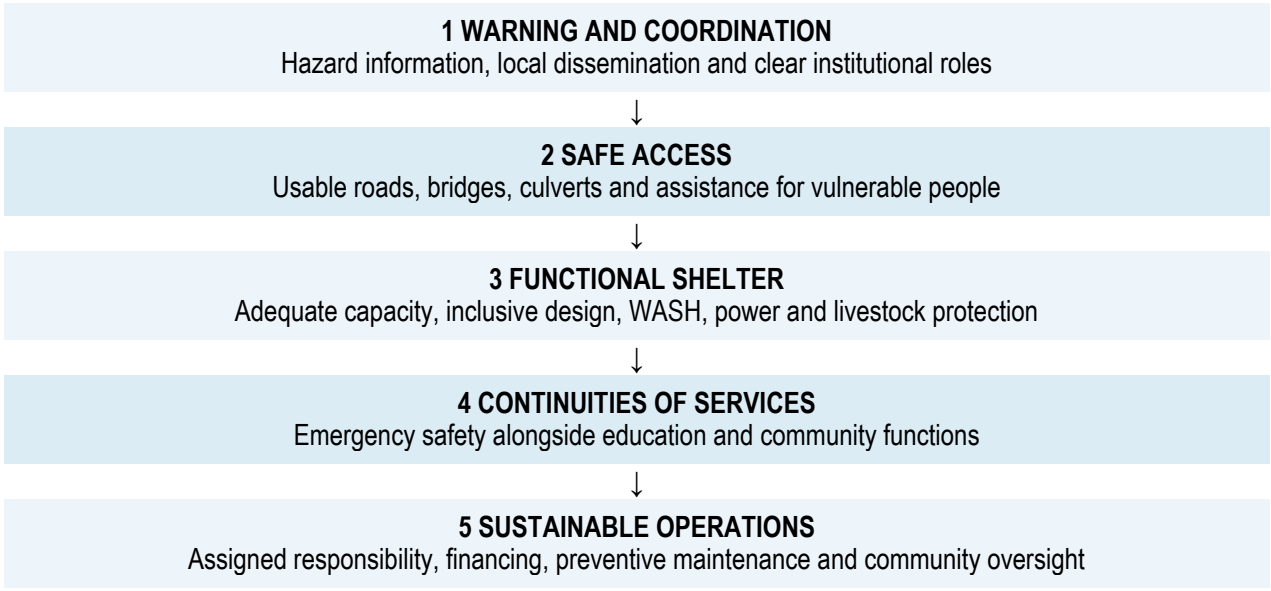


Figure 4.1: Institutional and service-delivery pathway emerging from the KIIs

4.2 Areas of Convergence

Informants broadly agreed on the shortage of designated shelter capacity, the need to improve access, the importance of livestock and livelihood protection, positive education-sector expectations and the seriousness of O&M. The evidence also showed confidence in existing warning institutions while identifying the need for stronger local operational arrangements.

4.3 Areas Requiring Qualification

Not every result represented the full set of 40 KIIs. Specialized questions were addressed to different categories, and the table denominators were not supplied. The estimates of shelter capacity, catchment population and livestock numbers were reported as averages without supporting distributions. Environmental and social responses reflected perceptions rather than formal assessment. These limitations do not invalidate the findings, but they define the level of precision with which they should be cited.

4.4 Relationship with Other Baseline Evidence

The KIIs added institutional and technical context to the household survey and FGDs. Household responses described lived conditions and prevalence; FGDs explained shared community experience and priorities; KIIs clarified service arrangements, agency roles, sector concerns and implementation risks. Consistency across these sources strengthened interpretation, while differences should be examined through the relevant underlying records rather than resolved by assumption.

5. Participant-Informed Recommendations

The following recommendations consolidate the practical issues raised through the KIIs. They relate to project implementation and institutional readiness and do not presume that anticipated benefits had already occurred.

Priority	Professional refinement of the KII recommendation
Develop multipurpose shelters in priority locations	Use flood exposure, population, travel distance, vulnerable groups, existing capacity and site accessibility to confirm priority and adequacy.
Treat access as part of the shelter system	Assess the complete route and improve kutcha or damaged sections, bridges, culverts, drainage and safe access for people with limited mobility.
Integrate livestock arrangements	Provide context-appropriate elevated space, access, feed and water arrangements, waste management and emergency-care awareness.
Strengthen preparedness	Clarify the warning-to-action chain, shelter-opening procedures, evacuation support, volunteer roles, drills and communication with vulnerable households.
Protect educational functionality	Provide adequate classrooms, teachers' space, furniture, WASH, accessibility and procedures for transition between school and emergency use.
Define and finance O&M before operation	Assign agency and local responsibilities, establish budgets, inspection schedules, maintenance standards and post-disaster restoration procedures.
Apply systematic environmental and social management	Use formal screening and management instruments for construction impacts, land, drainage, waste, safety, accessibility and vulnerable groups.
Complete the KII evidence archive	Attach the interview roster, respondent categories, district distribution, tools, notes and indicator denominators so that the qualitative evidence is fully auditable.

6. Conclusions

The 40 KIIs provided a broad institutional and sector perspective on flood vulnerability across the 14 RIVER districts. They documented a shortage of designated shelter facilities, dependence on ordinary schools and elevated locations, weak or damaged access routes, livestock-protection constraints, uneven preparedness arrangements and uncertainty surrounding long-term maintenance.

At the same time, informants identified functioning warning institutions, active local dissemination channels and strong expectations for multipurpose school-cum-shelters. The educational and livelihood opportunities described at baseline were plausible stakeholder expectations, but they were not observed outcomes. The clearest immediate finding was the need to connect infrastructure delivery with institutional readiness.

The KII evidence therefore defined a functional standard for resilient service: people received and understood warnings; could reach the facility safely; found an inclusive shelter with essential services and livestock arrangements; maintained education and other community functions; and relied on a funded O&M system. This integrated interpretation provides a professionally structured qualitative baseline while remaining transparent about the limits of the supplied interview documentation.

6.1 Consolidated KII Indicator Tables

The following table consolidates the quantitative percentages supplied in the source KII report. Indicator-specific sample counts were not provided; the percentages must therefore be interpreted with the denominator caution stated in **Section 2.5.**

Theme	Indicator / response	Yes or share (%)	No (%)
Access	No access road	15	–
Access	Kutcha or damaged pucca road	85	–
Crossing	No additional bridge/culvert required	60	–
Crossing	Bridge/culvert required but unavailable	40	–
Expected outcome	Shelter-associated business/organization	35	65
Expected outcome	Significant adverse social/ethnic issue	–	100
Expected outcome	Significant adverse environmental challenge	–	100
Expected outcome	Employment/livelihood opportunity	100	–
O&M	Major issue	55	–
O&M	Medium issue	30	–
O&M	Minor issue	5	–
O&M	Other issue	10	–

ANNEXURES









1. Baseline Household Survey Questionnaire









Local Government Engineering Department (LGED)

Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project

Consultancy Services for Monitoring and Evaluation (M&E)

Baseline Household Survey Questionnaire

Survey Conducted by:
SODEV Consult International Ltd.
House No. 156, Lane No. 3, New DOHS, Mohakhali, Dhaka-1206

Information to Respondent

SODEV Consult International Ltd. is conducting a baseline household survey under the project titled "**Resilient Infrastructure for Adaptation and Vulnerability Reduction (RIVER) Project**." The project is being implemented by the Local Government Engineering Department (LGED) and funded by the World Bank in your area. The RIVER Project will be implemented over a period of five years to reduce the vulnerability of communities in the project area to riverine and flash floods, while also strengthening the country's capacity for disaster preparedness and response. This objective will be achieved through the development of climate-resilient infrastructure, including flood shelters, enhancement of community-level disaster preparedness, and strengthening of institutional capacity for emergency response and recovery.

The objective of this baseline study is to establish a current information base against which project progress and effectiveness can be monitored and assessed during implementation and after completion. The baseline will provide the data required to assess progress in generating outputs and contributing to intended outcomes.

Participation in this survey is voluntary. All information provided will be kept strictly confidential, and respondents' privacy will be fully maintained.

General Information	Response
Date of Survey	
Survey Start Time:	
Survey End Time:	
District	
Upazila	
UP / Pourashava	
Ward	
Village	
Name of the Flood Shelter cum Government Primary School (GPS)	
Name of the Enumerator	
Survey Location	1= Project Area 2= Control Area
Name of the HH Head:	
Mobile Number	
Religion of Respondent Household	1= Islam, 2= Sanatan, 3= Christianity, 4=Buddhism, 5=Others (Specify)

Section 1: Demographic and Socio-Economic Status of the Households

1.1 Demographic and Socio-Economic Conditions

Member	Name	Gender Male/Female	Age	Relation Code A	Education Code B	Marital Status Code C	Employment Code D	Place of Employment Code E	If Outs Reason Code D

Information Related to Household and HH members: Occupation/Employment Code

(Code A): Relation with HH head:1= Household Head 2 = wife of Household Head, 3=Husband of Household Head, 4=Son, 5=Daughter, 6=Father, 7=Mother, 8=Daughter-in-law / Son-in-law, 9=Brother, 10=Sister, 11=Father/Mother in Law, 12=Nephew/Niece, 13=Grand Father/Grand Mother (paternal), 14= Other (Specify).

(Code B): Education: 1=Primary, 2=Secondary 3=SSC, 4=HSC,5=Graduate,6=Masters,7=Illiterate, 8=Can sign,9=others (Specify),

(Code C): Marital Status: 1=Married, 2=Unmarried, 3= Divorced, 4= Widow/Widower, 5= Separated

(Code D): Occupation:1=Agriculture, 2=Agriculture Day Labour, 3=Non-agriculture Day Labour, 4=Business, 5=transport, 6=Fishing, 7=Livestock Rearing, 8-Government Service, 9=Private Service, 10=Unemployed, 11= Housewife, 12= Student, 13=Others (specify)

(Code E): Place of Employment: 1= Own Village, 2=Outside/Abroad**:**

(Code F): Causes of working outside the village: 1=No employment opportunity in villages, 2=To earn more income, 3=Political Conflict,4=to take economic advantages, 5=For children education, 6=Health reason,

1.2 Information Related to Household Permanent Assets

Condition of Homestead

Type of House Code A	Floor Code B	Number of Rooms	Cowshed Code C	Kitchen Code D	Toilet/Latrine		Overall Condition Code G	Present Price of the House (in Taka)
					Toilet	latrine		

Code A: 1= Katcha; 2= Semi-Pucca; 3=Pucca; 4= Others (specify)
Code B: 1= Mud Floor; 2= Bricked Floor; 3= Tiled Floor, 4= Concrete floor; 5= timber Floor, 6=Others (Specify)
Code C: 1= No cow shed' 2= Bamboo fenced with thatched roof; 3= Bricked wall with tin shed; 4= others (specify)
Code D: 1= Kucca; 2= Semi-pucca; 3=Pucca; 4- Others (specify)
Code E: 1-= Open Space, 2= attached to homestead. 3= No toilet, 4= others (Specify)
Code F: 1= Kutchha latrine; 2= Pit latrine; 3=Ring latrine; 4=Sanitary latrine 5= Open Space; 6= others (specify)
Code G:1= Worst, 2= Not good, 3= livable; 4= Good; 5= very Good

1.3 Land Ownership and Tenurial Pattern

Sl. No.	Particulars	Area in Decimal
1	Homestead Land	
2	Total agricultural land	
3	Orchard/Bamboo grove	
4	Ponds/Ditch/derelict pond	
5	Fallow Land	
6	Sharecropped-in	
7	Sharecropped-out	
8	Landless	
	Total:	

1.4 Sources of Water:

Sl. No	Description/sources	Code
1	Drinking	
2	Cooking	
3	Washing	
4	Bathing	
5	Irrigation	
6	Cattle bathing	
Source Code: 1=Govt. tube well, 2=Own tube well, 3=Others' tube well, 4-Well, 5=River, 6=Pond, 7=Ditch, 8=Canal/Khal, 9=Water treatment plant, 10=Deep tube well, 11=Rain water, 12= Tap Water, 13= Bottle water/ potable water		

1.4.1 Condition of the drinking water? 1=Good, 2 = Fair,3=Bad,4=Very bad
1.4.2 Distance to drinking water source (in feet)?
1.4.3 How long (in minutes) does it take (to fetch water)?
1.4.4 How many times a day do you have to go to fetch water?
1.4.5 Who collects the water? 1= HH Head, 2= Other women of the family, 3= Other male members of the family, 4-Children of the family, 5= Others (Specify).
1.4.6 Who maintains the water sources? (If the water source is not owned)
Maintenance Code:1=Self, 2=Government/Local government, 3=NGO, 4=Operation and maintenance committee, 5=Local people, 6= Others (Specify)

1.5 Asset Base

1.5.1 Does your family have any Irrigation Equipment? 1=Yes, 2=No

1.5.2 If Yes, Number and price of the Agricultural Asset

Code	Item	Number	Price (in Taka)
Irrigation Equipment			
1	Deep Tube-well		
2	Shallow Tube-well		
3	Treadle Pump (Foot Operated)		
4	Tube well (hand-operated)		
5	Low Lift Pump (LLP)		
6	(Doon/Seuti (Indigenous method for irrigation)		
7	Plough		
8	Power Tiller		
9	Ladder (Moi)		
10	Sickle		
Processing Equipment			
11	Dheki		
12	Crushing Machine (Hand Operated)		
13	Crop Cutting Machine		
14	Others (Specify)		

1.5.3 Does your family have any poultry and livestock assets? 1=Yes, 2=No

1.5.4 If Yes, Number and price of the Poultry and Livestock Assets

Code	Description of Livestock and Poultry	Number	Price (in taka)
1	Bullock (Castrated OX)		
2	Milch Cow		
3	Other Cows		
4	Ox		
5	Calf (less than 1 year)		
6	Buffalo		
7	Goat		
8	Sheep		
9	Pigeon		
10	Chicken		
11	Duck		
12	Others (Specify)		

1.5.5 Does your family have any fishing Equipment? 1=Yes, 2=No

1.5.6 If Yes, Number and price of the Fishing Equipment

Code	Types of Equipment	Number	Price (In taka)
1	Boat/Dinghi		
2	Donga (A type of boat made out of a palm tree)		
3	Trawler (Engine operated)		
4	Cast Net (khepla Jal)		
5	Jhapi Net		
6	Thela jal		
7	Bamboo Chai		
8	Bamboo Polo		
9	Others (Specify)		

1.5.7 Does your family have any tree assets? 1=Yes, 2=No

1.5.8 If Yes, Number and price of the Tree Assets:

Code	Type	No	Price (in Taka)
1	Small Trees		
2	Medium Trees		
3	Big Trees		
4	Others (Specify)		
5	**Total**		

1.5.9 Household Assets:

Code	HH Items	No	Price
1	Cot/ Chowki		
2	Table		
3	Chair		
4	Almira		
5	Cooking Item		
6	Electric Fan		
7	Television		
8	Telephone (Mobile)		
9	Sewing Machine		
10	Gas Stove LPG		
11	Fridge		
12	Cycle/Motorcycle		
13	Atuo/Van		
14	Others (Specify)		

1.5.10 Does your family have any Non-Agricultural Assets? 1=Yes, 2=No

1.5.11 If Yes, Non-Agricultural Assets:

Code	Subject	Amount/Number	Price
1	Investment in land (Decimal)		
2	Building		
3	Machineries		
4	Tools		
5	Local Transports (Mechanical)		
6	Auto Rickshaw		
7	Car		
8	Truck		
9	Bi Cycle		
10	Rickshaw		
11	Van		
12	Others(Specify)		

1.5.12 Does your family have any Liquid Assets? 1=Yes, 2=No

1.5.13 If Yes, Liquid Assets:

Code	Item	Amount/Number	Price
Stock of Agri-commodity in HH during Survey			
1	Food grains		
2	Ornaments		
3	Cash Amount		

1.5.14 Does your family have any loan?
Code: 1=Yes, 2=No

1.5.15 If Yes, Access to Loan:

Code	Sources of Loan	Amount (in Taka)
Institutional Loan		
Government Institution		
1	Bank	
2	NGO	
3	Samity	
Institutional Loan		
4	Close relatives	
5	Friends	
6	Neighbors	
7	Others (specify)	

Details of the debt of every member of the HH, irrespective of their position, relation and profession, have to be collected during the survey

1.6 Whether the HH members are involved in non-agricultural works (above 10 years of age):

Code: 1=Yes, 2=No

1.6.1 If Yes, Wage Employment in the last year (Baishakh-Chaitra- Bangla Sal 1433) in the non-agricultural Sector (HH members above 10 years of age):

HH member serial numbers	Employment (Code)	Type of work 1=Permanent 2=Seasonal/part-time	Average Daily Wage Cash and kind	Month-wise number of Working Days											
				Boishakh	Joishtha	Asar	Srabon	Bhadro	Aswin	Kartik	Ograhayan	Poush	Magh	Falgun	Chaitro
1															
2															
3															
4															
5															

Note: If any HH member is engaged in more than one job, use a separate row for each of the different jobs.

1.6.2 For which type of work did you receive highest/lowest wage during last one (1) year (Applicable for both male and female members of the HH above 10 years of age):

1	2-3		4-5	
Description	Highest		Lowest	
	Male	Female	Male	Female
Month (Code)				
Employment (Code)				
Daily Wage (Cash and Kind)				

Months Code: 1= baishakh 2= Jaishtaha 3=Asar 4=Srabon 5= Bhadra 6=Aswin 7-Kartik 8=Agrahayan 9= Poush 10= Magh 11=Falgun 12= Chaitra.

1.7 Income of the HH during the last year (Calculate both sales and consumption):

1	2
Type	**Amount (in Taka)**
Income from Agriculture	
1. Income from crops	
2. Income from the sale of Fruits	
3. Income from the sale of vegetables	
4. Income from bamboo, vlamp, bush, thatching grass, firewood	
5. Others (Specify)	
Livestock	
6. Income from Livestock	
7. Livestock/ Cow fattening	
8. Goat /sheep rearing	
9. Sale of chicken, bird/Duck	
10. Sale of Fish	
11. Sale of Fish fingerlings	
12. Fish Feed Production	
13. Sale of Eggs	
14. Sale of Milk	
Wage Labor	
15. Agricultural Wage Labour	
16. Non-Agricultural labour	
17. Income from boat plying	
Tade/Business Activities	
18. Income from Trade/business	
19. Income from the cottage industry	
20. Income from industry/workshop	
Income from rent	
21. Rent from House/ land	
22. Rent from shop/warehouse	
23. Rent from agricultural equipment	
24. Others (Specify)	
Income from Organizational work	
25. NGO activities	
26. Samity activities	
27. Service	
Income from Government sources	
28. Stipend	
29. Relief and Help	
30. Food for work program	
31. Others (Specify)	
Income from Gathering/Collecting	
32. Rice/paddy	
33. Fruit	
34. Fruit/Vegetables	
35. Firewood/fuel	
Miscellaneous	
36. Land mortgage	
37. Interest from savings	
38. Remittance	
39. Gift/Dowry	
40. Income from the transport sector	
41. Others (Specify) Everyday	

1.8 Expenditure of the HH in the last year.

1.8.1 HH Expenditure on Food:

1	2-4		
	Average in a week		
Type of Food Consumed in the HH	Unit (Kg/Number)	Amount consumed (Quantity)	Price (in Taka)
1. Rice			
2. Atta/ Maida			
3. Other grains			
4. Vegetables			
5. Potatoes			
6. Dal			
7. Fish			
8. Meat			
9. Egg			
10. Milk			
11. Edible oil			
12. Salt			
13. Onion			
14. Masala (spices)			
15. Sugar and its products			
16. Fruits			
17. Others (specify)			

1.8.2 Expenditure on Daily necessities of the HH:

1	2
Type of Products	Cost/Expenditure
1. Cloth /Shoes/Socks/etc.	
2. Bed sheet/Quilt	
3. Furniture	
4. Utensils	
5. Livestock feed and treatments	
6. Poultry feed	
7. Wax (candle)/fuel wood	
8. Health and medicine	
9. Electricity bill	
10. Soap and Cosmetics	
11. Education of Children	
12. Tiffin	
13. HH repair	
14. House rent	
15. Tube well installation	
16. Latrine installation/maintenance	
17. Tax/Vat etc	
18. Credit installment	
19. Recreation	
20. Refreshment	
21. Court cases	
22. Gift/dowry	
23. Salary of Servants	
24. Transport	
25. Fuel	
26. Religious Festivals	
27. Others (Specify)	

1.9 Poverty situation:

1.9.1 Did your HH ever suffer from food shortages?
Code: 1=Yes 2= No

1.9.2 If yes, please furnish the information below:

For how many months does the HH suffer from food shortage in a year (Code)		Reasons (Code)
At Present	5 years back	

Food Shortage Code: 1=1-3 months, 2= 4-6months, 3=7-12 months,

Reasons for code: 1= Decrease in crop production, 2= Development of irrigation facilities, 3= Decrease in wage, 4=Decrease in employment opportunities (Day labour) 5= Decrease in self-employment opportunities, 6= financial constraints, 7= Difficulties in managing share-cropping land. 8=Others (Specify).

1.9.3 How many HH members in your family have taken 3 meals during the last week?

HH member	Male	Female
Adult (above 18 years)		
HH members between 5 and 18 years old		
Child (below 5 years)		

1.10 Water Bodies and Existing Problems:

1.10.1 What are the sources of surface water available in your area?
1=River, 2=Khal, 3=Beel, 4=Lake, 5=Ponds, 6=Gher, 7=others (specify)

1.10.2 Is there any wetland in your village/mouza? 1=Yes, 2=No

1.10.3 If yes, does water remain seasonally in the wetland or permanently throughout the year?
1=Seasonally (during Rainy season), 2= Throughout the year

1.10.4 What problems have you noticed in existing water resources?

Code: 1. Scarcity of water in the dry season/ water conservation problem, 2. Waterlogging and Drainage Problem, 3=Flood management problem, 4=Irrigation problem, 5=Salinity problem, 6=Don't Know, 7=Others (Specify)

1.10.5 What conditions do you observe in various water bodies due to changes in season?

1	2	3	4	5	6
Type of Water Bodies (code)	Condition during pre-monsoon (code)	Condition during monsoon (code)	Condition during post-monsoon (code)	Condition during dry season (code)	Siltation condition (In case of Khal and River) (code)

Type of Water Bodies Code: 1=River, 2=Khal, 3=Beel, 4=Lake, 5=Ponds, 6=Gher, 7=others (specify)
Condition Code: 1=Over flooded for a long time, 2=Over flooded for a short time (flash flood), 3=Sufficient level of water for irrigation, 4=Inadequate water for irrigation in the adjacent agricultural land, 5=Fully dries up, 6=Others (specify).
Siltation Code: 1=Fully silted, 2= Partially silted, 3=Very little siltation, 4=No siltation, 5=Not applicable

1.10.6 Is there any water resources project existing in the area? 1=Yes, 2=No, 3= Don't Know

1.10.7 If yes, provide the following information.

1 Project Name	2 Type (code)	3 Main Client (code)	4 Status (code)

Type Code: 1=Flood Management, 2=Drainage Improvement, 3=On-Farm Water Management, 4=Improve Agriculture, 5= Improve fishery, 6= Improve Navigation, 7=Institutional Development/Capacity Building, 8=Operation and Maintenance. **Client Code:** 1=LGED, 2= BWDB, 3, WARPO, 4=BADC, 5= DPHE, 6= DAE, 7= IWTA, 8= DOF, 9=others (specify). **Status Code:** 1= Ongoing, 2=Completed (if completed, mention year of completion)

1.10.8 Do you know of any establishments in your area? 1=Yes, 2=No,

1.10.9 If yes, what structures exist in your area?

1 Existing Structure (code)	2 Number/ Length	3 Condition (code)

Existing Structure Code:1=Protected Embankment, 2=Regulator, 3=Dam, 4=Irrigation Canal, 5=Pumping Platform, 6=Aqueduct, 7=Syphon, 8= Culvert, 9=others (specify). **Condition Code:** 1 =fully operational, 2=partially damaged, 3=fully damaged

1.11 Natural Disaster and Damages/ Losses (During last 25 years):

1.11.1 Do you notice any natural calamities in your locality? 1= Yes, 2= No

1.11.2 If yes, what are the usual natural calamities that you notice in your locality and their frequency, coverage, and extent of damage?

1 Disaster	2 Frequency(code)	3 Coverage(code)	4 Extent of Damage (code)
Flood			
Storm			
Heavy Rainfall			
Drought			
Cyclone			
Tidal Surge			
Others(specify)			
No disaster scenery			

Frequency Code: 1=Several time in a year, 2=Every year, 3=After a few years

Coverage Code:1=Total area,2= Most of the area,3= Half of the area,4= Very little/partially

Extent Code: 1=High, 2= Medium, 3= Low

1.11.3 How many times were your agricultural land/house/pond/water bodies affected by floods during?

(a) House---------times (b)Agricultural land---------times

(b) Pond/water bodies--------times

1.11.4 What was the flood depth in your homestead /agricultural?

Flood Year	Water depth in Homestead (feet)	Water depth in Agricultural land (feet)

1.11.5 Did you lose any of your agricultural crops due to the flood? 1= Yes, 2=No,

1.11.5.1 Agricultural land damaged by a type of crop production due to flooding (During last 25 years)

1	2-3		4-5		6-7	
Flood Year	Aus		Aman		Others (Rabi, Boro, etc.)	
	Land (decimal)	Crop damage (Tk.)	Land (Decimal)	Crop damage (Tk.)	Land (Decimal)	Crop damage (Tk.)

1.11.6 Did you lose any of your aquaculture due to the flood? 1= Yes, 2=No,

1.11.6.1 If Yes, Aquaculture (pond/gher/water bodies) damaged by flood (During last 25 years)

1	2	3			4
Flood Year	Area of water bodies (Decimal)	Main type of fish (code)			Extent of damage (Tk.)

Fish Code:1=Aquaculture (e.g.Ruhu, Katla, Mrigel, Pangash, Foreign Magur, Sharputi, Tilapia, etc.),2=Natural fish(e.g.Boal, Shing, LocalMagur, Koi, Shoal, Takeyetc),3=Prawn (sweetwater),4= Prawn (Saline water),5=Others(Specify)

1.11.7 Did you lose any of crop due to the drought (During last 10 years)? 1= Yes, 2=No,

1.11.7.1 If Yes, In which year did you lose your crop due to the drought:

1.11.8 Please mention the extent of the crop damage:

Crop damage Code: 1=Completely damaged (100%),2=Almost completely damaged (75%-100%),3=Most of the crop damaged (50%- 75%), 4=Partly damaged (25%-50%), 5=Very little damaged (0%-25%), 6=No damage (0

1.11.9 When your homestead is inundated by floodwater, where normally do you take shelter?

Shelter Code: 1=Own homestead, 2= raised land, 3= relatives homestead, 4= Nearby community center, 5=road/embankment, 6=school/government buildings, 7=others (specify)

1.11.10 When you take shelter elsewhere, where do you keep your cattle/birds?

Code: 1=Take them to the shelter' 2= Leave at home, 3=others (specified)

1.12 Is there any specified government-built flood shelter near your village?
Code: 1=Yes, 2=No

1.12.1 Do you know that LGED is constructing a school cum flood shelter at your area?
Code: 1=Yes, 2=No

1.12.1.1 If yes, did LGED consult you and your neighbour during the preparation and design of the shelter?
Code: 1=Yes, 2=No

1.12.1.2 Do you think that the under-construction shelter will be beneficial to your community?
Code: 1=Yes, 2=No

1.13 Have you received any training on disaster management (Flood, Cyclone, Drought, etc)?
Code: 1=Yes, 2=No

1.13.1 If yes, who provided you with the training?
Code: 1= Department Disaster Preparedness, 2=LGED under the RIVER project, 3= NGO, 4=others (specify)

1.13.2 Do you believe that a flood is a natural disaster and we can do nothing to save our lives and properties?
Code: 1=Yes, 2=No

1.13.3 If no, then what type of preparation and precaution can you take?
Code: 1=Move to shelter, 2=stay home with caution, 3=Move to Relative house, 4-othersw (Specify)

1.13.4 Is there any early warning system for flood/ cyclone and other disasters for your area?
Code: 1-Yes, 2=No

1.13.5 If yes, please mention where you get the flood warning message.
Code: 1=Radio &TV, 2=Newspaper, 3= Virtual media, 4=LGED, 5=NGO, 6=Others (Specify)

1.13.6 Do you use the Flood Early Warning information for flood risk management?
Code:1=Yes, 2=No

1.13.7 If yes, please mention whether the warning message is beneficial or not.
Code: 1=Yes, 2=No

1.13.8 Is there a need for a designated flood shelter in your community?
Code: 1=Yes, 2=No

1.13.9 Do you think a multi-purpose flood shelter in the community will effectively minimize the loss and suffering of flood-marooned people, especially the poorest section of society?
Code: 1=Yes, 2=No

1.13.10 Will you move to the Flood Shelter during a flood?
Code: 1=Yes, 2=No

1.13.11 If no, where do you take shelter?
Code: 1=Own house, 2=Higher ground, 3= Relatives House, 4= Embankment, 5=others (specify)

1.13.12 Are you satisfied with the condition of existing shelters? Please indicate the reason.
Code: 1= easily accessible, 2=Adequate facilities, 3= Adequate space, 4=safe, 5=Not Satisfied

1.13.13 Is there a need for a designated shelter for livestock in the community during disasters?
Code: 1=Yes, 2=No

1.13.14 If no, where do you shelter your family and yourself and keep the livestock?
Code: 1=own house, 2=Nearest high land, 3=Embankment/road, 4=Sell out, 5=Others (specify)

1.13.15 What are the main problems in using the Disaster Shelter during a flood/ disaster?
Code: 1=Congestion, 2=Poor infrastructure, 3= Lack of WASH, 4=No facilities for women

1.14 Environmental Aspects (Flood Shelters and Roads Network)

1.14.1 What is the condition of the Flood Shelter (FS) connecting roads within the project area
Code: 1= Good, 2= Moderate, 3= Bad.

1.14.2 What is the Condition of the bridge/culverts with the connecting roads, within the catchment area
Code: 1= Good, 2= Moderate, 3= Bad.

1.14.3 Is there any lightning in the FS connecting roads?
Code: 1= Yes, 2= No

1.14.4 What is the Water supply condition of the flood shelter (FS), especially during the flood period?
Code:1= Adequate, 2= Inadequate

1.14.5 What is the Sanitary latrine condition of the flood shelter (FS), especially during the last flood
Code: 1= good, 2= Bad,

1.14.6 Is there adequate space in the flood shelter to accommodate household animals during a flood?
Code:1= Yes, 2= No

1.14.7 Does the flood shelter provide adequate space to accommodate the female population during a flood?
Code:1= Yes, 2= No

1.14.8 Is there any community road/ shelter connecting road in your school cum shelter catchment area?
Code: 1= Yes, 2= No.

1.14.9 If Yes, what is the length of the road (km)?

1.14.10 What is the type of road?
Code: 1= Earthen, 2= Brick paved, 3= Black top

1.14.11 If Earthen/ Brick paved, do you think improvement of the road is necessary?
Code 1= Yes, 2= No.

1.14.12 If yes, what are the reasons for improvement
Code: 1= Easy movement to flood shelter during a flood, 2= Improved connectivity in the area

1.14.13 How many people move along the shelter connecting road per day (Normal Day/ Hat Day) by means:

Movement on Foot			Movement using Easy Bike/Rickshaw/Bike		
Total people	Female	Youth	Total people	Female	Youth

1.14.14 Is there a provision of solar energy at the school cum shelter?
Code: 1= Yes, 2= No.

1.14.15 What is the current enrollment of the school cum cyclone shelter (Number)?

1.14.16 Are the school facilities (class/teachers' room, furniture, WASH facilities, playground) adequate?
Code 1=Yes, 2= No

1.14.17 If no, what facilities are lacking?
Code: 1= Insufficient class/teacher's rooms, 2= Inadequate furniture, 3 = No or Poor WASH facilities, 4 = playground, 5= road network

1.15 Women's Empowerment

1.15.1 Is any female member of your family involved in earning income? 1=Yes, 2=No

1.15.2 If yes, Name of the earning member (Respondent):

1.15.3 Age:

1.15.4 Educational Qualification: Code:

1.15.5 Relation with the HH head Code:

1.15.6 If yes, please give the following information:

Sl. No	Descriptions/Type of works performed	Description of work in the last month		Tentative Income in the last year (Tk)
		Total working days	Average per day work hours	
1	Government job			
2	Private job in an NGO			
3	Day labourer in earthwork/road repairing work			
4	Work as a maid in others' houses			
5	Building worker			
6	Agricultural worker in their own land			
7	Preparing seed bed			
8	Agricultural worker in another land			
9	Fowl/duck rearing			
10	Goat rearing			
11	Cow fattening			
12	Fry and fingerling catching			
13	Fishing			
14	Drying Fish			
15	Producing and selling food items			
16	Crop processing			
17	Business/Shopkeeper/Hawker			
18	Tailoring			
19	Computer operator			
20	Others (Specify)			

Educational Qualification Code: 1= Illiterate, 2= Can sign, 3= Can read and write, 4=above class Three, 5= above class Five, 6= above Class Seven, 7= Above class Ten, 8=SSC pass, 9= HSC, 10= Graduate, 11= Masters, 12= others (Specify).
Relationship Code: 1= Wife, 2= Daughter, 3=Daughter in Law, 4= Sister, 5= Sister in Law, 6= Nice, 7=Others (Specify)

1.15.7 For how many months did you work for the family in last year? ……..Months

1.15.8 Kindly provide the following information on your family income:

Sources of Income	Total Income (in Taka) in the last year
Own Income	
Husband's income	
Others (Specify)	

1.15.9 Do you spend all your earnings on your family? 1=yes, 2=No

1.15.10 If yes, what proportion of your earnings do you spend on the family……. %

1.15.11 If you don't spend on your family, what do you do with the money? 1 = Keep in Bank, 2= Spend for purchasing my own necessities, 3= Help my parents, 4=others (Specify) ☐

1.15.12 What is your proportion of financial contribution in the family income……% ☐

1.15.13 Please give information about your involvement in different months over the last 1 year.

Level of Involvement	Name of Months											
	Baishakh	Jaishtha	Asar	Srabon	Bhadro	Aswin	Kartik	Agrahayan	Posh	Magh	Falgum	Cahitra
Code=												

Level of Involvement code: 1= Very Busy, 2= Moderately Busy, 3= Busy, 4= Negligible. 5= Not at all Busy

1.15.14 Kindly give us the following information about your involvement (Time spent) in day-to-day HH works:

Type of Works	Average daily working hours
Agriculture Related Works	
Crop Production (Weeding, Plantation, Paddy Husking, Drying, Seed Preservation, Paddy storing)	
Poultry and Livestock rearing	
Homestead Gardening	
Others (Specify)	
Domestic Works	
Cooking and serving food to HH inmates	
Collection of Drinking water and fuel wood	
Washing Clothes and cooking utensils	
Nursing	
Caring Children	
Supporting Children's Education	
Looking after elderly HH members and other members	
Looking after husband	
Others (Specify)	
Leisure Time	
Take Rest and recreation	
Sleep at night	
Others(Specify)	

1.15.16 Do you feel that your workload is much more than that of other members of the HH; 1=Yes always, 2=In some months, 3=Almost the same, 4= Less ☐

1.15.17 Do you think changes have been taking place in terms of the involvement of males and females in agricultural work using modern technology? 1=Yes, 2=No ☐

1.15.18 If yes, in which sector are changes taking place:

Sector	Changes Taking Place(Code)	
	Male	Female
Land preparation		
Planting		
Weeding		
Yielding		
Crop threshing		
Crop Processing		

Changes Occurred Code: 1=Increased, 2=Decrease, 3=Same

1.15.19 Fuel Collection for Cooking:

Sources of Fuel	Value of Collected Fuel (Taka)
Homestead trees	
Managed from roadside trees or government forests, trees in fallow land without any cost	
Kerosene	
Gas	
Pit coal	
Charcoal	
Others (Specify)	

1.15.20 Who collects fuel for cooking: 1= HH Head, 2=other female family members, 3= Other male members, 4= Family children, 5= Husband, 6=Others (Specify) ☐

1.15.21 Did you face any problems while initiating any income-generating activities? 1= yes, 2=No ☐

1.15.22 If yes, why or for what reasons did you face the problems:
1=Husband, 2=Son, 3= Father/Mother-in-Law, 4= Social Pressure, 5=others (Specify). ☐

1.15.23 Information on Women's Empowerment:

In spending your earnings, who normally takes decision and why

Code	Decision Make
1	Self
2	Husband
3	Husband and wife together
4	Father-Mother-in-Law
5	All together
6	Others (Specify)

1.15.24 What factors influence who makes decisions on spending your earnings? 1= There is none to suggest, 2= Because it is my earning, 3= This is a social norm, 4=Head of the Family, 5= Others (Specify) ☐

1.15.25 Have any of your household members been sick in the last three months? 1=Yes, 2=No ☐

1.15.26 Description of household members' sickness last three months

1 Household member (Code)	2 Type of disease (Code)	3 Duration of illness (Days)	4 Sources of treatment (Code)	5 Total Amount Spent on treatment (Tk)

Type of Illness Code: 1=Cough/Flu/Fever, 2=Diarrhea, 3= Dysentery, 4=Chicken pox/Measles, 5=Malaria, 6=Tuberculosis, 7=Typhoid, 8=Asthma, 9=Injury or trauma,

Source of Treatment Code:1=Homeopath, 2=Hekim/kabiraj, 3=Ojha/Baidda/Fakir, 4=Quack, 5=MBBS, 6=Union health center, 7=Health and family welfare center, 8=Thana health center, 9=DMC/clinic/hospital, 10= Pharmacy, 11=Did not get treatment, 12=Did not take medical care, 13=Others (specify), 99=Not applicable

1.15.27 As a woman, describe the 3 major problems of women in your locality during natural disasters like flooding, cyclones, or droughts

Code: 11= In this area, women are backwards in terms of education, 2= In this area, women are suffering from insecurity, 3= Women are deprived of economic activities due to a lack of capital,4= Women cannot take decision singularly without the help of males,5= Limited economic activities for women,6= Limited organisational activities for women,7= Women are oppressed with problems such as early marriage, dowry etc, 8= Inadequacy of health services for women, 9= Others (specify).

2. FGD Checklist









FGD Discussion Guide/ Issues

1. **Flood Incidence:**

i) Intensity of flood occurrence in the area.

ii) Usual causes of flooding in the area (e.g., rainfall, river overflow, poor drainage).

iii) Effects of flooding on the community in recent years (e.g., losses of property, livelihood, health, safety etc.).

2. **Flood Preparedness and Early Warning:**

i) Present early warning system in the community and functioning and effectiveness of early warning information on impending floods.

ii) Measures taken by households or the community before arriving a flood.

iii) Existence of community disaster plans, drills, or awareness programs.

iv) Having ideas about the disaster associated risk in the community.

v) Taking shelter by the local people during flood.

3. **Flood Shelters and Roads Infrastructure (with existing condition, facilities etc.):**

i) Existence of designated flood shelter in the area:

ii) Existence of shelter connecting road and effects of the shelter connecting road by flood water during flood.

- Water depth and timing of submergence of the road due to the water logging situation by flood water.
- Timing of removal of the flood water.
- Present condition of the road and information regarding repair/improvement etc.

iii) Number of people using the flood shelter during flood.

iv) Number of women and children using the flood shelter.

v) Time (minimum and maximum) required reaching the flood shelter.

vi) Existence of community infrastructure road/ GCC road within the vicinity of the shelter, present condition of the road and necessity of road repair/improvement.

vii) Owners of the community road/ shelter connecting road: (given/acquired/handled the land).

viii) Opinion of the FGD respondents regarding the community road/ shelter connecting road (given/acquired/handled the land).

ix) Present facilities (chair, table, bench, water, toilet, open space, etc.) available for school students in the shelter and lacking of facilities for schooling activities.

x) Information on present sanitation facilities (toilets accessible, well-lit at night and separated by gender).

xi) Information on electricity connection in the shelter (including frequency of load shedding, arrangement of alternate lighting facility (solar energy) during load shedding).

xii) Safety (for elderly people, women, children) during communication at the time of load shedding during stay at flood shelter and necessary measures taken to solve the problem.

xiii) Alternate arrangement of water if there is no water facility in the existing shelter:

xiv) Overall opinion of the FGD respondents on the existing flood shelters.

4. **Importance of primary education in the area and role of the shelter for the multipurpose use as school on the primary education in the area.**
5. **Perception of the FGD respondents of the community on the interventions under RIVER Project (construction of flood shelter and road network).**
6. **Other issues if any (To be mentioned by the FGD respondents).**

3. KII Questionnaire









KII Guide Questions/ Checklist Details

SL. No.	Question	Answer	Respondent
1.	Types of Shelter consideration	Present Flood Shelter=1 New Flood Shelter-2 Community Road/ Shelter Approach Road=3	XEN/Sr. Asstt. Engineer/ Upazila Engineer/RRE/ DRE (Please indicate)
2.	What is the condition of present flood shelter?	Goed-1, Medium-2; Bad=3	
3.	Necessity of repairing present shelter (If any, mention please areas of repair)	Ground floor=1; 1st floor=2; 2nd floor-3; Roof=4; Beam=5; Column = 6 Wall=7, Window=8; Door=9; Toilet=10; Stairs=11; Ramp=12; Others=13	
4.	Is Flood Shelter under RIVER Project being implemented at your locality?	Yes=1 No=2 If No, Do you feel necessity of constructing new flood shelter at your area? Yes=1 No=1	
5.	How is the present communication system/access road of shelter?	No communication system=1. No access road = 2; Present Road damaged=3	
6.	Is there any necessity of bridge or culvert to go to the shelter?	No need of bridge or culvert=1 Have need but don't have=2	
7.	From how far people come to use shelter?	Less than 1 KM = 1 More than 1 KM = 1	
8.	Probable number of users of shelter		
9.	Capacity of shelter	Number People…… ……	
10.	What are the issues of administration and maintenance of shelter?	Major types=1 Medium types=2 Minor types=3 Others =4	
11.	What is the institutional problem of shelter/access road?	A…… …… B…… ……	
12.	What are the challenges to sustain the use of shelter for long time?	A…… …… B…… ……	

SL. No.	Question	Answer	Respondent
13.	What are the environmental A challenges of building and using shelter house?	A…… …… B…… ……	
14.	Is there any external impact on surrounding environment because of the shelter?	A…… …… B…… ……	
15.	Do you have idea about RIVER Project that are taken up by LGED in your area?	Yes= 1 No=2	
16.	If yes, how many people will be benefitted from the village level interventions (indirect benefits by installation of solar street lighting system, landing stages, lighting protection system etc.) of RIVER project implemented under your jurisdiction area?		
17.	What are the hazards/floods that occurred in your area?		DIC (CEMRCB)/ UDMC/ PIU (DDM)
18.	How does the community deal with disasters like flooding? If there any community mechanism for preparedness and response?	If Yes, pls. describe the mechanism	
19.	Are you aware of the any communities that deal with disaster risk management in your community?	Yes=1 No=2 If Yes, committee are they active?	
20.	How do you receive early warning information about floods?	Pls. mention.	
21.	Is there is an early warning system in your community?	Yes=1 No=2 If yes, committee are they active?	
22.	Is the present early warning system being effective?	Yes=1 No=2 If No, why not?	
23.	What are the problems of using present shelter as school?	Ensuring enough space to accommodate=1 Water supply and sanitation system=3	Upazila Education Officer
24.	Do you have idea about RIVER Project that are taken up by LGED in your area?	Yes= 1 No=2	
25.	If Yes, Do you think that the number of student enrollment with educational facilities (with space, class rooms,	Yes= 1 No=2	

SL. No.	Question	Answer	Respondent
	teachers' room, furniture, WASH facilities) will be enhanced due to the implementation of RIVER project.	If No, Give reasons	
26.	What are the hazards/floods that occurred in your area?		Upazila Agriculture Officer
27.	How frequent have you been facing these floods in last 25 years?		
28.	What are the highest (severe) and normal flood level in your community?		
29.	What type of damages of crops occur due to flooding in your community?		
30.	What are the challenges to protect cattle during flood?	Cattle house with shelter=1 Enough space for cattle house=2 Secure transfer of cattle=3 Training of owners to feed and health care of cattle = 4 Other issues=5 Write at next page needed if needed……..	Upazila Livestock Officer
31.	Is there any arrangement of tackling these challenges of present RIVER project?	Kept=1 Didn't kept properly=2 Don't know=3	
32.	Is there any problem-solving system in present RIVER project?	Kept=1 Didn't kept properly = 2 Don't know=3	
33.	What is the total number of people in the shelter catchment area?	…… ……	NGO official /Chairman/Member/Women Member (Please indicate)
34.	What is the number of vulnerable people in the shelter catchment area?		
35.	What is the number of cattle in the shelter catchment area?	…… ……..	
36.	What is the social and indigenous problem?	A…… …… B…… …… C…… ……	
37.	What are the economic impacts of the flood shelter?	A…… …… B…… ……..	
38.	What are the external economic impacts of the shelter?	A…… …… B…… ……	

SL. No.	Question	Answer	Respondent
39.	Do you know whether your school has taken up under RIVER Project of LGED?	Yes= 1 No=2	Headmaster of the primary school/ SMC members
40.	If Yes, Do you think that the number of student enrollment with educational facilities (with space, class rooms, teachers' room, furniture, WASH facilities) will be enhanced due to the implementation of RIVER project.	Yes= 1 No=2 If No, give reasons	
41.	What is number of students at the shelter cum school?	…… ……	
42.	Is there any opportunity to establish business or business organization in the school cum shelter?	Yes=1 No=2	

4. Detailed Analytical Tables









Annex-4

Table 3.1: Household Category by Landholding Size

Household Categories	Sample Household					
	Project Area		Control Area		Total	
	N	%	N	%	N	%
Landless (0-0.49) (LL)	1825	48.67	614	49.12	2439	48.78
Marginal farmer (0.50-0.99) (MRF)	613	16.35	234	18.72	847	16.94
Small farmer (1.00-2.49) (SF)	862	22.99	297	23.76	1159	23.18
Medium farmer (2.50-7.49) (MF)	402	10.72	98	7.84	500	10.00
Large farmer (7.50 +) (LF)	48	1.28	7	0.56	55	1.10
All	**3750**	**100.00**	**1250**	**100.00**	**5000**	**100.00**

Annex-4

Table 3.2 Household Category by Landholding Size by Project District

	Project Area						Control Area					
	Household category by landholding size						Household category by landholding size					
	LL	MRF	SF	MF	LF	Total	LL	MRF	SF	MF	LF	Total
Kurigram	70.48	15.71	12.38	1.43	0.00	100.00	68.15	11.11	20.00	0.74	0.00	100.00
Lalmonirhat	56.11	20.56	17.78	5.00	0.56	100.00	48.33	21.67	23.33	6.67	0.00	100.00
Rangpur	52.78	15.56	16.67	13.33	1.67	100.00	40.00	35.00	20.00	5.00	0.00	100.00
Nilphamari	53.85	23.59	18.97	3.08	0.51	100.00	52.00	16.00	29.33	2.67	0.00	100.00
Gaibandha	57.25	19.22	17.65	4.71	1.18	100.00	52.22	23.33	16.67	7.78	0.00	100.00
Sirajganj	47.27	18.79	22.42	9.70	1.82	100.00	41.67	18.33	26.67	11.67	1.67	100.00
Pabna	33.94	17.58	35.15	11.52	1.82	100.00	35.00	21.67	38.33	5.00	0.00	100.00
Bogura	55.15	18.79	15.15	10.30	0.61	100.00	60.00	17.78	17.78	4.44	0.00	100.00
Gopalganj	28.28	15.15	35.76	19.60	1.21	100.00	37.78	20.56	32.22	9.44	0.00	100.00
Rajbari	33.33	21.82	32.73	12.12	0.00	100.00	32.00	22.00	36.00	10.00	0.00	100.00
Madaripur	50.48	13.33	24.52	11.19	0.48	100.00	52.50	20.83	14.17	11.67	0.83	100.00
Faridpur	42.86	13.65	30.48	12.38	0.63	100.00	45.83	21.67	23.33	9.17	0.00	100.00
Sunamganj	50.11	12.64	18.39	14.94	3.91	100.00	55.56	10.37	20.74	10.37	2.96	100.00
Habiganj	49.74	15.90	18.46	12.82	3.08	100.00	55.00	11.67	18.33	13.33	1.67	100.00
All	**48.67**	**16.35**	**22.99**	**10.72**	**1.28**	**100.00**	**49.12**	**18.72**	**23.76**	**7.84**	**0.56**	**100.00**

	Project Area						Control Area					
	Household category by landholding size						Household category by landholding size					
	LL	MRF	SF	MF	LF	Total	LL	MRF	SF	MF	LF	Total
Rangpur	60.41	18.37	15.93	4.63	0.65	100.00	55.00	19.52	21.43	4.05	0.00	100.00
Rajshahi	45.45	18.38	24.24	10.51	1.41	100.00	44.24	19.39	28.48	7.27	0.61	100.00
Dhaka	38.85	15.05	30.82	14.55	0.72	100.00	42.98	21.06	25.74	10.00	0.21	100.00
Sylhet	50.00	13.65	18.41	14.29	3.65	100.00	55.38	10.77	20.00	11.28	2.56	100.00
All	**48.67**	**16.35**	**22.99**	**10.72**	**1.28**	**100.00**	**49.12**	**18.72**	**23.76**	**7.84**	**0.56**	**100.00**

Table 3.3: Demographic Characteristics by Household Categories

Annex-4

Household Category	Project area									Control area								
	Population						Sex ratio (F:M)	No. of dependent members per earner	House-hold Size	Population						Sex ratio (F:M)	No. of dependent members per earner	House-holds Size
	Male		Female		Total					Male		Female		Total				
	N	(%)	N	(%)	N	(%)				N	(%)	N	(%)	N	(%)			
Landless	3740	50.84	3617	49.16	7357	100.00	0.97	2.28	4.03	1267	51.59	1189	48.41	2456	100.00	0.94	2.25	4
Marginal Farmer	1373	52.99	1218	47.01	2591	100.00	0.89	2.06	4.23	506	50.65	493	49.35	999	100.00	0.97	2.32	4.27
Small Farmer	2030	52.23	1857	47.77	3887	100.00	0.91	2.14	4.51	687	52.97	610	47.03	1297	100.00	0.89	2.01	4.37
Medium Farmer	983	51.96	909	48.04	1892	100.00	0.92	2.11	4.71	264	53.44	230	46.56	494	100.00	0.87	2.25	5.04
Large Farmer	134	52.76	120	47.24	254	100.00	0.90	2.10	5.29	14	41.18	20	58.82	34	100.00	1.43	2.40	4.86
All	**8260**	**51.69**	**7721**	**48.31**	**15981**	**100.00**	**0.93**	**2.18**	**4.26**	**2738**	**51.86**	**2542**	**48.14**	**5280**	**100.00**	**0.93**	**2.20**	**4.22**

Table 3.4: Household Size and Literacy Rate by Project Districts

Annex-4

Project Districts	Project Area			Control Area		
	Household Size	No of dependent Members per earner	Literacy rate (%)	Household Size	No of dependent Members per earner	Literacy rate (%)
Kurigram	3.92	2.19	85.63	3.77	2.14	89.89
Lalmonirhat	4.51	2.31	87.61	4.47	2.35	83.13
Rangpur	3.83	1.75	80.23	3.58	2.12	88.14
Nilphamari	4.24	2.11	85.85	4.32	2.48	85.87
Gaibandha	3.56	2.29	85.16	3.71	2.67	85.66
Sirajganj	3.88	2.25	94.66	4.23	2.06	95.98
Pabna	4.26	2.36	95.25	4.12	2.21	94.66
Bogura	3.59	2.40	92.95	3.29	2.70	89.15
Gopalganj	4.48	2.21	92.01	4.39	1.90	89.87
Rajbari	4.31	2.19	96.34	4.88	2.21	94.81
Madaripur	4.20	2.15	93.73	4.25	2.52	95.48
Faridpur	4.61	1.89	89.45	4.38	2.04	86.89
Sunamganj	4.73	2.32	88.64	4.70	2.15	89.44
Habiganj	4.94	2.33	90.29	4.60	2.17	90.08
All	**4.26**	**2.18**	**89.81**	**4.22**	**2.20**	**89.88**

Division	Project Area			Control Area		
	Household Size	No of dependent Members per earner	Literacy rate (%)	Household Size	No of dependent Members per earner	Literacy rate (%)
Rangpur	3.97	2.14	85.13	3.93	2.33	86.93
Rajshahi	3.91	2.34	94.36	3.93	2.25	93.92
Dhaka	4.40	2.11	92.41	4.41	2.10	91.09
Sylhet	4.80	2.32	89.16	4.67	2.16	89.63
All	4.26	2.18	89.81	4.22	2.20	89.88

Annex-4

Table 3.5 Distribution of Household Members by Occupation

Occupation	% of working population having occupation			
	Project area		Control area	
	Primary Occupation		Primary Occupation	
	No.	%	No.	%
Agriculture	1721	34.30	607	36.79
Agriculture Day Labour	538	10.72	167	10.12
Non-agriculture Day Labour	676	13.47	204	12.36
Business	773	15.40	257	15.58
transport	218	4.34	81	4.91
Fishing	18	0.36	13	0.79
Livestock Rearing	61	1.22	12	0.73
Government Service	239	4.76	44	2.67
Private Service	572	11.40	212	12.85
Others (Expatriate, Barber, Lawyer, Etc.)	202	4.03	53	3.21
Total	**5018**	**100**	**1650**	**100**

Annex-4

Table3.6: Land Ownership by Landholding Size

Household Categories	Land Owned In (Acres)																	
	Project Area									Control Area								
	Sample (N)	Home-Stead	Farming	Orchard	Pond	Fallow	Sharecropped-In	Sharecropped-Out	Total	Sample (N)	Home-Stead	Farming	Orchard	Pond	Fallow	Sharecropped-In	Sharecropped-Out	Total
Landless	1825	0.07	0.06	0.00	0.00	0.00	0.02	0.00	0.14	614	0.07	0.06	0.00	0.00	0.00	0.02	0.00	0.14
Marginal Farmer	613	0.10	0.54	0.01	0.01	0.00	0.05	0.00	0.71	234	0.10	0.55	0.00	0.00	0.00	0.04	0.00	0.70
Small Farmer	862	0.14	1.00	0.02	0.05	0.00	0.36	0.14	1.44	297	0.13	1.04	0.02	0.02	0.00	0.38	0.13	1.46
Medium Farmer	402	0.21	3.01	0.06	0.13	0.03	0.34	0.64	3.12	98	0.20	3.38	0.04	0.04	0.00	0.18	0.94	2.90
Large Farmer	48	0.30	9.90	0.11	0.72	0.08	0.00	3.05	8.05	7	0.14	10.40	0.29	0.02	0.09	0.00	3.07	7.87
All	**3750**	**0.11**	**0.79**	**0.01**	**0.04**	**0.00**	**0.14**	**0.14**	**0.95**	**1250**	**0.10**	**0.70**	**0.01**	**0.01**	**0.00**	**0.12**	**0.12**	**0.82**

Annex-4

Table 3.7:Livestock and Poultry Ownership and Average Number Owned

Farm animal	Size of livestock owned			
	Project area		Control area	
	% of households having livestock	Per household present position (No)	% of households having livestock	Per household present position
Bullock (Castrated OX)	6.32	1.57	6.64	1.66
Milch Cow	30.93	1.68	27.68	1.63
Other Cows	7.31	1.61	7.52	1.57
Ox	7.44	1.60	7.36	1.45
Calf (less than 1 year)	19.12	1.30	16.16	1.31
Buffalo	0.03	1.00	0.08	3.00
Goat	18.13	2.62	16.96	2.61
Sheep	0.51	3.95	0.88	3.82
Pigeon	1.68	17.56	2.00	15.56
Chicken	37.41	11.88	34.96	11.13
Duck	23.65	9.37	23.84	11.04
Others (Specify)	0.11	6.50	0.08	22.00
Total	**64.59**	**5.61**	**61.36**	**5.78**

Annex-4

Table 3.8: Value of Livestock per Household by District

District	Project Area	Control Area
	Per HH livestock owned (Value Tk.)	Per HH livestock owned (Value Tk.)
Kurigram	44,219	35,862
Lalmonirhat	78,297	63,797
Rangpur	93,510	81,011
Nilphamari	85,537	67,733
Gaibandha	69,967	57,687
Sirajganj	133,890	110,364
Pabna	77,056	62,650
Bogura	80,320	59,738
Gopalganj	104,271	75,639
Rajbari	75,668	80,258
Madaripur	34,872	41,083
Faridpur	97,083	78,721
Sunamganj	98,036	89,573
Habiganj	64,304	41,512
All	**79,091**	**66,767**

Division	Project Area	Control Area
	Per HH livestock owned (Value Tk.)	Per HH livestock owned (Value Tk.)
Rangpur	68,308	56,671
Rajshahi	97,089	79,206
Dhaka	78,371	68,094
Sylhet	87,595	74,785
All	**79,091**	**66,767**

Annex-4

Table 3.9: Asset Base of Households by Landholding Size

Assets	Per household value of asset (Tk.)									
	Project area									
	LL	%	MRF	%	SF	%	MF	%	LF	%
Homestead land	528399	45.26	870082	24.37	1420972	20.12	2100778	11.05	2020579	4.97
Agriculture land	213987	18.33	2055891	57.59	4490248	63.59	14873534	78.20	33725476	82.92
Ponds/ditches	6743	0.58	28651	0.80	131332	1.86	254905	1.34	268112	0.66
Garden/orchard/other land	4350	0.37	20085	0.56	125486	1.78	350041	1.84	2190741	5.39
Fallow Land	48	0.00	249	0.01	1271	0.02	8681	0.05	14497	0.04
House structure	246170	21.09	351747	9.85	469954	6.66	701403	3.69	1229583	3.02
Agri. Equipment	2398	0.21	8789	0.25	11243	0.16	25746	0.14	55184	0.14
Livestock	45834	3.93	72978	2.04	117119	1.66	137291	0.72	251227	0.62
Fishing equipment	941	0.08	1382	0.04	2313	0.03	2580	0.01	13490	0.03
Tree	15090	1.29	24898	0.70	55852	0.79	120604	0.63	154158	0.38
Furniture and personal effects	60481	5.18	71350	2.00	101370	1.44	169844	0.89	200322	0.49
Non-agri. Assets	2764	0.24	3696	0.10	5559	0.08	29679	0.16	18906	0.05
Others assets	40217	3.44	60124	1.68	128710	1.82	244251	1.28	530813	1.31
Total	**1167422**	100.00	**3569922**	100.00	**7061429**	100.00	**19019337**	100.00	**40673088**	100.00

Assets	Per household value of asset (TK.)									
	Control area									
	LL	%	MRF	%	SF	%	MF	%	LF	%
Homestead land	742857	51.11	1180617	28.00	1372091	20.61	1758655	9.27	287157	1.04
Agriculture land	289614	19.93	2443422	57.95	4318480	64.86	15437627	81.37	20093370	73.08
Ponds	11762	0.81	30066	0.71	176891	2.66	244784	1.29	365314	1.33
Garden/orchard/other land	8819	0.61	17012	0.40	46854	0.70	119992	0.63	771	0.00
Fallow Land	0	0.00	0	0.00	505	0.01	0	0.00	5374	0.02
House structure	246393	16.95	311333	7.38	370778	5.57	660898	3.48	5478571	19.93
Agri. Equipment	1992	0.14	8457	0.20	22898	0.34	41694	0.22	41650	0.15
Livestock	30994	2.13	70019	1.66	108732	1.63	147182	0.78	189400	0.69
Fishing equipment	690	0.05	802	0.02	579	0.01	7918	0.04	571	0.00
Tree	22448	1.54	27292	0.65	44263	0.66	187600	0.99	110314	0.40
Furniture and personal effects	61795	4.25	66996	1.59	86661	1.30	175345	0.92	290943	1.06
Non-agri. Assets	1704	0.12	2771	0.07	1870	0.03	18388	0.10	114571	0.42
Others assets	34342	2.36	57738	1.37	107211	1.61	173036	0.91	517857	1.88
Total	**1453412**	100.00	**4216526**	100.00	**6657813**	100.00	**18973118**	100.00	**27495866**	100.00

Table 3.10: Asset Base of Households by Landholding Size

Annex-4

Project Districts	Project Area						Control Area					
	Per Household Value of Asset Tk.)						Per Household Value of Asset (000 Tk.)					
	LL	MRF	SF	MF	LF	All	LL	MRF	SF	MF	LF	All
Kurigram	649725	2995353	3135356	13300630	0	1506795	653492	2189779	3156457	19141448	0	1461731
Lalmonirhat	642665	1923439	3321369	6707123	29221830	1844146	403241	1508728	3424030	10025846	0	1989121
Rangpur	809291	3654572	6991771	18657718	24655357	5059528	1374313	3756141	6337882	21601800	0	4212041
Nilphamari	446483	1329286	2974416	7444598	14368210	1421113	571901	1763744	2958808	9946950	0	1712756
Gaibandha	912162	2356946	4245012	11644123	52555128	2890535	1124361	2441512	5312287	9716874	0	2797990
Sirajganj	979344	2353287	4527851	9292716	35147642	3460592	957848	2612868	2797994	7360711	3232020	2536877
Pabna	3188951	8735257	12961657	33731067	114861827	13146398	4522582	9804635	16674754	44818253	0	12340143
Bogursa	1420006	3683472	6897230	20583781	60351780	5006758	1539386	4039261	8797231	14468830	0	3848734
Gopalganj	1633625	3932363	7302816	20072019	48615817	8191745	1707998	3310742	6334188	16335231	0	4909573
Rajbari	1223223	2118251	4032465	7734580	0	3127145	978834	1812194	3247264	7762683	0	2657193
Madaripur	2310690	7371157	12431750	37447216	124122826	9979491	3002091	7026215	18508966	49627663	56018080	11918708
Faridpur	1691647	6038010	11278659	32226432	76977465	9465218	2572884	8392327	7830982	19987465	0	6656989
Sunamganj	661601	1705356	3175828	6433878	18985633	2834592	790779	2699601	4018816	10565140	27620284	3466835
Hobiganj	760163	2021817	2428366	7887824	25009213	2928637	915433	2899072	4766497	6676530	22739825	2984772
All	**1167422**	**3569922**	**7061429**	**19019337**	**40673088**	**5334384**	**1453412**	**4216526**	**6657813**	**18973118**	**27495866**	**4726615**

Table 3.11 Annual Gross Income per HH by Sector by Landholding Size

Annex-4

Source / Landholding size	Annual gross income (TK.) per household											
	Project area											
	LL	%	MRF	%	SF	%	MF	%	LF	%	All	%
Agriculture	24,722	9.96	72,020	25.63	114,773	33.34	159,450	35.76	245,833	41.37	70,426	23.38
Livestock	18,333	7.39	25,948	9.23	45,232	13.14	73,147	16.40	138,938	23.38	33,181	11.01
Wage	94,596	38.12	71,088	25.30	49,786	14.46	40,468	9.07	47,975	8.07	74,054	24.58
Business/ industry	44,635	17.99	44,367	15.79	41,770	12.13	49,614	11.13	50,333	8.47	44,539	14.78
Rent/Lease/ Mortgage/ sale etc.	3,190	1.29	3,352	1.19	3,673	1.07	11,823	2.65	23,438	3.94	4,512	1.50
Paid jobs/Service	14,341	5.78	13,700	4.88	11,268	3.27	13,604	3.05	12,500	2.10	13,427	4.46
Government sources	2,189	0.88	2,062	0.73	1,255	0.36	1,965	0.44	298	0.05	1,906	0.63
Gathering/Collecting	4,536	1.83	17,853	6.35	25,498	7.41	40,340	9.05	64,354	10.83	16,135	5.36
Miscellaneous	41,627	16.77	30,615	10.89	51,042	14.82	55,525	12.45	10,625	1.79	43,084	14.30
Total	**248,169**	**100.00**	**281,005**	**100.00**	**344,299**	**100.00**	**445,936**	**100.00**	**594,294**	**100.00**	**301,265**	**100.00**
Per capita income	**61,562**		**66,482**		**76,353**		**94,750**		**112,307**		**70,693**	

Source / Landholding size	Control Area											
	LL	%	MRF	%	SF	%	MF	%	LF	%	All	%
Agriculture	26,614	10.75	74,318	25.99	116,761	35.16	186,561	37.84	242,857	38.44	70,714	23.87
Livestock	15,230	6.15	28,171	9.85	45,574	13.72	62,847	12.75	50,000	7.91	28,790	9.72
Wage	104,703	42.30	78,526	27.46	44,194	13.31	33,704	6.84	17,143	2.71	79,369	26.80
Business/ industry	46,355	18.73	38,120	13.33	31,195	9.39	79,602	16.15	178,571	28.26	44,558	15.04
Rent/Lease/ Mortgage/ sale etc.	2,212	0.89	1,658	0.58	7,579	2.28	17,735	3.60	20,000	3.17	4,700	1.59
Paid jobs/Service	10,448	4.22	3,915	1.37	4,976	1.50	6,918	1.40	0	0.00	7,590	2.56
Government sources	746	0.30	3,071	1.07	1,777	0.54	4,978	1.01	371	0.06	1,756	0.59
Gathering/Collecting	5,636	2.28	12,824	4.48	32,896	9.91	60,378	12.25	92,857	14.70	18,239	6.16
Miscellaneous	35,563	14.37	45,368	15.86	47,114	14.19	40,298	8.17	30,000	4.75	40,483	13.67
Total	**247,507**	**100.00**	**285,971**	**100.00**	**332,066**	**100.00**	**493,020**	**100.00**	**631,800**	**100.00**	**296,199**	**100.00**
Per capita income	**61,877**		**66,984**		**76,040**		**97,806**		**149,574**		**70,123**	

Table 3.12: Annual Gross Expenditure per Household by Sources and Landholding Size

Annex-4

Item	Annual expenditure (TK.) per household											
	Project area											
	LL	%	MRF	%	SF	%	MF	%	LF	%	All	%
Food and daily necessities	121,719	50.76	130,132	48.84	144,467	46.78	175,572	45.38	196,000	39.03	135,047	48.38
Cloth /Shoes/Socks/etc.	10,356	4.32	11,034	4.14	14,376	4.65	20,478	5.29	18,763	3.74	12,584	4.51
Bed sheet/Quilt	794	0.33	1,087	0.41	1,061	0.34	1,375	0.36	2,500	0.50	987	0.35
Furniture	988	0.41	1,178	0.44	2,553	0.83	2,175	0.56	3,718	0.74	1,541	0.55
Utensils	576	0.24	731	0.27	681	0.22	805	0.21	1,290	0.26	659	0.24
Livestock feed and treatments	6,714	2.80	13,113	4.92	19,943	6.46	20,233	5.23	74,588	14.85	13,119	4.70
Poultry feed	45	0.02	137	0.05	647	0.21	269	0.07	10,750	2.14	360	0.13
Wax (candle)/fuel wood	1,697	0.71	1,575	0.59	2,289	0.74	1,947	0.50	2,238	0.45	1,847	0.66
Health and medicine	19,971	8.33	18,540	6.96	23,130	7.49	32,290	8.35	28,863	5.75	21,898	7.84
Electricity bill	8,490	3.54	10,877	4.08	11,639	3.77	15,691	4.06	19,122	3.81	10,512	3.77
Soap and Cosmetics	3,820	1.59	3,769	1.41	3,771	1.22	4,375	1.13	4,833	0.96	3,873	1.39
Education of Children	11,339	4.73	14,968	5.62	21,270	6.89	19,914	5.15	27,125	5.40	15,337	5.49
Tiffin	1,734	0.72	2,035	0.76	2,134	0.69	2,209	0.57	3,025	0.60	1,943	0.70
HH repair	3,094	1.29	2,805	1.05	5,170	1.67	7,543	1.95	5,500	1.10	4,032	1.44
House rent	66	0.03	0	0.00	146	0.05	67	0.02	0	0.00	73	0.03
Tube well installation	39	0.02	19	0.01	260	0.08	54	0.01	13	0.00	88	0.03
Latrine installation/maintenance	42	0.02	17	0.01	80	0.03	19	0.01	63	0.01	45	0.02
Tax/Vat etc	59	0.02	197	0.07	211	0.07	223	0.06	125	0.02	135	0.05
Credit installment	8,682	3.62	6,319	2.37	6,162	2.00	7,345	1.90	12,500	2.49	7,622	2.73
Recreation	311	0.13	834	0.31	887	0.29	952	0.25	475	0.09	600	0.21
Refreshment	1,852	0.77	2,555	0.96	1,463	0.47	2,377	0.61	4,780	0.95	1,971	0.71
Court cases	0	0.00	82	0.03	52	0.02	90	0.02	0	0.00	35	0.01
Gift/dowry	1,434	0.60	2,767	1.04	2,344	0.76	2,511	0.65	1,500	0.30	1,977	0.71
Salary of Servants	453	0.19	673	0.25	1,627	0.53	5,119	1.32	11,250	2.24	1,397	0.50
Transport	19,096	7.96	20,849	7.82	23,714	7.68	32,590	8.42	32,625	6.50	22,064	7.90
Fuel	10,438	4.35	10,093	3.79	7,280	2.36	14,424	3.73	15,513	3.09	10,148	3.64
Religious Festivals	5,686	2.37	8,836	3.32	10,621	3.44	15,733	4.07	24,775	4.93	8,657	3.10
Others (Specify)	318	0.13	1,233	0.46	863	0.28	478	0.12	250	0.05	609	0.22
Total	**239,815**	100.00	**266,457**	100.00	**308,843**	100.00	**386,856**	100.00	**502,179**	100.00	**279,158**	100.00
Per capita all expenditure	59,489		63,041		68,490		82,197		94,900		65,505	

Table-3.13

Annex-4

Item	Annual expenditure (TK.) per household											
	Control area											
	LL	%	MRF	%	SF	%	MF	%	LF	%	Total	%
Food and daily necessities	120,726	50.95	123,337	45.88	138,438	46.87	195,005	46.93	219,916	42.91	131,802	48.40
Cloth /Shoes/Socks/etc.	12,148	5.13	12,610	4.69	14,568	4.93	28,800	6.93	23,143	4.52	14,177	5.21
Bed sheet/Quilt	708	0.30	735	0.27	936	0.32	1,452	0.35	2,057	0.40	833	0.31
Furniture	1,073	0.45	1,919	0.71	1,932	0.65	2,120	0.51	17,571	3.43	1,610	0.59
Utensils	538	0.23	673	0.25	806	0.27	1,433	0.34	514	0.10	697	0.26
Livestock feed and treatments	6,186	2.61	18,903	7.03	20,616	6.98	15,741	3.79	11,486	2.24	12,774	4.69
Poultry feed	11	0.00	62	0.02	424	0.14	98	0.02	0	0.00	125	0.05
Wax (candle)/fuel wood	2,216	0.94	1,735	0.65	2,018	0.68	2,987	0.72	0	0.00	2,127	0.78
Health and medicine	16,816	7.10	20,004	7.44	18,658	6.32	45,269	10.89	88,286	17.23	20,481	7.52
Electricity bill	8,231	3.47	9,786	3.64	12,049	4.08	15,474	3.72	17,143	3.35	10,047	3.69
Soap and Cosmetics	3,864	1.63	3,503	1.30	4,134	1.40	6,003	1.44	10,200	1.99	4,064	1.49
Education of Children	11,504	4.85	16,361	6.09	17,507	5.93	23,192	5.58	46,971	9.17	14,954	5.49
Tiffin	1,444	0.61	1,762	0.66	1,452	0.49	2,198	0.53	857	0.17	1,561	0.57
HH repair	1,899	0.80	4,213	1.57	2,230	0.76	3,233	0.78	2,571	0.50	2,519	0.93
House rent	450	0.19	0	0.00	0	0.00	0	0.00	0	0.00	221	0.08
Tube well installation	23	0.01	3	0.00	2	0.00	0	0.00	0	0.00	12	0.00
Latrine installation/maintenance	19	0.01	33	0.01	1	0.00	37	0.01	0	0.00	19	0.01
Tax/Vat etc	61	0.03	108	0.04	424	0.14	251	0.06	0	0.00	170	0.06
Credit installment	10,495	4.43	12,359	4.60	8,528	2.89	1,396	0.34	0	0.00	9,604	3.53
Recreation	291	0.12	405	0.15	331	0.11	924	0.22	0	0.00	370	0.14
Refreshment	1,886	0.80	2,125	0.79	1,706	0.58	2,590	0.62	1,714	0.33	1,942	0.71
Court cases	29	0.01	0	0.00	0	0.00	0	0.00	0	0.00	14	0.01
Gift/dowry	1,005	0.42	1,056	0.39	2,006	0.68	1,053	0.25	3,429	0.67	1,270	0.47
Salary of Servants	6	0.00	215	0.08	6,525	2.21	3,429	0.83	0	0.00	1,862	0.68
Transport	14,929	6.30	15,977	5.94	21,002	7.11	32,927	7.92	39,600	7.73	18,118	6.65
Fuel	10,700	4.52	9,349	3.48	6,285	2.13	11,008	2.65	16,200	3.16	9,453	3.47
Religious Festivals	8,364	3.53	11,567	4.30	12,711	4.30	17,957	4.32	10,800	2.11	10,762	3.95
Others (Specify)	1,339	0.56	0	0.00	81	0.03	980	0.24	0	0.00	754	0.28
Total	**236,958**	100.00	**268,799**	100.00	**295,371**	100.00	**415,556**	100.00	**512,459**	100.00	**272,343**	100.00
Per capita all expenditure	59,240		62,962		67,637		82,438		105,506		64,475	

Annex-4

Table 3.14: Expenditure Analysis of Different Categories of HH in Project Area over Control Area (Year preceding the survey)

HH category by landholding size	Annual expenditure per household				Annual expenditure per capita			
	Project area (Tk.)	Control area (Tk.)	Expenditure gap* (project area over control area)		Project area (Tk.)	Control area (Tk.)	Expenditure gap* (project area over control area)	
			Absolute (Tk.)	Relative (%)			Absolute (Tk.)	Relative (%)
LL	239,815	236,957	2,858	1.21%	59,489	59,239	250	0.42%
MRF	266,456	268,794	-2,337	-0.87%	63,040	62,961	80	0.13%
SF	308,838	295,368	13,470	4.56%	68,489	67,636	853	1.26%
MF	386,850	415,556	-28,706	-6.91%	82,195	82,438	-243	-0.29%
LF	502,179	512,459	-10,280	-2.01%	94,900	105,506	-10,606	-10.05%
All	**279,156**	**272,340**	**6,816**	**2.50%**	**65,505**	**64,474**	**1,031**	**1.60%**

Annex-4

Table 3.15: Annual Income and Expenditure per Household by District

Project District	Annual Income per Household (Tk.)				Annual Expenditure per Household (Tk.)			
	Subproject Area	Coefficient of variation (%)	Control Area	Coefficient of variation (%)	Subproject Area	Coefficient of variation (%)	Control Area	Coefficient of variation (%)
Kurigram	240,057	63.76	254,555	59.16	230,682	60.69	243,775	53.60
Lalmonirhat	249,980	58.36	249,989	73.70	235,196	54.15	236,360	55.25
Rangpur	236,893	90.46	285,088	57.49	215,787	82.65	277,146	51.33
Nilphamari	260,834	57.49	226,133	65.85	244,628	53.98	212,192	58.11
Gaibandha	224,806	72.37	330,900	62.01	212,793	72.47	299,025	59.61
Sirajganj	299,134	68.39	238,980	68.22	280,960	64.58	224,016	68.81
Pabna	352,258	78.16	218,830	65.50	318,898	73.55	190,636	69.87
Bogura	261,535	76.58	197,644	59.50	235,350	70.19	167,650	58.51
Gopalganj	354,895	71.53	328,041	65.16	318,930	70.10	289,079	62.38
Rajbari	329,366	66.78	313,880	73.66	301,501	62.66	277,185	72.29
Madaripur	372,856	59.40	397,513	55.11	342,218	57.36	369,829	47.23
Faridpur	346,883	62.91	325,276	81.82	326,391	59.87	294,104	82.11
Sunamganj	308,420	55.25	323,665	60.66	290,093	53.46	307,102	59.77
Habiganj	268,777	56.00	258,408	43.44	249,466	43.96	240,513	38.33
All	**301,265**	**68.78**	**296,199**	**67.42**	**279,156**	**65.16**	**272,340**	**63.81**

Division	Annual Income per Household (Tk.)				Annual Expenditure per Household (Tk.)			
	Subproject Area	Coefficient of variation (%)	Control Area	Coefficient of variation (%)	Subproject Area	Coefficient of variation (%)	Control Area	Coefficient of variation (%)
Rangpur	241,178	68.04	269,549	64.24	227,665	64.36	253,682	57.19
Rajshahi	304,309	76.19	220,379	65.65	278,403	71.32	196,505	68.33
Dhaka	355,474	65.48	343,566	67.75	325,565	63.15	309,714	64.90
Sylhet	296,150	55.85	303,586	58.34	277,518	51.79	286,613	57.13
All	**301,265**	**68.78**	**296,199**	**67.42**	**279,156**	**65.16**	**272,340**	**63.81**

Table 3.16: Average Surplus/Deficit Status of Household by Landholding Size

Annex-4

	Project area				Control area			
	Income (Tk.)	Expenditure (Tk.)	Surplus/Deficit (+) (-) (Tk.)	Income-expenditure proportion	Income (Tk.)	Expenditure (Tk.)	Surplus/Deficit (+) (-) (Tk.)	Income-expenditure proportion
LL	248,169	239,815	8,354	1.03	247,507	236,957	10,550	1.04
MRF	281,005	266,456	14,548	1.05	285,971	268,794	17,177	1.06
SF	344,299	308,838	35,461	1.11	332,066	295,368	36,698	1.12
MF	445,936	386,850	59,086	1.15	493,020	415,556	77,465	1.19
LF	594,294	502,179	92,114	1.18	631,800	512,459	119,341	1.23
All	**301,265**	**279,156**	**22,108**	**1.08**	**296,199**	**272,340**	**23,859**	**1.09**

Table 3.17: Amount and Percentage Share of Income

Annex-4

Decile of household (Per capita income scale)	Percentage share of income			
	Project area		Control area	
	Amount (Tk)	%	Amount (Tk)	%
Decile 1	29,862,150	2.64	9,916,700	2.68
Decile 2	48,867,600	4.33	16,083,461	4.34
Decile 3	62,750,715	5.55	20,915,130	5.65
Decile 4	75,921,340	6.72	25,457,000	6.88
Decile 5	89,838,120	7.95	30,151,300	8.14
Deciles: 1-5	**307,239,925**	**27.20**	**102,523,591**	**27.69**
Decile 6	104,766,340	9.27	34,018,600	9.19
Decile 7	120,890,600	10.70	39,362,900	10.63
Decile 8	142,850,738	12.64	46,043,400	12.44
Decile 9	172,424,246	15.26	56,883,700	15.36
Decile 10	281,570,950	24.92	91,416,300	24.69
Deciles: 6-10	**822,502,874**	**72.80**	**267,724,900**	**72.31**
Proportion of Decile-1 to Decile10	**9.43**		**9.22**	

Table 3.18: Proportion of Decile 1 to 10 and Gini Coefficient by 30 Subprojects

Annex-4

Project District	Project Area		Control Area	
	Proportion of Decile 1 to 10	Gini Coefficient	Proportion of Decile 1 to 10	Gini Coefficient
Kurigram	8.55	0.33	8.43	0.30
Lalmonirhat	8.23	0.31	11.09	0.35
Rangpur	13.74	0.43	8.54	0.30
Nilphamari	7.79	0.30	8.91	0.33
Gaibandha	9.85	0.37	11.90	0.33
Sirajganj	9.84	0.33	7.97	0.33
Pabna	12.10	0.38	8.18	0.35
Bogura	11.18	0.39	12.04	0.33
Gopalganj	7.24	0.30	7.60	0.32
Rajbari	11.22	0.35	9.82	0.38
Madaripur	6.33	0.29	6.01	0.28
Faridpur	6.85	0.30	7.63	0.33
Sunamganj	5.48	0.27	6.08	0.28
Hobiganj	5.21	0.27	4.40	0.23
All	**9.43**	**0.33**	**9.22**	**0.33**

Table 3.19: Wage Employment Situation in the Study Areas (Last Year)

Annex-4

Indicator	Wage employment	
	Project area	Control area
Number of days worked	**Non-agriculture**	**Non-agriculture**
Total days worked last year (per working person)	239	244
Average no. of days worked per month (per working person)`	20	20
Extent of employment (%) (Total days worked in proportion to 365 days)	65	67
Range (No. of days worked per month)		
Highest	360	355
Lowest	3	23
Range (Deference)	357	332

Table 3.20: Self-employment Situation in the Study Areas (Last Year)

Annex-4

Indicator	Wage employment	
	Project area	Control area
Number of days worked	**Non-agriculture**	**Non-agriculture**
Total days worked last year (per working person)	233	239
Average no. of days worked per month (per working person) `	19	20
Extent of employment (%) (Total days worked in proportion to 365 days)	64	65
Range (No. of days worked per month)		
Highest	360	355
Lowest	3	23
Range (Deference)	357	332

Table 3.21: Consumption Pattern of Households

Annex-4

Selected items	Per household one week's consumption value (Tk.)			
	Project area		Control area	
	Value (Tk.)	%	Value (Tk.)	%
1. Cereals				
Rice	633	18.15	610	17.61
Atta/Flour	103	2.96	103	2.98
Bread, Biscuit, Chira, Muri	200	5.75	212	6.13
2. Vegetables	232	6.64	224	6.46
3. Potato	68	1.95	68	1.97
4. Pulses	69	1.98	67	1.94
5. Fish	566	16.23	535	15.44
6. Meat	507	14.53	522	15.07
7. Egg	105	3.01	98	2.84
8. Milk/Milk product	167	4.78	170	4.91
9. Edible oil	185	5.29	185	5.34
10. Salt	17	0.50	17	0.50
11. Onion	50	1.44	49	1.42
12. Others spices	129	3.69	119	3.43
13. Gur/ Sugar	80	2.28	82	2.37
14. Fruits	273	7.81	262	7.55
15. Others	105	3.01	140	4.04
All	**3,488**	**100**	**3,465**	**100**
Annual Food Cost / HH	**181,875**		**180,655**	
Average household members	4.26		4.22	

Table 2.22: Food Expenditure between Project and Control Area

Annex-4

Area	Food expenditure as percentage of Total expenditure	Total expenditure as percentage of Total income
Project area	65.15	92.66
Control area	66.33	91.95

Table 2.23: Per Capita Income, Consumption, Daily Calorie Intake by Landholding Size

Annex-4

HH category by landholding size	Subproject area			Control area		
	Per capita yearly income (Tk.)	Per capita yearly expenditure (Tk.)	Per capita daily calorie consumed (Kcal)	Per capita yearly income (Tk.)	Per capita yearly expenditure (Tk.)	Per capita daily calorie consumed (Kcal)
Landless	61,562	59,489	2111	61,877	59,239	2100
Marginal	66,482	63,040	2162	66,984	62,961	2054
Small	76,353	68,489	2164	76,040	67,636	2175
Medium	94,750	82,195	2279	97,806	82,438	2215
Large	112,307	94,900	2276	130,076	105,506	2397
All	**70,693**	**65,505**	**2155**	**70,123**	**64,474**	**2123**

Table 2.24: Per Capita Daily Calorie Intake and Incidence of Poverty

Annex-4

HH category by landholding size	Per capita daily calorie intake (Kcal)	% of households with daily calorie intake				% population below poverty line
		>2122 Kcal	2122-1805-Kcal	1805-1600-Kcal	<1600-Kcal	
Project area						
Landless	2111	48%	22%	13%	17%	57%
Marginal	2162	53%	21%	12%	14%	53%
Small	2164	53%	23%	13%	11%	53%
Medium	2279	58%	24%	11%	8%	46%
Large	2276	58%	27%	10%	4%	47%
All	2155	51%	22%	13%	14%	54%
Control area						
Landless	2100	49%	19%	13%	19%	55%
Marginal	2054	47%	22%	16%	15%	58%
Small	2175	54%	20%	13%	13%	52%
Medium	2215	56%	21%	12%	10%	52%
Large	2397	57%	29%	0%	14%	47%
All	**2123**	**51%**	**20%**	**13%**	**16%**	**55%**

Table 3.25: Sources of Water in the Area

Annex-4

District	Project Area													
	Number and % of Respondents													
	River		Khal		Beel		Ponds		Not available in the area		Others (Specify).		Total	
	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	341	81.19	59	14.05	19	4.52	0	0.00	0	0.00	1	0.24	420	100.00
Lalmonirhat	175	97.22	1	0.56	0	0.00	0	0.00	2	1.11	2	1.11	180	100.00
Rangpur	153	85.00	23	12.78	4	2.22	0	0.00	0	0.00	0	0.00	180	100.00
Nilphamari	111	56.92	43	22.05	7	3.59	29	14.87	0	0.00	5	2.56	195	100.00
Gaibandha	202	79.22	25	9.80	28	10.98	0	0.00	0	0.00	0	0.00	255	100.00
Sirajganj	52	31.52	33	20.00	17	10.30	2	1.21	61	36.97	0	0.00	165	100.00
Pabna	49	29.70	0	0.00	5	3.03	0	0.00	111	67.27	0	0.00	165	100.00
Bogura	114	69.09	41	24.85	10	6.06	0	0.00	0	0.00	0	0.00	165	100.00
Gopalganj	61	12.32	382	77.17	17	3.43	35	7.07	0	0.00	0	0.00	495	100.00
Rajbari	13	7.88	15	9.09	0	0.00	0	0.00	137	83.03	0	0.00	165	100.00
Madaripur	285	67.86	100	23.81	0	0.00	35	8.33	0	0.00	0	0.00	420	100.00
Faridpur	127	40.32	164	52.06	1	0.32	21	6.67	2	0.63	0	0.00	315	100.00
Sunamganj	252	57.93	132	30.34	49	11.26	2	0.46	0	0.00	0	0.00	435	100.00
Hobiganj	168	86.15	6	3.08	21	10.77	0	0.00	0	0.00	0	0.00	195	100.00
All	**2103**	**56.08**	**1024**	**27.31**	**178**	**4.75**	**124**	**3.31**	**313**	**8.35**	**8**	**0.21**	**3750**	**100.00**

Division	Project Area													
	Number and % of Respondents													
	River		Khal		Beel		Ponds		Not available in the area		Others (Specify).		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	982	79.84	151	12.28	58	4.72	29	2.36	2	0.16	8	0.65	1230	100.00
Rajshahi	215	43.43	74	14.95	32	6.46	2	0.40	172	34.75	0	0.00	495	100.00
Dhaka	486	34.84	661	47.38	18	1.29	91	6.52	139	9.96	0	0.00	1395	100.00
Sylhet	420	66.67	138	21.90	70	11.11	2	0.32	0	0.00	0	0.00	630	100.00
All	**2103**	**56.08**	**1024**	**27.31**	**178**	**4.75**	**124**	**3.31**	**313**	**8.35**	**8**	**0.21**	**3750**	**100.00**

District	Control Area													
	Number and % of Respondents													
	River		Khal		Beel		Ponds		Not available in the area		Others (Specify).		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	110	81.48	18	13.33	7	5.19	0	0.00	0	0.00	0	0.00	135	100.00
Lalmonirhat	58	96.67	0	0.00	0	0.00	1	1.67	0	0.00	1	1.67	60	100.00
Rangpur	60	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	60	100.00
Nilphamari	39	52.00	16	21.33	3	4.00	17	22.67	0	0.00	0	0.00	75	100.00
Gaibandha	52	57.78	30	33.33	3	3.33	5	5.56	0	0.00	0	0.00	90	100.00
Sirajganj	6	10.00	1	1.67	7	11.67	1	1.67	45	75.00	0	0.00	60	100.00
Pabna	0	0.00	5	8.33	0	0.00	0	0.00	55	91.67	0	0.00	60	100.00
Bogura	29	64.44	16	35.56	0	0.00	0	0.00	0	0.00	0	0.00	45	100.00
Gopalganj	22	12.22	132	73.33	17	9.44	9	5.00	0	0.00	0	0.00	180	100.00
Rajbari	0	0.00	15	30.00	0	0.00	0	0.00	35	70.00	0	0.00	50	100.00
Madaripur	95	79.17	23	19.17	0	0.00	1	0.83	0	0.00	1	0.83	120	100.00
Faridpur	50	41.67	65	54.17	1	0.83	4	3.33	0	0.00	0	0.00	120	100.00
Sunamganj	89	65.93	38	28.15	8	5.93	0	0.00	0	0.00	0	0.00	135	100.00
Hobiganj	37	61.67	10	16.67	13	21.67	0	0.00	0	0.00	0	0.00	60	100.00
All	**647**	**51.76**	**369**	**29.52**	**59**	**4.72**	**38**	**3.04**	**135**	**10.80**	**2**	**0.16**	**1250**	**100.00**

Division	Control Area													
	Number and % of Respondents													
	River		Khal		Beel		Ponds		Not available in the area		Others (Specify).		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	319	75.95	64	15.24	13	3.10	23	5.48	0	0.00	1	0.24	420	100.00
Rajshahi	35	21.21	22	13.33	7	4.24	1	0.61	100	60.61	0	0.00	165	100.00
Dhaka	167	35.53	235	50.00	18	3.83	14	2.98	35	7.45	1	0.21	470	100.00
Sylhet	126	64.62	48	24.62	21	10.77	0	0.00	0	0.00	0	0.00	195	100.00
All	**647**	**51.76**	**369**	**29.52**	**59**	**4.72**	**38**	**3.04**	**135**	**10.80**	**2**	**0.16**	**1250**	**100.00**

Table 3.26: Seasonality of Water Availability in Sources

Annex-4

District	Project Area						Control Area					
	Number and % of Respondents						Number and % of Respondents					
	Seasonally		Round the Year		Total		Seasonally		Round the Year		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	352	100.00	0	0.00	352	100.00	105	100.00	0	0.00	105	100.00
Lalmonirhat	100	93.46	7	6.54	107	100.00	33	97.06	1	2.94	34	100.00
Rangpur	11	12.79	75	87.21	86	100.00	5	11.90	37	88.10	42	100.00
Nilphamari	122	100.00	0	0.00	122	100.00	54	100.00	0	0.00	54	100.00
Gaibandha	58	29.44	139	70.56	197	100.00	10	11.63	76	88.37	86	100.00
Sirajganj	56	65.12	30	34.88	86	100.00	18	78.26	5	21.74	23	100.00
Pabna	89	80.91	21	19.09	110	100.00	29	100.00	0	0.00	29	100.00
Bogura	13	8.07	148	91.93	161	100.00	6	13.33	39	86.67	45	100.00
Gopalganj	107	33.13	216	66.87	323	100.00	45	41.67	63	58.33	108	100.00
Rajbari	83	88.30	11	11.70	94	100.00	49	98.00	1	2.00	50	100.00
Madaripur	305	74.39	105	25.61	410	100.00	83	72.17	32	27.83	115	100.00
Faridpur	74	42.05	102	57.95	176	100.00	11	34.38	21	65.63	32	100.00
Sunamganj	358	95.21	18	4.79	376	100.00	101	81.45	23	18.55	124	100.00
Hobiganj	150	77.32	44	22.68	194	100.00	39	65.00	21	35.00	60	100.00
All	**1878**	**67.22**	**916**	**32.78**	**2794**	**100.00**	**588**	**64.83**	**319**	**35.17**	**907**	**100.00**

Division	Project Area						Control Area					
	Number and % of Respondents						Number and % of Respondents					
	Seasonally		Round the Year		Total		Seasonally		Round the Year		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	643	74.42	221	25.58	864	100.00	207	64.49	114	35.51	321	100.00
Rajshahi	158	44.26	199	55.74	357	100.00	53	54.64	44	45.36	97	100.00
Dhaka	569	56.73	434	43.27	1003	100.00	188	61.64	117	38.36	305	100.00
Sylhet	508	89.12	62	10.88	570	100.00	140	76.09	44	23.91	184	100.00
All	**1878**	**67.22**	**916**	**32.78**	**2794**	**100.00**	**588**	**64.83**	**319**	**35.17**	**907**	**100.00**

Table 3.27 Existence of any Water Resources Project in the Area

Annex-4

District	Project Area								Control Area							
	Number and % of Respondents								Number and % of Respondents							
	Yes		No		Don't Know		Total		Yes		No		Don't Know		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	46	10.95	258	61.43	116	27.62	420	100.00	2	1.48	97	71.85	36	26.67	135	100.00
Lalmonirhat	22	12.22	87	48.33	71	39.44	180	100.00	7	11.67	24	40.00	29	48.33	60	100.00
Rangpur	0	0.00	167	92.78	13	7.22	180	100.00	0	0.00	59	98.33	1	1.67	60	100.00
Nilphamari	0	0.00	139	71.28	56	28.72	195	100.00	0	0.00	62	82.67	13	17.33	75	100.00
Gaibandha	0	0.00	239	93.73	16	6.27	255	100.00	0	0.00	89	98.89	1	1.11	90	100.00
Sirajganj	20	12.12	108	65.45	37	22.42	165	100.00	1	1.67	28	46.67	31	51.67	60	100.00
Pabna	0	0.00	124	75.15	41	24.85	165	100.00	0	0.00	30	50.00	30	50.00	60	100.00
Bogura	0	0.00	165	100.00	0	0.00	165	100.00	0	0.00	44	97.78	1	2.22	45	100.00
Gopalganj	13	2.63	446	90.10	36	7.27	495	100.00	7	3.89	166	92.22	7	3.89	180	100.00
Rajbari	0	0.00	151	91.52	14	8.48	165	100.00	5	10.00	42	84.00	3	6.00	50	100.00
Madaripur	27	6.43	324	77.14	69	16.43	420	100.00	3	2.50	100	83.33	17	14.17	120	100.00
Faridpur	4	1.27	268	85.08	43	13.65	315	100.00	1	0.83	107	89.17	12	10.00	120	100.00
Sunamganj	42	9.66	338	77.70	55	12.64	435	100.00	4	2.96	121	89.63	10	7.41	135	100.00
Hobiganj	1	0.51	179	91.79	15	7.69	195	100.00	0	0.00	55	91.67	5	8.33	60	100.00
All	175	4.67	2993	79.81	582	15.52	3750	100.00	30	2.40	1024	81.92	196	15.68	1250	100.00

Division	Project Area								Control Area							
	Number and % of Respondents								Number and % of Respondents							
	Yes		No		Don't Know		Total		Yes		No		Don't Know		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	68	5.53	890	72.36	272	22.11	1230	100.00	9	2.14	331	78.81	80	19.05	420	100.00
Rajshahi	20	4.04	397	80.20	78	15.76	495	100.00	1	0.61	102	61.82	62	37.58	165	100.00
Dhaka	44	3.15	1189	85.23	162	11.61	1395	100.00	16	3.40	415	88.30	39	8.30	470	100.00
Sylhet	43	6.83	517	82.06	70	11.11	630	100.00	4	2.05	176	90.26	15	7.69	195	100.00
All	**175**	**4.67**	**2993**	**79.81**	**582**	**15.52**	**3750**	**100.00**	**30**	**2.40**	**1024**	**81.92**	**196**	**15.68**	**1250**	**100.00**

Table 3.28 Detailed Information on the Project

Annex-4

District	Project Area																
	Number of Respondents																
	Type of Project									Main Client					Present Status		
	Flood Management	Drainage Improvement	Water Management	Improve Agriculture	Improve Fisheries	Improve Navigation	Institutional Development	O&M	Total	LGED	BWDB	BADC	DPHE	Total	Ongoing	Completed	Total
Kurigram	44	0	0	2	0	0	0	0	46		44	2		46	45	1	46
Lalmonirhat	12	0	0	4	0	0	0	0	16		10	6		16	13	3	16
Sirajganj	0	0	0	20	0	0	0	0	20			20		20	20		20
Gopalganj	0	0	0	8	0	0	0	5	13			8	5	13	13		13
Madaripur	26	0	1	0	0	0	0	0	27	2	25			27	2	25	27
Faridpur	0	0	0	1	0	0	0	0	1			1		1	1		1
Sunamganj	32	5	0	3	0	0	0	0	40	1	33		6	40	10	30	40
Hobiganj	1	0	0	0	0	0	0	0	1		1			1		1	1
All	**115**	**5**	**1**	**38**	**0**	**0**	**0**	**5**	**164**	**3**	**113**	**37**	**11**	**164**	**104**	**60**	**164**

District	Control Area																
	Number of Respondents																
	Type of Project									Main Client					Present Status		
	Flood Management	Drainage Improvement	Water Management	Improve Agriculture	Improve Fisheries	Improve Navigation	Institutional Development	O&M	Total	LGED	BWDB	BADC	DPHE	Total	Ongoing	Completed	Total
Lalmonirhat	3	0	0	4	0	0	0	0	7	1	2	4		7	4	3	7
Sirajganj	0	0	0	1	0	0	0	0	1			1		1	1		1
Gopalganj	1	0	0	1	0	0	0	5	7			2	5	7	5	2	7
Rajbari	0	0	5	0	0	0	0	0	5			5		5	5		5
Madaripur	3	0	0	0	0	0	0	0	3		3			3		3	3
Sunamganj	4	0	0	0	0	0	0	0	4		4			4		4	4
All	**11**	**0**	**5**	**6**	**0**	**0**	**0**	**5**	**27**	**1**	**9**	**12**	**5**	**27**	**15**	**12**	**27**

Division	Project Area																
	Number of Respondents																
	Type of Project									Main Client					Present Status		
	Flood Management	Drainage Improvement	Water Management	Improve Agriculture	Improve Fisheries	Improve Navigation	Institutional Development	O&M	Total	LGED	BWDB	BADC	DPHE	Total	Ongoing	Completed	Total
Rangpur	56	0	0	6	0	0	0	0	62		54	8		62	58	4	62
Rajshahi	0	0	0	20	0	0	0	0	20			20		20	20		20
Dhaka	26	0	1	9	0	0	0	5	41	2	25	9	5	41	16	25	41
Sylhet	33	5	0	3	0	0	0	0	41	1	34		6	41	10	31	41
All	115	5	1	38	0	0	0	5	164	3	113	37	11	164	104	60	164

Division	Control Area																
	Number of Respondents																
	Type of Project									Main Client					Present Status		
	Flood Management	Drainage Improvement	Water Management	Improve Agriculture	Improve Fisheries	Improve Navigation	Institutional Development	O&M	Total	LGED	BWDB	BADC	DPHE	Total	Ongoing	Completed	Total
Rangpur	3	0	0	4	0	0	0	0	7	1	2	4		7	4	3	7
Rajshahi	0	0	0	1	0	0	0	0	1			1		1	1		1
Dhaka	4	0	5	1	0	0	0	5	15		3	7	5	15	10	5	15
Sylhet	4	0	0	0	0	0	0	0	4		4			4		4	4
All	**11**	**0**	**5**	**6**	**0**	**0**	**0**	**5**	**27**	**1**	**9**	**12**	**5**	**27**	**15**	**12**	**27**

Table 3.29: Usual Natural Calamities in the Locality

Annex-4

Type of Disaster	Project Area												
	Number of Respondents												
	Frequency				Coverage					Extent of Damage			
	Several Times	Once a Year	After Few Years	Total	Total Area	Most of the Area	Half of the Area	Partially	Total	High	Medium	Low	Total
Flood	88	838	2226	3152	1309	1235	375	233	3152	1613	971	568	3152
Storm	156	1369	919	2444	891	834	276	443	2444	834	861	749	2444
Heavy Rainfall	227	1789	664	2680	1250	922	197	311	2680	945	1053	682	2680
Draught	54	848	758	1660	625	437	154	444	1660	152	650	858	1660
Cyclone	45	72	750	867	228	260	74	305	867	357	146	364	867
Tidal Surge	53	200	260	513	106	141	54	212	513	84	176	253	513
Others	26	57	10	93	19	55	9	10	93	21	59	13	93

Type of Disaster	Control Area												
	Number of Respondents												
	Frequency				Coverage					Extent of Damage			
	Several Times	Once a Year	After Few Years	Total	Total Area	Most of the Area	Half of the Area	Partially	Total	High	Medium	Low	Total
Flood	40	280	698	1018	450	337	158	73	1018	502	331	185	1018
Storm	51	458	298	807	260	288	106	153	807	276	246	285	807
Heavy Rainfall	59	564	238	861	359	313	61	128	861	281	331	249	861
Draught	13	258	283	554	201	136	34	183	554	37	187	330	554
Cyclone	10	29	233	272	70	77	16	109	272	96	53	123	272
Tidal Surge	11	63	65	139	16	49	14	60	139	12	58	69	139
Others	10	20	0	30	8	21		1	30	3	26	1	30

Table 3.30: Main Type of Disaster

Annex-4

Type of Disaster	Project Area												
	% of Respondents												
	Frequency				Coverage					Extent of Damage			
	Several Times	Once a Year	After Few Years	Total	Total Area	Most of the Area	Half of the Area	Partially	Total	High	Medium	Low	Total
Flood	2.79	26.59	70.62	100.00	41.53	39.18	11.90	7.39	100.00	51.17	30.81	18.02	100.00
Storm	6.38	56.01	37.60	100.00	36.46	34.12	11.29	18.13	100.00	34.12	35.23	30.65	100.00
Heavy Rainfall	8.47	66.75	24.78	100.00	46.64	34.40	7.35	11.60	100.00	35.26	39.29	25.45	100.00
Draught	3.25	51.08	45.66	100.00	37.65	26.33	9.28	26.75	100.00	9.16	39.16	51.69	100.00
Cyclone	5.19	8.30	86.51	100.00	26.30	29.99	8.54	35.18	100.00	41.18	16.84	41.98	100.00
Tidal Surge	10.33	38.99	50.68	100.00	20.66	27.49	10.53	41.33	100.00	16.37	34.31	49.32	100.00
Others	27.96	61.29	10.75	100.00	20.43	59.14	9.68	10.75	100.00	22.58	63.44	13.98	100.00

Type of Disaster	Control Area												
	% of Respondents												
	Frequency				Coverage					Extent of Damage			
	Several Times	Once a Year	After Few Years	Total	Total Area	Most of the Area	Half of the Area	Partially	Total	High	Medium	Low	Total
Flood	3.93	27.50	68.57	100.00	44.20	33.10	15.52	7.17	100.00	49.31	32.51	18.17	100.00
Storm	6.32	56.75	36.93	100.00	32.22	35.69	13.14	18.96	100.00	34.20	30.48	35.32	100.00
Heavy Rainfall	6.85	65.51	27.64	100.00	41.70	36.35	7.08	14.87	100.00	32.64	38.44	28.92	100.00
Draught	2.35	46.57	51.08	100.00	36.28	24.55	6.14	33.03	100.00	6.68	33.75	59.57	100.00
Cyclone	3.68	10.66	85.66	100.00	25.74	28.31	5.88	40.07	100.00	35.29	19.49	45.22	100.00
Tidal Surge	7.91	45.32	46.76	100.00	11.51	35.25	10.07	43.17	100.00	8.63	41.73	49.64	100.00
Others	33.33	66.67	0.00	100.00	26.67	70.00	0.00	3.33	100.00	10.00	86.67	3.33	100.00

Table 3.31: Has lightning occurred in your area during the last year

Annex-4

Project District	Project Area								Control Area							
	Sample (n)	No of Respondents							Sample (n)	No of Respondents						
		Lightning Occurred				Avg. times lightning occurred in last year	Avg. no. of people died	Avg. no. of livestock died		Lightning Occurred				Avg. times lightning occurred in last year	Avg. no. of people died	Avg. no. of livestock died
		Yes		No						Yes		No				
		No.	%	No.	%					No.	%	No.	%			
Kurigram	420	336	80.00	84	20.00	3.69	2.61	4.57	135	108	80.00	27	20.00	5.17	1.4	1
Lalmonirhat	180	134	74.44	46	25.56	6.69	3.38	3.44	60	42	70.00	18	30.00	1.86	2	3
Rangpur	180	144	80.00	36	20.00	7.56	2.13	0	60	48	80.00	12	20.00	5.83	1.2	1
Nilphamari	195	151	77.44	44	22.56	2.06	1.64	1.44	75	55	73.33	20	26.67	2.36	1	1
Gaibandha	255	209	81.96	46	18.04	5.28	3	1	90	75	83.33	15	16.67	5.4	2.67	2
Sirajganj	165	155	93.94	10	6.06	6.38	1.78	0	60	52	86.67	8	13.33	5.92	1.33	2.38
Pabna	165	158	95.76	7	4.24	5.59	1.3	2	60	51	85.00	9	15.00	5.33	1	1
Bogura	165	143	86.67	22	13.33	4.91	2.76	2.33	45	34	75.56	11	24.44	5.92	1.33	1.33
Gopalganj	495	354	71.52	141	28.48	18.25	3	3.33	180	135	75.00	45	25.00	13.78	0	0
Rajbari	165	146	88.48	19	11.52	5.6	2.4	0	50	42	84.00	8	16.00	4.27	1	0
Madaripur	420	360	85.71	60	14.29	9.33	2	1	120	96	80.00	24	20.00	8.92	1.8	1
Faridpur	315	296	93.97	19	6.03	5.69	1.25	2	120	111	92.50	9	7.50	4.69	2	0
Sunamganj	435	409	94.02	26	5.98	26.94	3.3	5	135	108	80.00	27	20.00	17.58	1.71	1
Hobiganj	195	187	95.90	8	4.10	16.71	1.8	3.5	60	40	66.67	20	33.33	21	1	1
All	**3750**	3182	84.85	568	15.15	10.33	2.48	3.09	1250	997	79.76	253	20.24	6.97	1.65	1.66

Division	Project Area								Control Area							
	Sample (n)	No of Respondents							Sample (n)	No of Respondents						
		Lightning Occurred				Avg. times lightning occurred in last year	Avg. no. of people died	Avg. no. of livestock died		Lightning Occurred				Avg. times lightning occurred in last year	Avg. no. of people died	Avg. no. of livestock died
		Yes		No						Yes		No				
		No.	%	No.	%					No.	%	No.	%			
Rangpur	1230	974	79.19	256	20.81	4.7	2.59	3.05	420	328	78.10	92	21.90	4.42	1.89	1.64
Rajshahi	495	456	92.12	39	7.88	5.45	2.18	2.25	165	137	83.03	28	16.97	5.81	1.27	2
Dhaka	1395	1156	82.87	239	17.13	10.19	2.06	2	470	384	81.70	86	18.30	7.53	1.56	1
Sylhet	630	596	94.60	34	5.40	21.93	3	4.47	195	148	75.90	47	24.10	18.07	1.63	1
All	**3750**	3182	84.85	568	15.15	10.33	2.48	3.09	1250	997	79.76	253	20.24	6.97	1.65	1.66

Table 3.32: How many times Homestead, Agricultural Land and other Properties Affected by Flood During Last 25 Years

Annex-4

District	Project Area									Control Area								
	Affected by Flood									Affected by Flood								
	Homesteads			Agril Land			Waterbodies			Homesteads			Agril Land			Waterbodies		
	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times
Kurigram	308	13.91	2.20	209	10.14	3.18	126	9.69	2.71	87	13.49	1.48	53	8.49	1.89	36	8.74	1.42
Lalmonirhat	169	7.63	3.64	153	7.42	4.56	125	9.62	4.85	54	8.37	3.31	49	7.85	4.43	45	10.92	4.36
Rangpur	63	2.85	1.40	56	2.72	1.89	44	3.38	2.75	24	3.72	1.38	23	3.69	1.35	18	4.37	1.44
Nilphamari	91	4.11	1.96	98	4.75	2.82	59	4.54	4.54	31	4.81	1.26	35	5.61	3.97	21	5.10	6.43
Gaibandha	157	7.09	1.06	89	4.32	1.21	66	5.08	1.55	67	10.39	1.13	48	7.69	1.25	41	9.95	1.39
Sirajganj	113	5.10	2.25	84	4.08	5.14	39	3.00	13.92	18	2.79	3.11	20	3.21	4.05	13	3.16	14.46
Pabna	38	1.72	2.08	58	2.81	1.45	1	0.08	3.00	0	0.00	0.00	19	3.04	1.32	0	0.00	0.00
Bogura	117	5.28	1.09	111	5.39	1.08	47	3.62	1.38	31	4.81	1.00	22	3.53	1.00	8	1.94	1.00
Gopalganj	263	11.88	1.34	310	15.04	2.63	255	19.62	2.53	78	12.09	1.03	100	16.03	2.34	84	20.39	1.83
Rajbari	21	0.95	2.19	52	2.52	1.65	0	0.00	0.00	2	0.31	2.00	11	1.76	2.00	0	0.00	0.00
Madaripur	95	4.29	2.04	93	4.51	2.49	38	2.92	5.63	8	1.24	2.50	16	2.56	2.13	7	1.70	8.00
Faridpur	179	8.08	1.56	250	12.13	2.30	240	18.46	2.03	61	9.46	1.46	93	14.90	2.18	82	19.90	1.60
Sunamganj	424	19.15	2.62	346	16.79	4.25	208	16.00	12.58	125	19.38	2.36	93	14.90	3.26	42	10.19	12.93
Hobiganj	176	7.95	2.09	152	7.38	2.78	52	4.00	7.06	59	9.15	1.90	42	6.73	3.50	15	3.64	7.07
All	2214	100.00	2.05	2061	100.00	2.96	1300	100.00	4.91	645	100.00	1.77	624	100.00	2.59	412	100.00	4.01

Division	Project Area									Control Area								
	Affected by Flood									Affected by Flood								
	Homesteads			Agril Land			Waterbodies			Homesteads			Agril Land			Waterbodies		
	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times	No.	%	Avg. Times
Rangpur	788	35.59	2.19	605	29.35	3.06	420	32.31	3.43	263	40.78	1.73	208	33.33	2.63	161	39.08	2.89
Rajshahi	268	12.10	1.72	253	12.28	2.51	87	6.69	7.02	49	7.60	1.78	61	9.78	2.10	21	5.10	9.33
Dhaka	558	25.20	1.56	705	34.21	2.43	533	41.00	2.52	149	23.10	1.30	220	35.26	2.24	173	41.99	1.97
Sylhet	600	27.10	2.47	498	24.16	3.80	260	20.00	11.47	184	28.53	2.21	135	21.63	3.33	57	13.83	11.39
All	2214	100.00	2.05	2061	100.00	2.96	1300	100.00	4.91	645	100.00	1.77	624	100.00	2.59	412	100.00	4.01

Table 3.33: Flood Depth in Homesteads and Agricultural Land During Last 25 Years

Annex-4

Flood Year	Project Area						Control Area					
	Number of Respondents						Number of Respondents					
	Flood Depth						Flood Depth					
	Homesteads			Agricultural Land			Homesteads			Agricultural Land		
	High (2 feet above)	Medium (1 to 2) feet	Low (Less than 1 feet)	High (3 feet above)	Medium (2 to 3) feet	Low (Less than 2 feet)	High (2 feet above)	Medium (1 to 2) feet	Low (Less than 1 feet)	High (3 feet above)	Medium (2 to 3) feet	Low (Less than 2 feet)
1998	2			2			1			1		
2000			1		1							
2001	1	8	3	9		1	1			1		
2002	6	12	24	30				1		1		
2003	3	4	7	13	2	1						
2004	157	139	154	306	5	3	46	67	56	127		1
2005		7	5	16	2					3		
2006	8	53	27	101	11	2		12	12	36	2	1
2007	53	164	88	335	17	4	11	28	18	74	5	
2008	7	21	14	58	1	1	5	5	4	20		
2009	6	27	9	23			3			4		
2010	8	12	12	18		1	4	6	2	12		
2011		1	2	1					1	2		
2012	3	7	15	31	4	1	1		6	11		
2013	1	7	8	12	1					5		
2014	3	8	7	80	5		1		2	17		
2015	6	4	2	6				3	14	12		
2016	10	23	29	35	4	6	1	7	11	15		
2017	204	200	75	479	22	10	63	41	45	140	4	5
2018	20	27	21	64	5	3	1	2	3	16		
2019	38	50	74	110	13	9	10	12	39	46	3	2
2020	18	37	23	138	15	1	5	3	18	51	7	
2021	5	30	23	43	5	1	1	2	2	9		
2022	270	128	117	358	4	6	60	42	13	75	3	
2023	22	35	39	109	9	6	3	7	8	15		1
2024	11	23	18	45	6		6	1	1	13		1
2025	6	7	5	79	17	9	7	9	6	32	12	3
2026			1	117	4					23		
Total	868	1034	803	2618	153	65	230	248	261	761	36	14

Flood Year	Project Area						Control Area					
	% of Respondents						% of Respondents					
	Flood Depth						Flood Depth					
	Homesteads			Agricultural Land			Homesteads			Agricultural Land		
	High (2 feet above)	Medium (1 to 2) feet	Low (Less than 1 feet)	High (3 feet above)	Medium (2 to 3) feet	Low (Less than 2 feet)	High (2 feet above)	Medium (1 to 2) feet	Low (Less than 1 feet)	High (3 feet above)	Medium (2 to 3) feet	Low (Less than 2 feet)
	% (n=751)	% (n=851)	% (n=670)	% (n=1749)	% (n=131)	% (n=60)	% (n=200)	% (n=219)	% (n=232)	% (n=537)	% (n=36)	% (n=11)
1998	0.27	0.00	0.00	0.11	0.00	0.00	0.50	0.00	0.00	0.19	0.00	0.00
2000	0.00	0.00	0.15	0.00	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2001	0.13	0.94	0.45	0.51	0.00	1.67	0.50	0.00	0.00	0.19	0.00	0.00
2002	0.80	1.41	3.58	1.72	0.00	0.00	0.00	0.46	0.00	0.19	0.00	0.00
2003	0.40	0.47	1.04	0.74	1.53	1.67	0.00	0.00	0.00	0.00	0.00	0.00
2004	20.91	16.33	22.99	17.50	3.82	5.00	23.00	30.59	24.14	23.65	0.00	9.09
2005	0.00	0.82	0.75	0.91	1.53	0.00	0.00	0.00	0.00	0.56	0.00	0.00
2006	1.07	6.23	4.03	5.77	8.40	3.33	0.00	5.48	5.17	6.70	5.56	9.09
2007	7.06	19.27	13.13	19.15	12.98	6.67	5.50	12.79	7.76	13.78	13.89	0.00
2008	0.93	2.47	2.09	3.32	0.76	1.67	2.50	2.28	1.72	3.72	0.00	0.00
2009	0.80	3.17	1.34	1.32	0.00	0.00	1.50	0.00	0.00	0.74	0.00	0.00
2010	1.07	1.41	1.79	1.03	0.00	1.67	2.00	2.74	0.86	2.23	0.00	0.00
2011	0.00	0.12	0.30	0.06	0.00	0.00	0.00	0.00	0.43	0.37	0.00	0.00
2012	0.40	0.82	2.24	1.77	3.05	1.67	0.50	0.00	2.59	2.05	0.00	0.00
2013	0.13	0.82	1.19	0.69	0.76	0.00	0.00	0.00	0.00	0.93	0.00	0.00
2014	0.40	0.94	1.04	4.57	3.82	0.00	0.50	0.00	0.86	3.17	0.00	0.00
2015	0.80	0.47	0.30	0.34	0.00	0.00	0.00	1.37	6.03	2.23	0.00	0.00
2016	1.33	2.70	4.33	2.00	3.05	10.00	0.50	3.20	4.74	2.79	0.00	0.00
2017	27.16	23.50	11.19	27.39	16.79	16.67	31.50	18.72	19.40	26.07	11.11	45.45
2018	2.66	3.17	3.13	3.66	3.82	5.00	0.50	0.91	1.29	2.98	0.00	0.00
2019	5.06	5.88	11.04	6.29	9.92	15.00	5.00	5.48	16.81	8.57	8.33	18.18
2020	2.40	4.35	3.43	7.89	11.45	1.67	2.50	1.37	7.76	9.50	19.44	0.00
2021	0.67	3.53	3.43	2.46	3.82	1.67	0.50	0.91	0.86	1.68	0.00	0.00
2022	35.95	15.04	17.46	20.47	3.05	10.00	30.00	19.18	5.60	13.97	8.33	0.00
2023	2.93	4.11	5.82	6.23	6.87	10.00	1.50	3.20	3.45	2.79	0.00	9.09
2024	1.46	2.70	2.69	2.57	4.58	0.00	3.00	0.46	0.43	2.42	0.00	9.09
2025	0.80	0.82	0.75	4.52	12.98	15.00	3.50	4.11	2.59	5.96	33.33	27.27
2026	0.00	0.00	0.15	6.69	3.05	0.00	0.00	0.00	0.00	4.28	0.00	0.00

Table 3.34: Crop Production Damaged by Flooding During Last 25 Years

Annex-4

Flood Year	Project Area						Control Area					
	Area (Decimal) and Crop Damaged						Area (Decimal) and Crop Damaged					
	Crop Damaged						Crop damaged					
	Aus		Aman		Boro/Rabi		Aus		Aman		Boro/Rabi	
	Area (Decimal)	Damage (Tk)	Area (Decimal)	Damage (Tk)	Area (Decimal)	Damage (Tk)	Area (Decimal)	Damage (Tk)	Area (Decimal)	Damage (Tk)	Area (Decimal)	Damage (Tk)
1998	300	5000	150	20000	100	15000						
2000			18	5000								
2001	200	200000	455	165500	493	264500					800	800000
2002	2000	250000	1632	836000	66	80000						
2003	350	80000	698	265507	15100	55200						
2004	3216	1761000	3609	1980000	11225	9823000	280	137500	2510	973000	3098	2837000
2005	670	430000	392	161000	491	295000					82	100000
2006	565	396000	5399	3168000	11601	278500	158	32000	2057	710000	295	192500
2007	2554	1352000	19701	7846000	43333	3977750	330	103000	4238	1913700	680	437000
2008	721	700000	1771	937000	3059	2180800	266	130000	2075	936000	146	42000
2009	530	270000	52	25000	100	40000	133	80000	330	200000		
2010	100	100000	184	105000	998	635000			716	285000	440	395000
2011	100	100000	66	40000			78	12000				
2012	331	380000	1055	705000	766	505000			740	700000	30	40000
2013	250	210000	50	20000	639	405000	66	40000				
2014	433	190000	1237	424000	13446	4924000	233	105000			2406	570000
2015	290.2	221000	91	85000			100	60000	1209	899000		
2016	1220	1132000	3468	3017000	580	440000			1081	283000	40	35000
2017	5099	2391000	16597	9889000	22660	14145000	1005	586000	4608	2975500	5688	2921000
2018	2800	2483000	4324	3298000	4299	3070000	959	570000	230	320000	1392	1960000
2019	2896	2707000	3824	2146000	2254	1272000	50	20000	1957	1637000	1752	1505000
2020	1089	764000	7643	3079500	56721	2331000	70	20000	3036	1882500	496	200000
2021	2493	932000	1137	855000	1606	730000	391	155000	165	20000	15	10000
2022	1834	1667000	24517	3393000	22733	19996000	859	1225000	726	565000	54565	5981000
2023	2580	1439000	2419	989000	615	765000	552	495000	298	270000	54	20000
2024	1443	538000	521	234000	3688	2784000	332	220000	100	66000	240	271000
2025	2741	1122000	14635	1999608	5190	1599200	835	408000	2892	1205008	207	190000
2026			477	315000	25870	12541000			90	60000	5140	2256000
Total	**36805**	**21820000**	**116122**	**46003115**	**247633**	**83151950**	**6697**	**4398500**	**29058**	**15900708**	**77566**	**#######**

Table 3.35: Water Bodies Affected by Flooding During the Last Five Years

Annex-4

Flood Year	Project Area					Control Area				
	Area (Decimal) and Crop Damaged (TK)					Area (Decimal) and Crop Damaged (TK)				
	Area, Type of Fish and Extent of Damage					Area, Type of Fish and Extent of Damage				
	Water Body	Fish Type (Number of Response)			Extent of Damage (Tk)	Water Body	Fish Type (Number of Response)			Extent of Damage (Tk)
	Area (Decimal)	Aquaculture	Natural	Srimp	Damage (Tk)	Area (Decimal)	Aquaculture	Natural	Srimp	Damage (Tk)
1998	180	1	0	0	150000					
2002	3	1	0	0	250000					
2004	387	14	2	0	1370000	176	6	0	0	505000
2005	7	1	0	0	30000					
2006	905	8	3	0	1050000	58	2	1	0	180000
2007	5096	42	14	3	5748000	341	6	1	0	640000
2008	20	1	1	0	50000	26	2	0	0	30000
2009	12	1	0	0	15000					
2014	500	1	2	2	850000					
2016	563	7	1	0	2270000					
2017	838	40	21	0	2013000	256	14	3	0	941000
2018	220	3	0	0	620000					
2019	1978	2	3	2	1622000					
2020	2377	9	2	1	2347000					
2021	255	3	0	0	600000	43	2	0	0	160000
2022	4387	25	3	1	6826000	1468	11	2	0	2575000
2023	1450	11	8	1	2204000					
2025	189	3	1	1	215000	40	1	2	0	60000
2026	127	1	3	0	75000					
Total	**19494**	**174**	**64**	**11**	**28305000**	**2408**	**44**	**9**	**0**	**5091000**

Table 3.36: Extent of Crop Damage by Drought over the Last 25 Years

Annex-4

Damage Year	Project Area									
	Number and % of Respondents									
	Extent of Damage									
	Completely damaged (75-100%),		Most of the crop damage (50%-75%)		Partly damage (25%-50%)		Very little damage (0%-25%)		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1998	1	4.17		0.00		0.00		0.00	1	0.35
2000		0.00	1	0.91		0.00		0.00	1	0.35
2003		0.00	2	1.82		0.00		0.00	2	0.70
2004		0.00	3	2.73		0.00		0.00	3	1.05
2005		0.00	1	0.91		0.00		0.00	1	0.35
2007		0.00		0.00		0.00		0.00	0	0.00
2012		0.00	1	0.91		0.00		0.00	1	0.35
2014		0.00	1	0.91		0.00		0.00	1	0.35
2015	1	4.17	1	0.91		0.00	1	2.38	3	1.05
2016		0.00	2	1.82		0.00		0.00	2	0.70
2017		0.00	9	8.18	3	2.75		0.00	12	4.21
2018	1	4.17	2	1.82	1	0.92		0.00	4	1.40
2019	3	12.50	6	5.45	3	2.75	2	4.76	14	4.91
2020	3	12.50	2	1.82	6	5.50	2	4.76	13	4.56
2021	6	25.00	11	10.00	4	3.67	2	4.76	23	8.07
2022	1	4.17	11	10.00	12	11.01	21	50.00	45	15.79
2023	4	16.67	9	8.18	21	19.27	5	11.90	39	13.68
2024		0.00	11	10.00	11	10.09	4	9.52	26	9.12
2025	2	8.33	28	25.45	24	22.02	3	7.14	57	20.00
2026	2	8.33	9	8.18	24	22.02	2	4.76	37	12.98
Total	**24**	**100.00**	**110**	**100.00**	**109**	**100.00**	**42**	**100.00**	**285**	**100.00**

Damage Year	Control Area									
	Number and % of Respondents									
	Extent of Damage									
	Completely damaged (75-100%),		Most of the crop damage (50%-75%)		Partly damage (25%-50%)		Very little damage (0%-25%)		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
1998		0.00		0.00		0.00		0.00	0	0.00
2000		0.00		0.00		0.00		0.00	0	0.00
2003		0.00		0.00		0.00		0.00	0	0.00
2004		0.00		0.00	1	3.33		0.00	1	1.33
2005		0.00		0.00		0.00		0.00	0	0.00
2007		0.00	1	3.85		0.00	1	5.88	2	2.67
2012		0.00		0.00		0.00		0.00	0	0.00
2014		0.00		0.00	1	3.33		0.00	1	1.33
2015		0.00		0.00		0.00		0.00	0	0.00
2016		0.00		0.00		0.00		0.00	0	0.00
2017		0.00	2	7.69	1	3.33	1	5.88	4	5.33
2018		0.00		0.00		0.00		0.00	0	0.00
2019		0.00	1	3.85	3	10.00		0.00	4	5.33
2020	1	50.00	1	3.85		0.00		0.00	2	2.67
2021		0.00	3	11.54		0.00	1	5.88	4	5.33
2022	1	50.00		0.00	2	6.67	11	64.71	14	18.67
2023		0.00	1	3.85	6	20.00	3	17.65	10	13.33
2024		0.00	2	7.69	2	6.67		0.00	4	5.33
2025		0.00	6	23.08	8	26.67		0.00	14	18.67
2026		0.00	9	34.62	6	20.00		0.00	15	20.00
Total	**2**	**100.00**	**26**	**100.00**	**30**	**100.00**	**17**	**100.00**	**75**	**100.00**

Annex-4

Table 3.37: Where Normally Take Shelter when Homestead is Flooded

Project District	Project Area															
	Number and % of Respondents															
	Shelter Type															
	Own homestead		raised land		relatives homestead		Nearby community center		road/embankment		school/government buildings		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	145	47.08	0	0.00	24	7.79	0	0.00	78	25.32	60	19.48	1	0.32	308	100.00
Lalmonirhat	47	27.81	2	1.18	25	14.79	4	2.37	54	31.95	37	21.89	0	0.00	169	100.00
Rangpur	10	15.87	0	0.00	1	1.59	0	0.00	0	0.00	52	82.54	0	0.00	63	100.00
Nilphamari	64	70.33	0	0.00	4	4.40	0	0.00	1	1.10	22	24.18	0	0.00	91	100.00
Gaibandha	44	28.03	21	13.38	1	0.64	1	0.64	0	0.00	90	57.32	0	0.00	157	100.00
Sirajganj	97	85.84	6	5.31	5	4.42	0	0.00	1	0.88	4	3.54	0	0.00	113	100.00
Pabna	28	73.68	2	5.26	1	2.63	0	0.00	5	13.16	2	5.26	0	0.00	38	100.00
Bogura	56	47.86	13	11.11	6	5.13	0	0.00	0	0.00	42	35.90	0	0.00	117	100.00
Gopalganj	42	15.97	20	7.60	65	24.71	3	1.14	30	11.41	103	39.16	0	0.00	263	100.00
Rajbari	19	90.48	1	4.76	1	4.76	0	0.00	0	0.00	0	0.00	0	0.00	21	100.00
Madaripur	49	51.58	29	30.53	6	6.32	0	0.00	3	3.16	7	7.37	1	1.05	95	100.00
Faridpur	26	14.53	12	6.70	72	40.22	1	0.56	28	15.64	36	20.11	4	2.23	179	100.00
Sunamganj	198	46.70	99	23.35	79	18.63	0	0.00	0	0.00	44	10.38	4	0.94	424	100.00
Hobiganj	90	51.14	43	24.43	25	14.20	0	0.00	4	2.27	12	6.82	2	1.14	176	100.00
All	**915**	**41.33**	**248**	**11.20**	**315**	**14.23**	**9**	**0.41**	**204**	**9.21**	**511**	**23.08**	**12**	**0.54**	**2214**	**100.00**

Project District	Control Area															
	Number and % of Respondents															
	Shelter Type															
	Own homestead		raised land		relatives homestead		Nearby community center		road/embankment		school/government buildings		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	29	33.33	0	0.00	21	24.14	0	0.00	11	12.64	26	29.89	0	0.00	87	100.00
Lalmonirhat	18	33.33	1	1.85	7	12.96	2	3.70	20	37.04	5	9.26	1	1.85	54	100.00
Rangpur	7	29.17	1	4.17	0	0.00	0	0.00	0	0.00	16	66.67	0	0.00	24	100.00
Nilphamari	20	64.52	0	0.00	5	16.13	0	0.00	0	0.00	6	19.35	0	0.00	31	100.00
Gaibandha	53	79.10	0	0.00	2	2.99	2	2.99	0	0.00	10	14.93	0	0.00	67	100.00
Sirajganj	17	94.44	0	0.00	1	5.56	0	0.00	0	0.00	0	0.00	0	0.00	18	100.00
Pabna	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Bogura	20	64.52	0	0.00	1	3.23	0	0.00	0	0.00	10	32.26	0	0.00	31	100.00
Gopalganj	10	12.82	1	1.28	22	28.21	0	0.00	0	0.00	45	57.69	0	0.00	78	100.00
Rajbari	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	100.00
Madaripur	2	25.00	5	62.50	1	12.50	0	0.00	0	0.00	0	0.00	0	0.00	8	100.00
Faridpur	8	13.11	2	3.28	36	59.02	0	0.00	12	19.67	3	4.92	0	0.00	61	100.00
Sunamganj	67	53.60	37	29.60	14	11.20	0	0.00	0	0.00	4	3.20	3	2.40	125	100.00
Hobiganj	44	74.58	13	22.03	2	3.39	0	0.00	0	0.00	0	0.00	0	0.00	59	100.00
All	**297**	**46.05**	**60**	**9.30**	**112**	**17.36**	**4**	**0.62**	**43**	**6.67**	**125**	**19.38**	**4**	**0.62**	**645**	**100.00**

Division	Project Area															
	Number and % of Respondents															
	Shelter Type															
	Own homestead		raised land		relatives homestead		Nearby community center		road/embankment		school/government buildings		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	310	39.34	23	2.92	55	6.98	5	0.63	133	16.88	261	33.12	1	0.13	788	100.00
Rajshahi	181	67.54	21	7.84	12	4.48	0	0.00	6	2.24	48	17.91	0	0.00	268	100.00
Dhaka	136	24.37	62	11.11	144	25.81	4	0.72	61	10.93	146	26.16	5	0.90	558	100.00
Sylhet	288	48.00	142	23.67	104	17.33	0	0.00	4	0.67	56	9.33	6	1.00	600	100.00
All	**915**	**41.33**	**248**	**11.20**	**315**	**14.23**	**9**	**0.41**	**204**	**9.21**	**511**	**23.08**	**12**	**0.54**	**2214**	**100.00**

Division	Control Area															
	Number and % of Respondents															
	Shelter Type															
	Own homestead		raised land		relatives homestead		Nearby community center		road/embankment		school/government buildings		Others		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	127	48.29	2	0.76	35	13.31	4	1.52	31	11.79	63	23.95	1	0.38	263	100.00
Rajshahi	37	75.51	0	0.00	2	4.08	0	0.00	0	0.00	10	20.41	0	0.00	49	100.00
Dhaka	22	14.77	8	5.37	59	39.60	0	0.00	12	8.05	48	32.21	0	0.00	149	100.00
Sylhet	111	60.33	50	27.17	16	8.70	0	0.00	0	0.00	4	2.17	3	1.63	184	100.00
All	**297**	**46.05**	**60**	**9.30**	**112**	**17.36**	**4**	**0.62**	**43**	**6.67**	**125**	**19.38**	**4**	**0.62**	**645**	**100.00**

Annex-4

Table 3.38: Take Shelter With/Without the Cattle/Birds

District	Project Area								Control Area							
	Number and % of Respondents								Number and % of Respondents							
	Take With/ Without Cattle Birds								Take With/ Without Cattle Birds							
	Take them to the shelter		Leave at home		No cattle/birds at that period		Total		Take them to the shelter		Leave at home		No cattle/birds at that period		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	94	57.67	63	38.65	6	3.68	163	100.00	33	56.90	25	43.10	0	0.00	58	100.00
Lalmonirhat	106	86.89	14	11.48	2	1.64	122	100.00	33	91.67	3	8.33	0	0.00	36	100.00
Rangpur	49	92.45	1	1.89	3	5.66	53	100.00	17	100.00	0	0.00	0	0.00	17	100.00
Nilphamari	24	88.89	2	7.41	1	3.70	27	100.00	9	81.82	2	18.18	0	0.00	11	100.00
Gaibandha	113	100.00	0	0.00	0	0.00	113	100.00	14	100.00	0	0.00	0	0.00	14	100.00
Sirajganj	16	100.00	0	0.00	0	0.00	16	100.00	1	100.00	0	0.00	0	0.00	1	100.00
Pabna	10	100.00	0	0.00	0	0.00	10	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Bogura	61	100.00	0	0.00	0	0.00	61	100.00	11	100.00	0	0.00	0	0.00	11	100.00
Gopalganj	217	98.19	4	1.81	0	0.00	221	100.00	68	100.00	0	0.00	0	0.00	68	100.00
Rajbari	2	100.00	0	0.00	0	0.00	2	100.00	0	0.00	0	0.00	0	0.00	0	0.00
Madaripur	37	80.43	9	19.57	0	0.00	46	100.00	0	0.00	6	100.00	0	0.00	6	100.00
Faridpur	130	84.97	21	13.73	2	1.31	153	100.00	45	84.91	5	9.43	3	5.66	53	100.00
Sunamganj	153	67.70	69	30.53	4	1.77	226	100.00	36	62.07	20	34.48	2	3.45	58	100.00
Hobiganj	77	89.53	8	9.30	1	1.16	86	100.00	15	100.00	0	0.00	0	0.00	15	100.00
All	**1089**	**83.83**	**191**	**14.70**	**19**	**1.46**	**1299**	**100.00**	**282**	**81.03**	**61**	**17.53**	**5**	**1.44**	**348**	**100.00**

Table 3.39: Specified Government-built Flood Shelter Nearby (Ref. Baseline Questionnaire: 1.12 Is there any specified government-built flood shelter near your village?)

Annex-4

Project District	Project Area						Project Area					
	Number and % of Respondents						Number and % of Respondents					
	Is any Govt-built Flood Shelter						Is any Govt-built Flood Shelter					
	Yes		No		Total		Yes		No		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	16	3.81	404	96.19	420	100.00	6	4.44	129	95.56	135	100.00
Lalmonirhat	14	7.78	166	92.22	180	100.00	1	1.67	59	98.33	60	100.00
Rangpur	4	2.22	176	97.78	180	100.00	2	3.33	58	96.67	60	100.00
Nilphamari	26	13.33	169	86.67	195	100.00	7	9.33	68	90.67	75	100.00
Gaibandha	6	2.35	249	97.65	255	100.00	0	0.00	90	100.00	90	100.00
Sirajganj	20	12.12	145	87.88	165	100.00	0	0.00	60	100.00	60	100.00
Pabna	7	4.24	158	95.76	165	100.00	0	0.00	60	100.00	60	100.00
Bogura	7	4.24	158	95.76	165	100.00	0	0.00	45	100.00	45	100.00
Gopalganj	10	2.02	485	97.98	495	100.00	2	1.11	178	98.89	180	100.00
Rajbari	1	0.61	164	99.39	165	100.00	7	14.00	43	86.00	50	100.00
Madaripur	9	2.14	411	97.86	420	100.00	0	0.00	120	100.00	120	100.00
Faridpur	33	10.48	282	89.52	315	100.00	1	0.83	119	99.17	120	100.00
Sunamganj	33	7.59	402	92.41	435	100.00	2	1.48	133	98.52	135	100.00
Hobiganj	1	0.51	194	99.49	195	100.00	0	0.00	60	100.00	60	100.00
All	**187**	**4.99**	**3563**	**95.01**	**3750**	**100.00**	**28**	**2.24**	**1222**	**97.76**	**1250**	**100.00**

Division	Project Area						Project Area					
	Number and % of Respondents						Number and % of Respondents					
	Is any Govt-built Flood Shelter						Is any Govt-built Flood Shelter					
	Yes		No		Total		Yes		No		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rajshahi	34	6.87	461	93.13	495	100.00	0	0.00	165	100.00	165	100.00
Dhaka	53	3.80	1342	96.20	1395	100.00	10	2.13	460	97.87	470	100.00
Sylhet	34	5.40	596	94.60	630	100.00	2	1.03	193	98.97	195	100.00
All	**121**	**4.80**	**2399**	**95.20**	**2520**	**100.00**	**12**	**1.45**	**818**	**98.55**	**830**	**100.00**

Table 3.40: Knowledge about LGED Developing Nearby School as Flood Shelter

Annex-4

Project District	Project Area Number and % of Respondents LGED Developing Flood Shelter					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Kurigram	412	98.10	8	1.90	420	100.00
Lalmonirhat	129	71.67	51	28.33	180	100.00
Rangpur	144	80.00	36	20.00	180	100.00
Nilphamari	125	64.10	70	35.90	195	100.00
Gaibandha	230	90.20	25	9.80	255	100.00
Sirajganj	44	26.67	121	73.33	165	100.00
Pabna	1	0.61	164	99.39	165	100.00
Bogura	74	44.85	91	55.15	165	100.00
Gopalganj	330	66.67	165	33.33	495	100.00
Rajbari	1	0.61	164	99.39	165	100.00
Madaripur	258	61.43	162	38.57	420	100.00
Faridpur	165	52.38	150	47.62	315	100.00
Sunamganj	385	88.51	50	11.49	435	100.00
Hobiganj	161	82.56	34	17.44	195	100.00
All	**2459**	**65.57**	**1291**	**34.43**	**3750**	**100.00**

Division	Project Area Number and % of Respondents LGED Developing Flood Shelter					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Kurigram	1040	84.55	190	15.45	1230	100.00
Lalmonirhat	119	24.04	376	75.96	495	100.00
Rangpur	754	54.05	641	45.95	1395	100.00
Nilphamari	546	86.67	84	13.33	630	100.00
All	**2459**	**65.57**	**1291**	**34.43**	**3750**	**100.00**

Table 3.41: Local Communities Consulted By LGED During Prep. & Design of Shelter

Annex-4

Project District	Project Area					
	Number and % of Respondents					
	LGED Consulted Local Comm.					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Kurigram	321	77.91	91	22.09	412	100.00
Lalmonirhat	69	53.49	60	46.51	129	100.00
Rangpur	105	72.92	39	27.08	144	100.00
Nilphamari	81	64.80	44	35.20	125	100.00
Gaibandha	207	90.00	23	10.00	230	100.00
Sirajganj	32	72.73	12	27.27	44	100.00
Pabna	1	100.00	0	0.00	1	100.00
Bogura	72	97.30	2	2.70	74	100.00
Gopalganj	220	66.67	110	33.33	330	100.00
Rajbari	1	100.00	0	0.00	1	100.00
Madaripur	226	87.60	32	12.40	258	100.00
Faridpur	137	83.03	28	16.97	165	100.00
Sunamganj	303	78.70	82	21.30	385	100.00
Hobiganj	161	100.00	0	0.00	161	100.00
All	**1936**	**78.73**	**523**	**21.27**	**2459**	**100.00**

Division	Project Area					
	Number and % of Respondents					
	LGED Consulted Local Comm.					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Rajshahi	105	88.24	14	11.76	119	100.00
Dhaka	584	77.45	170	22.55	754	100.00
Sylhet	464	84.98	82	15.02	546	100.00
All	**1153**	**81.25**	**266**	**18.75**	**1419**	**100.00**

Table 3.42: Opinion on the Under-construction FS Will Be Beneficial to the Communities

Annex-4

Project District	Project Area					
	Number and % of Respondents					
	Flood Selter Beneficial					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Kurigram	411	99.76	1	0.24	412	100.00
Lalmonirhat	128	99.22	1	0.78	129	100.00
Rangpur	134	93.06	10	6.94	144	100.00
Nilphamari	125	100.00	0	0.00	125	100.00
Gaibandha	230	100.00	0	0.00	230	100.00
Sirajganj	43	97.73	1	2.27	44	100.00
Pabna	1	100.00	0	0.00	1	100.00
Bogura	74	100.00	0	0.00	74	100.00
Gopalganj	319	96.67	11	3.33	330	100.00
Rajbari	1	100.00	0	0.00	1	100.00
Madaripur	255	98.84	3	1.16	258	100.00
Faridpur	164	99.39	1	0.61	165	100.00
Sunamganj	383	99.48	2	0.52	385	100.00
Hobiganj	160	99.38	1	0.62	161	100.00
All	**2428**	**98.74**	**31**	**1.26**	**2459**	**100.00**

Division	Project Area					
	Number and % of Respondents					
	Flood Selter Beneficial					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Rangpur	1028	98.85	12	1.15	1040	100.00
Rajshahi	118	99.16	1	0.84	119	100.00
Dhaka	739	98.01	15	1.99	754	100.00
Sylhet	543	99.45	3	0.55	546	100.00
All	**2428**	**98.74**	**31**	**1.26**	**2459**	**100.00**

Table 3.43: Any Training Received on Disaster Management (Flood, Cyclone, Drought, etc)? (Ref. Baseline Questionnaire: 1.13 Have you received any training on disaster management (Flood, Cyclone, Drought, etc)?)

Annex-4

Project District	Project Area						Control Area					
	Number and % of Respondents Training Received						Number and % of Respondents Training Received					
	Yes		No		Total		Yes		No		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	10	2.38	410	97.62	420	100.00	0	0.00	135	100.00	135	100.00
Lalmonirhat	1	0.56	179	99.44	180	100.00	1	1.67	59	98.33	60	100.00
Rangpur	1	0.56	179	99.44	180	100.00	0	0.00	60	100.00	60	100.00
Nilphamari	0	0.00	195	100.00	195	100.00	0	0.00	75	100.00	75	100.00
Gaibandha	0	0.00	255	100.00	255	100.00	0	0.00	90	100.00	90	100.00
Sirajganj	0	0.00	165	100.00	165	100.00	0	0.00	60	100.00	60	100.00
Pabna	0	0.00	165	100.00	165	100.00	0	0.00	60	100.00	60	100.00
Bogura	0	0.00	165	100.00	165	100.00	0	0.00	45	100.00	45	100.00
Gopalganj	2	0.40	493	99.60	495	100.00	0	0.00	180	100.00	180	100.00
Rajbari	0	0.00	165	100.00	165	100.00	0	0.00	50	100.00	50	100.00
Madaripur	1	0.24	419	99.76	420	100.00	0	0.00	120	100.00	120	100.00
Faridpur	0	0.00	315	100.00	315	100.00	0	0.00	120	100.00	120	100.00
Sunamganj	11	2.53	424	97.47	435	100.00	1	0.74	134	99.26	135	100.00
Hobiganj	0	0.00	195	100.00	195	100.00	0	0.00	60	100.00	60	100.00
All	26	0.69	3724	99.31	3750	100.00	2	0.16	1248	99.84	1250	100.00

Division	Project Area						Control Area					
	Number and % of Respondents Training Received						Number and % of Respondents Training Received					
	Yes		No		Total		Yes		No		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	12	0.98	1218	99.02	1230	100.00	1	0.24	419	99.76	420	100.00
Rajshahi	0	0.00	495	100.00	495	100.00	0	0.00	165	100.00	165	100.00
Dhaka	3	0.22	1392	99.78	1395	100.00	0	0.00	470	100.00	470	100.00
Sylhet	11	1.75	619	98.25	630	100.00	1	0.51	194	99.49	195	100.00
All	**26**	**0.69**	**3724**	**99.31**	**3750**	**100.00**	**2**	**0.16**	**1248**	**99.84**	**1250**	**100.00**

Table 3.44: Training Provided by Whom

Annex-4

Project District	Project Area				Control Area			
	Number of Respondents				Number of Respondents			
	Training Provided By				Training Provided By			
	DDM	LGED under RIVER	NGO	Total	DDM	LGED under RIVER	NGO	Total
Kurigram	0	0	10	10	0	0	0	0
Lalmonirhat	0	1	0	1	1	0	0	1
Rangpur	0	0	1	1	0	0	0	0
Gopalganj	0	2	0	2	0	0	0	0
Madaripur	0	1	0	1	0	0	0	0
Sunamganj	2	3	6	11	0	1	0	1
All	**2**	**7**	**17**	**26**	**1**	**1**	**0**	**2**

Division	Project Area				Control Area			
	Number of Respondents				Number of Respondents			
	Training Provided By				Training Provided By			
	DDM	LGED under RIVER	NGO	Total	DDM	LGED under RIVER	NGO	Total
Rangpur	0	1	11	12	1	0	0	1
Dhaka	0	3	0	3	0	0	0	0
Sylhet	2	3	6	11	0	1	0	1
All	**2**	**7**	**17**	**26**	**1**	**1**	**0**	**2**

Project District	Project Area				Control Area			
	% of Respondents				% of Respondents			
	Training Provided By				Training Provided By			
	DDM	LGED under RIVER	NGO	Total	DDM	LGED under RIVER	NGO	Total
Kurigram	0.00	0.00	100.00	100.00	0.00	0.00	0.00	0.00
Lalmonirhat	0.00	100.00	0.00	100.00	100.00	0.00	0.00	100.00
Rangpur	0.00	0.00	100.00	100.00	0.00	0.00	0.00	0.00
Gopalganj	0.00	100.00	0.00	100.00	0.00	0.00	0.00	0.00
Madaripur	0.00	100.00	0.00	100.00	0.00	0.00	0.00	0.00
Sunamganj	18.18	27.27	54.55	100.00	0.00	100.00	0.00	100.00
All	**7.69**	**26.92**	**65.38**	**100.00**	**50.00**	**50.00**	**0.00**	**100.00**

Division	Project Area				Control Area			
	% of Respondents				% of Respondents			
	Training Provided By				Training Provided By			
	DDM	LGED under RIVER	NGO	Total	DDM	LGED under RIVER	NGO	Total
Rangpur	0.00	8.33	91.67	100.00	100.00	0.00	0.00	100.00
Dhaka	0.00	100.00	0.00	100.00	0.00	0.00	0.00	0.00
Sylhet	18.18	27.27	54.55	100.00	0.00	100.00	0.00	100.00
All	**7.69**	**26.92**	**65.38**	**100.00**	**50.00**	**50.00**	**0.00**	**100.00**

Annex-4

Table 3.45: Respondents' Perception of Flood Being a Natural Calamity and

Project District	Project Area						Control Area					
	Number and % of Respondents Perception of Natural Calamity						Number and % of Respondents Perception of Natural Calamity					
	Yes		No		Total		Yes		No		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Kurigram	393	93.57	27	6.43	420	100.00	132	97.78	3	2.22	135	100.00
Lalmonirhat	157	87.22	23	12.78	180	100.00	51	85.00	9	15.00	60	100.00
Rangpur	92	51.11	88	48.89	180	100.00	29	48.33	31	51.67	60	100.00
Nilphamari	171	87.69	24	12.31	195	100.00	70	93.33	5	6.67	75	100.00
Gaibandha	127	49.80	128	50.20	255	100.00	29	32.22	61	67.78	90	100.00
Sirajganj	80	48.48	85	51.52	165	100.00	8	13.33	52	86.67	60	100.00
Pabna	56	33.94	109	66.06	165	100.00	1	1.67	59	98.33	60	100.00
Bogura	52	31.52	113	68.48	165	100.00	18	40.00	27	60.00	45	100.00
Gopalganj	178	35.96	317	64.04	495	100.00	73	40.56	107	59.44	180	100.00
Rajbari	48	29.09	117	70.91	165	100.00	9	18.00	41	82.00	50	100.00
Madaripur	240	57.14	180	42.86	420	100.00	75	62.50	45	37.50	120	100.00
Faridpur	133	42.22	182	57.78	315	100.00	59	49.17	61	50.83	120	100.00
Sunamganj	283	65.06	152	34.94	435	100.00	83	61.48	52	38.52	135	100.00
Hobiganj	115	58.97	80	41.03	195	100.00	24	40.00	36	60.00	60	100.00
All	**2125**	**56.67**	**1625**	**43.33**	**3750**	**100.00**	**661**	**52.88**	**589**	**47.12**	**1250**	**100.00**

Division	Project Area						Control Area					
	Number and % of Respondents Perception of Natural Calamity						Number and % of Respondents Perception of Natural Calamity					
	Yes		No		Total		Yes		No		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	940	76.42	290	23.58	1230	100.00	311	74.05	109	25.95	420	100.00
Rajshahi	188	37.98	307	62.02	495	100.00	27	16.36	138	83.64	165	100.00
Dhaka	599	42.94	796	57.06	1395	100.00	216	45.96	254	54.04	470	100.00
Sylhet	398	63.17	232	36.83	630	100.00	107	54.87	88	45.13	195	100.00
All	**2125**	**56.67**	**1625**	**43.33**	**3750**	**100.00**	**661**	**52.88**	**589**	**47.12**	**1250**	**100.00**

Annex-4

Table 3.46: Types of Preparation and Precautions that Can Be Taken During Flood

Project District	Project Area				Control Area			
	Number of Respondents				Number of Respondents			
	Types of Preparation and Precautions				Types of Preparation and Precautions			
	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total
Kurigram	20	7	0	27	3	0	0	3
Lalmonirhat	18	3	2	23	7	1	1	9
Rangpur	50	37	1	88	12	19	0	31
Nilphamari	23	1	0	24	5	0	0	5
Gaibandha	37	90	1	128	14	43	4	61
Sirajganj	5	79	1	85	2	50	0	52
Pabna	0	109	0	109	0	58	1	59
Bogura	5	106	2	113	1	26	0	27
Gopalganj	66	231	20	317	18	82	7	107
Rajbari	0	117	0	117	0	41	0	41
Madaripur	12	129	39	180	2	31	12	45
Faridpur	54	98	30	182	14	35	12	61
Sunamganj	32	62	58	152	8	28	16	52
Hobiganj	2	47	31	80	1	24	11	36
All	**324**	**1116**	**185**	**1625**	**87**	**438**	**64**	**589**

Division	Project Area				Control Area			
	Number of Respondents				Number of Respondents			
	Types of Preparation and Precautions				Types of Preparation and Precautions			
	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total
Rangpur	148	138	4	290	41	63	5	109
Rajshahi	10	294	3	307	3	134	1	138
Dhaka	132	575	89	796	34	189	31	254
Sylhet	34	109	89	232	9	52	27	88
All	**324**	**1116**	**185**	**1625**	**87**	**438**	**64**	**589**

Project District	Project Area				Control Area			
	% of Respondents				% of Respondents			
	Types of Preparation and Precautions				Types of Preparation and Precautions			
	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total
Kurigram	74.07	25.93	0.00	100.00	100.00	0.00	0.00	100.00
Lalmonirhat	78.26	13.04	8.70	100.00	77.78	11.11	11.11	100.00
Rangpur	56.82	42.05	1.14	100.00	38.71	61.29	0.00	100.00
Nilphamari	95.83	4.17	0.00	100.00	100.00	0.00	0.00	100.00
Gaibandha	28.91	70.31	0.78	100.00	22.95	70.49	6.56	100.00
Sirajganj	5.88	92.94	1.18	100.00	3.85	96.15	0.00	100.00
Pabna	0.00	100.00	0.00	100.00	0.00	98.31	1.69	100.00
Bogura	4.42	93.81	1.77	100.00	3.70	96.30	0.00	100.00
Gopalganj	20.82	72.87	6.31	100.00	16.82	76.64	6.54	100.00
Rajbari	0.00	100.00	0.00	100.00	0.00	100.00	0.00	100.00
Madaripur	6.67	71.67	21.67	100.00	4.44	68.89	26.67	100.00
Faridpur	29.67	53.85	16.48	100.00	22.95	57.38	19.67	100.00
Sunamganj	21.05	40.79	38.16	100.00	15.38	53.85	30.77	100.00
Hobiganj	2.50	58.75	38.75	100.00	2.78	66.67	30.56	100.00
All	**19.94**	**68.68**	**11.38**	**100.00**	**14.77**	**74.36**	**10.87**	**100.00**

Division	Project Area				Control Area			
	% of Respondents				% of Respondents			
	Types of Preparation and Precautions				Types of Preparation and Precautions			
	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total	Move to Flood Shelter	Stay at Home	Move to Relatives Home	Total
Rangpur	51.03	47.59	1.38	100.00	37.61	57.80	4.59	100.00
Rajshahi	3.26	95.77	0.98	100.00	2.17	97.10	0.72	100.00
Dhaka	16.58	72.24	11.18	100.00	13.39	74.41	12.20	100.00
Sylhet	14.66	46.98	38.36	100.00	10.23	59.09	30.68	100.00
All	**19.94**	**68.68**	**11.38**	**100.00**	**14.77**	**74.36**	**10.87**	**100.00**

Annex-4

Table 3.47: Any Early Warning System for Flood/Cyclone/Draught in the Area

Project District	Project Area			Control Area		
	Number of Respondents			Number of Respondents		
	Early Warning System			Early Warning System		
	Yes	No	Total	Yes	No	Total
Kurigram	103	317	420	41	94	135
Lalmonirhat	51	129	180	15	45	60
Rangpur	17	163	180	10	50	60
Nilphamari	41	154	195	12	63	75
Gaibandha	21	234	255	14	76	90
Sirajganj	9	156	165	0	60	60
Pabna	0	165	165	0	60	60
Bogura	11	154	165	4	41	45
Gopalganj	33	462	495	17	163	180
Rajbari	0	165	165	0	50	50
Madaripur	99	321	420	46	74	120
Faridpur	26	289	315	9	111	120
Sunamganj	127	308	435	41	94	135
Hobiganj	72	123	195	22	38	60
All	**610**	**3140**	**3750**	**231**	**1019**	**1250**

Division	Project Area			Control Area		
	Number of Respondents			Number of Respondents		
	Early Warning System			Early Warning System		
	Yes	No	Total	Yes	No	Total
Rangpur	233	997	1230	92	328	420
Rajshahi	20	475	495	4	161	165
Dhaka	158	1237	1395	72	398	470
Sylhet	199	431	630	63	132	195
All	**610**	**3140**	**3750**	**231**	**1019**	**1250**

Project District	Project Area			Control Area		
	% of Respondents			% of Respondents		
	Early Warning System			Early Warning System		
	Yes	No	Total	Yes	No	Total
Kurigram	24.52	75.48	100.00	30.37	69.63	100.00
Lalmonirhat	28.33	71.67	100.00	25.00	75.00	100.00
Rangpur	9.44	90.56	100.00	16.67	83.33	100.00
Nilphamari	21.03	78.97	100.00	16.00	84.00	100.00
Gaibandha	8.24	91.76	100.00	15.56	84.44	100.00
Sirajganj	5.45	94.55	100.00	0.00	100.00	100.00
Pabna	0.00	100.00	100.00	0.00	100.00	100.00
Bogura	6.67	93.33	100.00	8.89	91.11	100.00
Gopalganj	6.67	93.33	100.00	9.44	90.56	100.00
Rajbari	0.00	100.00	100.00	0.00	100.00	100.00
Madaripur	23.57	76.43	100.00	38.33	61.67	100.00
Faridpur	8.25	91.75	100.00	7.50	92.50	100.00
Sunamganj	29.20	70.80	100.00	30.37	69.63	100.00
Hobiganj	36.92	63.08	100.00	36.67	63.33	100.00
All	**16.27**	**83.73**	**100.00**	**18.48**	**81.52**	**100.00**

Division	Project Area			Control Area		
	% of Respondents			% of Respondents		
	Early Warning System			Early Warning System		
	Yes	No	Total	Yes	No	Total
Rangpur	18.94	81.06	100.00	21.90	78.10	100.00
Rajshahi	4.04	95.96	100.00	2.42	97.58	100.00
Dhaka	11.33	88.67	100.00	15.32	84.68	100.00
Sylhet	31.59	68.41	100.00	32.31	67.69	100.00
All	**16.27**	**83.73**	**100.00**	**18.48**	**81.52**	**100.00**

Annex-4

Table 3.48: How the Messages of the Disaster Early Warnings are Disseminated

Project District	Project Area						Control Area					
	Number of Respondents						Number of Respondents					
	Source of Message Dissemination						Source of Message Dissemination					
	Radio &TV	Newspaper	Virtual media	LGED	NGO	Others	Radio &TV	Newspaper	Virtual media	LGED	NGO	Others
Kurigram	69	0	99	1	2	0	29	0	41	0	0	0
Lalmonirhat	22	15	17	3	9	25	11	6	3	1	3	4
Rangpur	17	0	0	0	0	0	9	0	0	0	0	1
Nilphamari	6	0	38	0	0	1	2	0	12	0	0	0
Gaibandha	21	6	0	0	0	1	14	0	0	0	0	0
Sirajganj	6	3	1	1	0	1	0	0	0	0	0	0
Pabna	0	0	0	0	0	0	0	0	0	0	0	0
Bogura	11	0	0	0	0	0	3	0	1	1	0	0
Gopalganj	32	31	6	6	5	0	16	13	5	4	2	0
Rajbari	0	0	0	0	0	0	0	0	0	0	0	0
Madaripur	47	11	67	47	31	0	27	16	27	13	8	0
Faridpur	24	17	10	9	15	2	8	2	1	0	3	0
Sunamganj	67	25	65	30	28	4	16	6	22	14	17	0
Hobiganj	47	1	71	0	4	0	14	1	22	0	2	0
All	**369**	**109**	**374**	**97**	**94**	**34**	**149**	**44**	**134**	**33**	**35**	**5**
Multiple Response												

Division	Project Area						Control Area					
	Number of Respondents						Number of Respondents					
	Source of Message Dissemination						Source of Message Dissemination					
	Radio &TV	Newspaper	Virtual media	LGED	NGO	Others	Radio &TV	Newspaper	Virtual media	LGED	NGO	Others
Rangpur	135	21	154	4	11	27	65	6	56	1	3	5
Rajshahi	17	3	1	1	0	1	3	0	1	1	0	0
Dhaka	103	59	83	62	51	2	51	31	33	17	13	0
Sylhet	114	26	136	30	32	4	30	7	44	14	19	0
All	**369**	**109**	**374**	**97**	**94**	**34**	**149**	**44**	**134**	**33**	**35**	**5**
Multiple Response												

Project District	Project Area							Control Area						
	Sample (n)	% of Respondents						Sample (n)	% of Respondents					
		Source of Message Dissemination							Source of Message Dissemination					
		Radio &TV	Newspaper	Virtual media	LGED	NGO	Others		Radio &TV	Newspaper	Virtual media	LGED	NGO	Others
Kurigram	103	66.99	0.00	96.12	0.97	1.94	0.00	41	70.73	0.00	100.00	0.00	0.00	0.00
Lalmonirhat	51	43.14	29.41	33.33	5.88	17.65	49.02	15	73.33	40.00	20.00	6.67	20.00	26.67
Rangpur	17	100.00	0.00	0.00	0.00	0.00	0.00	10	90.00	0.00	0.00	0.00	0.00	10.00
Nilphamari	41	14.63	0.00	92.68	0.00	0.00	2.44	12	16.67	0.00	100.00	0.00	0.00	0.00
Gaibandha	21	100.00	28.57	0.00	0.00	0.00	4.76	14	100.00	0.00	0.00	0.00	0.00	0.00
Sirajganj	9	66.67	33.33	11.11	11.11	0.00	11.11	0	0.00	0.00	0.00	0.00	0.00	0.00
Pabna	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
Bogura	11	100.00	0.00	0.00	0.00	0.00	0.00	4	75.00	0.00	25.00	25.00	0.00	0.00
Gopalganj	33	96.97	93.94	18.18	18.18	15.15	0.00	17	94.12	76.47	29.41	23.53	11.76	0.00
Rajbari	0	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00
Madaripur	99	47.47	11.11	67.68	47.47	31.31	0.00	46	58.70	34.78	58.70	28.26	17.39	0.00
Faridpur	26	92.31	65.38	38.46	34.62	57.69	7.69	9	88.89	22.22	11.11	0.00	33.33	0.00
Sunamganj	127	52.76	19.69	51.18	23.62	22.05	3.15	41	39.02	14.63	53.66	34.15	41.46	0.00
Hobiganj	72	65.28	1.39	98.61	0.00	5.56	0.00	22	63.64	4.55	100.00	0.00	9.09	0.00
All	**610**	**60.49**	**17.87**	**61.31**	**15.90**	**15.41**	**5.57**	**231**	**64.50**	**19.05**	**58.01**	**14.29**	**15.15**	**2.16**
Multiple Response														

Division	Project Area							Control Area						
	Sample (n)	% of Respondents						Sample (n)	% of Respondents					
		Source of Message Dissemination							Source of Message Dissemination					
		Radio &TV	Newspaper	Virtual media	LGED	NGO	Others		Radio &TV	Newspaper	Virtual media	LGED	NGO	Others
Rangpur	233	57.94	9.01	66.09	1.72	4.72	11.59	92	70.65	6.52	60.87	1.09	3.26	5.43
Rajshahi	20	85.00	15.00	5.00	5.00	0.00	5.00	4	75.00	0.00	25.00	25.00	0.00	0.00
Dhaka	158	65.19	37.34	52.53	39.24	32.28	1.27	72	70.83	43.06	45.83	23.61	18.06	0.00
Sylhet	199	57.29	13.07	68.34	15.08	16.08	2.01	63	47.62	11.11	69.84	22.22	30.16	0.00
All	**610**	**60.49**	**17.87**	**61.31**	**15.90**	**15.41**	**5.57**	**231**	**64.50**	**19.05**	**58.01**	**14.29**	**15.15**	**2.16**
Multiple Response														

Annex-4

Table 3.49: Respondents Opinion on the Use Early Warning Messages and Beneficial in Managing Disaster Risks

Project District	Project Area						Control Area					
	% of Respondents						% of Respondents					
	Use of Messages			Beneficial			Use of Messages			Beneficial		
	sample (n)	Yes	No	sample (n)	Yes	No	sample (n)	Yes	No	sample (n)	Yes	No
Kurigram	420	24.52	75.48	103	100.00	0.00	135.00	28.89	71.11	39	97.44	2.56
Lalmonirhat	180	24.44	75.56	44	100.00	0.00	60.00	21.67	78.33	13	100.00	0.00
Rangpur	180	3.89	96.11	7	85.71	14.29	60.00	3.33	96.67	2	100.00	0.00
Nilphamari	195	20.51	79.49	40	100.00	0.00	75.00	16.00	84.00	12	100.00	0.00
Gaibandha	255	1.57	98.43	4	25.00	75.00	90.00	4.44	95.56	4	75.00	25.00
Sirajganj	165	6.06	93.94	10	80.00	20.00	60.00	0.00	100.00	0	0.00	0.00
Pabna	165	1.82	98.18	3	100.00	0.00	60.00	0.00	100.00	0	0.00	0.00
Bogura	165	0.00	100.00	0	0.00	0.00	45.00	6.67	93.33	3	33.33	66.67
Gopalganj	495	12.32	87.68	61	86.89	13.11	180.00	16.67	83.33	30	100.00	0.00
Rajbari	165	0.61	99.39	1	0.00	100.00	50.00	0.00	100.00	0	0.00	0.00
Madaripur	420	24.52	75.48	103	70.87	29.13	120.00	35.83	64.17	43	93.02	6.98
Faridpur	315	9.84	90.16	31	93.55	6.45	120.00	6.67	93.33	8	100.00	0.00
Sunamganj	435	24.60	75.40	107	87.85	12.15	135.00	25.19	74.81	34	64.71	35.29
Hobiganj	195	24.62	75.38	48	100.00	0.00	60.00	20.00	80.00	12	100.00	0.00
All	3750	14.99	85.01	562	89.32	10.68	1250.00	16.00	84.00	200	90.50	9.50

Division	Project Area						Control Area					
	% of Respondents						% of Respondents					
	Use of Messages			Beneficial			Use of Messages			Beneficial		
	sample (n)	Yes	No	sample (n)	Yes	No	sample (n)	Yes	No	sample (n)	Yes	No
Rangpur	1230	16.10	83.90	198	97.98	2.02	420	16.67	83.33	70	97.14	2.86
Rajshahi	495	2.63	97.37	13	84.62	15.38	165	1.82	98.18	3	33.33	66.67
Dhaka	1395	14.05	85.95	196	79.08	20.92	470	17.23	82.77	81	96.30	3.70
Sylhet	630	24.60	75.40	155	91.61	8.39	195	23.59	76.41	46	73.91	26.09
All	**3750**	**14.99**	**85.01**	**562**	**89.32**	**10.68**	**1250**	**16.00**	**84.00**	**200**	**90.50**	**9.50**

Table 3.50: Respondents' Opinion on the Need of Multi-purpose Flood Shelter and Its effectiveness in Minimizing

Annex-4

Project District	Project Area					Control Area				
	Sample (n)	% of Respondents				Sample (n)	% of Respondents			
		Need of Flood Shelter		Effective in Reducing Sufferings			Need of Flood Shelter		Effective in Reducing Sufferings	
		Yes	No	Yes	No		Yes	No	Yes	No
Kurigram	420	98.10	1.90	99.05	0.95	135	97.04	2.96	98.52	1.48
Lalmonirhat	180	96.67	3.33	99.44	0.56	60	96.67	3.33	98.33	1.67
Rangpur	180	67.78	32.22	72.22	27.78	60	75.00	25.00	78.33	21.67
Nilphamari	195	95.90	4.10	95.38	4.62	75	89.33	10.67	97.33	2.67
Gaibandha	255	85.10	14.90	86.27	13.73	90	94.44	5.56	98.89	1.11
Sirajganj	165	88.48	11.52	96.36	3.64	60	96.67	3.33	95.00	5.00
Pabna	165	93.94	6.06	96.36	3.64	60	95.00	5.00	96.67	3.33
Bogura	165	89.70	10.30	96.36	3.64	45	84.44	15.56	95.56	4.44
Gopalganj	495	96.36	3.64	97.78	2.22	180	96.67	3.33	98.89	1.11
Rajbari	165	92.73	7.27	93.94	6.06	50	90.00	10.00	92.00	8.00
Madaripur	420	95.24	4.76	97.14	2.86	120	80.83	19.17	85.83	14.17
Faridpur	315	93.02	6.98	95.87	4.13	120	89.17	10.83	95.00	5.00
Sunamganj	435	97.47	2.53	97.01	2.99	135	97.78	2.22	100.00	0.00
Hobiganj	195	97.44	2.56	100.00	0.00	60	96.67	3.33	96.67	3.33
All	**3750**	**93.28**	**6.72**	**95.31**	**4.69**	**1250**	**92.16**	**7.84**	**95.44**	**4.56**

Division	Project Area					Control Area				
	Sample (n)	% of Respondents				Sample (n)	% of Respondents			
		Need of Flood Shelter		Effective in Reducing Sufferings			Need of Flood Shelter		Effective in Reducing Sufferings	
		Yes	No	Yes	No		Yes	No	Yes	No
Rangpur	1230	90.41	9.59	91.95	8.05	420	91.90	8.10	95.48	4.52
Rajshahi	495	90.71	9.29	96.36	3.64	165	92.73	7.27	95.76	4.24
Dhaka	1395	94.84	5.16	96.70	3.30	470	90.00	10.00	93.83	6.17
Sylhet	630	97.46	2.54	97.94	2.06	195	97.44	2.56	98.97	1.03
All	**3750**	**93.28**	**6.72**	**95.31**	**4.69**	**1250**	**92.16**	**7.84**	**95.44**	**4.56**

Table 3.51: Respondents Opinion on Moving to the Shelter During Flooding, If No, Where to Take Shelter

Annex-4

Project District	Project Area							
	% of Respondents							
	Taking Shelter During Floods			If No, Reasons for Not Taking Shelter				
	Sample (n)	Yes	No	Sample (n)	Stay Own House	Higher Place	Relative House	Embankment
Kurigram	420	98.81	1.19	5	100.00	0.00	0.00	0.00
Lalmonirhat	180	98.33	1.67	3	33.33	33.33	33.33	0.00
Rangpur	180	64.44	35.56	64	96.88	0.00	1.56	1.56
Nilphamari	195	98.97	1.03	2	50.00	0.00	50.00	0.00
Gaibandha	255	86.27	13.73	35	100.00	0.00	0.00	0.00
Sirajganj	165	89.09	10.91	18	83.33	16.67	0.00	0.00
Pabna	165	98.18	1.82	3	100.00	0.00	0.00	0.00
Bogura	165	93.33	6.67	11	90.91	9.09	0.00	0.00
Gopalganj	495	98.79	1.21	6	50.00	33.33	16.67	0.00
Rajbari	165	100.00	0.00	0	0.00	0.00	0.00	0.00
Madaripur	420	93.81	6.19	26	80.77	19.23	0.00	0.00
Faridpur	315	96.19	3.81	12	58.33	8.33	33.33	0.00
Sunamganj	435	98.16	1.84	8	87.50	0.00	12.50	0.00
Habiganj	195	99.49	0.51	1	0.00	0.00	100.00	0.00
All	**3750**	**94.83**	**5.17**	**194**	**87.63**	**6.70**	**5.15**	**0.52**

Project District	Control Area							
	% of Respondents							
	Taking Shelter During Floods			If No, Reasons for Not Taking Shelter				
	Sample (n)	Yes	No	Sample (n)	Stay Own House	Higher Place	Relative House	Embankment
Kurigram	135	97.78	2.22	3	100.00	0.00	0.00	0.00
Lalmonirhat	60	98.33	1.67	1	100.00	0.00	0.00	0.00
Rangpur	60	70.00	30.00	18	88.89	11.11	0.00	0.00
Nilphamari	75	89.33	10.67	8	100.00	0.00	0.00	0.00
Gaibandha	90	91.11	8.89	8	75.00	12.50	12.50	0.00
Sirajganj	60	90.00	10.00	6	100.00	0.00	0.00	0.00
Pabna	60	96.67	3.33	2	100.00	0.00	0.00	0.00
Bogura	45	95.56	4.44	2	100.00	0.00	0.00	0.00
Gopalganj	180	100.00	0.00	0	0.00	0.00	0.00	0.00
Rajbari	50	100.00	0.00	0	0.00	0.00	0.00	0.00
Madaripur	120	84.17	15.83	19	78.95	21.05	0.00	0.00
Faridpur	120	96.67	3.33	4	50.00	25.00	0.00	25.00
Sunamganj	135	97.04	2.96	4	25.00	50.00	25.00	0.00
Hobiganj	60	98.33	1.67	1	0.00	100.00	0.00	0.00
All	**1250**	**93.92**	**6.08**	**76**	**81.58**	**14.47**	**2.63**	**1.32**

Division	Project Area							
	% of Respondents							
	Taking Shelter During Floods			If No, Reasons for Not Taking Shelter				
	Sample (n)	Yes	No	Sample (n)	Stay Own House	Higher Place	Relative House	Embankment
Rangpur	1230	91.14	8.86	109	95.41	0.92	2.75	0.92
Rajshahi	495	93.54	6.46	32	87.50	12.50	0.00	0.00
Dhaka	1395	96.85	3.15	44	70.45	18.18	11.36	0.00
Sylhet	630	98.57	1.43	9	77.78	0.00	22.22	0.00
All	**3750**	**94.83**	**5.17**	**194**	**87.63**	**6.70**	**5.15**	**0.52**

Division	Control Area							
	% of Respondents							
	Taking Shelter During Floods			If No, Reasons for Not Taking Shelter				
	Sample (n)	Yes	No	Sample (n)	Stay Own House	Higher Place	Relative House	Embankment
Rangpur	420	90.95	9.05	38	89.47	7.89	2.63	0.00
Rajshahi	165	93.94	6.06	10	100.00	0.00	0.00	0.00
Dhaka	470	95.11	4.89	23	73.91	21.74	0.00	4.35
Sylhet	195	97.44	2.56	5	20.00	60.00	20.00	0.00
All	**1250**	**93.92**	**6.08**	**76**	**81.58**	**14.47**	**2.63**	**1.32**

Annex-4

Table 3.52: Respondents' Satisfaction with Conditions of Existing Flood Shelters

Project District	Project Area						Control Area					
	Sample (n)	% of Respondents					Sample (n)	% of Respondents				
		Reasons for Satisfaction						Reasons for Satisfaction				
		Easily accessible	Adequate facilities	Adequate space	Safe	Not Satisfied		Easily accessible	Adequate facilities	Adequate space	Safe	Not Satisfied
Kurigram	413	2.66	25.18	30.51	39.71	44.79	6	16.67	83.33	66.67	33.33	16.67
Lalmonirhat	129	27.13	46.51	49.61	58.14	24.81	1	0.00	0.00	0.00	100.00	0.00
Rangpur	144	63.89	65.97	61.11	75.69	14.58	2	50.00	100.00	50.00	50.00	0.00
Nilphamari	127	19.69	51.18	45.67	48.82	25.20	7	14.29	28.57	14.29	85.71	0.00
Gaibandha	231	77.92	90.04	70.13	70.13	3.46	0	0.00	0.00	0.00	0.00	0.00
Sirajganj	59	23.73	23.73	18.64	23.73	59.32	0	0.00	0.00	0.00	0.00	0.00
Pabna	8	37.50	62.50	25.00	12.50	37.50	0	0.00	0.00	0.00	0.00	0.00
Bogura	80	93.75	96.25	52.50	47.50	2.50	0	0.00	0.00	0.00	0.00	0.00
Gopalganj	333	24.92	30.03	27.03	27.93	65.17	2	100.00	50.00	0.00	0.00	0.00
Rajbari	2	0.00	0.00	0.00	0.00	100.00	7	14.29	14.29	0.00	0.00	85.71
Madaripur	261	20.31	34.87	18.01	20.69	43.30	0	0.00	0.00	0.00	0.00	0.00
Faridpur	171	4.68	9.36	9.36	9.36	85.96	1	0.00	100.00	100.00	100.00	0.00
Sunamganj	394	14.21	29.70	13.20	23.35	48.22	2	50.00	50.00	0.00	100.00	0.00
Hobiganj	162	16.67	32.72	11.73	22.22	37.04	0	0.00	0.00	0.00	0.00	0.00
All	**2514**	**26.33**	**39.98**	**30.91**	**36.44**	**41.65**	**28**	**25.00**	**46.43**	**25.00**	**46.43**	**25.00**
Multiple Response												

Division	Project Area						Control Area					
	Sample (n)	% of Respondents					Sample (n)	% of Respondents				
		Reasons for Satisfaction						Reasons for Satisfaction				
		Easily accessible	Adequate facilities	Adequate space	Safe	Not Satisfied		Easily accessible	Adequate facilities	Adequate space	Safe	Not Satisfied
Rangpur	1044	32.85	50.96	47.70	54.79	26.63	16	18.75	56.25	37.50	62.50	6.25
Rajshahi	147	62.59	65.31	37.41	36.05	27.21		0.00	0.00	0.00	0.00	0.00
Dhaka	767	18.77	26.99	19.95	21.25	62.45	10	30.00	30.00	10.00	10.00	60.00
Sylhet	556	14.93	30.58	12.77	23.02	44.96	2	50.00	50.00	0.00	100.00	0.00
All	**2514**	**26.33**	**39.98**	**30.91**	**36.44**	**41.65**	**28**	**25.00**	**46.43**	**25.00**	**46.43**	**25.00**
Multiple Response												

Table 3.53: Respondents' Opinion on Need for Designated Shelter for Livestock Floods, If Not, Where Keep Animals Shelter

Annex-4

Project District	Project Area							
	% of Respondents							
	Need Shelter for Livestock			If No, Where Keep Livestock During Flood				
	Sample (n)	Yes	No	Sample (n)	Own House	Higher Land	Embankment	Sale Out
Kurigram	420	99.76	0.24	1	0.00	0.00	100.00	0.00
Lalmonirhat	180	98.33	1.67	3	0.00	0.00	100.00	0.00
Rangpur	180	72.78	27.22	49	97.96	2.04	0.00	0.00
Nilphamari	195	100.00	0.00		0.00	0.00	0.00	0.00
Gaibandha	255	90.20	9.80	25	100.00	0.00	0.00	0.00
Sirajganj	165	98.18	1.82	3	66.67	33.33	0.00	0.00
Pabna	165	99.39	0.61	1	100.00	0.00	0.00	0.00
Bogura	165	96.97	3.03	5	100.00	0.00	0.00	0.00
Gopalganj	495	98.38	1.62	8	12.50	50.00	37.50	0.00
Rajbari	165	100.00	0.00		0.00	0.00	0.00	0.00
Madaripur	420	96.90	3.10	13	76.92	23.08	0.00	0.00
Faridpur	315	95.56	4.44	14	21.43	28.57	50.00	0.00
Sunamganj	435	98.16	1.84	8	25.00	75.00	0.00	0.00
Hobiganj	195	100.00	0.00		0.00	0.00	0.00	0.00
All	**3750**	**96.53**	**3.47**	**130**	**74.62**	**14.62**	**10.77**	**0.00**

Project District	Control Area							
	% of Respondents							
	Need Shelter for Livestock			If No, Where Keep Livestock During Flood				
	Sample (n)	Yes	No	Sample (n)	Own House	Higher Land	Embankment	Sale Out
Kurigram	135	97.78	2.22	3	33.33	66.67	0.00	0.00
Lalmonirhat	60	100.00	0.00	0	0.00	0.00	0.00	0.00
Rangpur	60	85.00	15.00	9	88.89	0.00	0.00	11.11
Nilphamari	75	100.00	0.00		0.00	0.00	0.00	0.00
Gaibandha	90	96.67	3.33	3	66.67	33.33	0.00	0.00
Sirajganj	60	96.67	3.33	2	100.00	0.00	0.00	0.00
Pabna	60	96.67	3.33	2	100.00	0.00	0.00	0.00
Bogura	45	97.78	2.22	1	100.00	0.00	0.00	0.00
Gopalganj	180	100.00	0.00	0	0.00	0.00	0.00	0.00
Rajbari	50	100.00	0.00		0.00	0.00	0.00	0.00
Madaripur	120	87.50	12.50	15	86.67	13.33	0.00	0.00
Faridpur	120	97.50	2.50	3	66.67	0.00	33.33	0.00
Sunamganj	135	97.78	2.22	3	100.00	0.00	0.00	0.00
Hobiganj	60	100.00	0.00		0.00	0.00	0.00	0.00
All	**1250**	**96.72**	**3.28**	**41**	**82.93**	**12.20**	**2.44**	**2.44**

Division	Project Area							
	% of Respondents							
	Need Shelter for Livestock			If No, Where Keep Livestock During Flood				
	Sample (n)	Yes	No	Sample (n)	Own House	Higher Land	Embankment	Sale Out
Rangpur	1230	93.66	6.34	78	93.59	1.28	5.13	0.00
Rajshahi	495	98.18	1.82	9	88.89	11.11	0.00	0.00
Dhaka	1395	97.49	2.51	35	40.00	31.43	28.57	0.00
Sylhet	630	98.73	1.27	8	25.00	75.00	0.00	0.00
All	**3750**	**96.53**	**3.47**	**130**	**74.62**	**14.62**	**10.77**	**0.00**

Division	Control Area							
	% of Respondents							
	Need Shelter for Livestock			If No, Where Keep Livestock During Flood				
	Sample (n)	Yes	No	Sample (n)	Own House	Higher Land	Embankment	Sale Out
Rangpur	420	96.43	3.57	15	73.33	20.00	0.00	6.67
Rajshahi	165	96.97	3.03	5	100.00	0.00	0.00	0.00
Dhaka	470	96.17	3.83	18	83.33	11.11	5.56	0.00
Sylhet	195	98.46	1.54	3	100.00	0.00	0.00	0.00
All	**1250**	**96.72**	**3.28**	**41**	**82.93**	**12.20**	**2.44**	**2.44**

Annex-4

Table 3.54: Respondents' Satisfaction with Conditions of Existing Flood Shelters

Project District	Project Area						Control Area					
	Sample (n)	% of Respondents					Sample (n)	% of Respondents				
		Problem in Using the Flood Shelter During a Flood						Problems in Using the Flood Shelter During Flood				
		Congestion	Lack of Infra.	No WASH	Lacking Facilities for Women	Other		Congestion	Lack of Infra.	No WASH	Lacking Facilities for Women	Other
Kurigram	420	0.95	56.90	98.81	83.33	0.00	135	3.70	62.96	100.00	79.26	0.00
Lalmonirhat	180	43.33	50.00	100.00	82.78	0.56	60	36.67	40.00	100.00	90.00	0.00
Rangpur	180	27.78	46.11	92.22	63.33	0.00	60	18.33	51.67	83.33	65.00	0.00
Nilphamari	195	11.28	51.79	99.49	81.54	3.59	75	9.33	40.00	98.67	81.33	1.33
Gaibandha	255	20.78	40.78	90.98	29.02	0.00	90	17.78	70.00	82.22	33.33	0.00
Sirajganj	165	7.88	51.52	83.03	89.70	5.45	60	8.33	16.67	63.33	76.67	5.00
Pabna	165	0.00	61.21	75.15	91.52	1.21	60	1.67	75.00	60.00	83.33	0.00
Bogura	165	30.30	66.67	86.67	20.61	0.00	45	11.11	64.44	88.89	24.44	0.00
Gopalganj	495	6.46	79.19	97.78	94.95	0.20	180	6.11	78.89	98.89	95.56	0.00
Rajbari	165	0.00	71.52	87.88	99.39	0.00	50	0.00	78.00	72.00	100.00	0.00
Madaripur	420	27.38	44.05	76.90	51.67	0.00	120	35.83	60.00	78.33	31.67	0.00
Faridpur	315	2.86	77.46	96.83	93.33	0.00	120	0.83	60.83	95.83	93.33	1.67
Sunamganj	435	20.46	31.49	82.99	59.77	5.75	135	18.52	33.33	84.44	59.26	2.22
Hobiganj	195	20.00	25.13	75.90	78.46	0.00	60	23.33	36.67	78.33	65.00	21.67
All	**3750**	**14.77**	**54.35**	**89.52**	**72.99**	**1.20**	**1250**	**13.28**	**56.80**	**87.28**	**71.12**	**1.76**
Multiple Response												

Division	Project Area						Control Area					
	Sample (n)	% of Respondents					Sample (n)	% of Respondents				
		Problem in Using the Flood Shelter During a Flood						Problems in Using the Flood Shelter During Flood				
		Congestion	Lack of Infra.	No WASH	Lacking Facilities for Women	Other		Congestion	Lack of Infra.	No WASH	Lacking Facilities for Women	Other
Rangpur	1230	16.83	50.16	96.50	68.78	0.65	420	14.52	55.48	93.57	69.29	0.24
Rajshahi	495	12.73	59.80	81.62	67.27	2.22	165	6.67	50.91	69.09	64.85	1.82
Dhaka	1395	11.18	67.31	90.11	82.08	0.07	470	11.70	69.36	90.00	79.15	0.43
Sylhet	630	20.32	29.52	80.79	65.56	3.97	195	20.00	34.36	82.56	61.03	8.21
All	**3750**	**14.77**	**54.35**	**89.52**	**72.99**	**1.20**	**1250**	**13.28**	**56.80**	**87.28**	**71.12**	**1.76**
Multiple Response												

Annex-4

Table 3.55: Conditions of the Shelter-Connected Road and Bridge/Culvert in the Area

Project District	Project Area						
	No. of Respondents						
	Condition of Shelter Connecting Road			Condition of the Bridge/Culvert on the Road			
	Good	Moderate	Bad	Good	Moderate	Bad	No Bridge/Culvert
Kurigram	0	61	359	1	10	277	132
Lalmonirhat	17	49	114	8	45	74	53
Rangpur	10	70	100	17	83	64	16
Nilphamari	9	33	153	9	23	133	30
Gaibandha	37	72	146	60	99	61	35
Sirajganj	8	37	120	35	23	54	53
Pabna	26	37	102	33	34	10	88
Bogursa	38	48	79	68	67	30	0
Gopalganj	2	320	173	82	85	47	281
Rajbari	3	55	107	54	15	34	62
Madaripur	98	167	155	90	104	109	117
Faridpur	8	147	160	11	69	55	180
Sunamganj	8	207	220	2	47	139	247
Hobiganj	2	37	156	0	14	88	93
All	**266**	**1340**	**2144**	**470**	**718**	**1175**	**1387**

Division	Project Area						
	No. of Respondents						
	Condition of Shelter Connecting Road			Condition of the Bridge/Culvert on the Road			
	Good	Moderate	Bad	Good	Moderate	Bad	No Bridge/Culvert
Rangpur	73	285	872	95	260	609	266
Rajshahi	72	122	301	136	124	94	141
Dhaka	111	689	595	237	273	245	640
Sylhet	10	244	376	2	61	227	340
All	**266**	**1340**	**2144**	**470**	**718**	**1175**	**1387**

Project District	Project Area								
	% of Respondents								
	Condition of Shelter Connecting Road				Condition of the Bridge/Culvert on the Road				
	Good	Moderate	Bad	Total	Good	Moderate	Bad	No Bridge/Culvert	Total
Kurigram	0.00	14.52	85.48	100.00	0.24	2.38	65.95	31.43	100.00
Lalmonirhat	9.44	27.22	63.33	100.00	4.44	25.00	41.11	29.44	100.00
Rangpur	5.56	38.89	55.56	100.00	9.44	46.11	35.56	8.89	100.00
Nilphamari	4.62	16.92	78.46	100.00	4.62	11.79	68.21	15.38	100.00
Gaibandha	14.51	28.24	57.25	100.00	23.53	38.82	23.92	13.73	100.00
Sirajganj	4.85	22.42	72.73	100.00	21.21	13.94	32.73	32.12	100.00
Pabna	15.76	22.42	61.82	100.00	20.00	20.61	6.06	53.33	100.00
Bogura	23.03	29.09	47.88	100.00	41.21	40.61	18.18	0.00	100.00
Gopalganj	0.40	64.65	34.95	100.00	16.57	17.17	9.49	56.77	100.00
Rajbari	1.82	33.33	64.85	100.00	32.73	9.09	20.61	37.58	100.00
Madaripur	23.33	39.76	36.90	100.00	21.43	24.76	25.95	27.86	100.00
Faridpur	2.54	46.67	50.79	100.00	3.49	21.90	17.46	57.14	100.00
Sunamganj	1.84	47.59	50.57	100.00	0.46	10.80	31.95	56.78	100.00
Hobiganj	1.03	18.97	80.00	100.00	0.00	7.18	45.13	47.69	100.00
All	**7.09**	**35.73**	**57.17**	**100.00**	**12.53**	**19.15**	**31.33**	**36.99**	**100.00**

Annex-4

Table 3.56: Respondents' Response on the Availability of Street Light on the FS Connecting Road, Conditions of

Project District	Sample (n)	Project Area					
		No. of Respondents					
		Availability of Street Light		Condition of Water Supply Sys		Condition of Sanitation System	
		Yes	No	Adequate	Inadequate	Good	Bad
Kurigram	420	8	412	0	420	1	419
Lalmonirhat	180	2	178	24	156	19	161
Rangpur	180	2	178	24	156	25	155
Nilphamari	195	1	194	10	185	6	189
Gaibandha	255	4	251	13	242	13	242
Sirajganj	165	3	162	4	161	6	159
Pabna	165	1	164	0	165	15	150
Bogura	165	0	165	0	165	3	162
Gopalganj	495	2	493	3	492	3	492
Rajbari	165	9	156	2	163	0	165
Madaripur	420	12	408	4	416	28	392
Faridpur	315	0	315	6	309	7	308
Sunamganj	435	9	426	30	405	19	416
Hobiganj	195	2	193	2	193	4	191
All	**3750**	**55**	**3695**	**122**	**3628**	**149**	**3601**

Division	Sample (n)	Project Area					
		No. of Respondents					
		Availability of Street Light		Condition of Water Supply Sys		Condition of Sanitation System	
		Yes	No	Adequate	Inadequate	Good	Bad
Rangpur	1230	17	1213	71	1159	64	1166
Rajshahi	495	4	491	4	491	24	471
Dhaka	1395	23	1372	15	1380	38	1357
Sylhet	630	11	619	32	598	23	607
All	**3750**	**55**	**3695**	**122**	**3628**	**149**	**3601**

Project District	Sample (n)	Project Area					
		% of Respondents					
		Availability of Street Light		Condition of Water Supply Sys		Condition of Sanitation System	
		Yes	No	Adequate	Inadequate	Good	Bad
Kurigram	420	1.90	98.10	0.00	100.00	0.24	99.76
Lalmonirhat	180	1.11	98.89	13.33	86.67	10.56	89.44
Rangpur	180	1.11	98.89	13.33	86.67	13.89	86.11
Nilphamari	195	0.51	99.49	5.13	94.87	3.08	96.92
Gaibandha	255	1.57	98.43	5.10	94.90	5.10	94.90
Sirajganj	165	1.82	98.18	2.42	97.58	3.64	96.36
Pabna	165	0.61	99.39	0.00	100.00	9.09	90.91
Bogura	165	0.00	100.00	0.00	100.00	1.82	98.18
Gopalganj	495	0.40	99.60	0.61	99.39	0.61	99.39
Rajbari	165	5.45	94.55	1.21	98.79	0.00	100.00
Madaripur	420	2.86	97.14	0.95	99.05	6.67	93.33
Faridpur	315	0.00	100.00	1.90	98.10	2.22	97.78
Sunamganj	435	2.07	97.93	6.90	93.10	4.37	95.63
Hobiganj	195	1.03	98.97	1.03	98.97	2.05	97.95
All	**3750**	**1.47**	**98.53**	**3.25**	**96.75**	**3.97**	**96.03**

Division	Sample (n)	Project Area					
		% of Respondents					
		Availability of Street Light		Condition of Water Supply Sys		Condition of Sanitation System	
		Yes	No	Adequate	Inadequate	Good	Bad
Rangpur	1230	1.38	98.62	5.77	94.23	5.20	94.80
Rajshahi	495	0.81	99.19	0.81	99.19	4.85	95.15
Dhaka	1395	1.65	98.35	1.08	98.92	2.72	97.28
Sylhet	630	1.75	98.25	5.08	94.92	3.65	96.35
All	**3750**	**1.47**	**98.53**	**3.25**	**96.75**	**3.97**	**96.03**

Table 3.57: Respondents' Opinion on the Available Space for Women and the Household Animals in the Flood Shelter

Annex-4

Project District	Sample (n)	Project Area			
		No. of Respondents			
		Space for Women		Space for Animals	
		Yes	No	Yes	No
Kurigram	420	24	396	16	404
Lalmonirhat	180	3	177	5	175
Rangpur	180	22	158	4	176
Nilphamari	195	9	186	7	188
Gaibandha	255	18	237	13	242
Sirajganj	165	5	160	10	155
Pabna	165	5	160	3	162
Bogura	165	3	162	3	162
Gopalganj	495	8	487	8	487
Rajbari	165	4	161	5	160
Madaripur	420	65	355	79	341
Faridpur	315	6	309	5	310
Sunamganj	435	42	393	46	389
Hobiganj	195	3	192	4	191
All	**3750**	**217**	**3533**	**208**	**3542**

Division	Sample (n)	Project Area			
		No. of Respondents			
		Space for Women		Space for Animals	
		Yes	No	Yes	No
Rangpur	1230	76	1154	45	1185
Rajshahi	495	13	482	16	479
Dhaka	1395	83	1312	97	1298
Sylhet	630	45	585	50	580
All	**3750**	**217**	**3533**	**208**	**3542**

Project District	Sample (n)	Project Area			
		% of Respondents			
		Space for Women		Space for Animals	
		Yes	No	Yes	No
Kurigram	420	5.71	94.29	3.81	96.19
Lalmonirhat	180	1.67	98.33	2.78	97.22
Rangpur	180	12.22	87.78	2.22	97.78
Nilphamari	195	4.62	95.38	3.59	96.41
Gaibandha	255	7.06	92.94	5.10	94.90
Sirajganj	165	3.03	96.97	6.06	93.94
Pabna	165	3.03	96.97	1.82	98.18
Bogura	165	1.82	98.18	1.82	98.18
Gopalganj	495	1.62	98.38	1.62	98.38
Rajbari	165	2.42	97.58	3.03	96.97
Madaripur	420	15.48	84.52	18.81	81.19
Faridpur	315	1.90	98.10	1.59	98.41
Sunamganj	435	9.66	90.34	10.57	89.43
Hobiganj	195	1.54	98.46	2.05	97.95
All	**3750**	**5.79**	**94.21**	**5.55**	**94.45**

Division	Sample (n)	Project Area			
		% of Respondents			
		Space for Women		Space for Animals	
		Yes	No	Yes	No
Rangpur	1230	6.18	93.82	3.66	96.34
Rajshahi	495	2.63	97.37	3.23	96.77
Dhaka	1395	5.95	94.05	6.95	93.05
Sylhet	630	7.14	92.86	7.94	92.06
All	3750	5.79	94.21	5.55	94.45

Table 3.58: Respondents' Response on Any Community Road Connecting the School cum Shelter

Annex-4

Project District	Project Area								
	No. of Respondents								
	Community Road			Avg. Length		Type of the Road			
	Sample(n)	Yes	No	km	Sample(n)	Earthen	Paved	Black Top	RCC
Kurigram	420	216	204	1.12	216	148	21	47	0
Lalmonirhat	180	69	111	1.32	69	30	2	36	1
Rangpur	180	81	99	2.25	81	61	8	12	0
Nilphamari	195	103	92	1.22	103	70	5	28	0
Gaibandha	255	187	68	1.65	187	92	13	80	2
Sirajganj	165	20	145	2.45	20	12	0	8	0
Pabna	165	16	149	1.44	16	0	3	13	0
Bogura	165	142	23	1.84	142	51	30	61	0
Gopalganj	495	1	494	5.00	1	0	1	0	0
Rajbari	165	0	165	0.00	0	0	0	0	0
Madaripur	420	171	249	3.65	171	50	17	89	15
Faridpur	315	18	297	2.44	18	1	0	17	0
Sunamganj	435	48	387	2.52	48	23	15	7	3
Hobiganj	195	60	135	1.73	60	45	0	14	1
All	**3750**	**1132**	**2618**	**1.93**	**1132**	**583**	**115**	**412**	**22**

Division	Project Area								
	No. of Respondents								
	Community Road			Avg. Length	Sample(n)	Type of the Road			
	Sample(n)	Yes	No	km		Earthen	Paved	Black Top	RCC
Rangpur	1230	656	574	1.45	656	401	49	203	3
Rajshahi	495	178	317	1.87	178	63	33	82	0
Dhaka	1395	190	1205	3.55	190	51	18	106	15
Sylhet	630	108	522	2.08	108	68	15	21	4
All	**3750**	**1132**	**2618**	**1.93**	**1132**	**583**	**115**	**412**	**22**

Project District	Project Area								
	% of Respondents								
	Community Road			Avg. Length	Type of the Road				
	Sample(n)	Yes	No	km	Sample(n)	Earthen	Paved	Black Top	RCC
Kurigram	420	51.43	48.57	1.12	216	68.52	9.72	21.76	0.00
Lalmonirhat	180	38.33	61.67	1.32	69	43.48	2.90	52.17	1.45
Rangpur	180	45.00	55.00	2.25	81	75.31	9.88	14.81	0.00
Nilphamari	195	52.82	47.18	1.22	103	67.96	4.85	27.18	0.00
Gaibandha	255	73.33	26.67	1.65	187	49.20	6.95	42.78	1.07
Sirajganj	165	12.12	87.88	2.45	20	60.00	0.00	40.00	0.00
Pabna	165	9.70	90.30	1.44	16	0.00	18.75	81.25	0.00
Bogura	165	86.06	13.94	1.84	142	35.92	21.13	42.96	0.00
Gopalganj	495	0.20	99.80	5.00	1	0.00	100.00	0.00	0.00
Rajbari	165	0.00	100.00	0.00	0	0.00	0.00	0.00	0.00
Madaripur	420	40.71	59.29	3.65	171	29.24	9.94	52.05	8.77
Faridpur	315	5.71	94.29	2.44	18	5.56	0.00	94.44	0.00
Sunamganj	435	11.03	88.97	2.52	48	47.92	31.25	14.58	6.25
Hobiganj	195	30.77	69.23	1.73	60	75.00	0.00	23.33	1.67
All	**3750**	**30.19**	**69.81**	**1.93**	**1132**	**51.50**	**10.16**	**36.40**	**1.94**

Division	Project Area								
	% of Respondents								
	Community Road			Avg. Length	Type of the Road				
	Sample(n)	Yes	No	km	Sample(n)	Earthen	Paved	Black Top	RCC
Rangpur	1230	53.33	46.67	1.45	656	61.13	7.47	30.95	0.46
Rajshahi	495	35.96	64.04	1.87	178	35.39	18.54	46.07	0.00
Dhaka	1395	13.62	86.38	3.55	190	26.84	9.47	55.79	7.89
Sylhet	630	17.14	82.86	2.08	108	62.96	13.89	19.44	3.70
All	**3750**	**30.19**	**69.81**	**1.93**	**1132**	**51.50**	**10.16**	**36.40**	**1.94**

Table 3.59: Number of People Use the Shelter Connecting Road on Foot and By Transport per Day

Annex-4

Project District	Project Area					
	Movement on Foot (Number)			On Rickshaw/CNG/Bike (Number)		
	Avg. Total per day	Female per day	Youth per day	Avg. Total per day	Female per day	Youth per day
Kurigram	1087	500	281	218	95	65
Lalmonirhat	1047	382	196	261	108	93
Rangpur	846	317	239	437	171	166
Nilphamari	1229	508	277	180	81	64
Gaibandha	2622	773	526	1373	530	434
Sirajganj	478	176	117	36	27	23
Pabna	456	222	171	87	69	48
Bogursa	3267	786	591	1621	532	474
Gopalganj	0	0	0	0	0	0
Rajbari	0	0	0	0	0	0
Madaripur	1091	348	371	788	300	309
Faridpur	1201	441	276	652	202	218
Sunamganj	1283	471	458	756	283	261
Hobiganj	725	242	242	273	91	91
Avg.	**1498**	**495**	**354**	**657**	**245**	**218**

Division	Project Area					
	Movement on Foot (Number)			On Rickshaw/CNG/Bike (Number)		
	Avg. Total per day	Female per day	Youth per day	Avg. Total per day	Female per day	Youth per day
Rangpur	1411	526	318	483	192	154
Rajshahi	2634	652	487	1260	436	394
Dhaka	1101	357	362	775	291	300
Sylhet	973	344	338	488	175	166
Avg.	**1498**	**495**	**354**	**657**	**245**	**218**

Annex-4

Table 3.60: Provision of Solar Energy in the School Cum Shelter

Project District	Project Area					
	No. and % of Respondents					
	Provision of Solar Energy					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Kurigram	1	0.24	419	99.76	420	100.00
Lalmonirhat	1	0.56	179	99.44	180	100.00
Rangpur	1	0.56	179	99.44	180	100.00
Nilphamari	1	0.51	194	99.49	195	100.00
Gaibandha	1	0.39	254	99.61	255	100.00
Sirajganj	9	5.45	156	94.55	165	100.00
Pabna	0	0.00	165	100.00	165	100.00
Bogura	0	0.00	165	100.00	165	100.00
Gopalganj	5	1.01	490	98.99	495	100.00
Rajbari	0	0.00	165	100.00	165	100.00
Madaripur	9	2.14	411	97.86	420	100.00
Faridpur	2	0.63	313	99.37	315	100.00
Sunamganj	8	1.84	427	98.16	435	100.00
Hobiganj	3	1.54	192	98.46	195	100.00
All	**41**	**1.09**	**3709**	**98.91**	**3750**	**100.00**

Division	Project Area					
	No. and % of Respondents					
	Provision of Solar Energy					
	Yes		No		Total	
	No.	%	No.	%	No.	%
Rangpur	5	0.41	1225	99.59	1230	100.00
Rajshahi	9	1.82	486	98.18	495	100.00
Dhaka	16	1.15	1379	98.85	1395	100.00
Sylhet	11	1.75	619	98.25	630	100.00
All	**41**	**1.09**	**3709**	**98.91**	**3750**	**100.00**

Table 3.61: Current Enrollment in the School cum Shelter, Facilities in School are Adequate and Facilities Lacking

Annex-4

Project District	Project Area							
	No. of Respondents							
	Enrollment	facilities' Adequate		Facilities Lacking				
	Avg. Number	Yes	No	Insufficient class/teacher's rooms	Inadequate furniture	No or Poor WASH facilities	playground	road network
Kurigram	181.50	8	412	220	321	357	147	168
Lalmonirhat	146.17	47	133	106	108	125	61	43
Rangpur	134.14	62	118	88	89	100	45	74
Nilphamari	120.39	12	183	132	148	180	26	62
Gaibandha	169.86	126	129	99	109	103	74	40
Sirajganj	145.08	21	144	118	90	101	46	68
Pabna	270.14	3	162	150	134	124	43	55
Bogursa	181.56	42	123	107	98	97	63	48
Gopalganj	116.80	24	471	419	447	394	333	164
Rajbari	211.56	3	162	159	133	127	26	67
Madaripur	154.25	83	337	221	171	218	196	154
Faridpur	180.87	52	263	223	233	201	135	64
Sunamganj	144.44	64	371	142	128	248	299	253
Hobiganj	141.14	25	170	86	84	117	137	131
All	159.14	572	3178	2270	2293	2492	1631	1391

Division	Project Area							
	No. of Respondents							
	Enrollment	facilities' Adequate		Facilities Lacking				
	Avg. Number	Yes	No	Insufficient class/teacher's rooms	Inadequate furniture	No or Poor WASH facilities	playground	road network
Rangpur	157.30	255	975	645	775	865	353	387
Rajshahi	198.93	66	429	375	322	322	152	171
Dhaka	153.75	162	1233	1022	984	940	690	449
Sylhet	143.42	89	541	228	212	365	436	384
All	159.14	572	3178	2270	2293	2492	1631	1391

Project District	Sample (n)	Project Area							
		% of Respondents							
		Enrollment	Facilities Adequate		Facilities Lacking				
		Avg. Number	Yes	No	Insufficient class/teacher's rooms	Inadequate furniture	No or Poor WASH facilities	playground	road network
Kurigram	420	181.50	1.90	98.10	52.38	76.43	85.00	35.00	40.00
Lalmonirhat	180	146.17	26.11	73.89	58.89	60.00	69.44	33.89	23.89
Rangpur	180	134.14	34.44	65.56	48.89	49.44	55.56	25.00	41.11
Nilphamari	195	120.39	6.15	93.85	67.69	75.90	92.31	13.33	31.79
Gaibandha	255	169.86	49.41	50.59	38.82	42.75	40.39	29.02	15.69
Sirajganj	165	145.08	12.73	87.27	71.52	54.55	61.21	27.88	41.21
Pabna	165	270.14	1.82	98.18	90.91	81.21	75.15	26.06	33.33
Bogura	165	181.56	25.45	74.55	64.85	59.39	58.79	38.18	29.09
Gopalganj	495	116.80	4.85	95.15	84.65	90.30	79.60	67.27	33.13
Rajbari	165	211.56	1.82	98.18	96.36	80.61	76.97	15.76	40.61
Madaripur	420	154.25	19.76	80.24	52.62	40.71	51.90	46.67	36.67
Faridpur	315	180.87	16.51	83.49	70.79	73.97	63.81	42.86	20.32
Sunamganj	435	144.44	14.71	85.29	32.64	29.43	57.01	68.74	58.16
Hobiganj	195	141.14	12.82	87.18	44.10	43.08	60.00	70.26	67.18
All	3750	159.14	15.25	84.75	60.53	61.15	66.45	43.49	37.09

Division	Sample (n)	Project Area							
		% of Respondents							
		Enrollment	Facilities Adequate		Facilities Lacking				
		Avg. Number	Yes	No	Insufficient class/teacher's rooms	Inadequate furniture	No or Poor WASH facilities	playground	road network
Rangpur	1230	157.30	20.73	79.27	52.44	63.01	70.33	28.70	31.46
Rajshahi	495	198.93	13.33	86.67	75.76	65.05	65.05	30.71	34.55
Dhaka	1395	153.75	11.61	88.39	73.26	70.54	67.38	49.46	32.19
Sylhet	630	143.42	14.13	85.87	36.19	33.65	57.94	69.21	60.95
All	3750	159.14	15.25	84.75	60.53	61.15	66.45	43.49	37.09
					Multiple Response (n=3750)				

Table 3.62: Women Respondents' Work for Family

Annex-4

Project District	Project Area			Control Area		
	Number of Respondents			Number of Respondents		
	Yes	No	Total	Yes	No	Total
Kurigram	17	403	420	7	128	135
Lalmonirhat	11	169	180	3	57	60
Rangpur	24	156	180	0	60	60
Nilphamari	10	185	195	5	70	75
Gaibandha	5	250	255	2	88	90
Sirajganj	9	156	165	0	60	60
Pabna	7	158	165	0	60	60
Bogura	1	164	165	0	45	45
Gopalganj	27	468	495	7	173	180
Rajbari	4	161	165	0	50	50
Madaripur	13	407	420	0	120	120
Faridpur	18	297	315	2	118	120
Sunamganj	10	425	435	2	133	135
Hobiganj	5	190	195	3	57	60
All	161	3589	3750	31	1219	1250

Division	Project Area			Control Area		
	Number of Respondents			Number of Respondents		
	Yes	No	Total	Yes	No	Total
Rangpur	67	1163	**1230**	17	403	**420**
Rajshahi	17	478	**495**	0	165	**165**
Dhaka	62	1333	**1395**	9	461	**470**
Sylhet	15	615	**630**	5	190	**195**
All	**161**	**3589**	**3750**	**31**	**1219**	**1250**

Project District	Project Area			Control Area		
	% of Respondents			% of Respondents		
	Yes	No	Total	Yes	No	Total
Kurigram	4.05	95.95	100.00	5.19	94.81	100.00
Lalmonirhat	6.11	93.89	100.00	5.00	95.00	100.00
Rangpur	13.33	86.67	100.00	0.00	100.00	100.00
Nilphamari	5.13	94.87	100.00	6.67	93.33	100.00
Gaibandha	1.96	98.04	100.00	2.22	97.78	100.00
Sirajganj	5.45	94.55	100.00	0.00	100.00	100.00
Pabna	4.24	95.76	100.00	0.00	100.00	100.00
Bogura	0.61	99.39	100.00	0.00	100.00	100.00
Gopalganj	5.45	94.55	100.00	3.89	96.11	100.00
Rajbari	2.42	97.58	100.00	0.00	100.00	100.00
Madaripur	3.10	96.90	100.00	0.00	100.00	100.00
Faridpur	5.71	94.29	100.00	1.67	98.33	100.00
Sunamganj	2.30	97.70	100.00	1.48	98.52	100.00
Hobiganj	2.56	97.44	100.00	5.00	95.00	100.00
All	**4.29**	**95.71**	**100.00**	**2.48**	**97.52**	**100.00**

Division	Project Area			Control Area		
	% of Respondents			% of Respondents		
	Yes	No	Total	Yes	No	Total
Rangpur	5.45	94.55	100.00	4.05	95.95	100.00
Rajshahi	3.43	96.57	100.00	0.00	100.00	100.00
Dhaka	4.44	95.56	100.00	1.91	98.09	100.00
Sylhet	2.38	97.62	100.00	2.56	97.44	100.00
All	**4.29**	**95.71**	**100.00**	**2.48**	**97.52**	**100.00**

Table 3.63: Women Respondents' Relation with the Head of HH

Annex-4

Project District	Project Area: Number of Respondents, Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Kurigram	4	10	2	0	1	0	0	17
Lalmonirhat	3	6	1	0	1	0	0	11
Rangpur	5	16	2	0	0	0	1	24
Nilphamari	2	8	0	0	0	0	0	10
Gaibandha	2	2	1	0	0	0	0	5
Sirajganj	1	7	0	0	1	0	0	9
Pabna	1	4	1	0	1	0	0	7
Bogura	0	1	0	0	0	0	0	1
Gopalganj	4	21	0	0	2	0	0	27
Rajbari	1	1	1	0	1	0	0	4
Madaripur	3	8	2	0	0	0	0	13
Faridpur	3	13	0	1	0	1	0	18
Sunamganj	4	3	2	0	1	0	0	10
Hobiganj	1	3	1	0	0	0	0	5
All	**34**	**103**	**13**	**1**	**8**	**1**	**1**	**161**

Project District	Control Area: Number of Respondents, Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Kurigram	0	5	1	0	1	0	0	7
Lalmonirhat	1	2	0	0	0	0	0	3
Rangpur	0	0	0	0	0	0	0	0
Nilphamari	1	3	0	0	1	0	0	5
Gaibandha	0	2	0	0	0	0	0	2
Sirajganj	0	0	0	0	0	0	0	0
Pabna	0	0	0	0	0	0	0	0
Bogura	0	0	0	0	0	0	0	0
Gopalganj	1	6	0	0	0	0	0	7
Rajbari	0	0	0	0	0	0	0	0
Madaripur	0	0	0	0	0	0	0	0
Faridpur	0	2	0	0	0	0	0	2
Sunamganj	0	2	0	0	0	0	0	2
Hobiganj	0	1	2	0	0	0	0	3
All	**3**	**23**	**3**	**0**	**2**	**0**	**0**	**31**

Project Area								
Division	Number of Respondents							
	Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Rangpur	16	42	6	0	2	0	1	67
Rajshahi	2	12	1	0	2	0	0	17
Dhaka	11	43	3	1	3	1	0	62
Sylhet	5	6	3	0	1	0	0	15
All	**34**	**103**	**13**	**1**	**8**	**1**	**1**	**161**

Control Area								
Division	Number of Respondents							
	Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Rangpur	2	12	1	0	2	0	0	17
Rajshahi	0	0	0	0	0	0	0	0
Dhaka	1	8	0	0	0	0	0	9
Sylhet	0	3	2	0	0	0	0	5
All	**3**	**23**	**3**	**0**	**2**	**0**	**0**	**31**

Project Area								
Project District	% of Respondents							
	Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Kurigram	23.53	58.82	11.76	0.00	5.88	0.00	0.00	100.00
Lalmonirhat	27.27	54.55	9.09	0.00	9.09	0.00	0.00	100.00
Rangpur	20.83	66.67	8.33	0.00	0.00	0.00	4.17	100.00
Nilphamari	20.00	80.00	0.00	0.00	0.00	0.00	0.00	100.00
Gaibandha	40.00	40.00	20.00	0.00	0.00	0.00	0.00	100.00
Sirajganj	11.11	77.78	0.00	0.00	11.11	0.00	0.00	100.00
Pabna	14.29	57.14	14.29	0.00	14.29	0.00	0.00	100.00
Bogura	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Gopalganj	14.81	77.78	0.00	0.00	7.41	0.00	0.00	100.00
Rajbari	25.00	25.00	25.00	0.00	25.00	0.00	0.00	100.00
Madaripur	23.08	61.54	15.38	0.00	0.00	0.00	0.00	100.00
Faridpur	16.67	72.22	0.00	5.56	0.00	5.56	0.00	100.00
Sunamganj	40.00	30.00	20.00	0.00	10.00	0.00	0.00	100.00
Hobiganj	20.00	60.00	20.00	0.00	0.00	0.00	0.00	100.00
All	**21.12**	**63.98**	**8.07**	**0.62**	**4.97**	**0.62**	**0.62**	**100.00**

Control Area								
Project District	% of Respondents							
	Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Kurigram	0.00	71.43	14.29	0.00	14.29	0.00	0.00	100.00
Lalmonirhat	33.33	66.67	0.00	0.00	0.00	0.00	0.00	100.00
Rangpur	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nilphamari	20.00	60.00	0.00	0.00	20.00	0.00	0.00	100.00
Gaibandha	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Sirajganj	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pabna	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bogura	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gopalganj	14.29	85.71	0.00	0.00	0.00	0.00	0.00	100.00
Rajbari	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Madaripur	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Faridpur	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Sunamganj	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Hobiganj	0.00	33.33	66.67	0.00	0.00	0.00	0.00	100.00
All	**9.68**	**74.19**	**9.68**	**0.00**	**6.45**	**0.00**	**0.00**	**100.00**

Project Area								
Division	% of Respondents							
	Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Rangpur	23.88	62.69	8.96	0.00	2.99	0.00	1.49	100.00
Rajshahi	11.76	70.59	5.88	0.00	11.76	0.00	0.00	100.00
Dhaka	17.74	69.35	4.84	1.61	4.84	1.61	0.00	100.00
Sylhet	33.33	40.00	20.00	0.00	6.67	0.00	0.00	100.00
All	**21.12**	**63.98**	**8.07**	**0.62**	**4.97**	**0.62**	**0.62**	**100.00**

Control Area								
Division	% of Respondents							
	Relation With HH Head							
	Household Head	Wife of Household Head	Daughter	Mother	Daughter-in-law	Sister	Mother in Law	Total
Rangpur	11.76	70.59	5.88	0.00	11.76	0.00	0.00	100.00
Rajshahi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dhaka	11.11	88.89	0.00	0.00	0.00	0.00	0.00	100.00
Sylhet	0.00	60.00	40.00	0.00	0.00	0.00	0.00	100.00
All	**9.68**	**74.19**	**9.68**	**0.00**	**6.45**	**0.00**	**0.00**	**100.00**

Table 3.64: Women Respondents' Educational Qualification (Ref. Baseline Questionnaire: 1.15.4)

Annex-4

Project District	Project Area Number of Respondents Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Kurigram	4	0	0	0	3	1	2	7	17
Lalmonirhat	1	1	0	1	1	0	2	5	11
Rangpur	2	4	1	2	7	2	5	1	24
Nilphamari	5	2	0	0	0	0	0	3	10
Gaibandha	2	0	0	0	0	1	1	1	5
Sirajganj	4	2	0	0	1	0	0	2	9
Pabna	1	2	0	0	2	1	0	1	7
Bogura	0	0	0	0	1	0	0	0	1
Gopalganj	2	2	2	4	6	8	2	1	27
Rajbari	1	2	1	0	0	0	0	0	4
Madaripur	2	1	1	3	3	1	1	1	13
Faridpur	1	1	1	1	4	5	5	0	18
Sunamganj	0	4	1	0	0	1	3	1	10
Hobiganj	1	1	1	0	1	0	1	0	5
All	**26**	**22**	**8**	**11**	**29**	**20**	**22**	**23**	**161**

Project District	Control Area Number of Respondents Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Kurigram	1	2	1	0	0	1	0	2	7
Lalmonirhat	0	0	0	1	0	0	1	1	3
Nilphamari	1	0	0	0	0	0	0	4	5
Gaibandha	0	0	1	0	0	1	0	0	2
Gopalganj	1	2	1	0	0	3	0	0	7
Faridpur	1	0	0	0	1	0	0	0	2
Sunamganj	1	0	0	0	1	0	0	0	2
Hobiganj	0	2	1	0	0	0	0	0	3
All	**5**	**6**	**4**	**1**	**2**	**5**	**1**	**7**	**31**

Project Area									
Division	Number of Respondents								
	Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Rangpur	14	7	1	3	11	4	10	17	67
Rajshahi	5	4	0	0	4	1	0	3	17
Dhaka	6	6	5	8	13	14	8	2	62
Sylhet	1	5	2	0	1	1	4	1	15
All	**26**	**22**	**8**	**11**	**29**	**20**	**22**	**23**	**161**

Control Area									
Division	Number of Respondents								
	Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Rangpur	2	2	2	1	0	2	1	7	17
Rajshahi	0	0	0	0	0	0	0	0	0
Dhaka	2	2	1	0	1	3	0	0	9
Sylhet	1	2	1	0	1	0	0	0	5
All	**5**	**6**	**4**	**1**	**2**	**5**	**1**	**7**	**31**

Project Area									
Project District	% of Respondents								
	Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Kurigram	23.53	0.00	0.00	0.00	17.65	5.88	11.76	41.18	100.00
Lalmonirhat	9.09	9.09	0.00	9.09	9.09	0.00	18.18	45.45	100.00
Rangpur	8.33	16.67	4.17	8.33	29.17	8.33	20.83	4.17	100.00
Nilphamari	50.00	20.00	0.00	0.00	0.00	0.00	0.00	30.00	100.00
Gaibandha	40.00	0.00	0.00	0.00	0.00	20.00	20.00	20.00	100.00
Sirajganj	44.44	22.22	0.00	0.00	11.11	0.00	0.00	22.22	100.00
Pabna	14.29	28.57	0.00	0.00	28.57	14.29	0.00	14.29	100.00
Bogura	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00
Gopalganj	7.41	7.41	7.41	14.81	22.22	29.63	7.41	3.70	100.00
Rajbari	25.00	50.00	25.00	0.00	0.00	0.00	0.00	0.00	100.00
Madaripur	15.38	7.69	7.69	23.08	23.08	7.69	7.69	7.69	100.00
Faridpur	5.56	5.56	5.56	5.56	22.22	27.78	27.78	0.00	100.00
Sunamganj	0.00	40.00	10.00	0.00	0.00	10.00	30.00	10.00	100.00
Hobiganj	20.00	20.00	20.00	0.00	20.00	0.00	20.00	0.00	100.00
All	**16.15**	**13.66**	**4.97**	**6.83**	**18.01**	**12.42**	**13.66**	**14.29**	**100.00**

Control Area									
Project District	% of Respondents Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Kurigram	14.29	28.57	14.29	0.00	0.00	14.29	0.00	28.57	100.00
Lalmonirhat	0.00	0.00	0.00	33.33	0.00	0.00	33.33	33.33	100.00
Nilphamari	20.00	0.00	0.00	0.00	0.00	0.00	0.00	80.00	100.00
Gaibandha	0.00	0.00	50.00	0.00	0.00	50.00	0.00	0.00	100.00
Gopalganj	14.29	28.57	14.29	0.00	0.00	42.86	0.00	0.00	100.00
Faridpur	50.00	0.00	0.00	0.00	50.00	0.00	0.00	0.00	100.00
Sunamganj	50.00	0.00	0.00	0.00	50.00	0.00	0.00	0.00	100.00
Hobiganj	0.00	66.67	33.33	0.00	0.00	0.00	0.00	0.00	100.00
All	**16.13**	**19.35**	**12.90**	**3.23**	**6.45**	**16.13**	**3.23**	**22.58**	**100.00**

Project Area									
Division	% of Respondents Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Rangpur	20.90	10.45	1.49	4.48	16.42	5.97	14.93	25.37	100.00
Rajshahi	29.41	23.53	0.00	0.00	23.53	5.88	0.00	17.65	100.00
Dhaka	9.68	9.68	8.06	12.90	20.97	22.58	12.90	3.23	100.00
Sylhet	6.67	33.33	13.33	0.00	6.67	6.67	26.67	6.67	100.00
All	**16.15**	**13.66**	**4.97**	**6.83**	**18.01**	**12.42**	**13.66**	**14.29**	**100.00**

Control Area									
Project District	% of Respondents Educational Qualification								
	Primary	Secondary	SSC	HSC	Graduate	Masters	Illiterate	Can sign	Total
Rangpur	11.76	11.76	11.76	5.88	0.00	11.76	5.88	41.18	100.00
Rajshahi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dhaka	22.22	22.22	11.11	0.00	11.11	33.33	0.00	0.00	100.00
Sylhet	20.00	40.00	20.00	0.00	20.00	0.00	0.00	0.00	100.00
All	**16.13**	**19.35**	**12.90**	**3.23**	**6.45**	**16.13**	**3.23**	**22.58**	**100.00**

Table 3.65: Women Respondents' Employment Profile, Working Days a Month, Average Working Hour per Day and Annual Income

Annex-4

Descriptions/Type of works performed	Project Area			Control Area		
	Total Working Days/month	Average Working Hour/Day	Annual Income Last Year	Total Working Days/month	Average Working Hour/Day	Annual Income Last Year
	Days	Hour	Taka	Days	Hour	Taka
Government job	25	8	322089	25	8	242857
Government job	24	7	114353	22	9	155667
Day labourer in earthwork/road repairing work	17	7	28667	20	5	32000
Work as a maid in others' houses	18	5	42212	3	5	7000
Agricultural worker in their own land	12	5	62200			
Agricultural worker in another land	12	7	27029	2	8	11750
Fowl/duck rearing	30	4	19367	30	8	27500
Goat rearing	30	3	24000			
Cow fattening	30	3	87500			
Business/Shopkeeper/Hawker	28	9	114667	29	10	120000
Tailoring	18	3	32600	22	3	37000
Others	23	7	102429	25	7	91667
All	**21**	**7**	**135123**	**21**	**7**	**112097**

Table 3.66: Distribution of Household Sources of Main Annual Income

Annex-4

Main Income Sources	Project Area			Control Area		
	Distribution of Households			Distribution of Households		
	No. of Households	Total Income	% of Households	No. of Households	Total Income	% of Households
Women Respondents Income	161	24235850	46.16	31	4176000	41.86
Husbands Income	115	21126400	40.24	27	5361000	53.73
Others Income	32	7137000	13.59	6	440000	4.41
Total		**52499250**	**100.00**		**9977000**	**100.00**

Table 3.67: Women Respondents' Level of Involvement in Different Months during Last Year

Annex-4

Month	% of women mentioning daily schedule									
	Project area					Control area				
	Very busy	Moderately busy	Busy	Negligible	Not at all Busy	Very busy	Moderately busy	Busy	Negligible	Not at all Busy
Baishakh	50.31	30.43	9.94	5.59	3.11	45.16	19.35	19.35	9.68	6.45
Jaistha	49.69	30.43	10.56	5.59	1.86	38.71	19.35	22.58	12.90	3.23
Ashar	29.81	26.71	19.88	14.91	4.97	25.81	25.81	25.81	19.35	0.00
Sraban	26.71	25.47	24.22	12.42	7.45	25.81	19.35	25.81	22.58	6.45
Bhadra	26.09	27.95	19.88	12.42	6.83	19.35	25.81	29.03	22.58	0.00
Ashwin	29.81	25.47	26.09	11.80	3.11	29.03	22.58	32.26	12.90	0.00
Kartik	31.68	27.95	24.22	8.70	4.35	32.26	12.90	41.94	12.90	0.00
Agrahayan	40.37	26.71	25.47	3.11	0.62	32.26	22.58	35.48	9.68	0.00
Poush	42.24	21.12	20.50	3.73	8.07	25.81	25.81	35.48	12.90	0.00
Magh	36.65	23.60	22.36	4.97	8.07	29.03	22.58	32.26	12.90	3.23
Falgun	34.78	28.57	18.63	3.73	8.07	32.26	25.81	25.81	6.45	9.68
Chaitra	32.92	26.09	21.74	6.83	6.83	22.58	38.71	32.26	3.23	3.23

Table 3.68 Average Hours Worked by the Women Respondents in Day-to-Day Household Activities

Annex-4

Daily Household Activities	Average hours worked by women per day	
	Project area	Control area
Crop Production (Weeding, Plantation, Paddy Husking, Drying, Seed Preservation, Paddy storing)	4.34	3.33
Poultry and Livestock rearing	2.05	2.29
Homestead Gardening	1.48	1.50
Cooking and serving food to HH inmates	2.63	2.76
Collection of Drinking water and fuel wood	1.39	1.43
Washing Clothes and cooking utensils	1.60	1.90
Nursing	2.36	1.18
Caring Children	1.61	1.58
Supporting Children's Education	1.82	1.36
Looking after elderly HH members and other members	1.68	1.38
Looking after husband	1.71	1.70
Take Rest and recreation	2.65	2.43
Sleep at night	7.27	7.55
Others	4.03	4.70

Table 3.69: Women Respondents' Opinion on Spending All Earnings for Family, In What Proportion, If not, What is Done with the Money

Annex-4

Project District	Project Area						Control Area					
	No. of Respondents						No. of Respondents					
	Spend All Earnings		What proportion of Income Spent	What is Done with Income			Spend All Earnings		What proportion of Income Spent	What is Done with Income		
	Yes	No	%	Deposit in Bank	Purchase Necessities	Help Parents	Yes	No	%	Deposit in Bank	Purchase Necessities	Help Parents
Kurigram	8	9	72.22	3	9	2	2	5	65.00	2	5	2
Lalmonirhat	7	4	70.00	0	4	0	3	0	0.00	0	0	0
Rangpur	17	7	46.43	5	6	5	0	0	0.00	0	0	0
Nilphamari	6	4	82.50	0	4	0	2	3	83.33	0	3	0
Gaibandha	5	0	0.00	0	0	0	1	1	50.00	1	1	0
Sirajganj	9	0	0.00	0	0	0	0	0	0.00	0	0	0
Pabna	7	0	0.00	0	0	0	0	0	0.00	0	0	0
Bogura	1	0	0.00	0	0	0	0	0	0.00	0	0	0
Gopalganj	20	7	38.57	7	6	6	5	2	50.00	2	2	2
Rajbari	4	0	0.00	0	0	0	0	0	0.00	0	0	0
Madaripur	7	6	46.67	4	6	1	0	0	0.00	0	0	0
Faridpur	10	8	65.00	5	7	6	2	0	0.00	0	0	0
Sunamganj	8	2	60.00	0	2	0	2	0	0.00	0	0	0
Hobiganj	5	0	0.00	0	0	0	3	0	0.00	0	0	0
All	**114**	**47**	**59.04**	**24**	**44**	**20**	**20**	**11**	**65.91**	**5**	**11**	**4**
Percentage	**70.81**	**29.19**		**51.06**	**93.62**	**42.55**	**64.52**	**35.48**		**45.45**	**100.00**	**36.36**

Division	Project Area						Control Area					
	No. of Respondents						No. of Respondents					
	Spend All Earnings		What proportion of Income Spent	What is Done with Income			Spend All Earnings		What proportion of Income Spent	What is Done with Income		
	Yes	No	%	Deposit in Bank	Purchase Necessities	Help Parents	Yes	No	%	Deposit in Bank	Purchase Necessities	Help Parents
Rangpur	43	24	66.04	8	23	7	8	9	69.44	3	9	2
Rajshahi	17	0	0.00	0	0	0	0	0	0.00	0	0	0
Dhaka	41	21	50.95	16	19	13	7	2	50.00	2	2	2
Sylhet	13	2	60.00	0	2	0	5	0	0.00	0	0	0
All	**114**	**47**	**59.04**	**24**	**44**	**20**	**20**	**11**	**65.91**	**5**	**11**	**4**
Percentage	**70.81**	**29.19**		**51.06**	**93.62**	**42.55**	**64.52**	**35.48**		**45.45**	**100.00**	**36.36**

Project District	Project Area								Control Area							
	% of Respondents								% of Respondents							
	Spend All Earnings			What proportion of Income Spent	What is Done with Income				Spend All Earnings			What proportion of Income Spent	What is Done with Income			
	Sample (n)	Yes	No	%	Sample (n)	Deposit in Bank	Purchase Necessities	Help Parents	Sample (n)	Yes	No	%	Sample (n)	Deposit in Bank	Purchase Necessities	Help Parents
Kurigram	17	47.06	52.94	72.22	9	33.33	100.00	22.22	7	28.57	71.43	65	5	40.0	100.0	40.0
Lalmonirhat	11	63.64	36.36	70	4	0.00	100.00	0.00	3	100.00	0.00	0	0	0.0	0.0	0.0
Rangpur	24	70.83	29.17	46.43	7	71.43	85.71	71.43	0	0.00	0.00	0	0	0.0	0.0	0.0
Nilphamari	10	60.00	40.00	82.5	4	0.00	100.00	0.00	5	40.00	60.00	83.33	3	0.0	100.0	0.0
Gaibandha	5	100.00	0.00	0	0	0.00	0.00	0.00	2	50.00	50.00	50	1	100.0	100.0	0.0
Sirajganj	9	100.00	0.00	0	0	0.00	0.00	0.00	0	0.00	0.00	0	0	0.0	0.0	0.0
Pabna	7	100.00	0.00	0	0	0.00	0.00	0.00	0	0.00	0.00	0	0	0.0	0.0	0.0
Bogura	1	100.00	0.00	0	0	0.00	0.00	0.00	0	0.00	0.00	0	0	0.0	0.0	0.0
Gopalganj	27	74.07	25.93	38.57	7	100.00	85.71	85.71	7	71.43	28.57	50	2	100.0	100.0	100.0
Rajbari	4	100.00	0.00	0	0	0.00	0.00	0.00	0	0.00	0.00	0	0	0.0	0.0	0.0
Madaripur	13	53.85	46.15	46.67	6	66.67	100.00	16.67	0	0.00	0.00	0	0	0.0	0.0	0.0
Faridpur	18	55.56	44.44	65	8	62.50	87.50	75.00	2	100.00	0.00	0	0	0.0	0.0	0.0
Sunamganj	10	80.00	20.00	60	2	0.00	100.00	0.00	2	100.00	0.00	0	0	0.0	0.0	0.0
Habiganj	5	100.00	0.00	0	0	0.00	0.00	0.00	3	100.00	0.00	0	0	0.0	0.0	0.0
All	**161**	**70.81**	**29.19**	**59.04**	**47**	**51.06**	**93.62**	**42.55**	**31**	**64.52**	**35.48**	**65.91**	**11**	**45.5**	**100.0**	**36.4**
						Multiple response								Multiple response		

Division	Project Area								Control Area							
	% of Respondents								% of Respondents							
	Spend All Earnings			What proportion of Income Spent	What is Done with Income				Spend All Earnings			What proportion of Income Spent	What is Done with Income			
	Sample (n)	Yes	No	%	Sample (n)	Deposit in Bank	Purchase Necessities	Help Parents	Sample (n)	Yes	No	%	Sample (n)	Deposit in Bank	Purchase Necessities	Help Parents
Rangpur	67	64.18	35.82	66.04	24	33.33	95.83	29.17	17	47.06	52.94	69.44	9	33.3	100.0	22.2
Rajshahi	17	100.00	0.00	0.00	0	0.00	0.00	0.00	0	0.00	0.00	0.00	0	0.0	0.0	0.0
Dhaka	62	66.13	33.87	50.95	21	76.19	90.48	61.90	9	77.78	22.22	50.00	2	100.0	100.0	100.0
Sylhet	15	86.67	13.33	60.00	2	0.00	100.00	0.00	5	100.00	0.00	0.00	0	0.0	0.0	0.0
All	**161**	**70.81**	**29.19**	**59.04**	**47**	**51.06**	**93.62**	**42.55**	**31**	**64.52**	**35.48**	**65.91**	**11**	**45.5**	**100.0**	**36.4**
						Multiple response								Multiple response		

Table 3.70: Perception of Women Respondents on Workload Changes Due to Evolving Modern Technology in Agriculture

Annex-4

Type of Activities in Agricultural Sector	% of women respondents perceived workload as											
	Project area						Control area					
	Sample(n)	Male		Female		Same	Sample(n)	Male		Female		Same
		Increasing	Decreasing	Increasing	Decreasing			Increasing	Decreasing	Increasing	Decreasing	
Land preparation	52	51.92	1.92	9.62	5.77	30.77	5	0.00	40.00	20.00	20.00	20.00
Planting	49	32.65	2.04	16.33	8.16	40.82	5	20.00	60.00	0.00	20.00	0.00
Weeding	49	30.61	2.04	18.37	6.12	42.86	5	0.00	80.00	0.00	20.00	0.00
Yielding	49	42.86	4.08	8.16	8.16	36.73	4	0.00	50.00	0.00	25.00	25.00
Crop threshing	48	60.42	2.08	4.17	4.17	29.17	5	0.00	80.00	0.00	20.00	0.00
Crop Processing	48	41.67	2.08	12.50	4.17	39.58	5	0.00	20.00	20.00	20.00	40.00

Table 3.71 Problems Faced by Women Respondents During Flood

Annex-4

Problems	% of responses	
	Project area (n=161)	Control area (n=31)
In this area, women are backwards in terms of education	52.80	64.52
In this area, women are suffering from insecurity	20.50	35.48
Women are deprived of economic activities due to a lack of capital	50.93	70.97
Women cannot take decision singularly without the help of males	45.96	35.48
Limited economic activities for women	64.60	45.16
Limited organisational activities for women	27.33	41.94
Women are oppressed with problems such as early marriage, dowry etc	45.96	45.16
Inadequacy of health services for women	29.19	25.81

Table 3.72: Decision-Making Process in Households on Different Issues

Annex-4

District	No. of women respondents mentioning									
	Project area					Control area				
	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total
Kurigram	6	0	10	1	17	1	0	5	1	7
Lalmonirhat	7	0	4	0	11	2	0	1	0	3
Rangpur	9	1	11	3	24	0	0	0	0	0
Nilphamari	2	0	8	0	10	2	0	3	0	5
Gaibandha	3	0	2	0	5	0	0	2	0	2
Sirajganj	3	0	6	0	9	0	0	0	0	0
Pabna	2	0	4	1	7	0	0	0	0	0
Bogursa	0	0	1	0	1	0	0	0	0	0
Gopalganj	11	4	11	1	27	3	0	4	0	7
Rajbari	3	0	1	0	4	0	0	0	0	0
Madaripur	6	0	7	0	13	0	0	0	0	0
Faridpur	9	1	8	0	18	0	1	1	0	2
Sunamganj	8	0	2	0	10	1	0	1	0	2
Hobiganj	3	0	2	0	5	3	0	0	0	3
All	**72**	**6**	**77**	**6**	**161**	**12**	**1**	**17**	**1**	**31**

Division	No. of women respondents mentioning									
	Project area					Control area				
	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total
Rangpur	27	1	35	1	64	5		11	1	17
Rajshahi	5		11	0	16					0
Dhaka	29	5	27	3	64	3	1	5		9
Sylhet	11		4	0	15	4		1		5
All	**72**	**6**	**77**	**4**	**159**	**12**	**1**	**17**	**1**	**31**

% of women respondents mentioning										
District	Project area					Control area				
	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total
Kurigram	35.29	0.00	58.82	5.88	100	14.29	0.00	71.43	14.29	100
Lalmonirhat	63.64	0.00	36.36	0.00	100	66.67	0.00	33.33	0.00	100
Rangpur	37.50	4.17	45.83	12.50	100	0.00	0.00	0.00	0.00	0
Nilphamari	20.00	0.00	80.00	0.00	100	40.00	0.00	60.00	0.00	100
Gaibandha	60.00	0.00	40.00	0.00	100	0.00	0.00	100.00	0.00	100
Sirajganj	33.33	0.00	66.67	0.00	100	0.00	0.00	0.00	0.00	0
Pabna	28.57	0.00	57.14	14.29	100	0.00	0.00	0.00	0.00	0
Bogursa	0.00	0.00	100.00	0.00	100	0.00	0.00	0.00	0.00	0
Gopalganj	40.74	14.81	40.74	3.70	100	42.86	0.00	57.14	0.00	100
Rajbari	75.00	0.00	25.00	0.00	100	0.00	0.00	0.00	0.00	0
Madaripur	46.15	0.00	53.85	0.00	100	0.00	0.00	0.00	0.00	0
Faridpur	50.00	5.56	44.44	0.00	100	0.00	50.00	50.00	0.00	100
Sunamganj	80.00	0.00	20.00	0.00	100	50.00	0.00	50.00	0.00	100
Hobiganj	60.00	0.00	40.00	0.00	100	100.00	0.00	0.00	0.00	100
All	**44.72**	**3.73**	**47.83**	**3.73**	**1400**	**38.71**	**3.23**	**54.84**	**3.23**	**800**

% of women respondents mentioning										
Division	Project area					Control area				
	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total
Rangpur	42.19	1.56	54.69	1.56	100	29.41	0.00	64.71	5.88	100
Rajshahi	31.25	0.00	68.75	0.00	100	0.00	0.00	0.00	0.00	0
Dhaka	45.31	7.81	42.19	4.69	100	33.33	11.11	55.56	0.00	100
Sylhet	73.33	0.00	26.67	0.00	100	80.00	0.00	20.00	0.00	100
All	**45.28**	**3.77**	**48.43**	**2.52**	**100**	**38.71**	**3.23**	**54.84**	**3.23**	**100**

Table 3.72A: Decision-Making Process in Households on Different Issues by Household Categories

Annex-4

No. of women respondents mentioning										
Household Category	Project area					Control area				
	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total
LL	47	1	41	5	94	10		8	1	19
MRF	8	2	10		20		1	2		3
SF	8	2	13	1	24	2		5		7
MF	7	1	13		21			2		2
LF	2				2					0
All	**72**	**6**	**77**	**6**	**161**	**12**	**1**	**17**	**1**	**31**

% of women respondents mentioning										
Household Category	Project area					Control area				
	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total	Decision by Herself	Decision made by Husband/Family Members	Husband and wife together	All together	Total
LL	50.00	1.06	43.62	5.32	100	52.63	0.00	42.11	5.26	100
MRF	40.00	10.00	50.00	0.00	100	0.00	33.33	66.67	0.00	100
SF	33.33	8.33	54.17	4.17	100	28.57	0.00	71.43	0.00	100
MF	33.33	4.76	61.90	0.00	100	0.00	0.00	100.00	0.00	100
LF	100.00	0.00	0.00	0.00	100	0.00	0.00	0.00	0.00	0
All	**44.72**	**3.73**	**47.83**	**3.73**	**100**	**38.71**	**3.23**	**54.84**	**3.23**	**100**

Table 3.73: Treatment Profile of HH Members by Source and Costs Involved (Last Year)

Annex-4

Treatment received from	Project area		Control area	
	households receiving treatment during Illness		Households receiving treatment during Illness	
	Number of Person	Avg. Treatment Cost (Tk)	Number of Persons	Avg. Treatment Cost (Tk)
Homeopath	24	1145	7	1893
Hekim/kabiraj	3	1733	2	2250
Ojha/Baidda/Fakir	0	0	0	0
Quack	180	1057	32	833
MBBS	806	20445	262	20429
Union health center	24	3728	7	1986
Health and family welfare center	20	8340	3	483
Thana health center	199	4141	83	5320
DMC/clinic/hospital	106	38858	20	216685
Pharmacy	1016	645	340	720
Did not get treatment	3	1403	2	0
Did not take medical care	14	71	2	0
Others	14	104786	5	76040

Table 3.74: Distribution of Household Members Who Suffered From Major Diseases (Last year)

Annex-4

Name of diseases	Project area		Control area	
	No. of household members suffered from	% of household members suffered from	No. of household members suffered from	% of household members suffered from
Cough/Flue/Fever	1575	22.35	496	22.27
Diarrhea	105	23.70	26	22.81
Dysentery	22	24.72	9	27.27
Chicken pox/Measles	24	18.05	3	20.00
Malaria	3	18.75	0	#DIV/0!
Tuberculosis	16	22.86	3	33.33
Typhoid	53	24.20	12	25.53
Asthma	123	23.43	38	24.84
Injury or trauma	156	23.21	54	23.89
Others	332	23.12	124	24.70

Table 3.75: Women Respondents' Identified Three Major Problems Faced During Natural Disasters Like Flood, Cyclone and drought

Annex-4

Project Districts	Project area							Control area						
	% of women respondents perceived Problems Faced During Natural Disaster							% of women respondents perceived Problems Faced During Natural Disaster						
	Perceived Problems							Perceived Problems						
	In this area, women are suffering from insecurity	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of males	Limited economic activities for women	Limited organizational activities for women	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women	In this area, women are suffering from insecurity	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of males	Limited economic activities for women	Limited organizational activities for	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women
Kurigram	5	3	12	5	12	6	6	3	1	4	1	5	3	4
Lalmonirhat	8	4	2	5	6	1	7	3	3	2	1	2	0	3
Rangpur	13	2	13	15	11	6	23	0	0	0	0	0	0	0
Nilphamari	6	2	4	5	4	1	5	4	3	4	1	1	2	0
Gaibandha	3	1	4	3	4	2	2	1	0	2	2	0	2	2
Sirajganj	4	2	1	5	7	3	3	0	0	0	0	0	0	0
Pabna	4	2	0	1	6	2	2	0	0	0	0	0	0	0
Bogura	1	1	1	0	1	1	1	0	0	0	0	0	0	0
Gopalganj	15	11	22	21	16	9	14	4	4	6	2	2	2	4
Rajbari	2	0	1	1	4	0	2	0	0	0	0	0	0	0
Madaripur	1	0	4	1	9	5	1	0	0	0	0	0	0	0
Faridpur	11	3	13	6	14	5	7	1	0	1	2	0	1	1
Sunamganj	7	2	3	3	5	3	1	1	0	1	1	2	1	0
Hobiganj	5	0	2	3	5	0	0	3	0	2	1	2	2	0
All	**85**	**33**	**82**	**74**	**104**	**44**	**74**	**20**	**11**	**22**	**11**	**14**	**13**	**14**

Division	Project area							Control area						
	% of women respondents perceived Problems Faced During Natuaral Disaster							% of women respondents perceived Problems Faced During Natural Disaster						
	Perceived Problems							Perceived Problems						
	In this area, women are suffering from	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of males	Limited economic activities for women	Limited organizational activities for women	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women	In this area, women are suffering from insecurity	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of	Limited economic activities for women	Limited organizational activities for women	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women
Rangpur	35	12	35	33	37	16	43	11	7	12	5	8	7	9
Rajshahi	9	5	2	6	14	6	6	0	0	0	0	0	0	0
Dhaka	29	14	40	29	43	19	24	5	4	7	4	2	3	5
Sylhet	12	2	5	6	10	3	1	4	0	3	2	4	3	0
All	**85**	**33**	**82**	**74**	**104**	**44**	**74**	**20**	**11**	**22**	**11**	**14**	**13**	**14**

Project Districts	Project area							
	Sample (n)	% of women respondents perceived Problems Faced During Natural Disaster						
		Perceived Problems						
		In this area, women are suffering from insecurity	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of males	Limited economic activities for women	Limited organizational activities for women	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women
Kurigram	17	29.41	17.65	70.59	29.41	70.59	35.29	35.29
Lalmonirhat	11	72.73	36.36	18.18	45.45	54.55	9.09	63.64
Rangpur	24	54.17	8.33	54.17	62.50	45.83	25.00	95.83
Nilphamari	10	60.00	20.00	40.00	50.00	40.00	10.00	50.00
Gaibandha	5	60.00	20.00	80.00	60.00	80.00	40.00	40.00
Sirajganj	9	44.44	22.22	11.11	55.56	77.78	33.33	33.33
Pabna	7	57.14	28.57	0.00	14.29	85.71	28.57	28.57
Bogura	1	100.00	100.00	100.00	0.00	100.00	100.00	100.00
Gopalganj	27	55.56	40.74	81.48	77.78	59.26	33.33	51.85
Rajbari	4	50.00	0.00	25.00	25.00	100.00	0.00	50.00
Madaripur	13	7.69	0.00	30.77	7.69	69.23	38.46	7.69
Faridpur	18	61.11	16.67	72.22	33.33	77.78	27.78	38.89
Sunamganj	10	70.00	20.00	30.00	30.00	50.00	30.00	10.00
Hobiganj	5	100.00	0.00	40.00	60.00	100.00	0.00	0.00
All	**161**	**52.80**	**20.50**	**50.93**	**45.96**	**64.60**	**27.33**	**45.96**
	Multiple Response							

Project Districts	Control area							
	Sample (n)	% of women respondents perceived Problems Faced During Natural Disaster						
		Perceived Problems						
		In this area, women are suffering from insecurity	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of males	Limited economic activities for women	Limited organizational activities for women	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women
Kurigram	7	42.86	14.29	57.14	14.29	71.43	42.86	57.14
Lalmonirhat	3	100.00	100.00	66.67	33.33	66.67	0.00	100.00
Rangpur	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nilphamari	5	80.00	60.00	80.00	20.00	20.00	40.00	0.00
Gaibandha	2	50.00	0.00	100.00	100.00	0.00	100.00	100.00
Sirajganj	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pabna	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bogura	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gopalganj	7	57.14	57.14	85.71	28.57	28.57	28.57	57.14
Rajbari	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Madaripur	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Faridpur	2	50.00	0.00	50.00	100.00	0.00	50.00	50.00
Sunamganj	2	50.00	0.00	50.00	50.00	100.00	50.00	0.00
Hobiganj	3	100.00	0.00	66.67	33.33	66.67	66.67	0.00
All	**31**	**64.52**	**35.48**	**70.97**	**35.48**	**45.16**	**41.94**	**45.16**
	Multiple Response							

Division	Project area							
	Sample (n)	% of women respondents perceived Problems Faced During Natural Disaster						
		Perceived Problems						
		In this area, women are suffering from insecurity	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of males	Limited economic activities for women	Limited organizational activities for women	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women
Rangpur	67	52.24	17.91	52.24	49.25	55.22	23.88	64.18
Rajshahi	17	52.94	29.41	11.76	35.29	82.35	35.29	35.29
Dhaka	62	46.77	22.58	64.52	46.77	69.35	30.65	38.71
Sylhet	15	80.00	13.33	33.33	40.00	66.67	20.00	6.67
All	**161**	**52.80**	**20.50**	**50.93**	**45.96**	**64.60**	**27.33**	**45.96**
	Multiple Response							

Division	Control area							
	Sample (n)	% of women respondents perceived Problems Faced During Natural Disaster						
		Perceived Problems						
		In this area, women are suffering from insecurity	Women are deprived of economic activities due to a lack of capital	Women cannot take decision singularly without the help of males	Limited economic activities for women	Limited organizational activities for women	Women are oppressed with problems such as early marriage, dowry etc	Inadequacy of health services for women
Rangpur	17	64.71	41.18	70.59	29.41	47.06	41.18	52.94
Rajshahi	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dhaka	9	55.56	44.44	77.78	44.44	22.22	33.33	55.56
Sylhet	5	80.00	0.00	60.00	40.00	80.00	60.00	0.00
All	**31**	**64.52**	**35.48**	**70.97**	**35.48**	**45.16**	**41.94**	**45.16**
	Multiple Response							

Division	Project Area								Control Area							
	Number and % of Respondents								Number and % of Respondents							
	Take With/. Without Cattle Birds								Take With/.Without Cattle Birds							
	Take them to the shelter		Leave at home		No cattle/birds at that period		Total		Take them to the shelter		Leave at home		No cattle/birds at that period		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rangpur	386	80.75	80	16.74	12	2.51	478	100.00	106	77.94	30	22.06	0	0.00	136	100.00
Rajshahi	87	100.00	0	0.00	0	0.00	87	100.00	12	100.00	0	0.00	0	0.00	12	100.00
Dhaka	386	91.47	34	8.06	2	0.47	422	100.00	113	88.98	11	8.66	3	2.36	127	100.00
Sylhet	230	73.72	77	24.68	5	1.60	312	100.00	51	69.86	20	27.40	2	2.74	73	100.00
All	**1089**	**83.83**	**191**	**14.70**	**19**	**1.46**	**1299**	**100.00**	**282**	**81.03**	**61**	**17.53**	**5**	**1.44**	**348**	**100.00**

5. Infographics Gallery









RIVER BASELINE SURVEY

Survey reach and comparison design

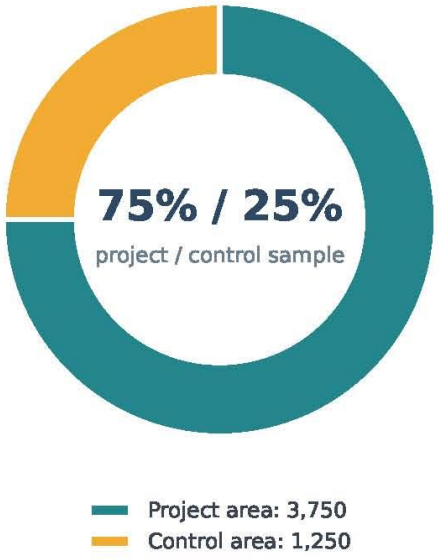
A large household baseline spanning flood-prone districts, with a defined project-control comparison.

5,000
households interviewed
3,750 project + 1,250 control

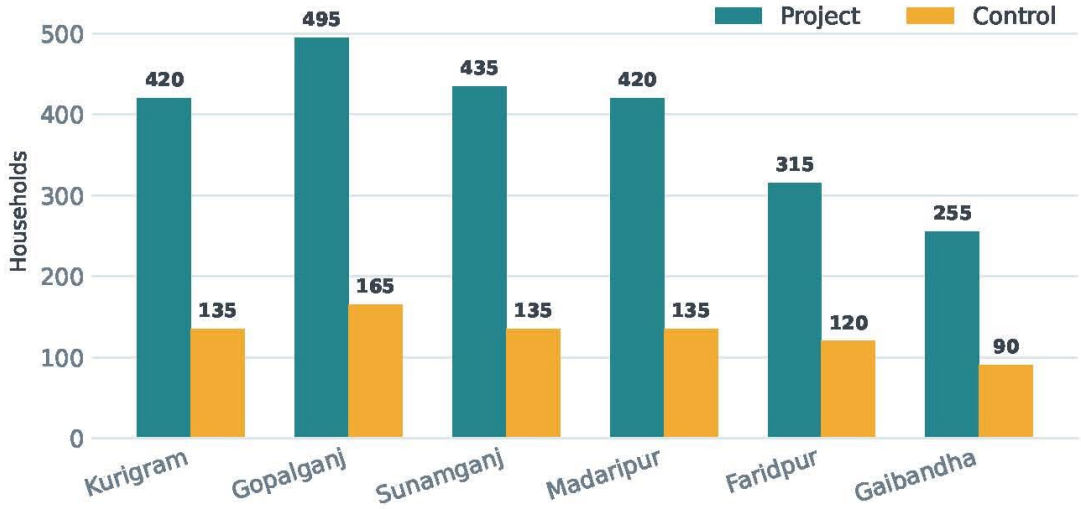
250
schools-cum-shelters
covered by the project sample

38
upazilas
across the survey districts

14
districts
in four divisions



Largest district samples



The six largest district samples provide broad geographic coverage; district comparisons should still retain their actual sample bases.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 01

RIVER BASELINE SURVEY

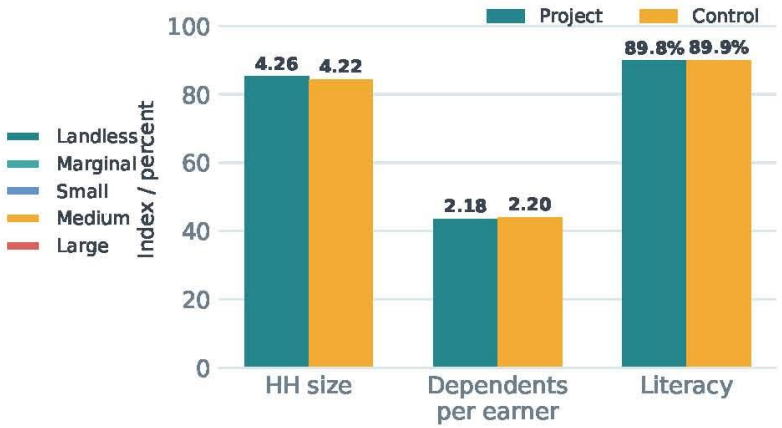
Household structure and livelihood profile

Project and control households were broadly similar on core demographic measures, while landholding remained highly concentrated.

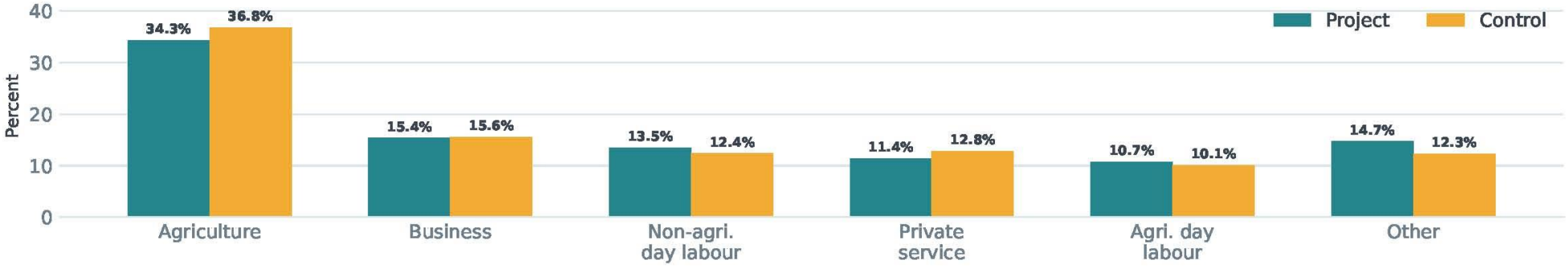




Core household measures



Primary occupation of working household members



Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 02

RIVER BASELINE SURVEY

Income, expenditure and food security

Average resources were close across the two areas, but the household-level calorie distribution shows substantial deprivation.

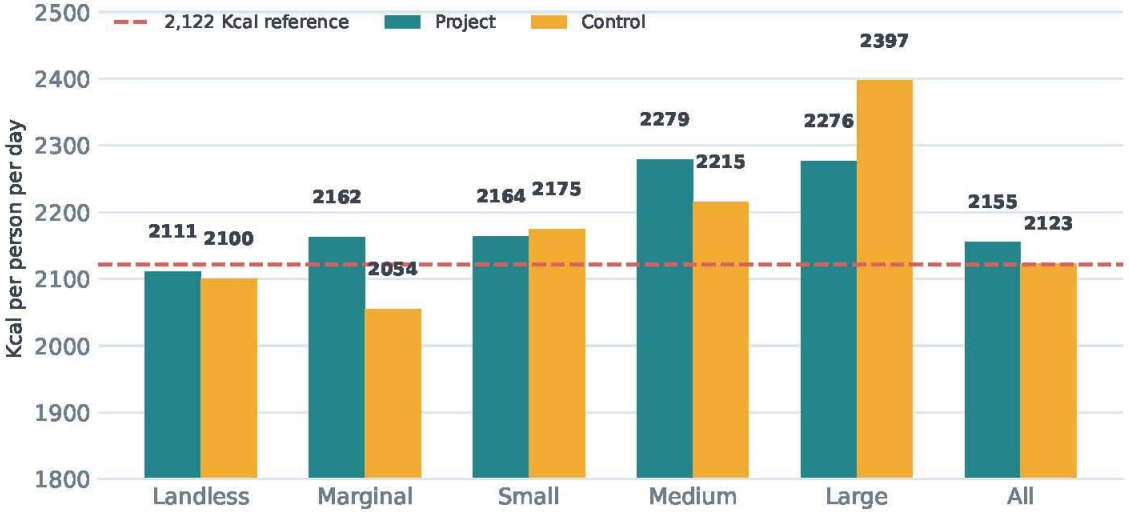
Tk 70,693
per-capita income - project
Control: Tk 70,123

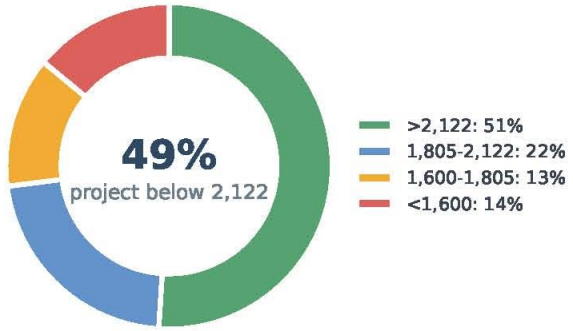
Tk 65,505
per-capita expenditure - project
Control: Tk 64,474

2,155 Kcal
daily calories - project
Control: 2,123 Kcal

54%
population below poverty line
Control: 55%

Daily calorie intake by landholding category





Control-area distribution: 51% above 2,122 Kcal; 20% at 1,805-2,122; 13% at 1,600-1,805; and 16% below 1,600 Kcal.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

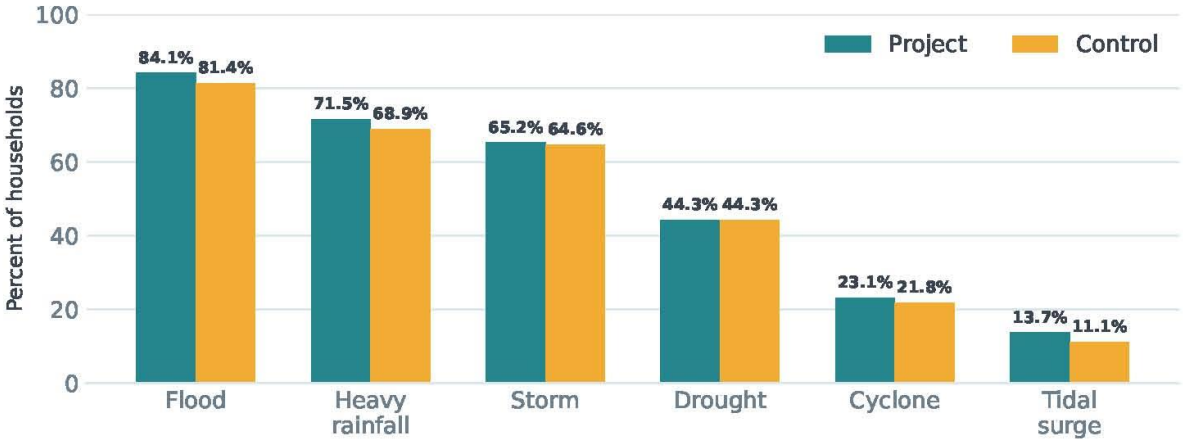
INFOGRAPHIC 03

RIVER BASELINE SURVEY

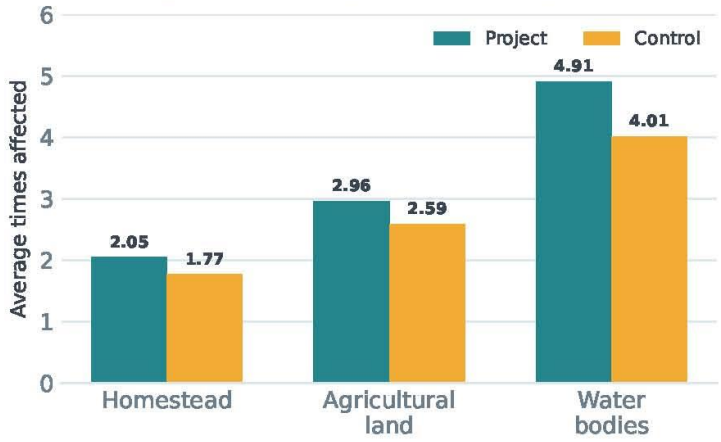
Disaster exposure and reported agricultural loss

Flood and heavy rainfall dominated the hazard profile; reported crop losses were largest for Boro/Rabi in the project area.

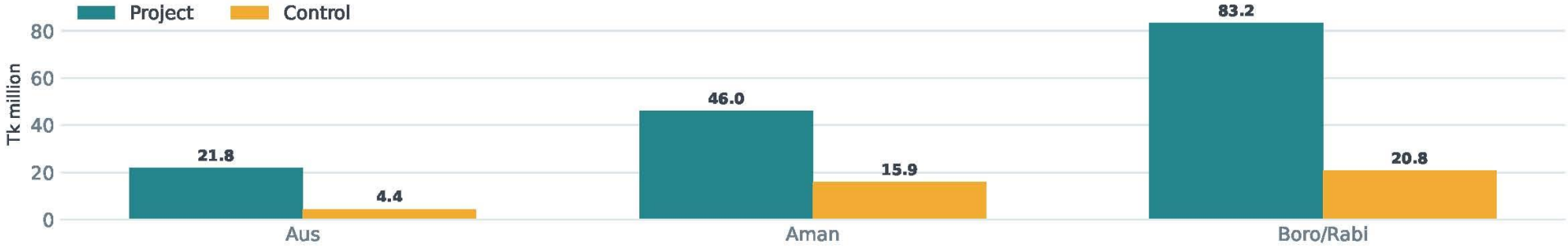
Usual natural calamities reported



Average flood impacts in 25 years



Reported monetary crop loss



Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

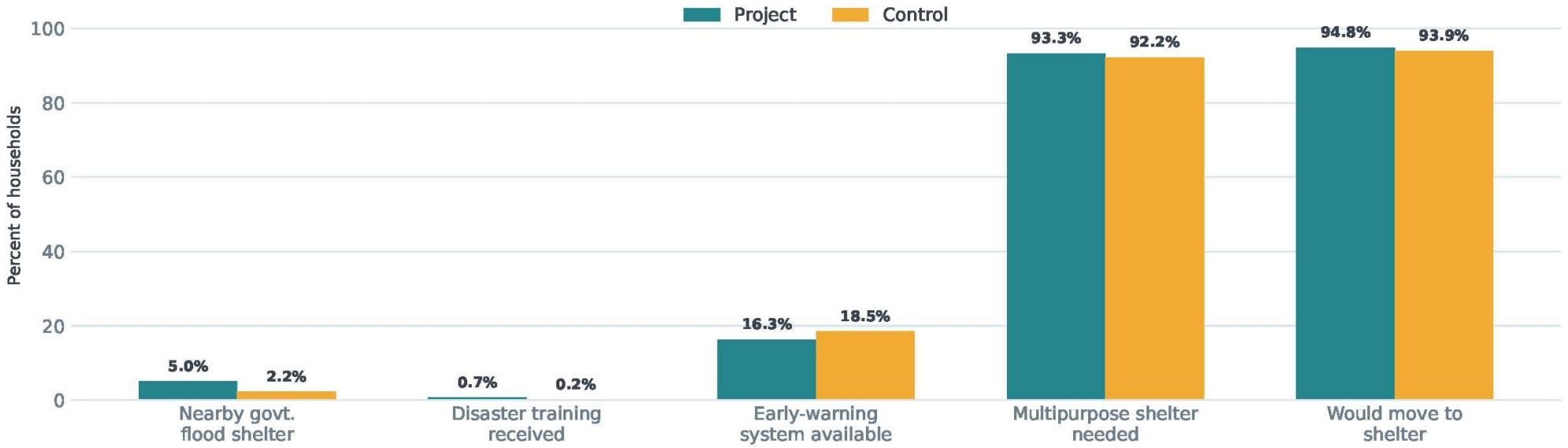
INFOGRAPHIC 04

RIVER BASELINE SURVEY

Flood preparedness and demand for shelter

Demand and stated willingness were high, while training, early-warning access and nearby shelter availability remained limited.

Readiness and shelter-demand indicators



65.6%

aware of nearby LGED shelter development

Project area only

78.7%

consulted during preparation/design

Among aware respondents

98.7%

expected community benefit

Among aware respondents

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 05

RIVER BASELINE SURVEY

Shelter access and service gaps

Baseline conditions around schools-cum-shelters show extensive deficits in roads, utilities, inclusive space and school facilities.

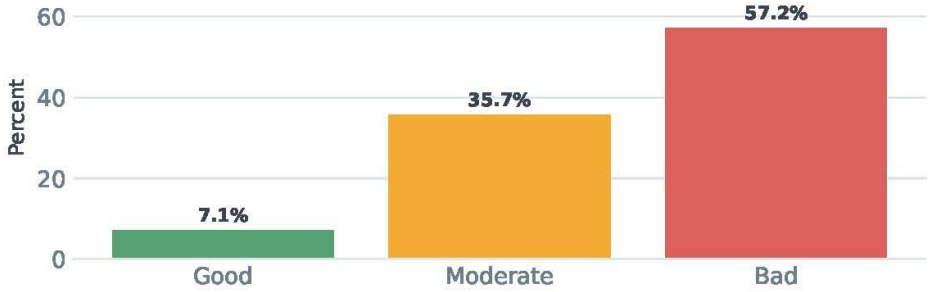
57.2%
connecting roads rated bad
Only 7.1% rated good

98.5%
without street lighting
55 of 3,750 reported lights

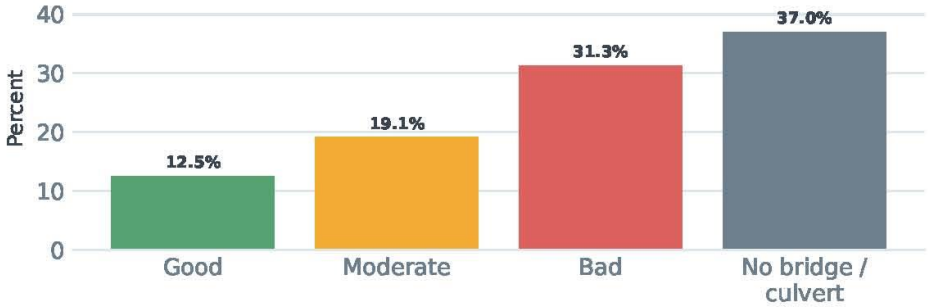
96.8%
water supply inadequate
Only 3.3% adequate

96.0%
sanitation rated bad
Only 4.0% rated good

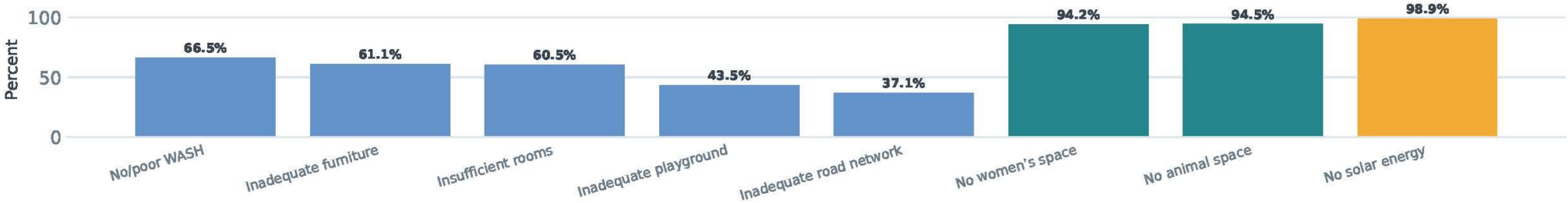
Condition of shelter-connecting roads



Condition of bridges and culverts



Selected school-cum-shelter facility deficits



Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 06

RIVER BASELINE SURVEY

Household categories by landholding size

Landlessness dominated both samples, while medium and large holdings were somewhat more prevalent in the project area.

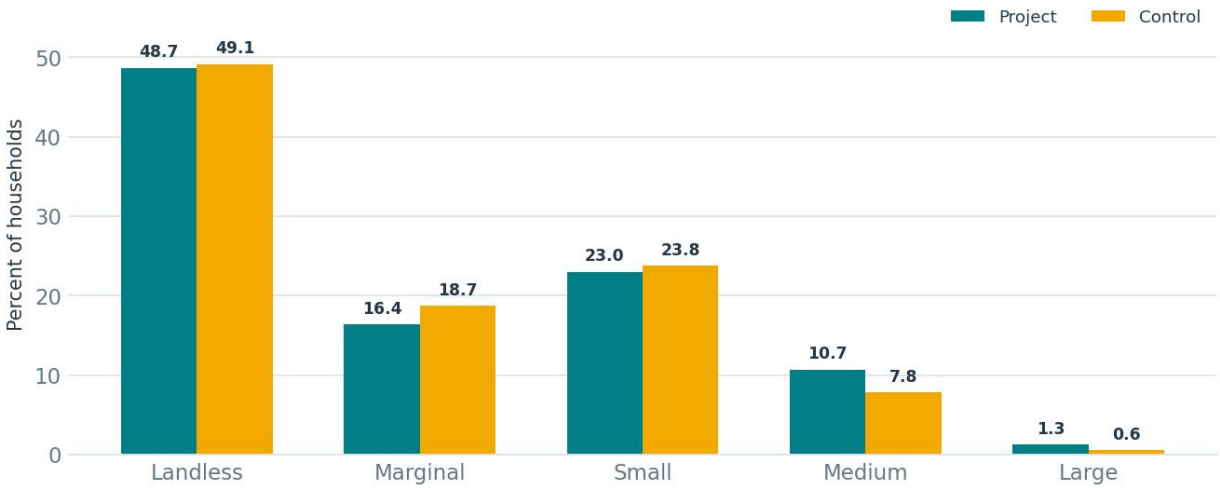
48.7%
landless - project
Control: 49.1%

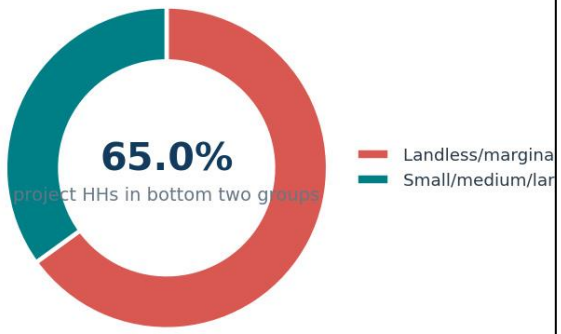
65.0%
landless or marginal
Control: 67.8%

23.0%
small farmers - project
Control: 23.8%

12.0%
medium or large - project
Control: 8.4%

Distribution across landholding categories





Categories: landless 0.01-0.49 acre; marginal 0.50-0.99; small 1.00-2.49; medium 2.50-7.49.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Land asset base across household categories

Average operated land and cultivated area increased steeply across the landholding hierarchy in both survey areas.

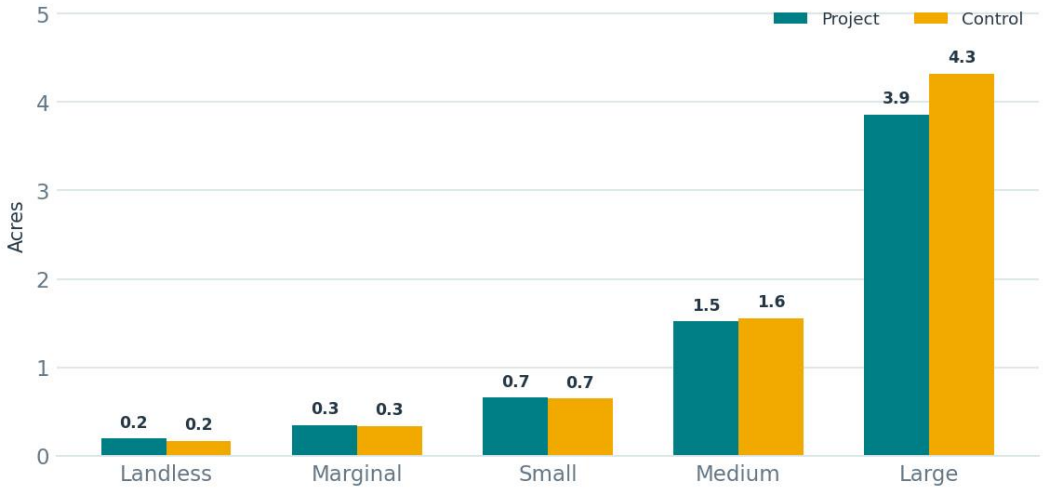
0.63 ac
average operated land - project
Control: 0.54 acre

0.20 ac
landless operated land - project
Control: 0.17 acre

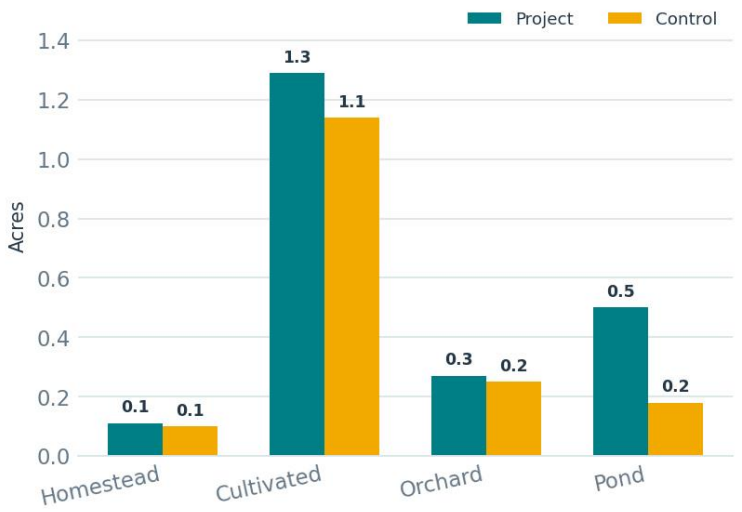
3.86 ac
large-farmer operated land
Control: 4.32 acres

1.29 ac
average cultivated land - project
Control: 1.14 acres

Average operated land



Average land components - all households



Operated-land totals and individual components are reported averages; leased/sharecropped arrangements may affect their composition.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Household livestock and poultry asset base

Nearly two-thirds of households owned livestock or poultry; chickens, milch cows and ducks were the most widely held categories.

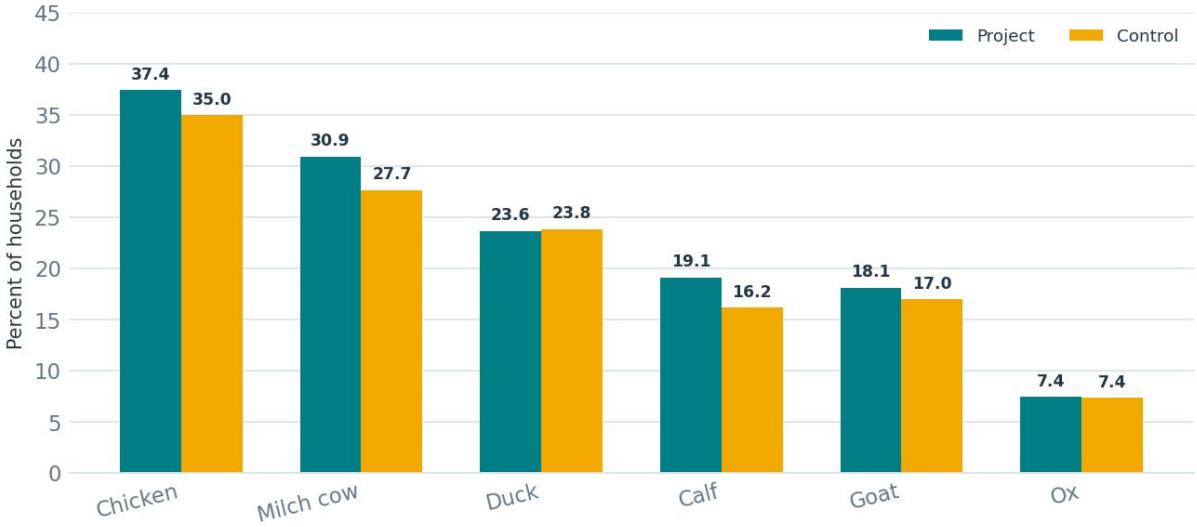
64.6%
households with livestock/poultry
Control: 61.4%

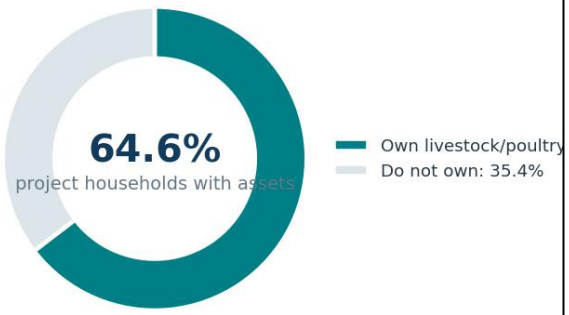
5.61
average animals/birds - project
Control: 5.78

Tk 51,815
average reported asset value
Control: Tk 46,314

37.4%
households owning chickens
Control: 35.0%

Households owning selected species





Ownership rates overlap because households could own several species. Values reflect resp

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Primary employment and livelihood pattern

Agriculture remained the largest primary occupation, but wage work, business and private service together formed a diverse livelihood base.

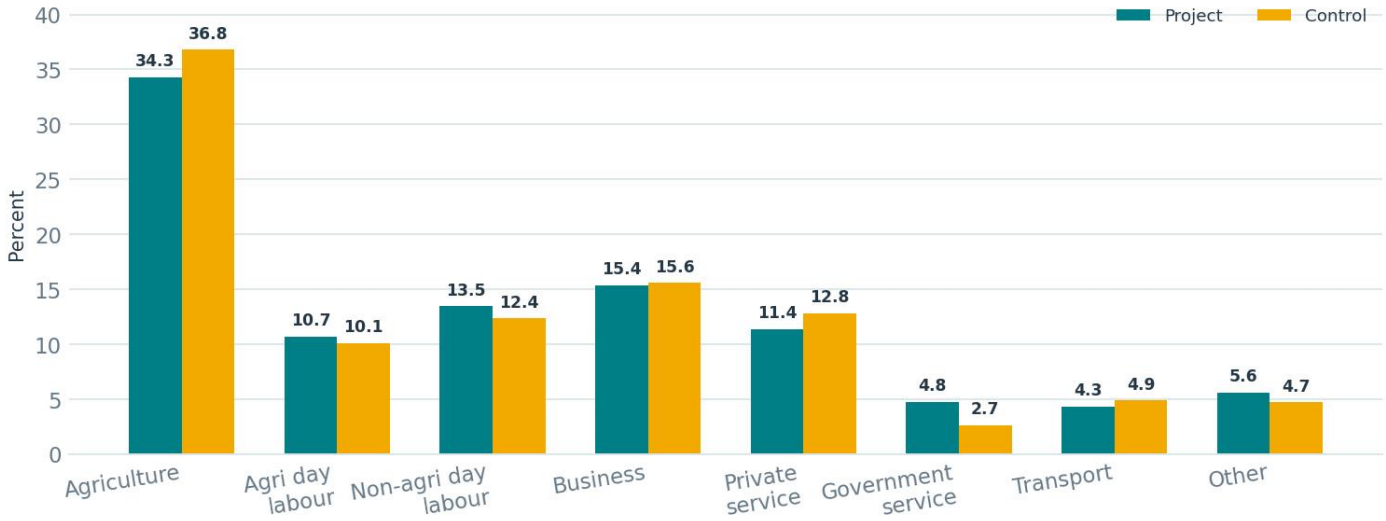
34.3%
agriculture - project
Control: 36.8%

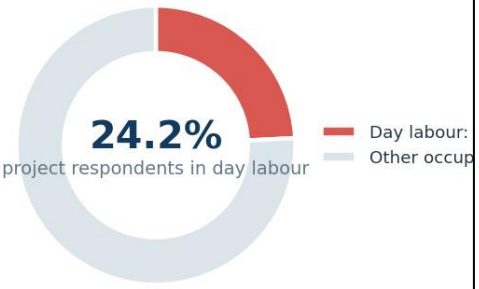
24.2%
day labour - project
Control: 22.5%

15.4%
business - project
Control: 15.6%

16.2%
government/private service
Control: 15.5%

Distribution of primary occupations





Primary-occupation denominator: 5,018 project and 1,650 control records. Secondary-occupation fields were unpopulated.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 28

RIVER BASELINE SURVEY

Household demographic composition

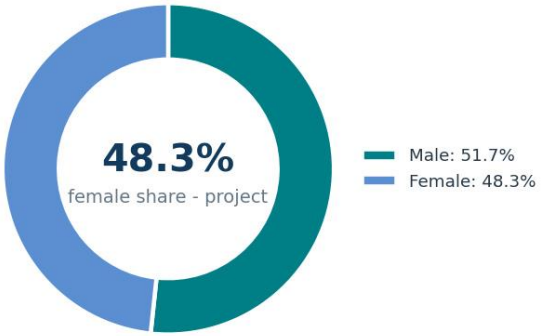
Project and control households were closely aligned in sex composition, average household size and overall dependency per earner.

15,981
people in project households
Control: 5,280

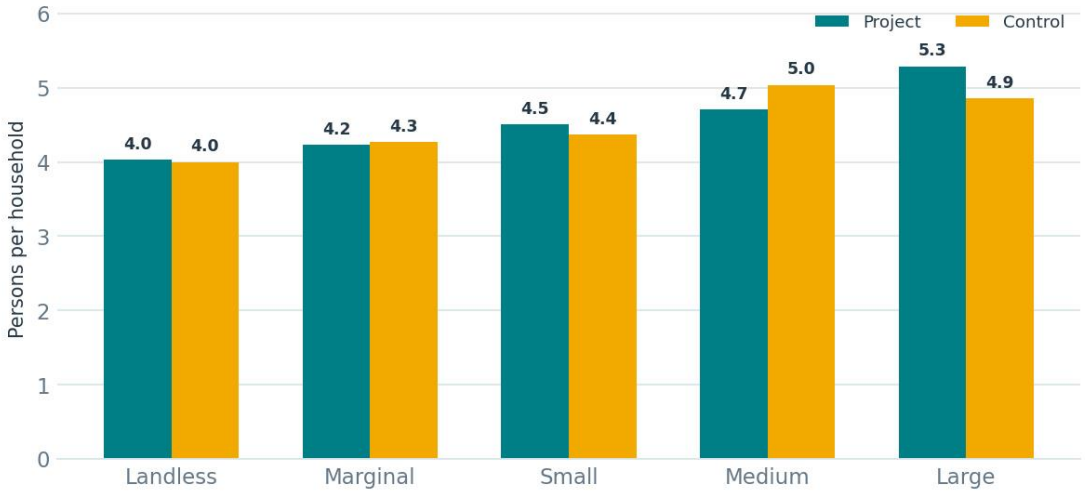
48.3%
female population - project
Control: 48.1%

4.26
average household size
Control: 4.22

0.93
female-to-male ratio
Same in control area



Average household size by landholding category



The overall project-control difference in household size was only 0.04 person; category patterns varied more than the aggregate gap.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Dependency burden and literacy profile

Each earner supported slightly more than two household members on average, while aggregate literacy was almost identical across areas.

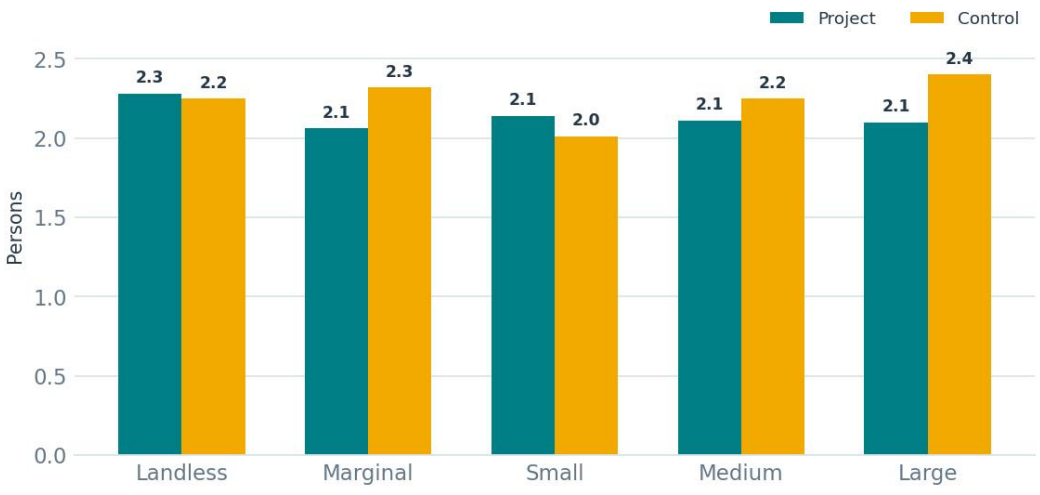
2.18
dependants per earner - project
Control: 2.20

2.28
landless dependency - project
Highest project category

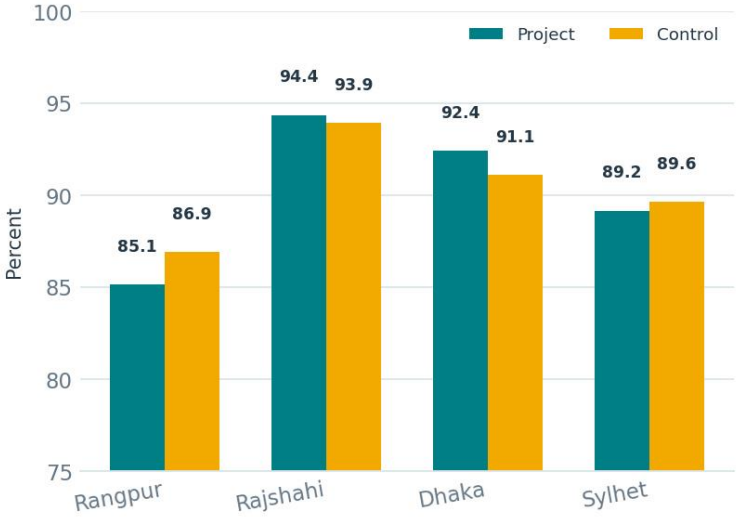
89.8%
literacy - project
Control: 89.9%

1.75-2.40
project district dependency range
Rangpur to Bogura

Dependants per earner by landholding category



Literacy by division



Dependency is reported as household members supported per earner. Literacy differences are descriptive baseline comparisons.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 30

RIVER BASELINE SURVEY

Income distribution and inequality

Income was similarly concentrated in both areas: the upper half received more than 72% of total income.

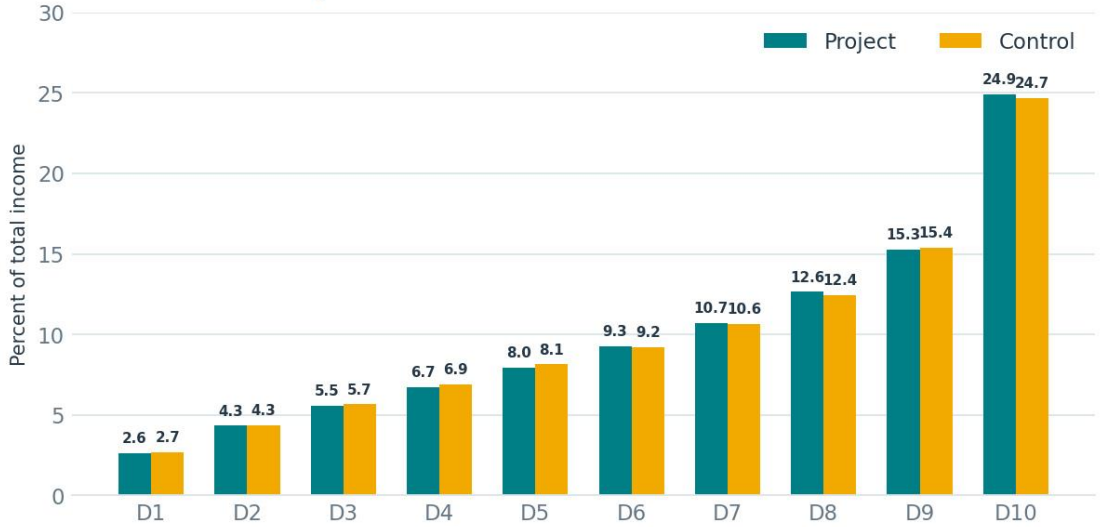
0.33
Gini coefficient - project
Control: 0.33

9.43x
D10:D1 income ratio - project
Control: 9.22x

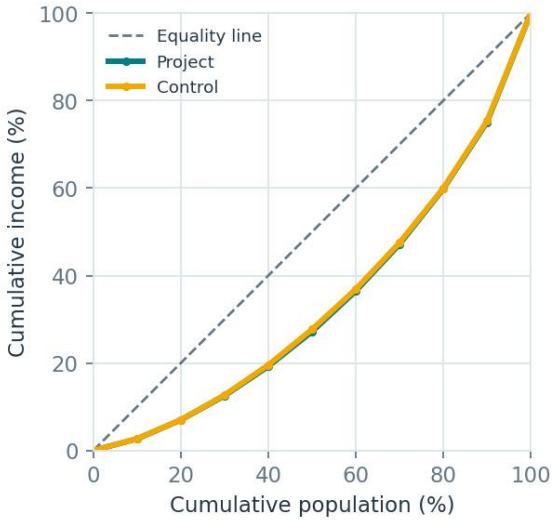
24.9%
income share of top decile
Control: 24.7%

27.2%
income share of bottom half
Control: 27.7%

Income share by decile



Lorenz curves



The nearly overlapping curves indicate similar grouped-decile inequality.
Both lie below equality because income is concentrated toward higher deciles.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 07

RIVER BASELINE SURVEY

Drinking-water access and maintenance

Tube wells dominated drinking-water supply in both areas, while reported water condition and maintenance arrangements were broadly comparable.

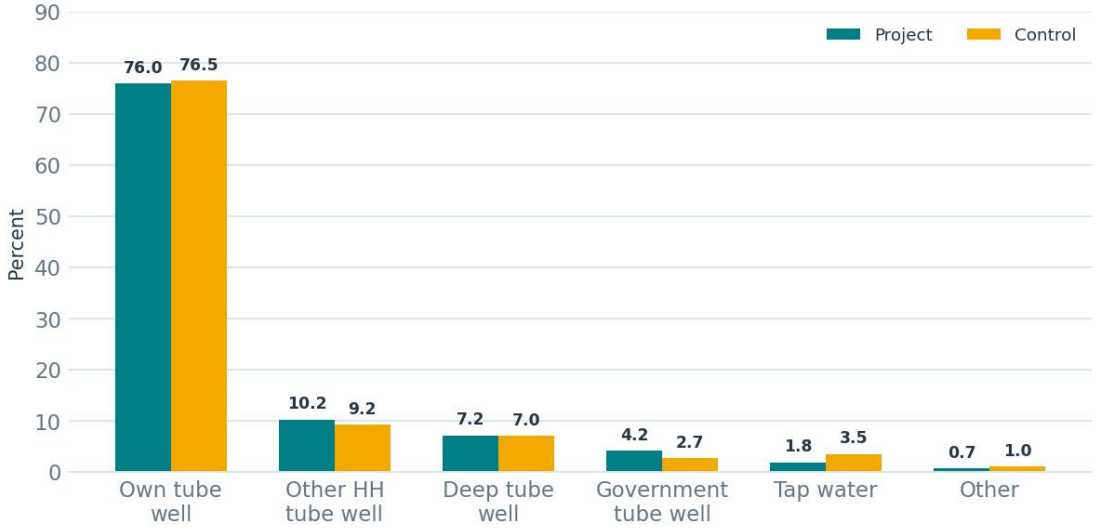
76.0%
own tube well - project
Control: 76.5%

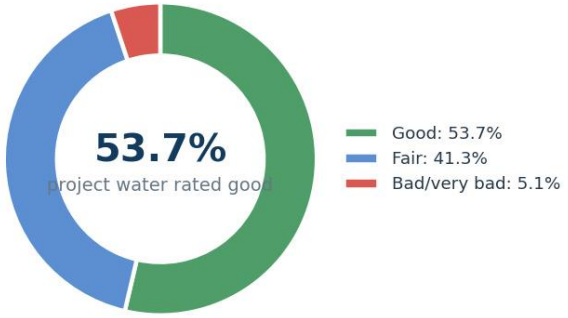
53.7%
water condition rated good
Control: 50.6%

5.1%
water rated bad or very bad
Control: 4.7%

93.7%
self/local maintenance
Control: 96.5%

Drinking-water source





Control-area assessment: 50.6% good, 44.7% fair and 4.7% bad.
Maintenance was mainly undertaken by households themselves or local people.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Evacuation choices and livestock protection

Households relied on multiple informal shelter options; livestock generally accompanied evacuees, and demand for designated animal space was nearly universal.

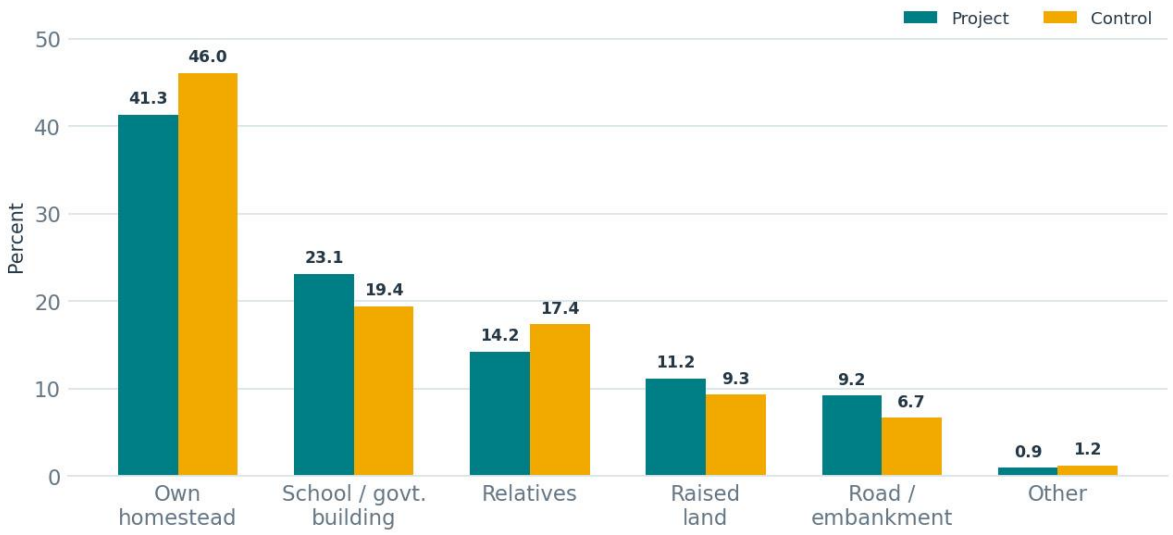
41.3%
sheltered on own homestead
Control: 46.1%

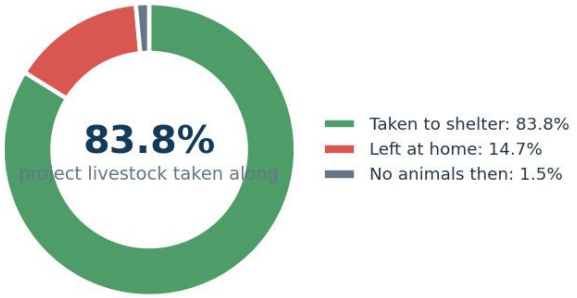
23.1%
used school/government building
Control: 19.4%

83.8%
took livestock to shelter
Control: 81.0%

96.5%
said livestock shelter was needed
Control: 96.7%

Usual shelter location when homesteads flooded





The shelter-location profile shows substantial reliance on homes, relatives, raised land and transport infrastructure rather than designated shelters.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Early warning, risk perception and coping

Access to early warning was limited, although warnings were widely viewed as beneficial by respondents who received them.

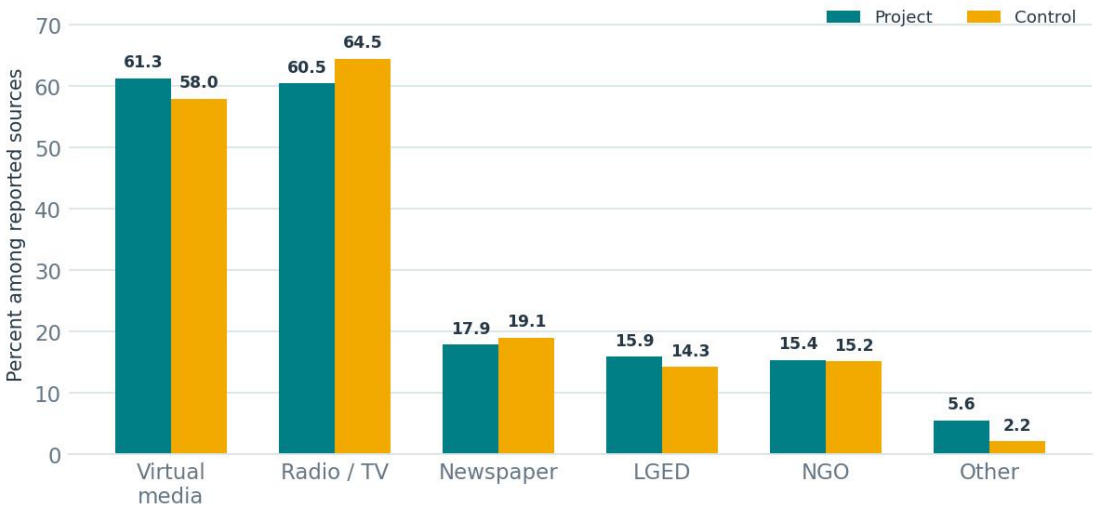
16.3%
early-warning system available
Control: 18.5%

15.0%
used warning messages
Control: 16.0%

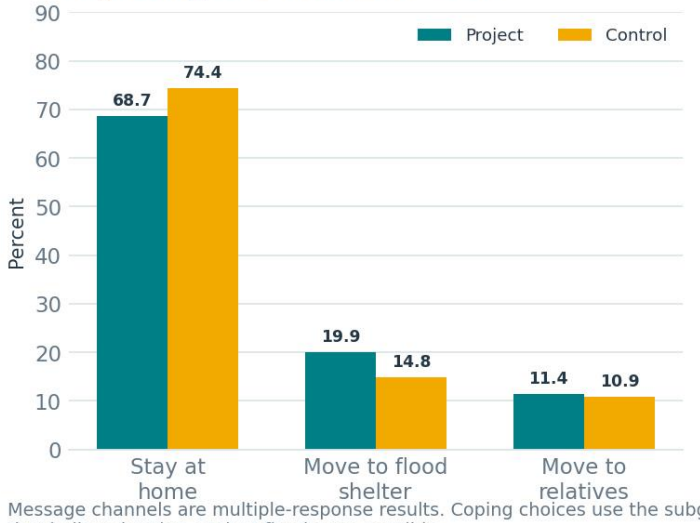
89.3%
said warnings were beneficial
Control: 90.5%

56.7%
held a fatalistic flood view
Control: 52.9%

Early-warning message channels



Preferred precaution among respondents rejecting the fatalistic view



Message channels are multiple-response results. Coping choices use the subgroup that believed action against floods was possible.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Women’s work, income and household contribution

Women respondents reported substantial economic contributions alongside long working days and extensive use of earnings for family needs.

Tk 135,123
average annual income - project
Control: Tk 112,097

46.2%
share of reported household income
Control: 41.9%

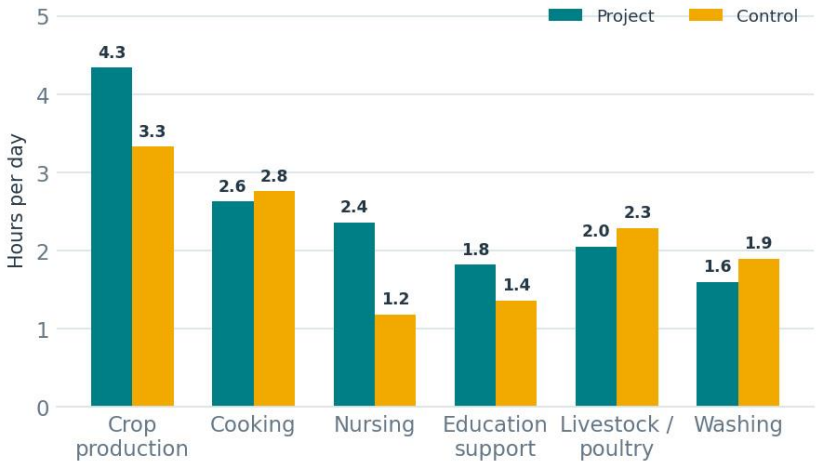
21.1 days
average work per month
Control: 20.7 days

70.8%
spent all earnings on family
Control: 64.5%

Share of reported household income



Selected daily activities



Women’s module sample: 161 project-area and 31 control-area respondents; control estimates should be read cautiously.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 11

RIVER BASELINE SURVEY

Health burden and treatment costs

Common illness dominated reported morbidity, while households used both pharmacies and qualified physicians and faced substantial treatment costs.

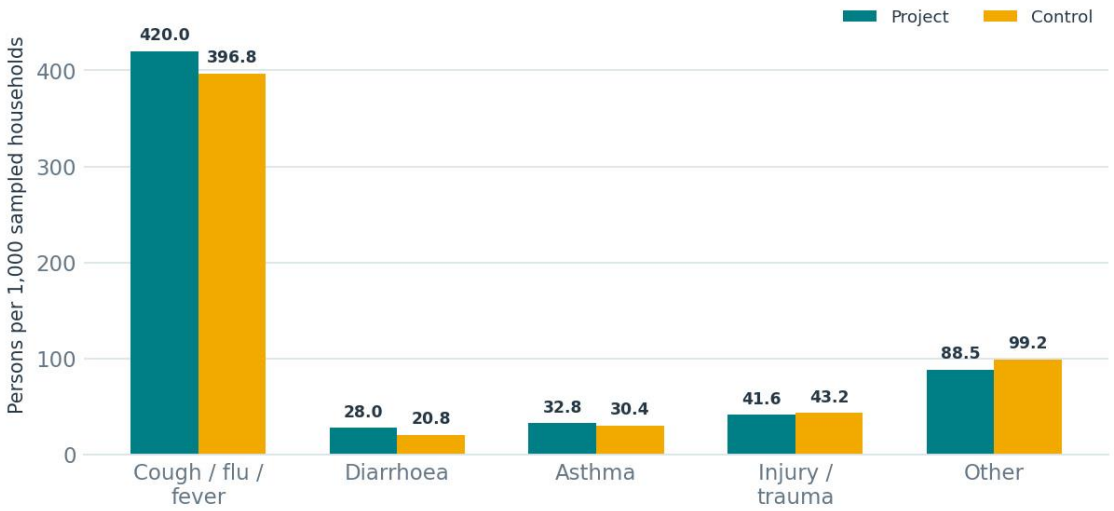
420
fever/flu cases per 1,000 HH
Control: 397

Tk 20,445
average MBBS treatment cost
Control: Tk 20,429

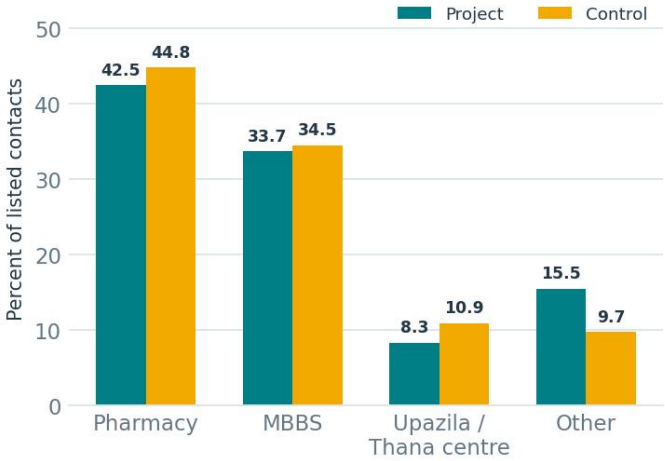
42.5%
treatment contacts at pharmacies
Control: 44.8%

33.7%
treatment contacts with MBBS
Control: 34.5%

Reported illness burden



Distribution of treatment contacts



Rates use the full household samples as denominators. Contact shares are derived from listed persons and may include more than one ill member per household.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 12

RIVER BASELINE SURVEY

District-level baseline disparities

Area-wide averages conceal large differences in landlessness, income, literacy and productive assets across districts.

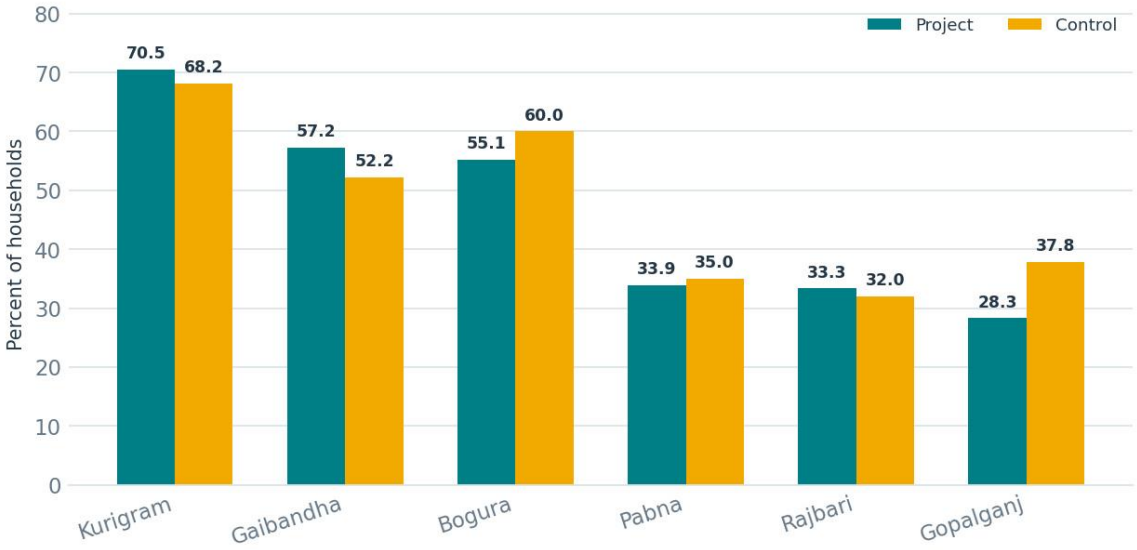
28-70%
project landless range
Gopalganj to Kurigram

80-96%
project literacy range
Rangpur to Rajbari

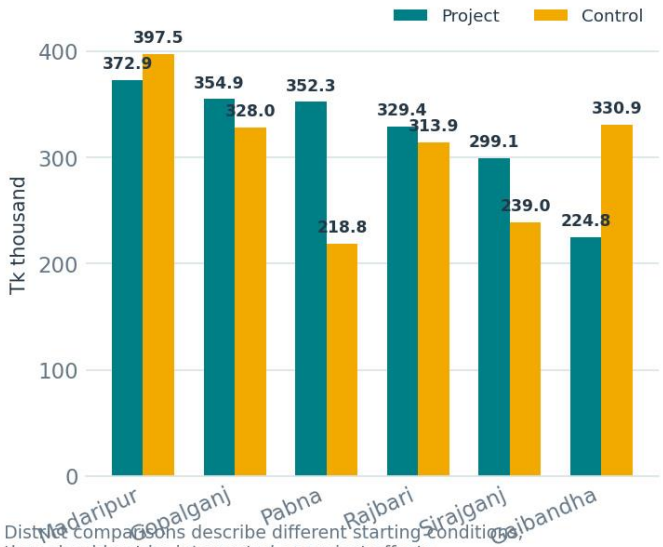
Tk 225-373k
project HH income range
Gaibandha to Madaripur

Tk 35-134k
project livestock-value range
Madaripur to Sirajganj

Selected district landlessness rates



Annual household income



District comparisons describe different starting conditions; they should not be interpreted as project effects.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Land access and productive assets

Operated land and livestock assets rise sharply across household categories, while project-control profiles remain broadly comparable.

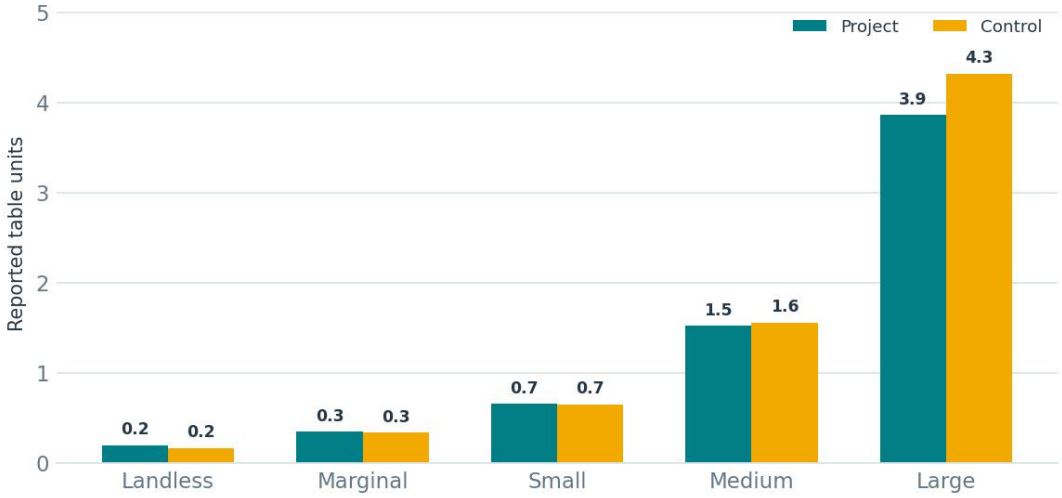
64.6%
households owning livestock/poultry
Control: 61.4%

Tk 51,815
average reported livestock value
Control: Tk 46,314

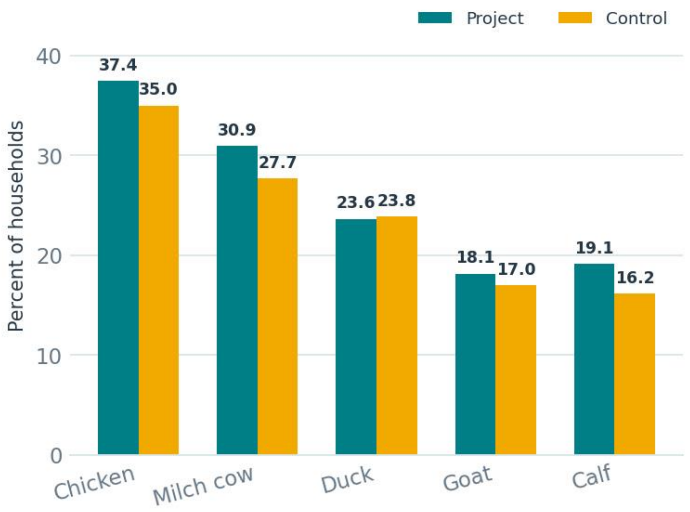
37.4%
households owning chickens
Control: 35.0%

30.9%
households owning milch cows
Control: 27.7%

Average total operated land by category



Household livestock ownership



Land-unit caution: Table 3.6 labels the measure as decimal, but the report flags the unit and column definitions for verification.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 14

RIVER BASELINE SURVEY

Household income, expenditure and surplus

Income and expenditure increase with landholding size; the absolute surplus expands markedly toward the upper landholding categories.

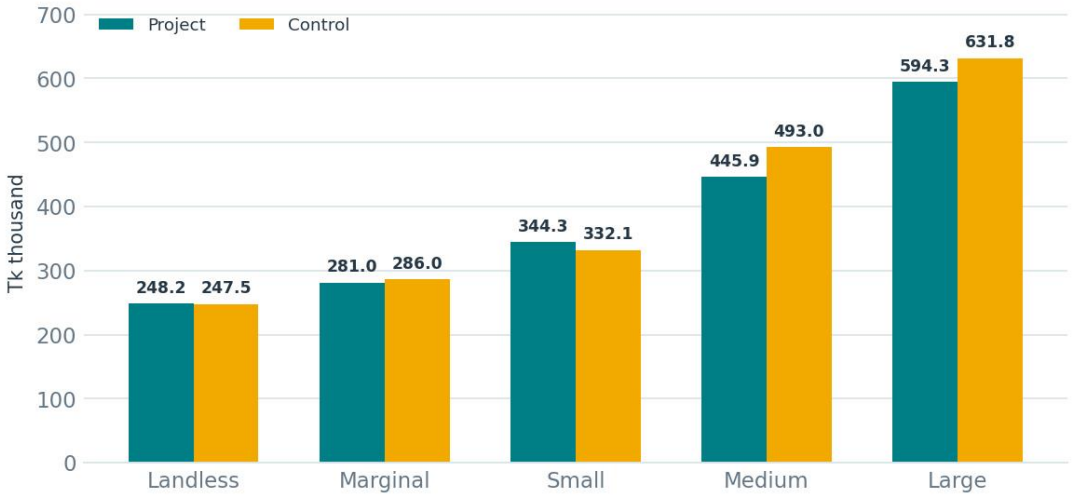
Tk 301,265
annual HH income - project
Control: Tk 296,199

Tk 279,156
annual HH expenditure - project
Control: Tk 272,340

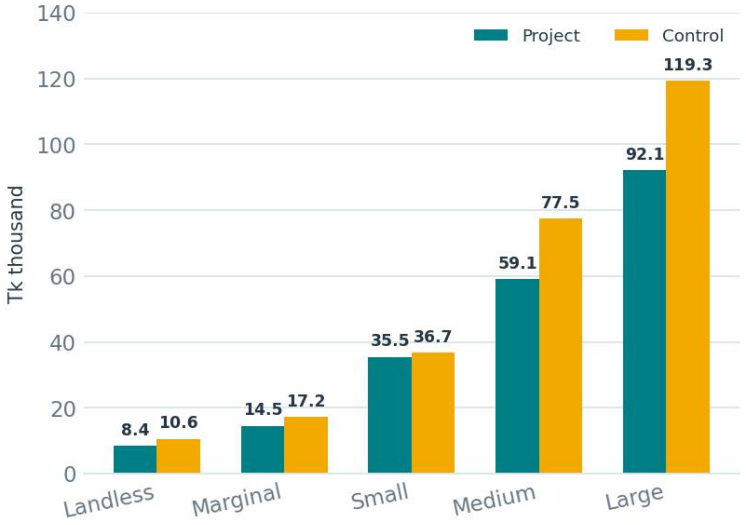
Tk 22,108
average surplus - project
Control: Tk 23,859

1.08x
income-to-expenditure ratio
Control: 1.09x

Annual household income by landholding



Income-expenditure surplus



Surplus is the simple difference between reported annual household income and expenditure.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Household food budget and expenditure pressure

Food absorbed about two-thirds of total expenditure, while total spending approached reported income in both survey areas.

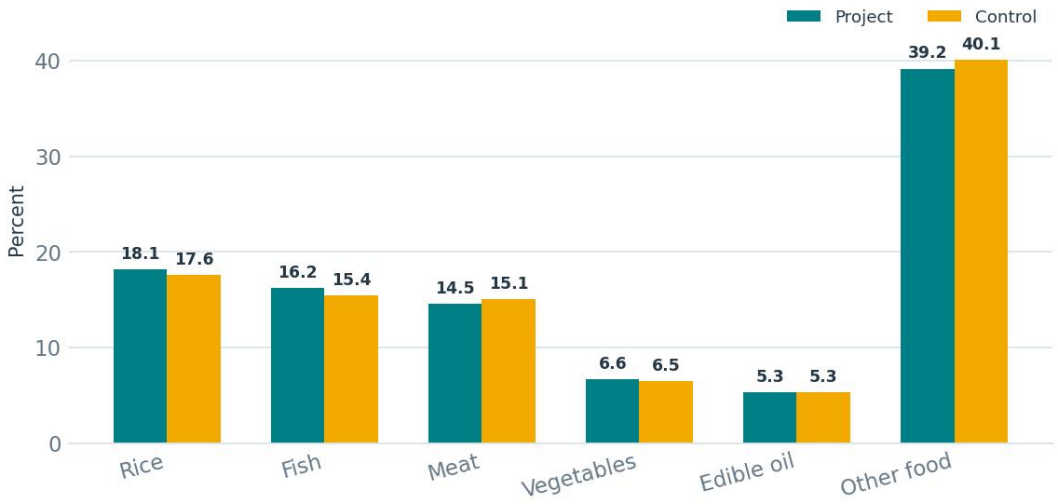
65.2%
food share of expenditure
Control: 66.3%

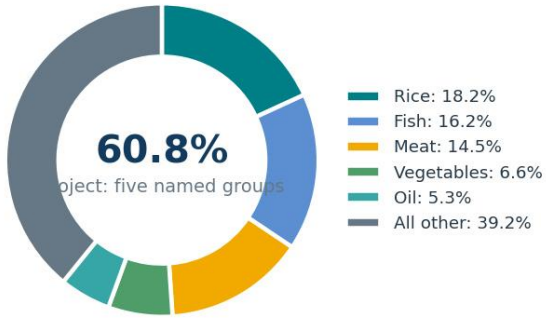
92.7%
expenditure-to-income ratio
Control: 92.0%

Tk 3,488
weekly household food cost
Control: Tk 3,465

Tk 181,875
annual food cost per HH
Control: Tk 180,655

Share of weekly food expenditure





Similar food shares and budget ratios indicate broadly comparable baseline consumption pressure.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Flood depth and composition of crop damage

Agricultural land was overwhelmingly reported in the high-depth category, and Boro/Rabi accounted for most damaged crop area.

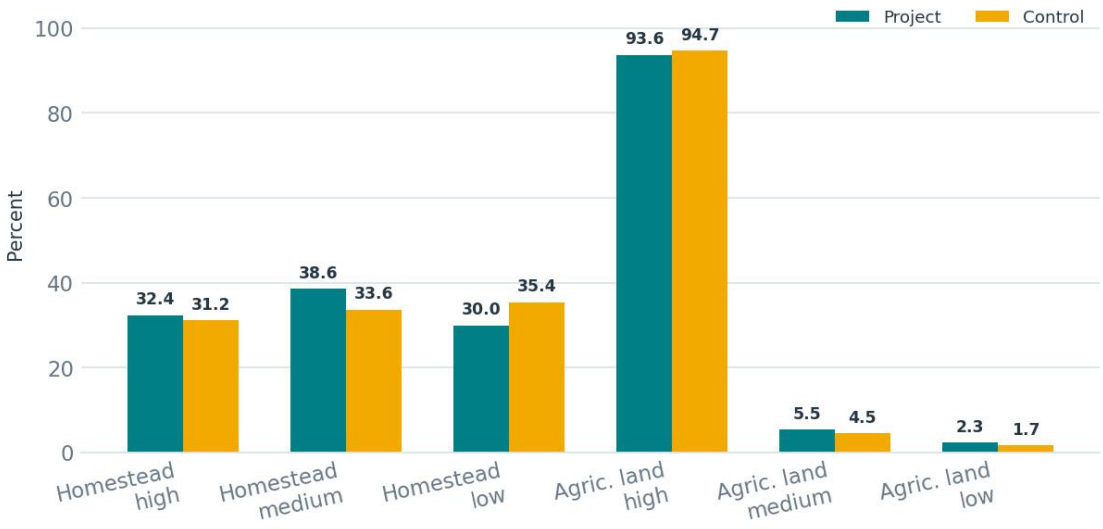
93.6%
agricultural land: high depth
Control: 94.7%

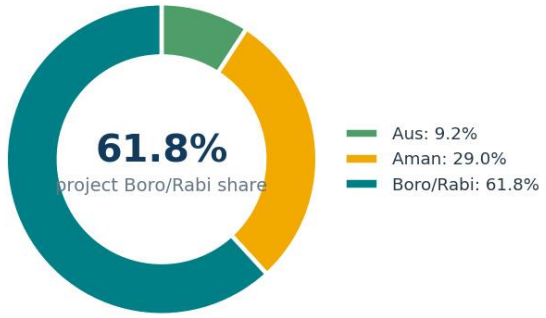
38.6%
homesteads: medium depth
Control: 33.7%

400,560
reported crop area damaged
Project-area decimals

61.8%
Boro/Rabi share of damaged area
Control: 68.5%

Reported flood-depth profile





Control damaged-area composition: Aus 5.9%, Aman 25.6% and Boro/Rabi 68.5%.
Totals are reported cumulative areas and are not normalized by cultivated area.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Existing-shelter satisfaction and user constraints

Users reported major WASH, women’s-facility and infrastructure constraints; project-area dissatisfaction remained substantial.

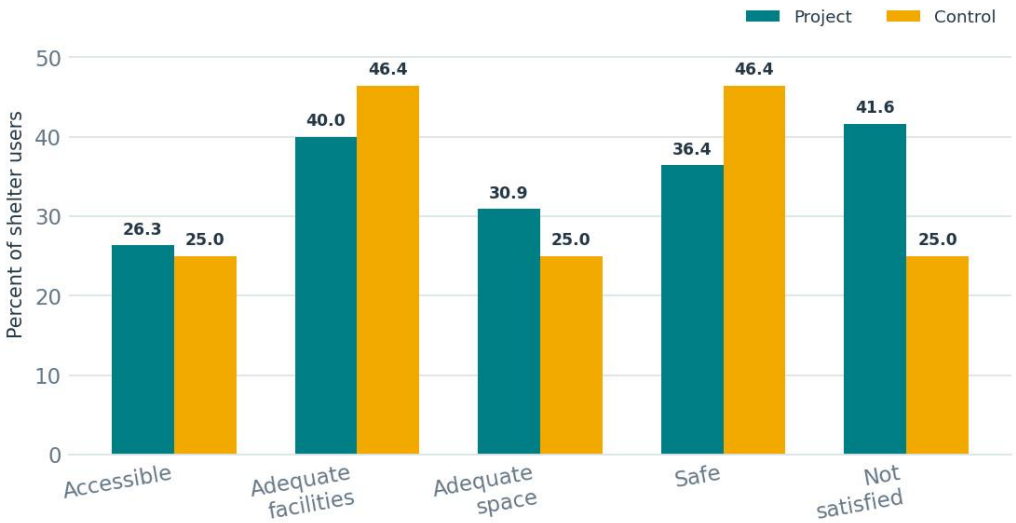
41.7%
not satisfied - project users
Control: 25.0% (n=28)

89.5%
reported no WASH
Control: 87.3%

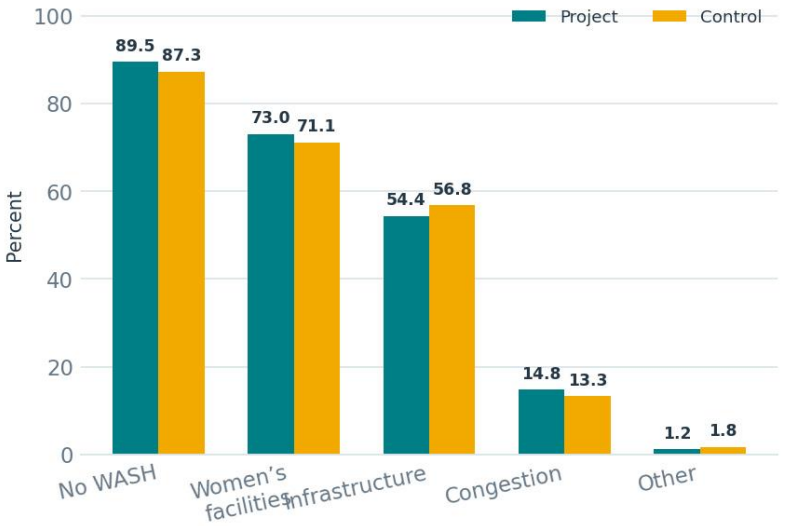
73.0%
inadequate facilities for women
Control: 71.1%

54.4%
insufficient infrastructure
Control: 56.8%

Assessment of existing shelters



Problems experienced in shelters



Control-area satisfaction results are based on only 28 shelter users and should be interpreted cautiously.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Disaster exposure profile

Flooding, heavy rainfall and storms formed the dominant reported hazard cluster in both survey areas.

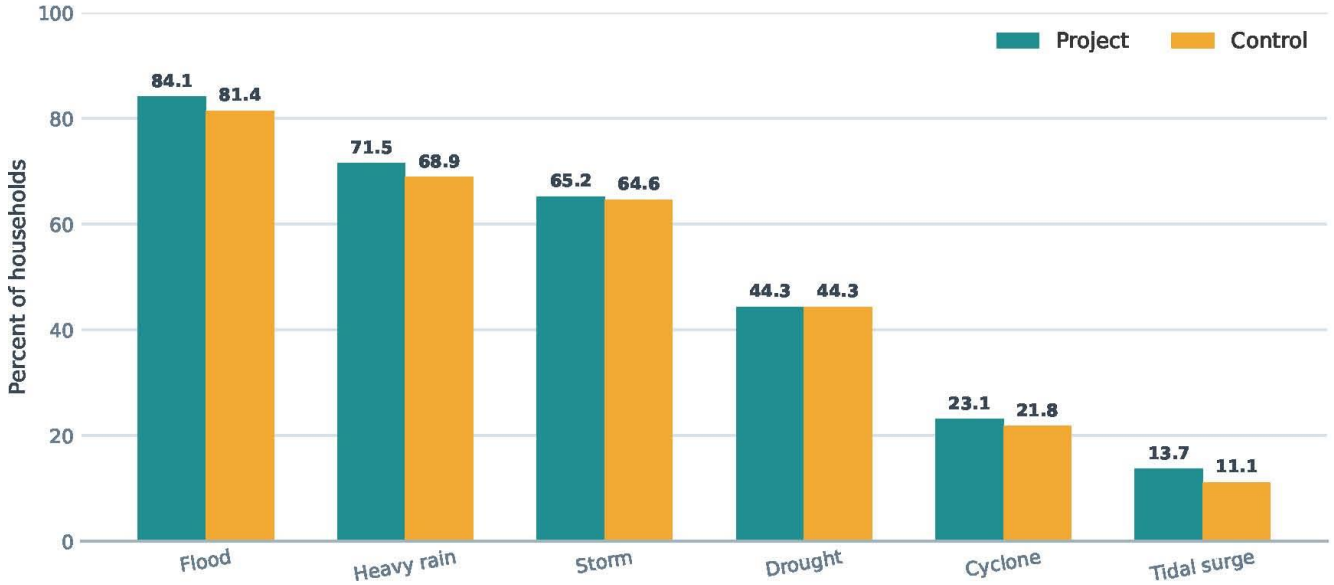
84.1%
reported flooding - project
Control: 81.4%

71.5%
reported heavy rainfall
Control: 68.9%

65.2%
reported storms
Control: 64.6%

+2.6 pp
largest observed gaps
Flood, heavy rain and tidal surge

Households reporting usual natural calamities



Flood reached the largest share of households; cyclone and tidal-surge exposure remained important but less widespread.

Baseline reading

- Flood exposure was widespread in both samples.
- Project-control differences were generally small.
- Drought affected 44.3% in both areas.
- Percentages are multiple responses and do not sum to 100%.

Source: RIVER Baseline Survey Report (2026), Tables 3.21-3.26. Project-control comparisons are descriptive.

RIVER BASELINE SURVEY

Lightning exposure and reported consequences

Lightning was widely reported, with higher aggregate occurrence, frequency and reported losses in the project area.

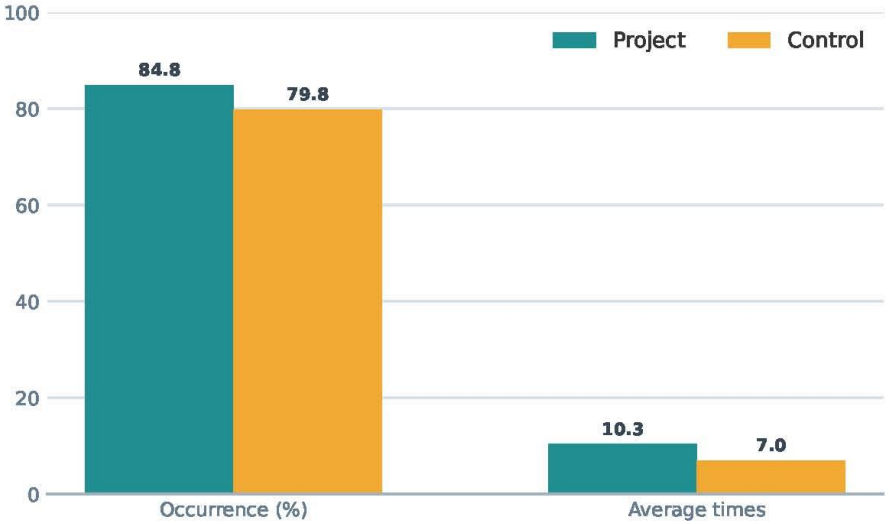
84.85%
reported lightning - project
Control: 79.76%

10.33
average reported occurrences
Control: 6.97

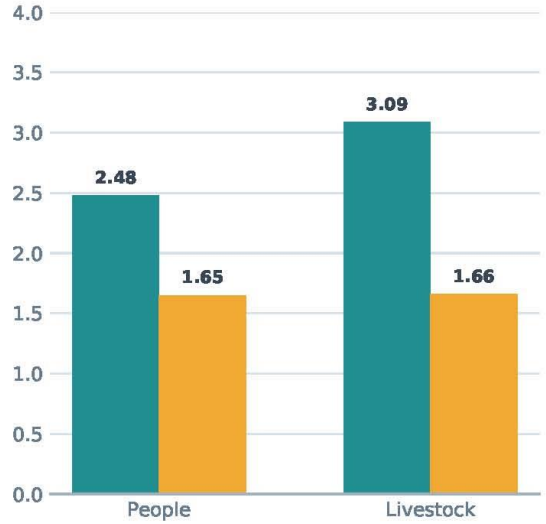
2.48
average people reported dead
Control: 1.65

3.09
average livestock reported dead
Control: 1.66

Occurrence and reported frequency



Reported average losses



Hotspots

- Sunamganj: project 26.94.
- Habiganj: control 21.00.
- Project > control in 9 of 14 districts.

Caution: the denominator for the reported death averages was not specified; the values are not verified casualty totals or mortality rates.

Source: RIVER Baseline Survey Report (2026), Tables 3.21-3.26. Project-control comparisons are descriptive.

INFOGRAPHIC 32

RIVER BASELINE SURVEY

Repeated flood exposure and inundation depth

Water bodies were affected most frequently, while agricultural land was overwhelmingly classified in the high-depth band.

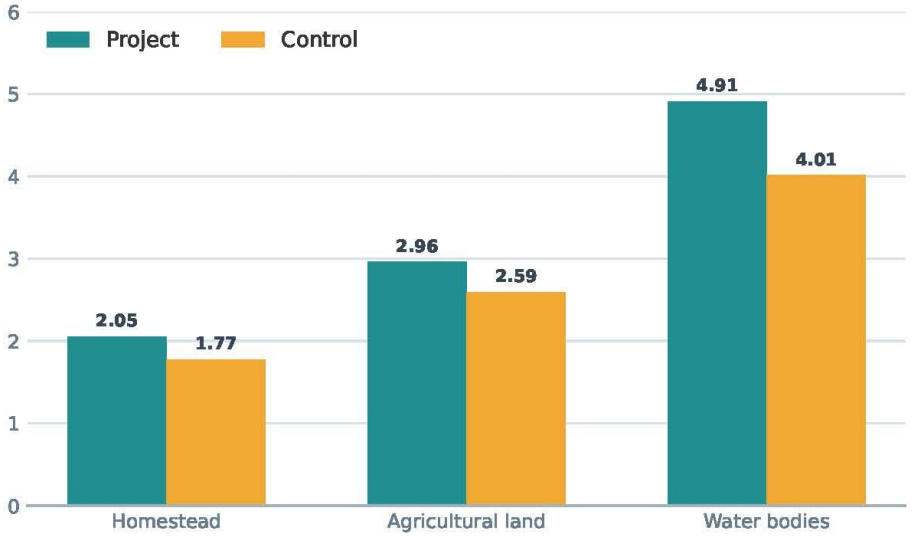
2.05
homestead flood episodes
Control: 1.77

2.96
agricultural-land episodes
Control: 2.59

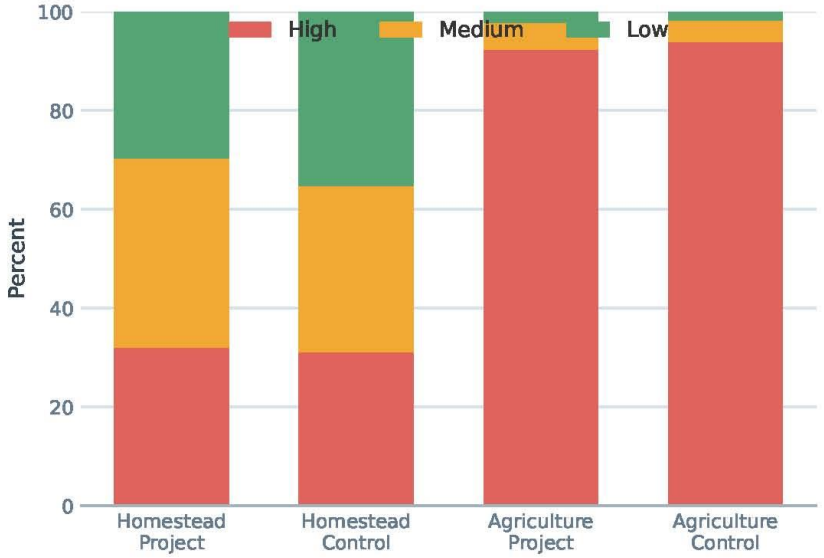
4.91
water-body episodes
Control: 4.01

93.63%
agricultural land: high depth
Control: 94.65%

Average times affected during 25 years



Reported flood-depth composition



Depth shares are normalized to 100% for display; small differences from 100 in the source table reflect rounding.

Source: RIVER Baseline Survey Report (2026), Tables 3.21-3.26. Project-control comparisons are descriptive.

RIVER BASELINE SURVEY

Flood-related crop damage and monetary loss

Boro/Rabi accounted for the largest reported damaged area and monetary loss in both survey areas.

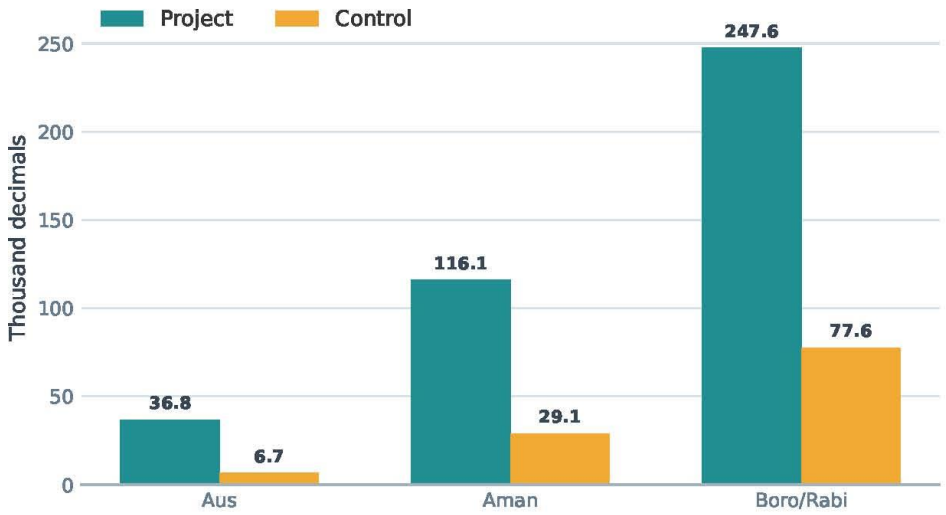
400,560
damaged crop area - project
Control: 113,321 decimals

Tk 151.0m
total reported crop loss
Control: Tk 41.1m

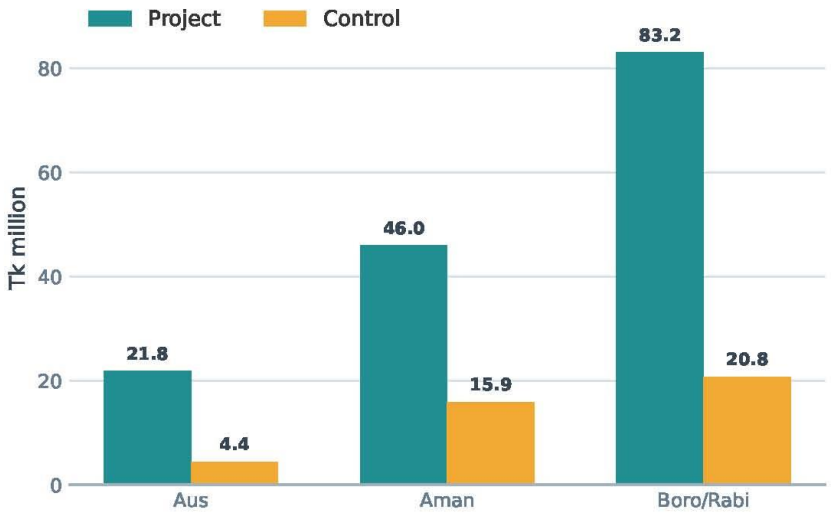
61.8%
Boro/Rabi share of area
Control: 68.5%

Tk 83.2m
Boro/Rabi loss - project
Control: Tk 20.8m

Reported damaged crop area



Reported monetary crop loss



Reported totals are not normalized for sample size, cultivated area, crop mix or exposure; they should not be read as loss rates.

Source: RIVER Baseline Survey Report (2026), Tables 3.21-3.26. Project-control comparisons are descriptive.

INFOGRAPHIC 34

RIVER BASELINE SURVEY

Flood impacts on water bodies and fish production

Aquaculture and natural-fish responses dominated the reported fish-production effects.

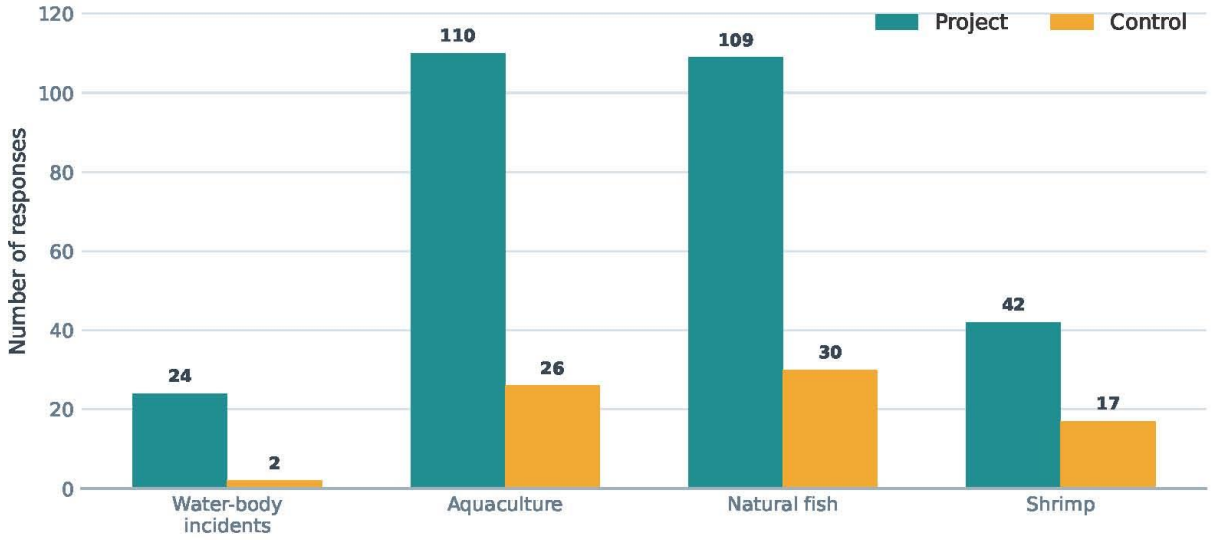
285
total listed responses - project
Control: 75

110
aquaculture responses
Control: 26

109
natural-fish responses
Control: 30

42
shrimp responses
Control: 17

Reported flood-affected water-body and fish responses



How to read the results

- Project and control totals reflect different sample sizes.
- Counts describe listed responses, not incidence rates.
- Aquaculture and natural fish were similarly prominent.
- Shrimp effects formed a smaller but visible component.

The "total fish-type responses" in the source table equals all four displayed categories, including water-body incidents.

Source: RIVER Baseline Survey Report (2026), Tables 3.21-3.26. Project-control comparisons are descriptive.

RIVER BASELINE SURVEY

Drinking-water sources in disaster-prone localities

Tube wells dominated in both areas, while reliance on tap water and alternative sources remained limited.

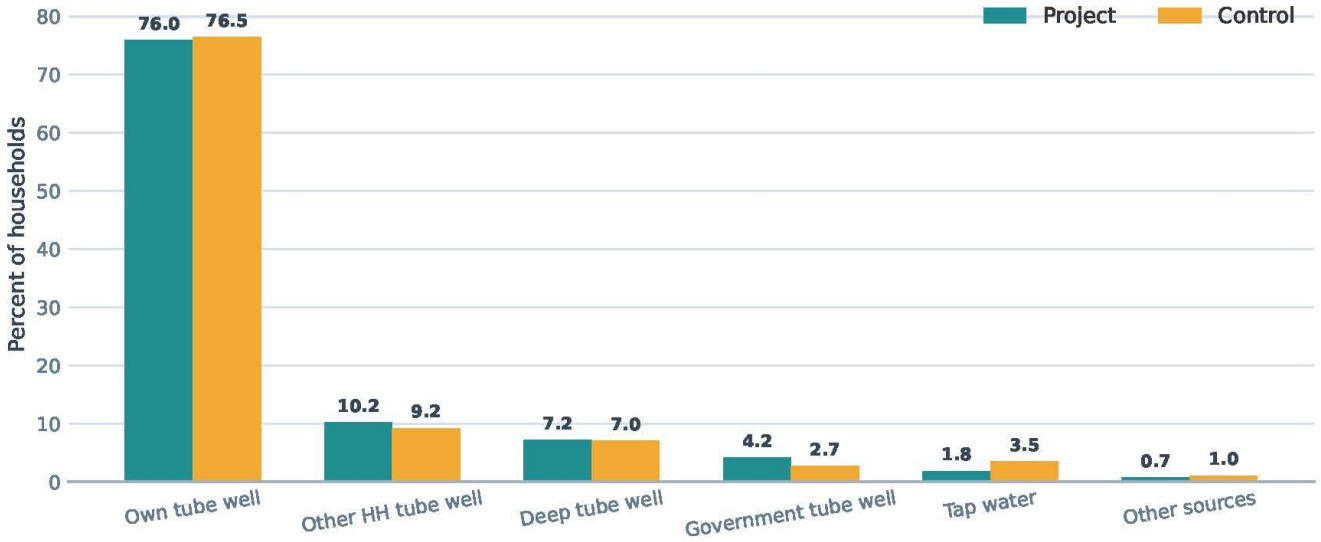
75.95%
own tube well - project
Control: 76.48%

10.21%
other household tube well
Control: 9.20%

7.17%
deep tube well
Control: 7.04%

1.84%
tap water
Control: 3.52%

Distribution of reported drinking-water sources



"Other sources" aggregates well, river, pond, canal/khal, treatment plant, rainwater and bottled/potable water.

Baseline reading

- Source patterns were closely aligned across the two samples.
- About three-quarters relied on their own tube well.
- Control households reported more tap-water use (+1.68 pp).
- Other sources individually accounted for less than 1%.

Source: RIVER Baseline Survey Report (2026), Tables 3.21-3.26. Project-control comparisons are descriptive.

RIVER BASELINE SURVEY

Shelter connectivity and daily road use

Community-road availability was limited, while connecting routes carried substantial daily pedestrian and motorized movement.

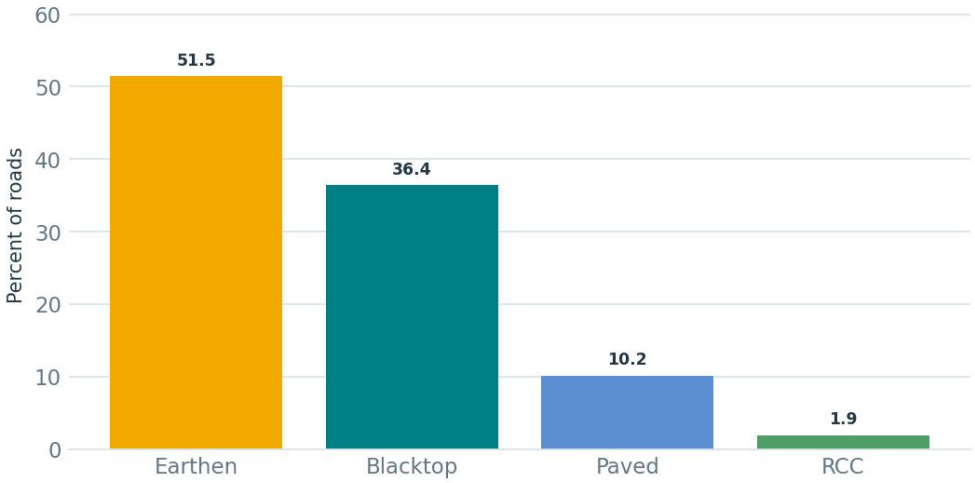
30.2%
reported a community road
1,132 of 3,750 respondents

1.93 km
average reported road length
Where a community road existed

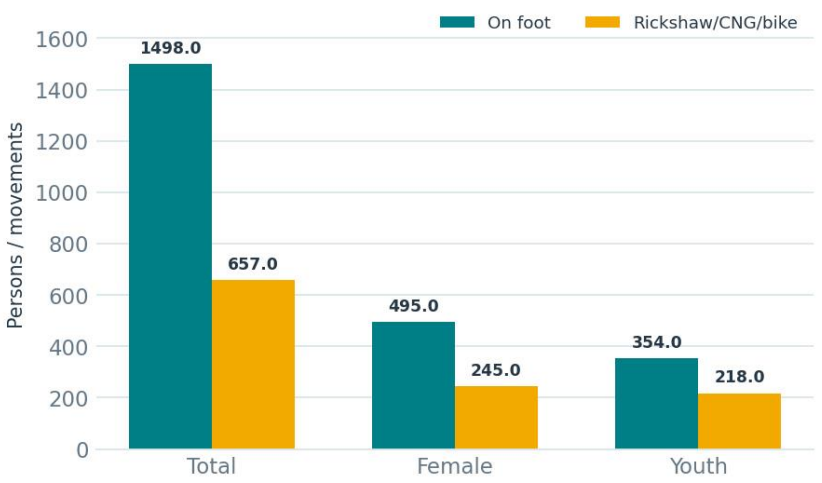
1,498
average daily movement on foot
Female: 495; youth: 354

657
average daily motorized movement
Female: 245; youth: 218

Type of reported community road



Average daily road movement



Road-type percentages use the 1,132 reported community roads; movement figures are overall daily averages.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

School-cum-shelter capacity and facility deficits

Most respondents considered school facilities inadequate, with WASH, furniture and room shortages reported most frequently.

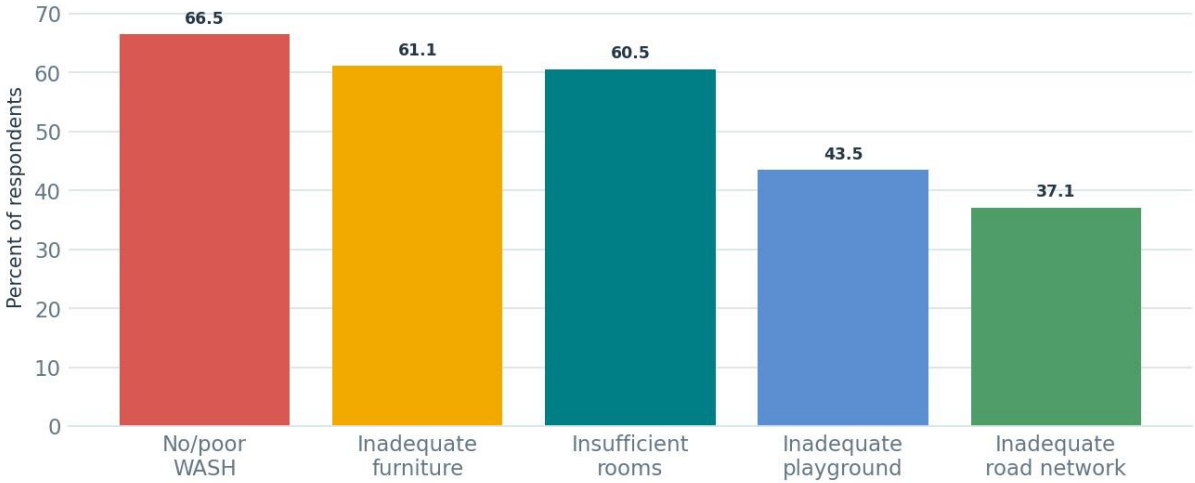
159
average current enrolment
Reported number of students

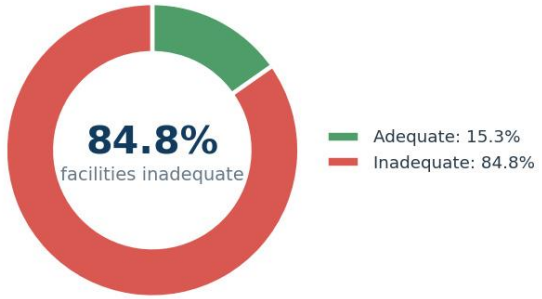
15.3%
facilities considered adequate
84.8% considered inadequate

66.5%
reported no or poor WASH
Largest listed facility deficit

1.1%
reported solar energy available
41 of 3,750 respondents

Reported school-facility deficits





Facility deficits are multiple-response results; percentages therefore do not sum to 100

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Awareness, consultation and perceived benefit

Overall awareness was moderate but varied sharply by district; consultation and expected benefit were high among aware respondents.

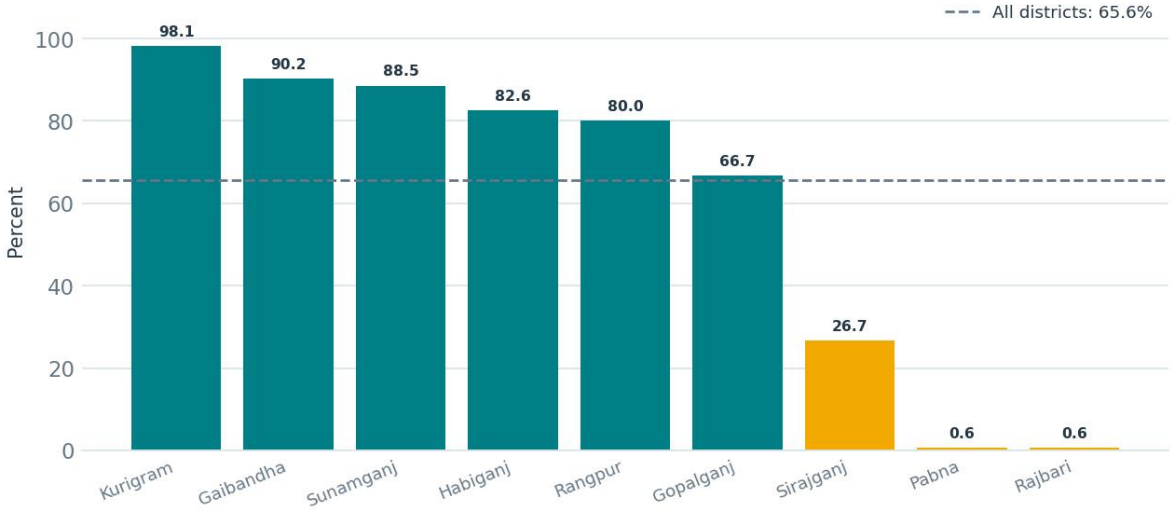
65.6%
aware of LGED shelter development
2,459 of 3,750 respondents

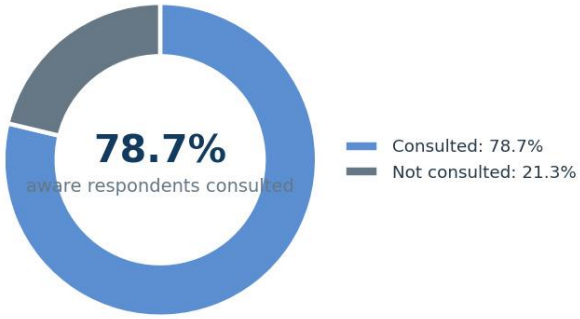
78.7%
consulted during preparation/design
Among aware respondents

98.7%
expected community benefit
Among aware respondents

0.6-98.1%
district awareness range
Pabna/Rajbari to Kurigram

Selected district awareness rates





Awareness, consultation and perceived-benefit indicators were collected in the project area

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

INFOGRAPHIC 21

RIVER BASELINE SURVEY

Women respondents: education and employment

Women’s educational attainment was diverse, and reported employment income differed substantially by type of work.

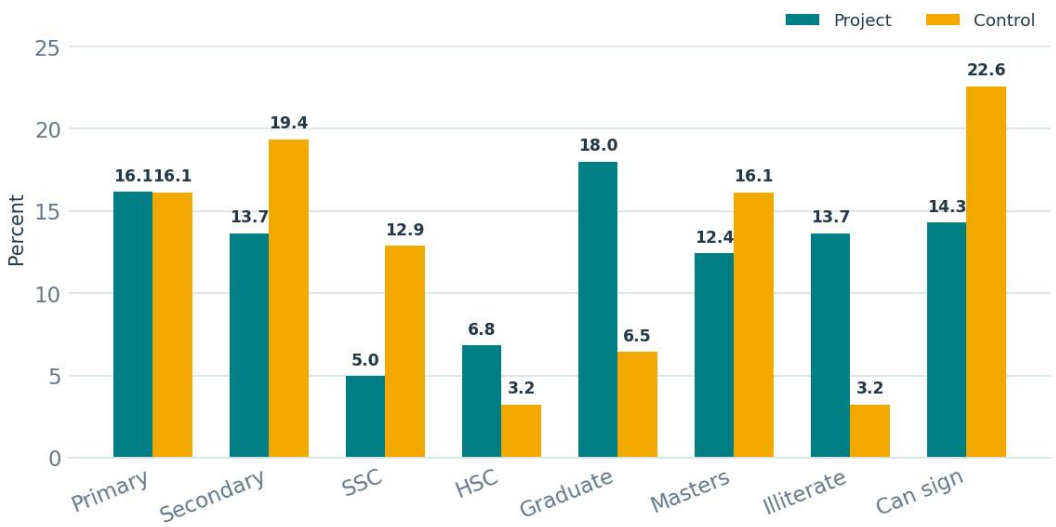
21.1%
women respondents were HH heads
Control: 9.7%

18.0%
graduates - project
Control: 6.5%

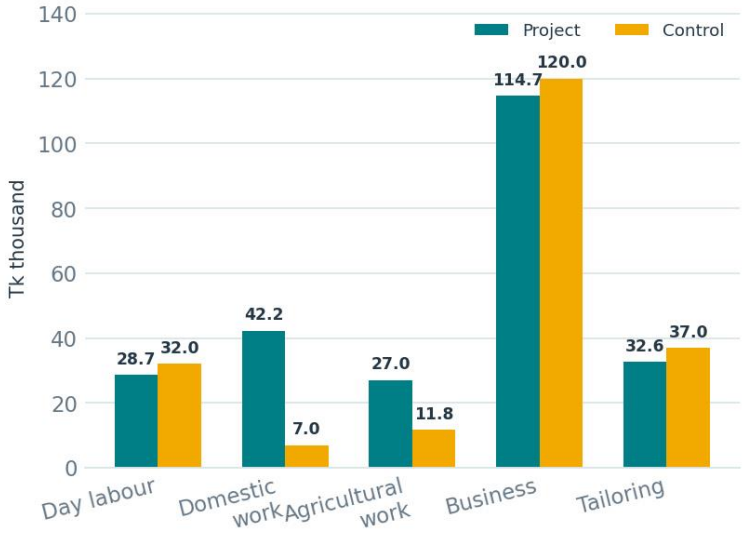
13.7%
illiterate - project
Control: 3.2%

Tk 135,123
average annual work income
Control: Tk 112,097

Educational attainment



Average annual income by work type



Women’s module sample: 161 project-area and 31 control-area respondents; subgroup estimates require caution.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Women’s seasonal workload and use of earnings

Reported workload peaked around Baishakh and Jaistha, while most women directed a substantial share of earnings to household needs.

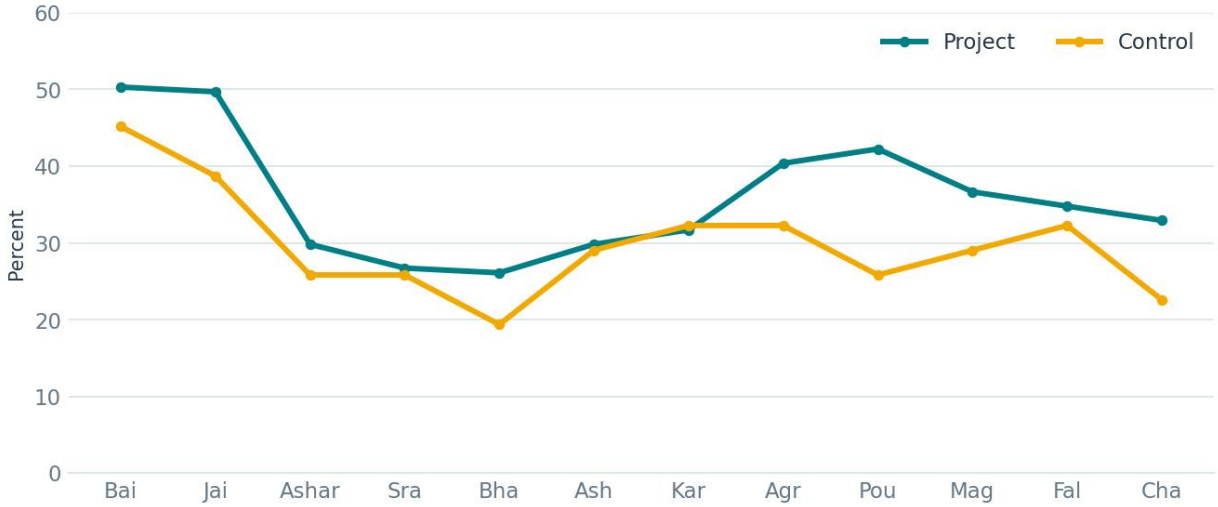
50.3%
very busy in Baishakh - project
Control: 45.2%

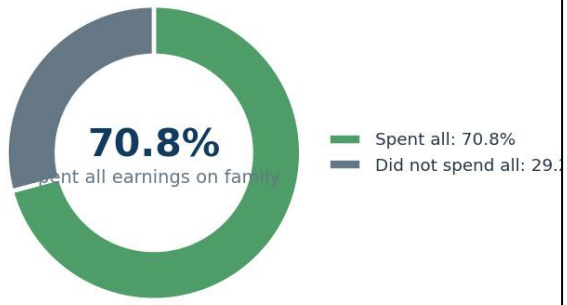
21.1 days
average work per month
Control: 20.7 days

6.7 hours
average working day
Control: 7.2 hours

51.1%
average income share spent
Control: 45.5%

Share reporting ‘very busy’ by Bangla month





Control: 64.5% reported spending all earnings on family. Month abbreviations follow the

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.

RIVER BASELINE SURVEY

Women’s reported flood-related vulnerabilities

Women identified overlapping economic, educational, safety, organizational and decision-making constraints during floods.

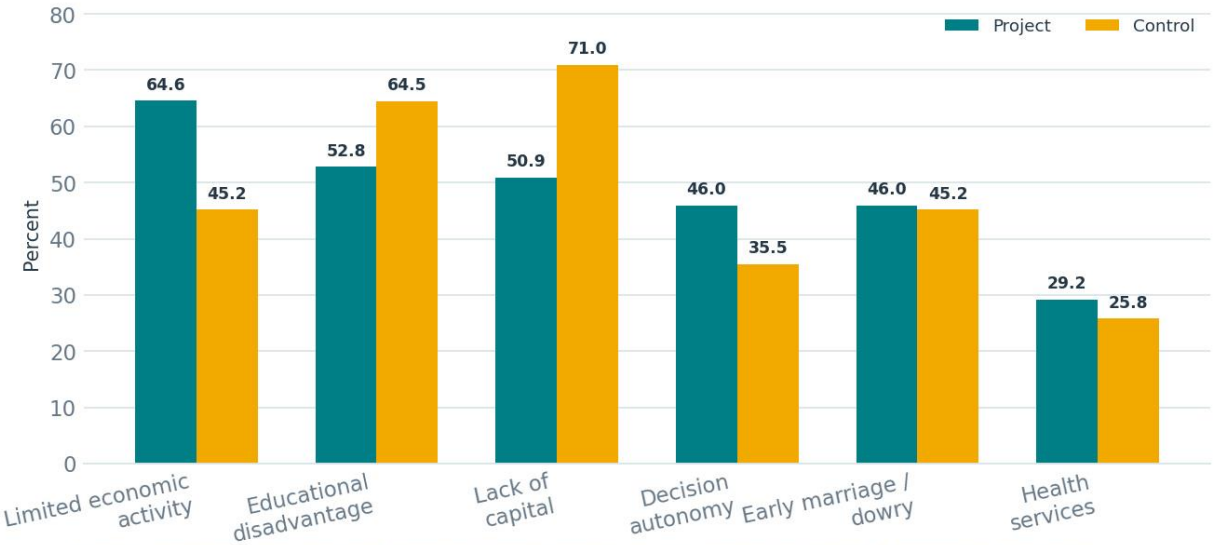
64.6%
limited economic activity
Control: 45.2%

52.8%
educational disadvantage
Control: 64.5%

50.9%
lack of capital
Control: 71.0%

46.0%
limited decision autonomy
Control: 35.5%

Selected problems reported during floods



Project-control difference



Multiple responses were permitted. Women’s control sample was 31; differences should be treated as descriptive.

Source: RIVER Baseline Survey Report (2026). Baseline comparisons are descriptive.