

Assessment Report

Voices from the Riverbank: Life and Livelihood of Women Fishers Under Climate Pressure



Pilot Initiative on Alternative Livelihoods for
Women Fishers for Biodiversity Conservation



Green Resilience and Cooperation for Ecosystem (GRACE)



Kachubunia Shamshan Ghat, Jalma,
Batiaghata Upazila, Khulna



May 2026



Building, Bonding and Belonging—TOGETHER

TABLE OF CONTENCT

Chapter and title	Sub-title	Page number
Chapter 01: Background	1.1 Introduction	
	1.2 Context Analysis	
	1.3 Objective	
	1.4 Expected Outcome	
Chapter 02: Methodology	2.1 Study Area	
	2.2 Study Period	
	2.3 Sampling Technique	
	2.4 Sample Size	
	2.5 Data Collection	
	2.6 Data Analysis	
Chapter 03:Result & Discussion	3.1. Socio-Demographic Profile	
	3.2. Livelihood and Income Vulnerability	
	3.3. Food Security, Nutrition and health including WASH (Water, Sanitation and Hygiene)	
	3.4. Climate Change and Disaster Vulnerability	
	3.5. Education and Skills Development	
	3.6 Adaptive Capacity and Resilience	
	3.7 Findings of the Consultation Meeting	
Chapter 04: Key Findings and Recommendation	4.1 Key findings at-a-glance	
	4.2 Recommendations	
	4.3 Conclusion	

Chapter 01: Background

1.1 Introduction

Bangladesh is widely recognized as one of the most climate-vulnerable deltaic countries in the world. Its coastal and riverine communities are repeatedly exposed to cyclones, tidal surges, river erosion, flooding, salinity intrusion, waterlogging and changing rainfall patterns. These climate-induced stresses directly affect the lives and livelihoods of people who depend on natural resources, particularly fishing communities living along rivers, canals, wetlands and coastal belts. Women in fisher households often face a double burden: they contribute directly or indirectly to household livelihood activities while also carrying major responsibilities for food preparation, child care, household management and family wellbeing.

Women fishers and women from fisher households remain among the most marginalized occupational groups in Bangladesh. Their contribution to the fisheries value chain is often under-recognized, although they are involved in fishing, net making and repairing, fish sorting, drying, processing, selling, household-based livelihood support and family survival strategies. Climate change, livelihood uncertainty, seasonal fishing bans, declining fish availability, unsafe working conditions and limited access to alternative income opportunities have made their lives increasingly insecure. In many cases, women fishers live in fragile settlements along riverbanks and coastal areas, where exposure to natural hazards directly affects their income, food security, health, dignity and children's education.

Against this backdrop, an assessment was conducted under the project "Pilot Initiative on Alternative Livelihoods for Women Fishers for Biodiversity Conservation," implemented by Green Resilience and Cooperation for Ecosystem (GRACE). The assessment aimed to understand the socio-economic realities, climate-related vulnerabilities and livelihood challenges of women fishers living along the Rupsha riverbank in Jolma Union of Batiaghata Upazila under Khulna District. It also focused on identifying practical, sustainable and locally appropriate alternative livelihood options that can improve household resilience while contributing to biodiversity conservation and ecosystem protection.

The assessment was conducted among 100 vulnerable households in one riverbank cluster, and two focus group discussions (FGDs) were held on 22 May 2026 at Kachubunia Shamshan Ghat, Jolma, Batiaghata Upazila, Khulna. The process created a space for women fishers to share their lived experiences, livelihood struggles, climate risks, coping practices and expectations for future support. Through this assessment, GRACE sought to generate community-based evidence to guide livelihood programming, women's empowerment, climate resilience and biodiversity-friendly development initiatives for marginalized riverbank communities.

1.2 Context Analysis

Bangladesh's fisheries sector is central to its economy, nutrition, employment, and culture. Millions are engaged directly or indirectly in fishing, fish trading, processing, transportation, net making, and other value-chain activities. However, fishing communities, particularly women fishers, remain economically vulnerable due to irregular income, seasonal dependency, market fluctuations, limited access to social protection, and heightened exposure to climate-related hazards. Women contribute significantly to household livelihoods through fish sorting, drying, cleaning, net repair, small trade, post-harvest processing, and unpaid labor, but their work is often unrecognized, and they have limited access to assets, finance, technology, training, and market linkages.

The coastal and riverine region of Khulna, including Batiaghata Upazila, is highly exposed to climate stress, tidal flooding, salinity intrusion, river erosion, and storms. Livelihoods here are closely tied to natural resources, with fishing as a primary income source. Women in these households face compounded vulnerability, managing household food, child care, and education while income from fishing remains uncertain. Fragile housing, unsafe water, limited sanitation, and scarce health services further exacerbate risks, highlighting the need for sustainable and climate-resilient livelihood options.

Along the **Rupsha riverbank in Jolma Union**, the assessment conducted under GRACE's "Pilot Initiative on Alternative Livelihoods for Women Fishers for Biodiversity Conservation" found women fishers highly dependent on fishing for daily survival. On average, they fish 10–15 days per month, earning BDT 2,000–3,000, with peak income reaching BDT 5,000–6,000. Their work is physically demanding and unsafe, with exposure to storms, strong currents, and crocodile risk. During adverse weather or government-imposed restrictions, households often reduce meals, underscoring livelihood insecurity. Most families live in fragile huts along the riverbank. Despite some government support via Fisherman Cards, the assistance is insufficient. These findings provide evidence for designing alternative livelihoods—such as net making, poultry and livestock rearing, tailoring, small businesses, fish drying, and eco-tourism linkages—that enhance resilience, biodiversity conservation, and women's empowerment.

1.3 Objective

- Assess the socio-economic and climate-related vulnerabilities of women fishers.
- Understand livelihood patterns, income, food security and education-related concerns.
- Identify feasible alternative livelihoods that are locally appropriate and environmentally sustainable.
- Generate evidence to inform future project planning, support services and advocacy.

1.4 Expected Outcome

- A clearer understanding of the needs and vulnerabilities of women fishers.
- A set of practical and sustainable alternative livelihood options.
- Stronger evidence for project design, resource mobilization and policy engagement.
- Improved pathways for resilience, women's empowerment and biodiversity conservation.



Chapter 02: Methodology

2.1 Study Area

The assessment was conducted at Kachubunia Shamshan Ghat, located along the Rupsha riverbank in Jalma Union of Batiaghata Upazila, Khulna District. This area represents a critical climate-vulnerable hotspot within Bangladesh's southwestern deltaic region, characterized by its proximity to tidal rivers, wetlands, and low-lying floodplains. The riverbank settlements here are primarily composed of marginalized households whose livelihoods are almost entirely dependent on river-based activities, particularly small-scale fishing.

2.2 Study Period

The assessment was carried out between 25 April and 10 June 2026, covering questionnaire development, field data collection, data cleaning, focus group discussions, data analysis, draft report preparation, and final report publication.

The questionnaire was developed and digitized using KOBO Collect from 25 April to 1 May 2026. Household-level data collection was conducted from 2 May to 11 May 2026 through structured interviews with selected vulnerable households. Data cleaning, verification, and necessary revisits were carried out from 11 May to 15 May 2026 to ensure the accuracy and completeness of the collected information.

Two focus group discussions were conducted on 22 May 2026 with women fishers at Kachubunia Shamshan Ghat, Jolma, Batiaghata Upazila, Khulna. Following the field activities, data analysis was completed from 23 May to 29 May 2026. The draft report was prepared between 1 June and 5 June 2026, and the final report was published on 10 June 2026.

2.3 Sampling Technique

The assessment followed a cluster-based purposive sampling technique to identify and select the respondents. Considering the specific focus of the study on climate-vulnerable women fishers, the assessment area was selected purposively from a riverbank cluster located at Kachubunia Shamshan Ghat, Jolma Union, Batiaghata Upazila, Khulna. This cluster was selected because it represents a highly vulnerable riverside settlement where households are directly dependent on river-based livelihoods, particularly fishing, and are frequently exposed to climate-induced risks such as flooding, storms, riverbank erosion, adverse weather conditions and livelihood disruption.

,

2.4 Sample Size

Household Interviews	FGD Sessions	Women Fishers Participating in FGDs
100	2	50

2.5 Data Collection

Data were collected among 100 vulnerable households in one riverbank cluster through three regular staffs of GRACE. during seven days. Structured interviews were conducted using a questionnaire at household level. In addition, two focus group discussions (FGDs) were held to gather qualitative insights from women fishers. A total of 50 women fishers participated in the FGD sessions. The consultation explored daily livelihoods, income-generating activities, children's education, the impacts of climate change and possible solutions.

2.6 Data Analysis

Quantitative information from household interviews was compiled and summarized using descriptive analysis. Qualitative findings from the FGDs and consultation were reviewed thematically to identify recurring vulnerabilities, livelihood trends, climate-related challenges and possible alternative livelihood pathways.

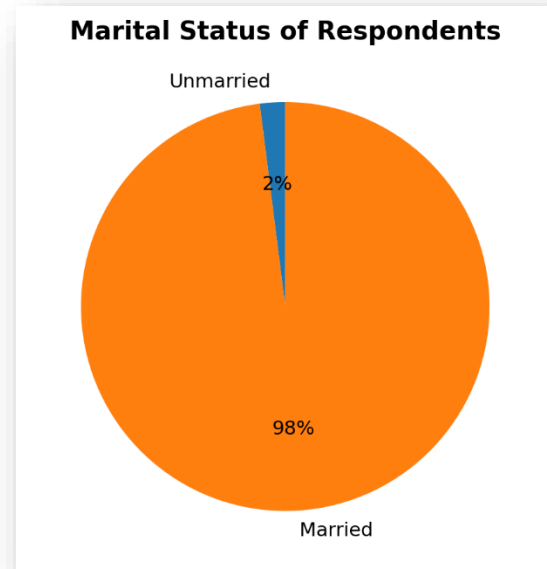
Chapter 03:Result & Discussion

3.1. Socio-Demographic Profile

3.1.1 Sex of the respondent: The gender distribution of study respondents showed that 97% were female and only 3% were male.

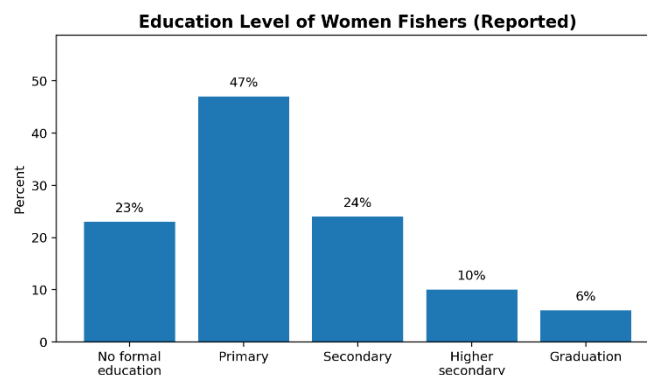
3.1.2 Age of respondent: The age distribution ranges from 17 to 76 years, with the majority 66% concentrated within 28-46 years, suggesting that fisheries work is mostly carried out by economically active adult women.

3.1.3 Marital status: Married women constitute 98% of respondents, indicating that most women fishers manage fisheries work alongside household, care, and family responsibilities



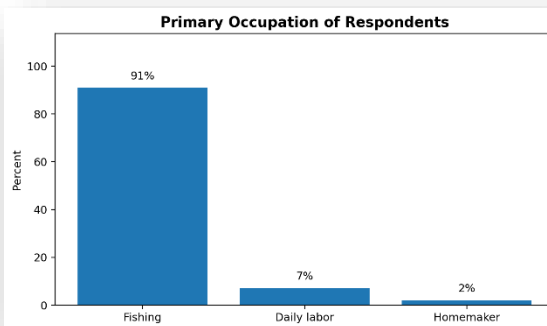
3.1.4 Household size and Number of dependents: The average household size is 4.6 members, with an average of 4 dependent members, reflecting a high dependency load and pressure on household income, food consumption, and caregiving.

3.1.5 Education level: Education remains a key vulnerability factor. Primary education is the highest reported level at 47%, while 23% have no formal education. This may limit access to written information, formal services, market negotiation, and climate/disaster preparedness messages.



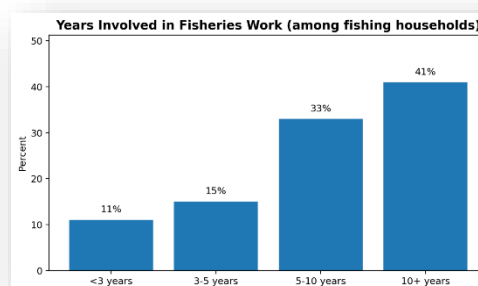
3.1.6 Primary occupation:

Fishing is the primary occupation for 91% of respondents, showing strong livelihood dependence on fisheries and high exposure to seasonal income fluctuation, fishing bans, river erosion, climate shocks, and market instability.



3.1.7 Years involved in fishing/fisheries-related work:

Among fishing households, 74% have more than five years of involvement in fisheries-related work, including 41% with more than 10 years of experience. This indicates strong occupational experience but long-term exposure to livelihood risks.

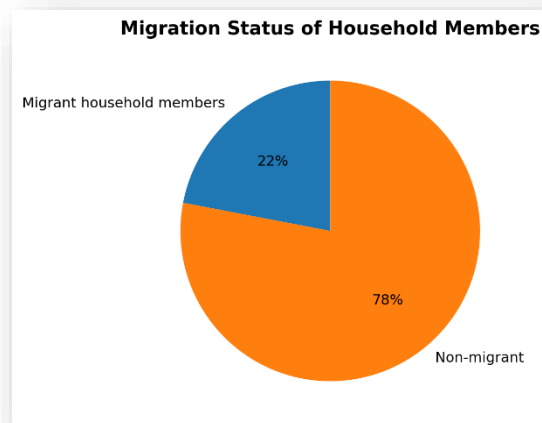


3.1.8 Household Headship Status: Household headship is an important indicator for assessing vulnerability among women fishers. National evidence shows that female-headed households are increasing in Bangladesh, with BBS-reported figures indicating about 17.4% of households were female-headed in 2022. For women fisher households, female headship may be linked with widowhood, abandonment, separation, male migration, river erosion, income insecurity and disaster-related livelihood stress.

Household Headship Status	Estimated Share (%)
Male-headed household	82
Female-headed: widow-headed	10
Female-headed: divorced / separated / abandoned	5
Female-headed: husband migrated / other reasons	3
Total	100

The estimated distribution suggests that most women fisher households remain male-headed, but a notable proportion are female-headed. Widow-headed, separated or abandoned women are more likely to face higher vulnerability because of limited income control, weak access to productive assets, lower social protection coverage and greater care responsibilities. Female-headed fisher households should therefore be prioritized in livelihood recovery, safety-net linkage, financial inclusion and disaster preparedness support.

3.1.9 Migration status of household members: Around 22% of households reported migration, mostly linked with riverbank collapse/river erosion and settlement near riverbanks. This reflects a connection between environmental displacement and women fishers' vulnerability.



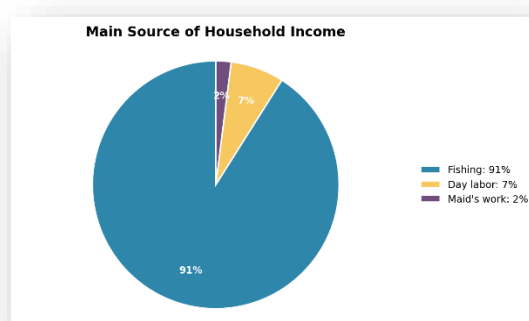
3.2. Livelihood and Income Vulnerability

Key statistical summary

Indicator	Main finding
Primary income source	Fishing: 91%
Low monthly fisheries income	Below BDT 7,500: 54%
Alternative livelihood access	No access: 88%
Productive asset ownership	Moneylender-dependent: 74%
Savings capacity	No savings capacity: 89%
Household debt	In debt: 63%
Coping capacity during income shock	No coping strategy: 87%

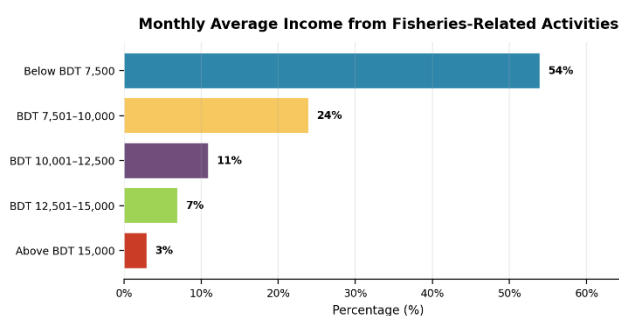
3.2.1 Main Source of Household Income

Fishing is the dominant source of household income, reported by 91% of households. Only 7% depend on day labor and 2% on maid's work, indicating very high livelihood concentration around fishing.



3.2.2 Monthly Average Income from Fisheries-Related Activities

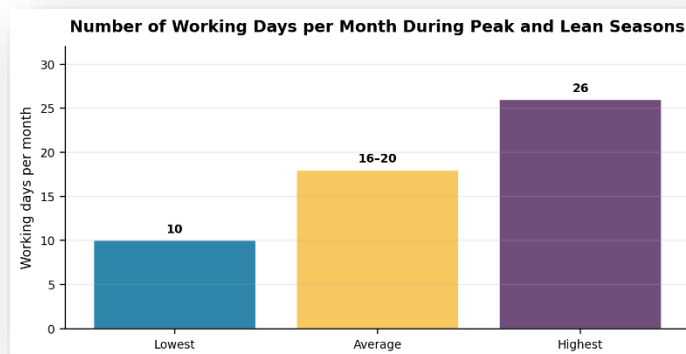
More than half of the households earn below BDT 7,500 per month from fisheries-related activities. Only 3% earn above BDT 15,000, showing that income from fisheries is generally low and concentrated in the lower income brackets.



3.2.3 Number of Working Days per Month During Peak and Lean Seasons

Households reported an average of 16–20 working days per month. The lowest reported working days were 10 days and the highest 26 days, reflecting seasonal variation and irregular employment opportunities in fisheries-related livelihoods.

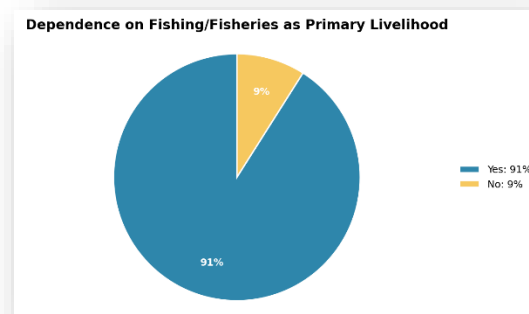
Note: Average bar uses 18 days as the midpoint of the reported 16–20 day range.



Working day indicator	Days per month
Lowest working days	10 days
Average working days	16–20 days
Highest working days	26 days

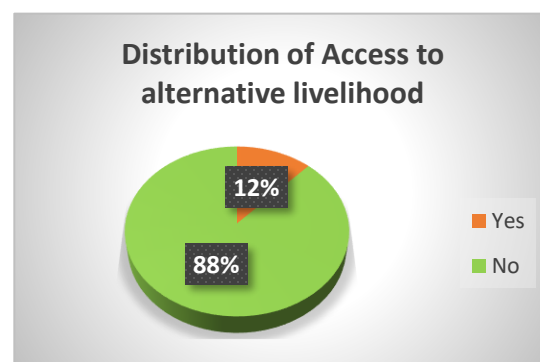
3.2.4 Dependence on Fishing/Fisheries as Primary Livelihood

A large majority of households, 91%, depend on fishing or fisheries as their primary livelihood. This creates vulnerability to seasonal shocks, market fluctuation, natural hazards, and fishing restrictions.



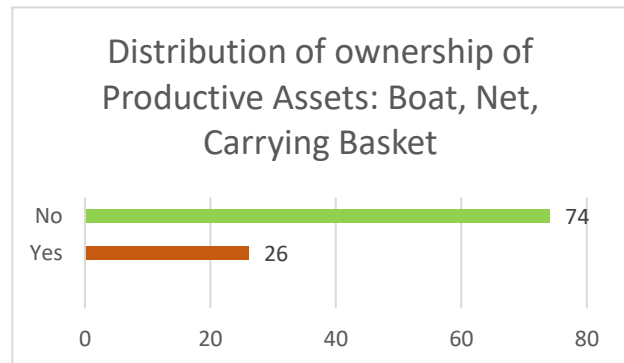
3.2.5 Access to Alternative Livelihood Options

Only 12% of households have access to alternative livelihood options, while 88% do not. This indicates limited income diversification and strong dependence on a single livelihood source.



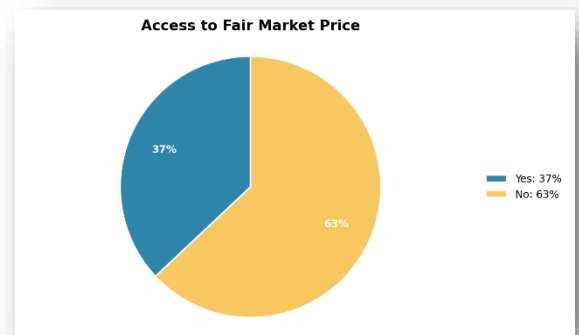
3.2.6 Ownership of Productive Assets: Boat, Net, Carrying Basket

Only 26% of households own productive assets such as boats, nets, or carrying baskets. Around 74% depend on moneylenders, indicating asset dependency and possible exploitative livelihood relationships.



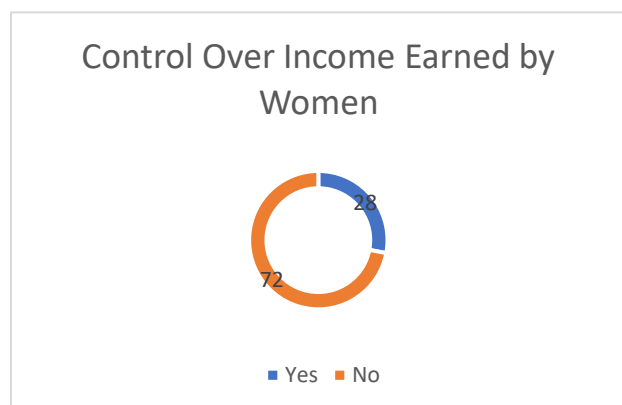
3.2.7 Access to Fair Market Price

Only 37% of households reported receiving a fair market price, while 63% do not. This suggests that most households face market disadvantages, possibly due to dependency on traders, middlemen, or moneylenders.



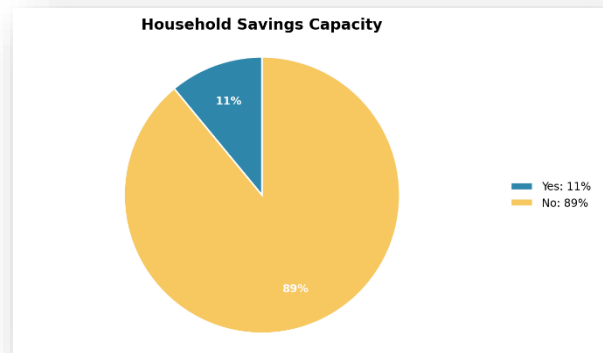
3.2.8 Control Over Income Earned by Women

Only 28% of women have control over the income they earn, while 72% do not. This indicates limited economic decision-making power among women at the household level.



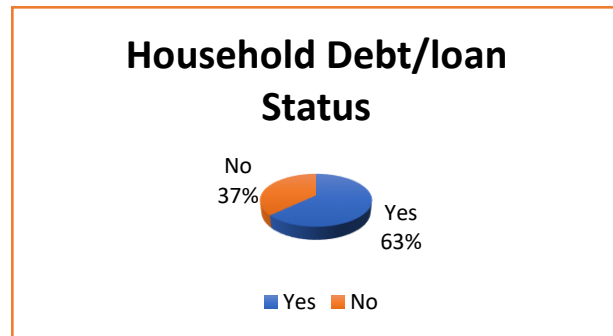
3.2.9 Household Savings Capacity

Only 11% of households have savings capacity, while 89% do not. This reflects low income, high expenditure pressure, and weak financial resilience.



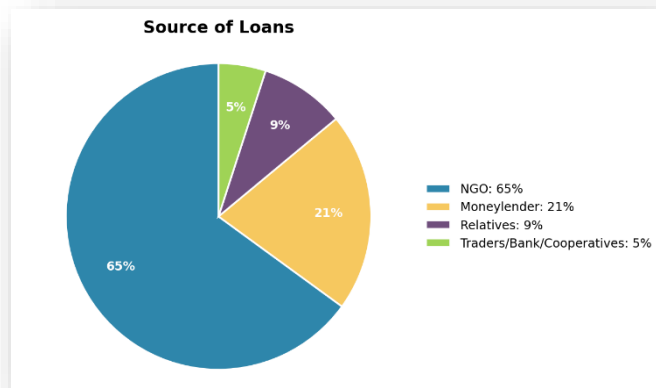
3.2.10. Household Debt/loan Status

About 63% of households are in debt, while 37% reported having no debt. The high debt level indicates financial stress and dependency on external borrowing.



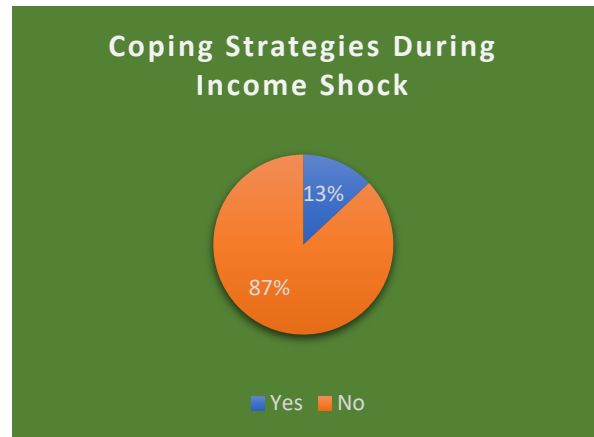
3.2.11. Source of Loans

Among indebted households, NGOs are the major source of loans, accounting for 65%. Moneylenders represent 21%, relatives 9%, and traders, banks, or cooperatives together account for 5%, showing limited formal banking access.



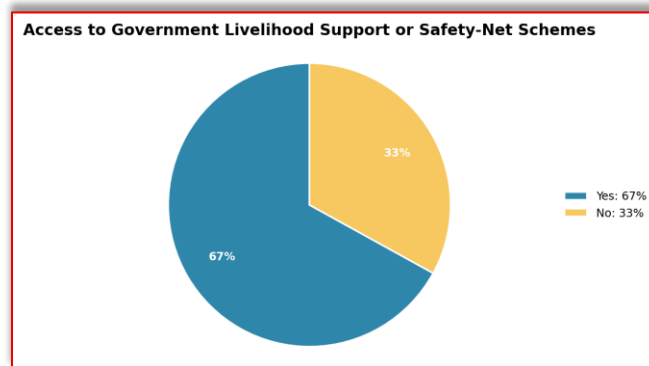
3.2.12. Coping Strategies During Income Shock

Only 13% of households reported having coping strategies during income shock, while 87% do not. This indicates weak household resilience during crisis periods such as lean season, illness, disaster, or sudden income loss.



3.2.13. Access to Government Livelihood Support or Safety-Net Schemes

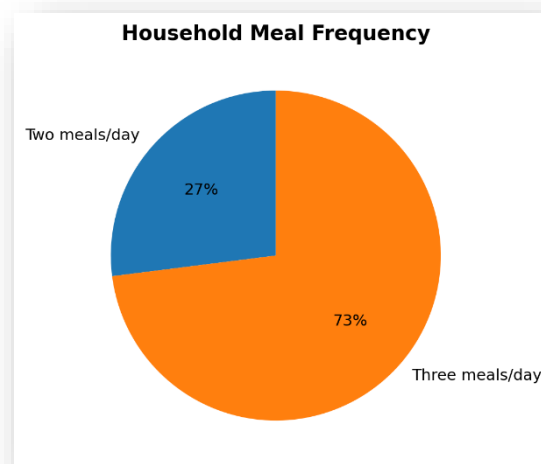
Around 67% of households have access to government livelihood support or safety-net schemes, while 33% do not. Although access is comparatively better than other indicators, one-third of households remain excluded.



3.3 Food Security, Nutrition and health including WASH (Water, Sanitation and Hygiene)

3.3.1 Status of Meal frequency of the Households:

Number of meals consumed per day (Meal Frequency) : Meal frequency data show that 27% of households consume only two meals per day, indicating possible food access stress despite being linked with fish-based livelihoods



3.3.2 Minimum Dietary Diversity among Women (Aged 15–49 years)

Name of Group	Items name
Group 1	Grains, white roots and tubers, and plantains – e.g., rice, wheat, maize, potatoes, cassava, yams.
Group 2	Pulses (beans, peas, lentils) – e.g., red lentils, chickpeas, kidney beans.
Group 3	Nuts and seeds – e.g., peanuts, almonds, sunflower seeds.
Group 4	Dairy – e.g., milk, yogurt, cheese.
Group 5	Meat, poultry, and fish – e.g., beef, chicken, goat, fish.
Group 6	Eggs – e.g., chicken eggs, duck eggs.
Group 7	Dark green leafy vegetables – e.g., spinach, kale, amaranth leaves.
Group 8	Other vitamin A-rich fruits and vegetables – e.g., carrots, pumpkin, mango, papaya.
Group 9	Other vegetables – e.g., cabbage, cucumber, tomatoes, onions.
Group 10	Other fruits – e.g., bananas, guava, berries, oranges.

Only **12% of women (12 out of 100)** in the surveyed area met this minimum dietary diversity, indicating a very low level of dietary diversity locally, whereas- Nationally, 45% of women consumed at least 5 out of the 10 defined food groups in the previous 24 hours (BBS 2025).

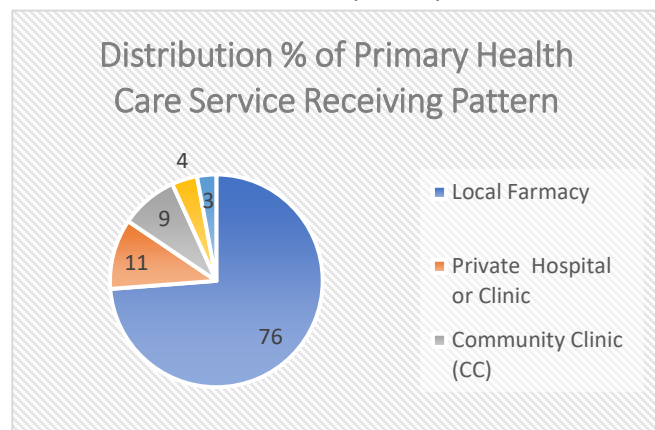
Addressing the Gap were observed - Limited access to diverse foods leads to inadequate intake of essential vitamins and minerals; Low dietary diversity reflects broader challenges in household food availability, affordability, and accessibility; Behavioral & Knowledge Gap: Potential lack of awareness regarding the importance of diverse diets during pregnancy and lactation.

The stark disparity between the national average (45%) and local dietary diversity (12%) highlights a critical nutritional emergency, emphasizing the urgent need for targeted maternal nutrition interventions, behavior change campaigns, and enhanced food access programs in the surveyed area.



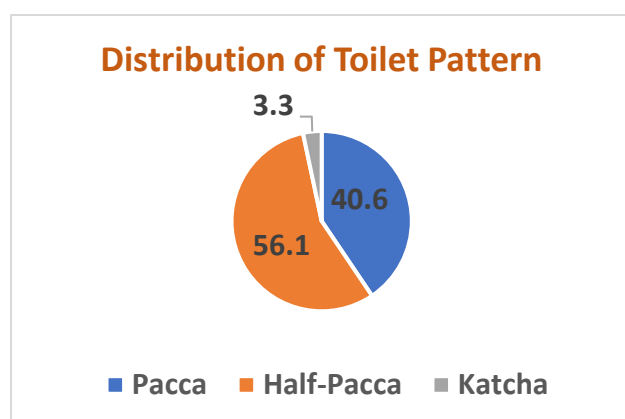
3.3.3 Primary Health Care Service Receiving Pattern during their serious illness

The findings show that Local Pharmacy is by far the most common source of primary health care service during serious illness, with 76% of respondents relying on it. In contrast, only a small proportion seek care from Private Hospitals or Clinics (11%), Community Clinics (9%), Union Health & Family Health Care facilities (4%), and Government Hospitals (3%). This suggests that households strongly depend on nearby pharmacies, possibly due to easier access, lower cost, and quicker service compared to formal health facilities.



The pattern also indicates limited utilization of public and formal health institutions during serious illness. This may reflect barriers such as distance, cost, lack of awareness, or perceived poor service quality in government and community-based facilities. Strengthening access to affordable and quality formal health care services could help reduce overdependence on local pharmacies and improve treatment outcomes.

3.3.4 Types of the Toilet



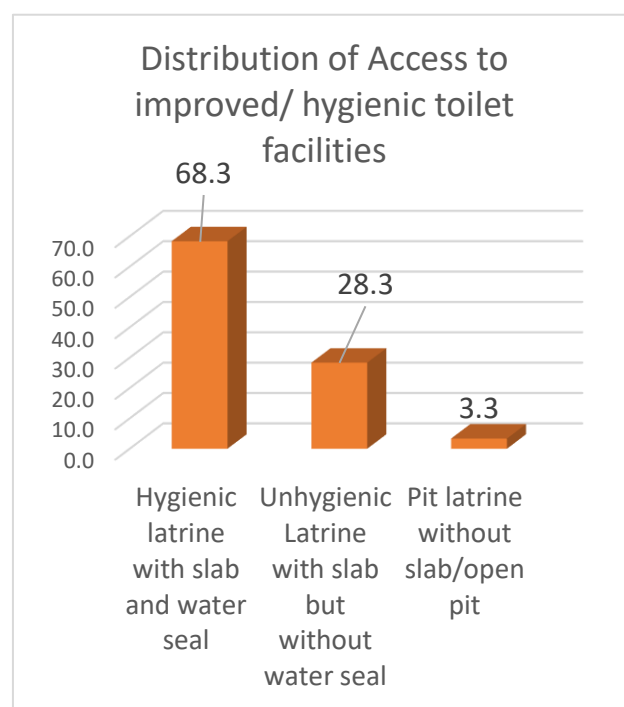
Out of 100 households (HHs), the distribution of toilet types indicates that the majority use semi-improved sanitation facilities. Half-pacca toilets account for 56.1% (n=57) of households, representing the most common sanitation structure in the survey area. Pacca toilets are used by 40.6% (n=40) of households, suggesting that a substantial proportion have access to more durable and comparatively improved sanitation facilities. In contrast, only 3.3% (n=3) of households rely on

katcha toilets, which typically reflect more fragile and less hygienic conditions.

3.3.5 Access to Improved/Hygienic Toilet Facilities

According to national estimates from BBS & HIES 2022, approximately 92.3% of households in Bangladesh have access to improved toilets. In comparison, findings from the present survey of 100 households indicate a substantially lower level of improved sanitation coverage.

Survey results show that 68% (n=68) of households use a hygienic latrine with slab and water seal, which meets the standard definition of an improved sanitation facility. However, 28% (n=28) households use latrines with slab but without a water seal, which are considered unhygienic due to higher contamination and vector exposure risk. Additionally, 3% (n=3) households rely on pit latrines without slab/open pits, representing the most vulnerable sanitation condition. No households reported open defecation.



In terms of structural type, most toilets are semi-pacca (56%, n=56) and pacca (40%, n=40); however, structural permanence does not fully correspond to hygienic status. Although 68 facilities are hygienic, a notable proportion of structurally developed toilets remain functionally unimproved, as 28 households (28%) still lack a water seal, and 3 households (3%) use unimproved pit systems.



Overall, the survey area lags behind the national benchmark (68.3% vs 92.3% improved sanitation), highlighting a significant coverage gap and the need for targeted upgrading of existing slab latrines to water-sealed hygienic systems, alongside behavior change and technical support interventions.

3.3.6 Knowledge and Practice of five critical moment of Handwashing:

Indicator	National Data	Survey Data
Knowledge on five critical moments for handwashing with soap	86%	26%
Caregivers/adults who wash hands at all five critical times	70–80%	23%

The survey findings reveal a substantial gap between national benchmarks and local-level knowledge and practice regarding the five critical moments for handwashing with soap. National data indicate that 86% of respondents have knowledge of the five critical handwashing moments, whereas the present survey shows that only 26% of respondents possess this comprehensive knowledge. This represents a major knowledge deficit of about 60 percentage points compared to the national level.

A similar pattern is observed in reported behavior. Nationally, an estimated 70–80% of caregivers/adults practice handwashing with soap at all five critical times, while in the surveyed population only 23% reported adhering to all five moments. This suggests that correct and consistent handwashing practice is markedly limited in the study area.

Disaggregated responses indicate that most participants are aware of — and more likely to practice — handwashing after defecation and before eating, as well as after child defecation management. However, awareness and practice are much lower for other critical times, such as before food preparation and before feeding children.

Overall, the findings highlight a significant behavior and knowledge gap relative to national standards, underscoring the need for targeted hygiene promotion, behavior change communication, and practical demonstrations focused on all five critical handwashing moments.

3.3.7 Availability of Handwashing Facilities Including Fresh Water and Soap at Household Level

The survey findings indicate that 38% of households have a functional handwashing facility with both fresh water and soap available at the household level. This suggests that while a majority maintain minimum enabling conditions for proper hand hygiene, a considerable proportion (62%) still lack adequate handwashing arrangements.

According to internationally monitored national estimates (e.g., WHO/UNICEF JMP and BBS-linked sources), the proportion of the population living in households with a basic handwashing facility that includes both soap and water on the premises in Bangladesh has been reported at approximately 58.4% as of 2020.

Availability of handwashing facilities is more commonly observed among moderate and better-off households, particularly those with sanitary latrines, indicating a positive association between overall sanitation status and handwashing infrastructure. In contrast, poorer households are disproportionately lacking dedicated handwashing facilities, and many reported being unable to wash hands properly during emergency or critical moments due to absence of soap, water, or a fixed washing station.

This inequity in access highlights a hygiene vulnerability among low-income households and suggests the need for targeted WASH interventions, including low-cost handwashing stations, soap support, and behavior change communication to ensure equitable access to essential hygiene facilities.

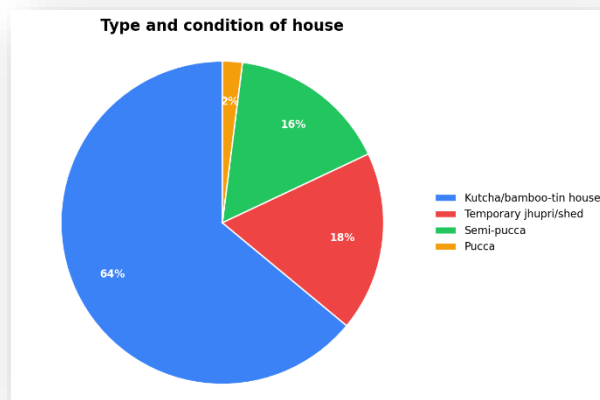
3.4. Climate Change and Disaster Vulnerability

Overall findings at a glance

Key result	Estimated value	Interpretation
Fragile/temporary housing	82%	Very high housing vulnerability
Households exposed to flood	88%	Flood is the dominant recurring hazard
Households exposed to river erosion	76%	High risk of displacement and land/asset loss
Households losing more than 40% income during disasters	52%	Severe income shock
Average estimated workdays lost	19 days	Major monthly income disruption
Households always receiving early warning	23%	Reliable warning access is weak
Households able to fully act on warning	18%	Preparedness-to-action gap is high
Households with easy shelter access	22%	Shelter access is limited
Households without preparedness plan	73%	Very weak household preparedness
Households with cash savings available	12%	Low emergency resilience
Households reporting no adaptive livelihood practice	53%	Low adaptation investment
Women with no participation in committees	57%	Gender inclusion gap

3.4.1 Type and condition of house

Statistical analysis: The housing profile shows very weak structural resilience. About 82% of households live in kutcha or temporary houses, while only 2% live in pucca houses. This indicates that most families are physically exposed to wind, floodwater, erosion, and repeated repair costs after disaster events.



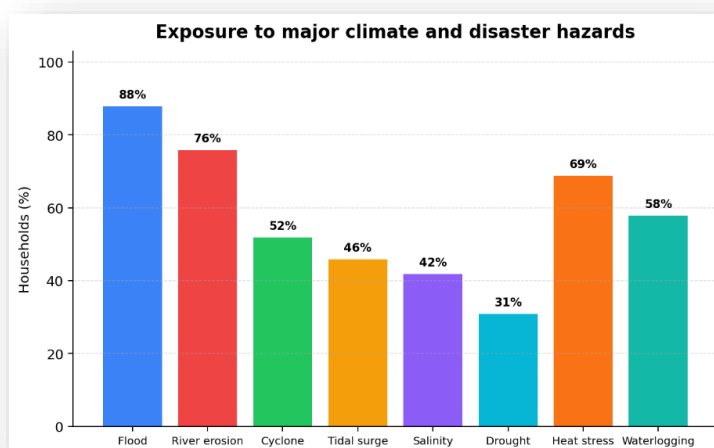
Data used for the chart

Category / response	Number (n=100)	%
Kutcha/bamboo-tin house	64	64%
Temporary jhupri/shed	18	18%
Semi-pucca	16	16%
Pucca	2	2%

Chart: Figure 1. Type and condition of house among vulnerable riverbank fishing households.

3.4.2 Exposure to major climate and disaster hazards

Statistical analysis: Hazard exposure is multi-dimensional. Flood is the most common shock, affecting 88% of households, followed by river erosion (76%), heat stress (69%) and waterlogging (58%). Since households reported multiple hazards, the average exposure is 4.6 hazards per household, confirming that vulnerability is cumulative rather than caused by a single event.



Data used for the chart

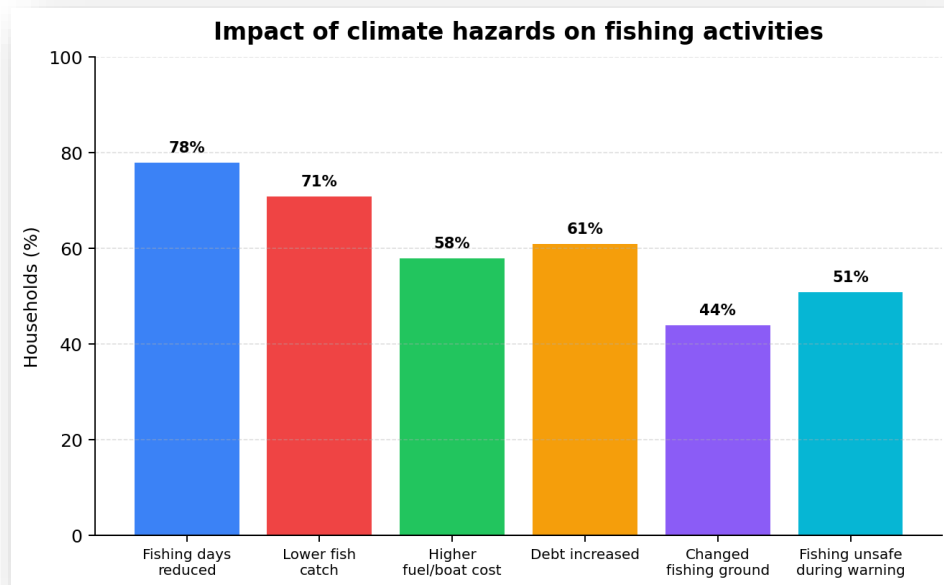
Category / response	Number (n=100)	%
Flood	88	88%
River erosion	76	76%
Cyclone	52	52%
Tidal surge	46	46%
Salinity	42	42%
Drought	31	31%
Heat stress	69	69%
Waterlogging	58	58%

3.4.3 Impact of climate hazards on fishing activities

Statistical analysis: Climate hazards directly disrupt fishing livelihoods. Around 78% of households reported reduced fishing days and 71% reported lower catch during or after hazard events. Higher operating costs and increased debt further reduce net income, meaning that even when fishing continues, profitability declines.

Data used for the chart

<i>Category / response</i>	Number (n=100)	%
<i>Fishing days reduced</i>	78	78%
<i>Lower fish catch</i>	71	71%
<i>Higher fuel/boat cost</i>	58	58%
<i>Debt increased</i>	61	61%
<i>Changed fishing ground</i>	44	44%
<i>Fishing unsafe during warning</i>	51	51%



3.4.4 Loss of income due to disaster events

Statistical analysis: Disaster events create serious income shock. An estimated 95% of households experienced some income loss, while 52% lost more than 40% of their monthly income during disaster periods. The estimated mean income loss is about 40%, which is very high for households already dependent on daily fishing income.

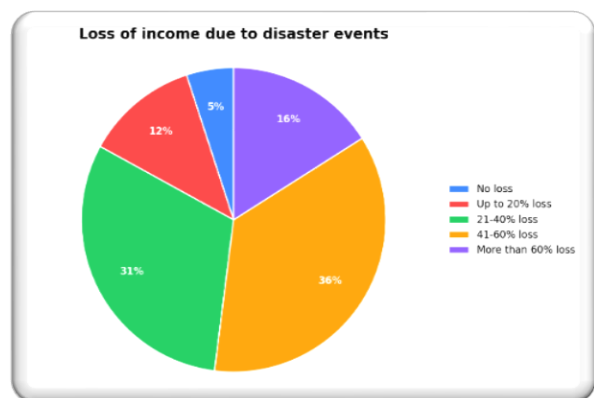


Figure 4. Estimated level of household income loss during disaster events.

Data used for the chart

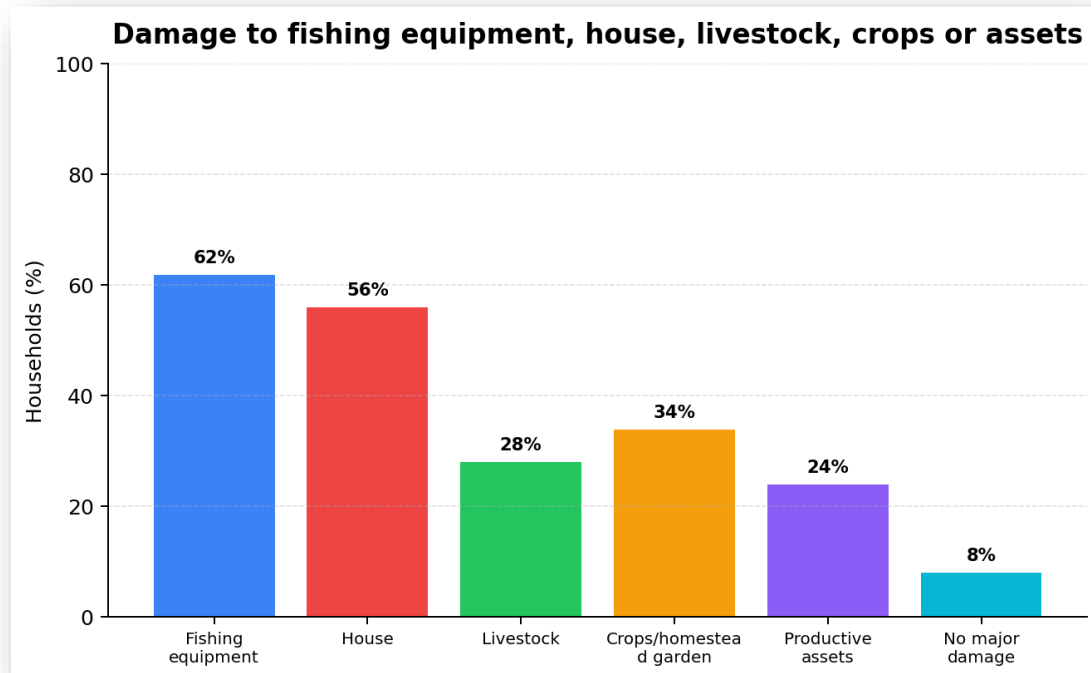
Category / response	Number (n=100)	%
No loss	5	5%
Up to 20% loss	12	12%
21-40% loss	31	31%
41-60% loss	36	36%
More than 60% loss	16	16%

3. 4.5 Damage to fishing equipment, house, livestock, crops or assets

Statistical analysis: Physical asset loss is concentrated in fishing equipment and housing. About 62% of households reported damage to nets, boats, traps or related fishing equipment, while 56% faced house damage. Only 8% reported no major damage, confirming that post-disaster recovery needs are asset-heavy.

Data used for the chart

Category / response	Number (n=100)	%
Fishing equipment	62	62%
House	56	56%
Livestock	28	28%
Crops/homestead garden	34	34%
Productive assets	24	24%
No major damage	8	8%

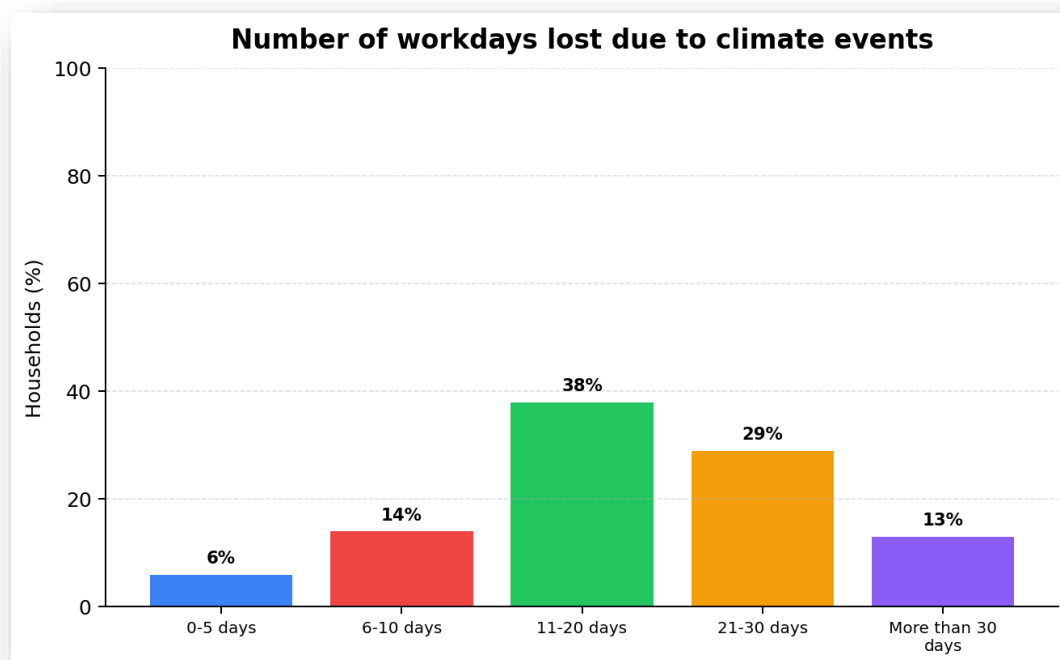


3.4.6 Number of workdays lost due to climate events

Statistical analysis: Lost workdays are a key pathway from climate shock to poverty. Around 80% of households lost more than 10 working days during climate events. Using category mid-points, the estimated average workdays lost is about 19 days, which can remove nearly two-thirds of monthly earning opportunities for a daily-income fisher household.

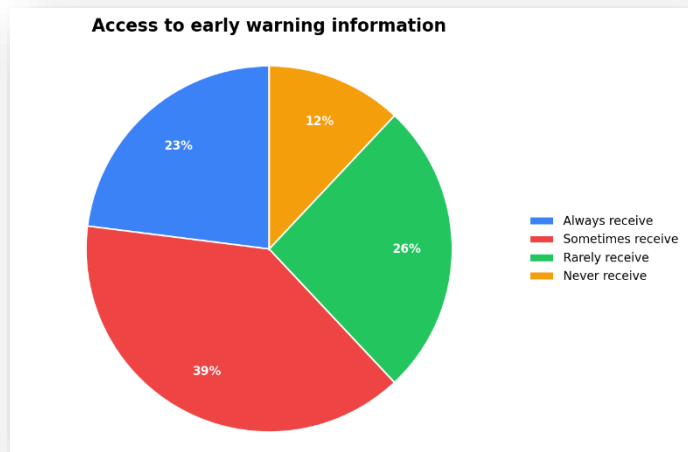
Data used for the chart

Category / response	Number (n=100)	%
0-5 days	6	6%
6-10 days	14	14%
11-20 days	38	38%
21-30 days	29	29%
More than 30 days	13	13%



3.4.7 Access to early warning information

Statistical analysis: Early warning coverage exists but is not reliable. Only 23% of households always receive early warning information, while 38% rarely or never receive it. This is below the expected national preparedness capacity and indicates that last-mile communication remains weak for mobile and riverbank communities.



Data used for the chart

Category / response	Number (n=100)	%
Always receive	23	23%
Sometimes receive	39	39%
Rarely receive	26	26%
Never receive	12	12%

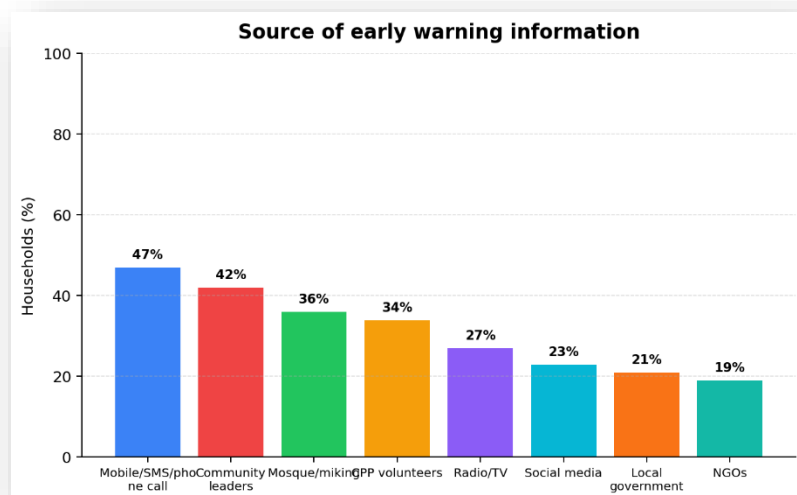
3.4.8 Source of early warning information

Statistical analysis: The warning chain depends on informal and mixed channels. Mobile phones are the most common source (47%), followed by community leaders (42%) and mosque/miking (36%). CPP and formal local government channels are present but not dominant, suggesting the need for stronger integration of official warning messages with trusted community channels.

Data used for the chart

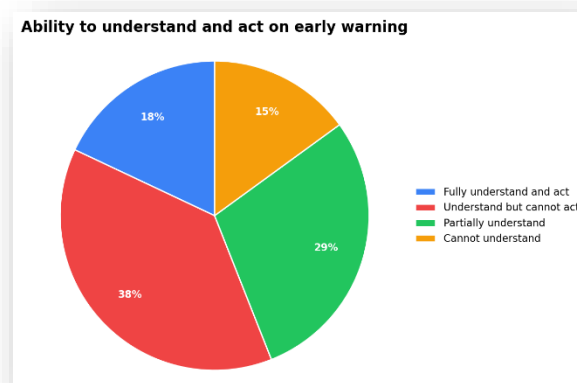
Category / response	Number (n=100)	%
Mobile/SMS/phone call	47	47%
Community leaders	42	42%
Mosque/miking	36	36%
CPP volunteers	34	34%
Radio/TV	27	27%

Social media	23	23%
Local government	21	21%
NGOs	19	19%



3.4.9 Ability to understand and act on early warning

Statistical analysis: Receiving a warning does not automatically translate into action. Only 18% can fully understand and act on warning messages. A major 38% understand the message but cannot act because of distance, cost, livestock/assets, boat safety concerns, or fear of theft at home.

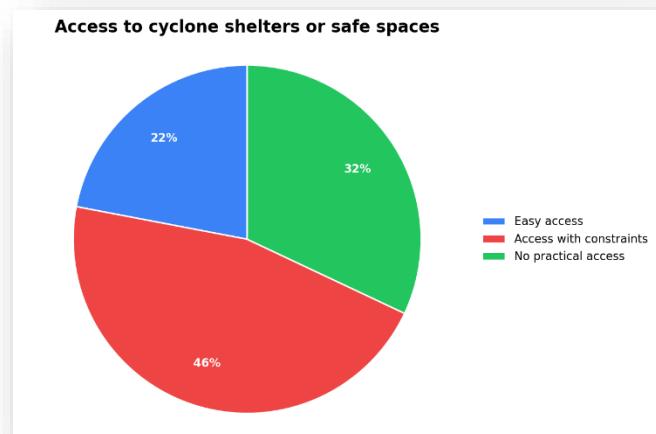


Data used for the chart

Category / response	Number (n=100)	%
Fully understand and act	18	18%
Understand but cannot act	38	38%
Partially understand	29	29%
Cannot understand	15	15%

3.4.10 Access to cyclone shelters or safe spaces

Statistical analysis: Only 22% of households have easy access to a cyclone shelter or safe space. Nearly one-third have no practical access, while 46% can access shelters only with constraints such as distance, transport cost, disability, lack of space, fear of losing assets, or poor facilities for women and children.

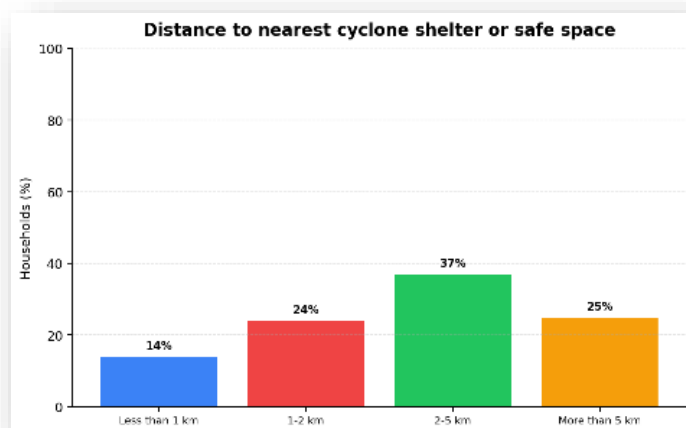


Data used for the chart

<i>Category / response</i>	<i>Number (n=100)</i>	<i>%</i>
<i>Easy access</i>	22	22%
<i>Access with constraints</i>	46	46%
<i>No practical access</i>	32	32%

3.4.11 Distance to nearest cyclone shelter or safe space

Statistical analysis: Distance is a major barrier to evacuation. Around 62% of households live more than 2 km from the nearest shelter or safe space, and 25% live more than 5 km away. The estimated average distance is 3.2 km, which is difficult during heavy rain, high tide, night-time warnings, or when households must move children, elderly people, livestock and belongings.



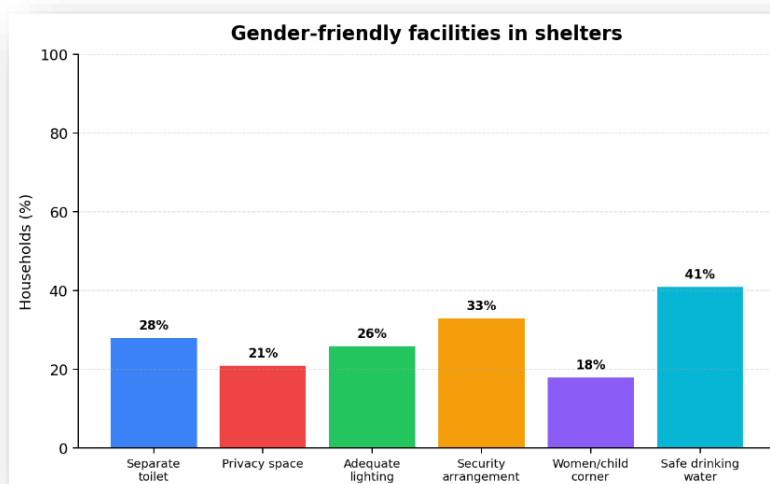
Data used for the chart

Category / response	Number (n=100)	%
Less than 1 km	14	14%
1-2 km	24	24%
2-5 km	37	37%
More than 5 km	25	25%

3.4.12 Gender-friendly facilities in shelters

Statistical analysis:

Gender-friendly shelter facilities are inadequate. Safe drinking water is available for 41% of households, but privacy space and women/child corners are reported by only 21% and 18% respectively. Poor privacy, lighting and sanitation can reduce women's willingness to evacuate early.

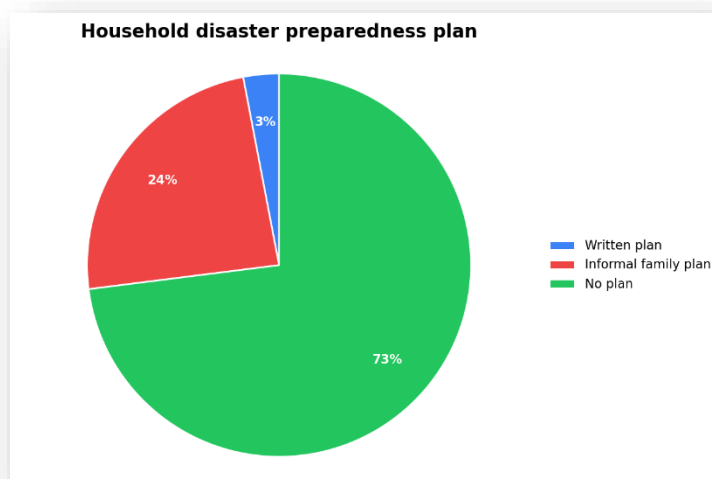


Data used for the chart

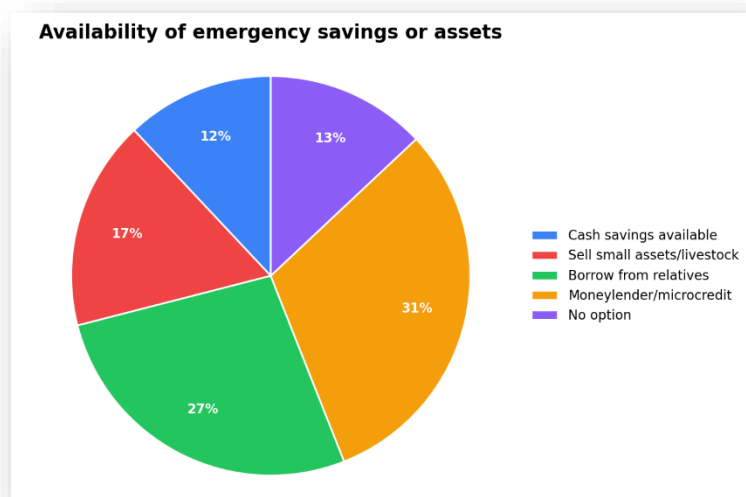
Category / response	Number (n=100)	%
Separate toilet	28	28%
Privacy space	21	21%
Adequate lighting	26	26%
Security arrangement	33	33%
Women/child corner	18	18%
Safe drinking water	41	41%

3.4.13 Household disaster preparedness plan

Statistical analysis: Preparedness planning is very weak. Only 3% have a written household disaster preparedness plan and 24% have an informal family plan. The remaining 73% have no plan, meaning evacuation, asset protection, emergency communication and food/water storage are mostly reactive.



3.4.14 Availability of emergency savings or assets



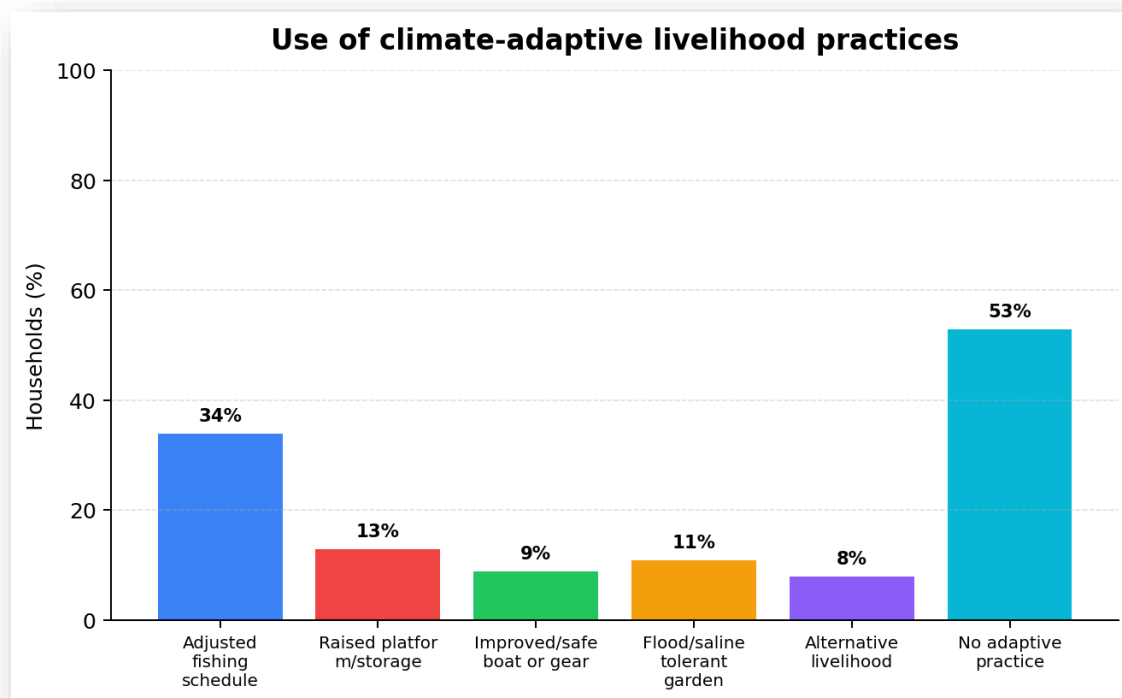
Statistical analysis: Emergency financing capacity is very low. Only 12% can use cash savings during a disaster. Most households depend on relatives, moneylenders, microcredit or distress sale of small assets, which can increase debt and reduce future livelihood recovery capacity.

3.4.15 Use of climate-adaptive livelihood practices

Statistical analysis: Adaptive practice is still limited and mostly informal. Adjusting fishing schedules is the most common practice (34%), but investment-based practices such as safe gear, raised storage, alternative livelihood and flood/saline tolerant gardening remain low. More than half report no climate-adaptive practice.

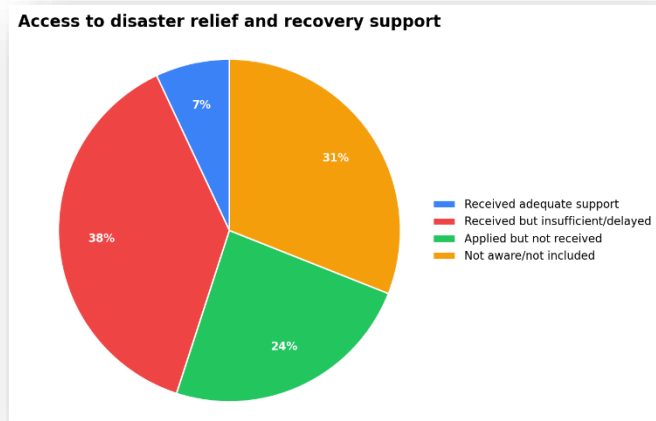
Data used for the chart

Category / response	Number (n=100)	%
Adjusted fishing schedule	34	34%
Raised platform/storage	13	13%
Improved/safe boat or gear	9	9%
Flood/saline tolerant garden	11	11%
Alternative livelihood	8	8%
No adaptive practice	53	53%



3.4.16 Access to disaster relief and recovery support

Statistical analysis: Relief and recovery support does not meet household recovery needs. Only 7% received support that they considered adequate. The majority either received insufficient/delayed support or were not reached, indicating targeting gaps and weak linkage between emergency relief and livelihood recovery.

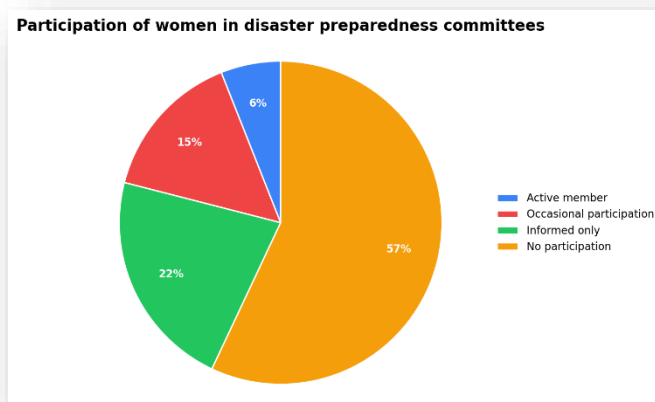


Data used for the chart

Category / response	Number (n=100)	%
Received adequate support	7	7%
Received but insufficient/delayed	38	38%
Applied but not received	24	24%
Not aware/not included	31	31%

3.4.17 Participation of women in disaster preparedness committees

Statistical analysis: Women's participation in disaster preparedness decision-making is very limited. Only 6% of households reported active participation of women in preparedness committees, while 57% reported no participation. This reduces the chance that women's safety, privacy, health, childcare, and livelihood needs are reflected in local disaster planning.

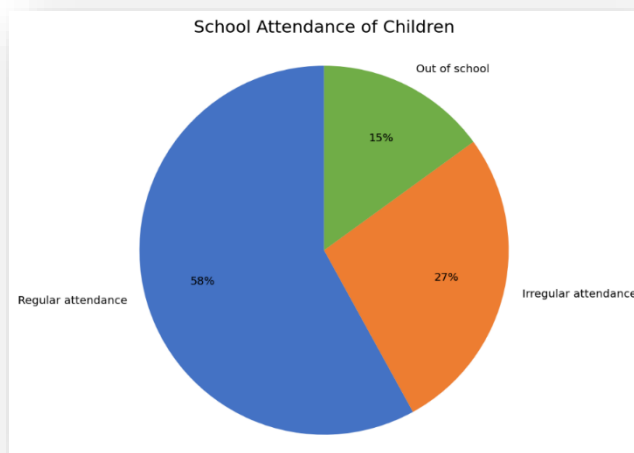


3.5. Education and Skills Development

3.5.1 School Attendance of Children

Only 58% of children attend school regularly, while 27% attend irregularly and 15% are out of school. This indicates that education continuity is fragile among vulnerable riverbank fishermen households.

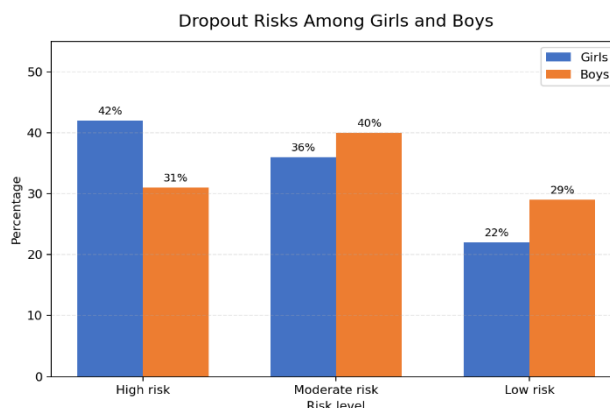
Irregular attendance and out-of-school status are mainly associated with poverty, seasonal fishing activities, household work, disaster-related disruptions, and weak access to education support.



3.5.2. Dropout Risks among Girls and Boys

Girls appear to face a higher dropout risk than boys. Around 42% of girls are at high risk of dropping out, compared to 31% of boys.

Girls are more vulnerable because of early marriage, household responsibilities, insecurity, and poverty. Boys also face dropout risks due to child labor, fishing-related work, and pressure to contribute to household income.



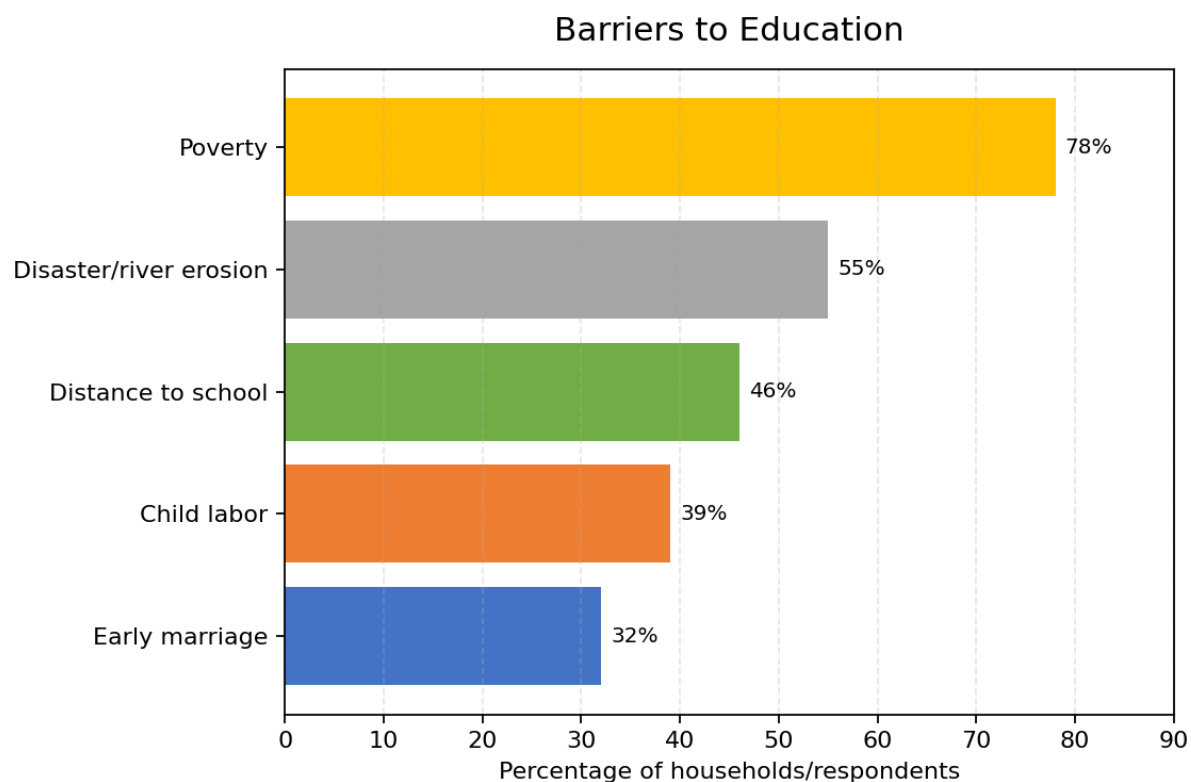
<i>Risk level</i>	Girls number	Girls %	Boys number	Boys %
<i>High risk</i>	42	42%	31	31%
<i>Moderate risk</i>	36	36%	40	40%
<i>Low risk</i>	22	22%	29	29%

3.5.3. Barriers to Education

Poverty is the most common barrier to education, reported by 78% of households. Disaster and river erosion affect 55%, showing that environmental vulnerability directly disrupts schooling.

Distance to school, child labor, and early marriage further increase the risk of irregular attendance and dropout. These barriers indicate that education support should be linked with livelihood, social protection, disaster preparedness, and girls protection interventions.

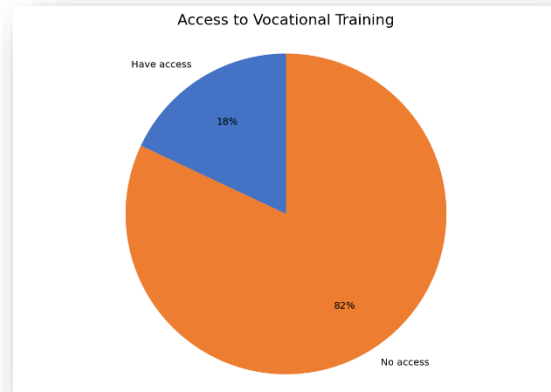
Barrier	Number	%
Poverty	78	78%
Disaster/river erosion	55	55%
Distance to school	46	46%
Child labor	39	39%
Early marriage	32	32%



3.5.4. Access to Vocational Training

Only 18% of respondents have access to vocational training, while 82% do not. This indicates a major skills development gap among vulnerable fishermen households.

Limited access to vocational training reduces the ability of households to shift toward alternative income sources during fishing bans, lean seasons, disasters, or livelihood disruptions.



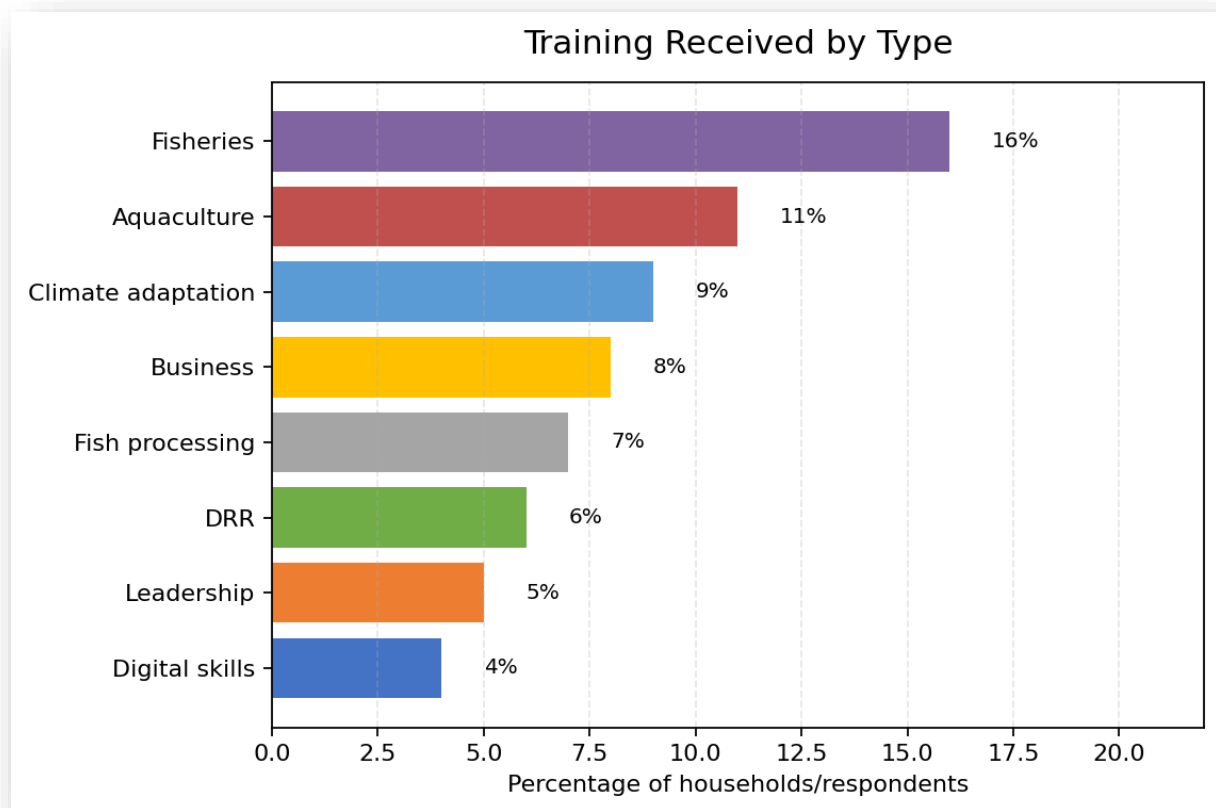
Category	Number	%
Have access	18	18%
No access	82	82%

3.5.5. Training Received by Type

Training exposure is very limited. Fisheries-related training is the most common, but only 16% received it. Aquaculture, business, fish processing, digital skills, climate adaptation, disaster risk reduction, and leadership training remain very low.

This suggests that existing training coverage is not sufficient to support diversified and climate-resilient livelihoods among the lower vulnerable riverbank fishermen community.

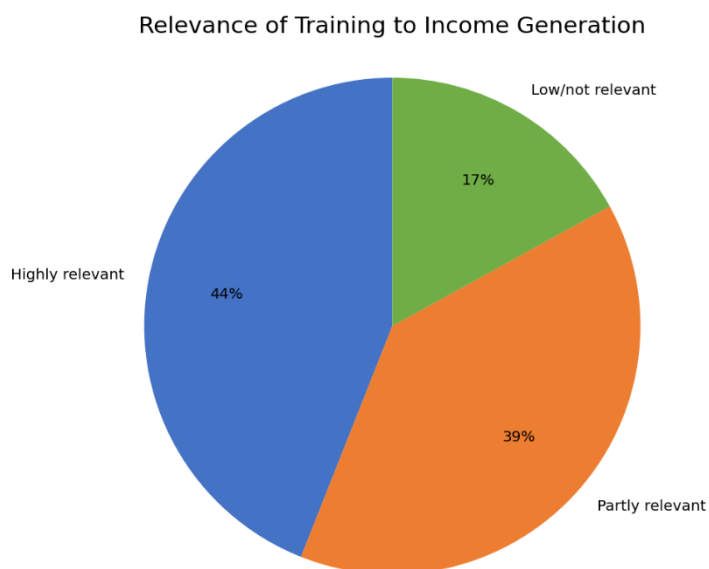
Training type	Number	%
Fisheries	16	16%
Aquaculture	11	11%
Fish processing	7	7%
Business	8	8%
Climate adaptation	9	9%
DRR	6	6%
Leadership	5	5%
Digital skills	4	4%



5.6. Relevance of Training to Income Generation

Among those who received training, 44% found it highly relevant to income generation, 39% found it partly relevant, and 17% considered it low or not relevant.

This indicates that training can contribute to income improvement, but its practical linkage with markets, inputs, finance, and follow-up support needs to be strengthened.

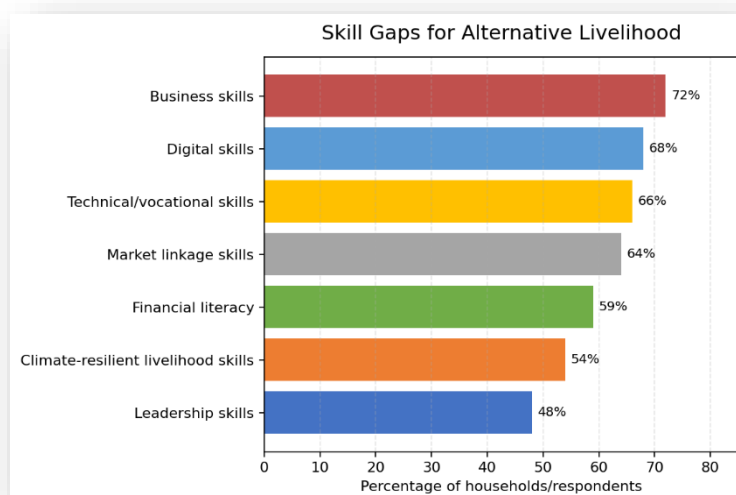


Category	Number among trained	%
Highly relevant	8	44%
Partly relevant	7	39%
Low/not relevant	3	17%

3.5.7. Skill Gaps for Alternative Livelihood

The largest skill gap is in business skills, reported by 72% of respondents. Digital skills, technical or vocational skills, market linkage, and financial literacy gaps are also high.

These gaps limit the community's capacity to engage in small business, aquaculture, fish processing, livestock rearing, trading, or other non-fishing livelihood options.

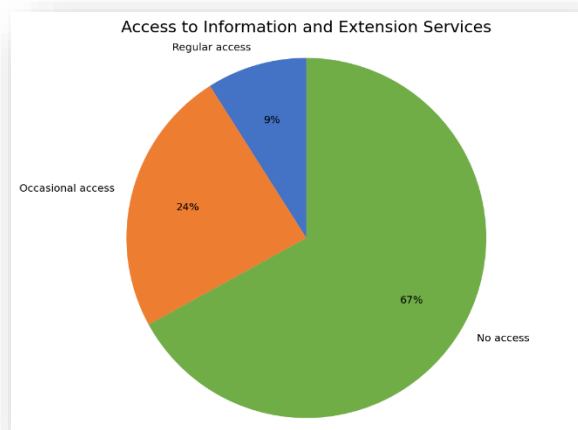


<i>Skill gap</i>	<i>Number</i>	<i>%</i>
<i>Business skills</i>	72	72%
<i>Digital skills</i>	68	68%
<i>Technical/vocational skills</i>	66	66%
<i>Market linkage skills</i>	64	64%
<i>Financial literacy</i>	59	59%
<i>Climate-resilient livelihood skills</i>	54	54%
<i>Leadership skills</i>	48	48%

3.5.8. Access to Information and Extension Services

Only 9% of respondents have regular access to information and extension services. A large majority, 67%, have no access, while 24% have only occasional access.

This shows weak connection between vulnerable fishermen households and government or non-government service providers. As a result, households may remain less informed about livelihood support, weather warnings, training, credit, market prices, and social protection services.

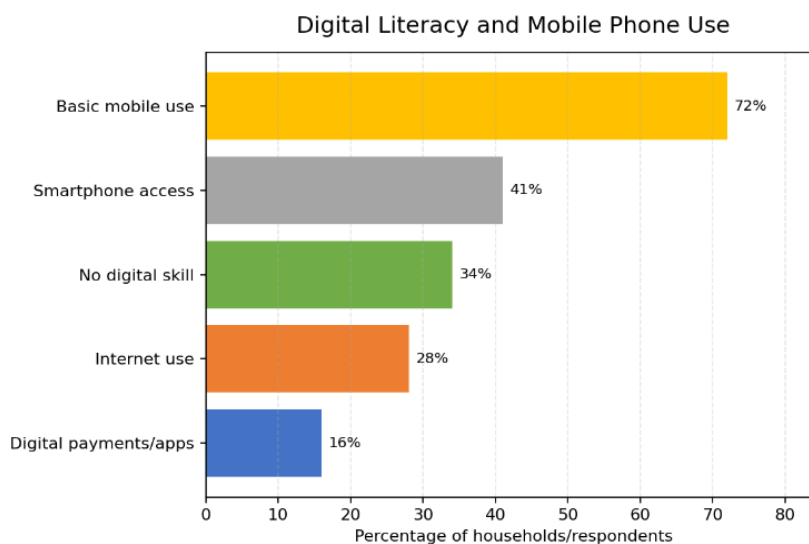


Category	Number	%
Regular access	9	9%
Occasional access	24	24%
No access	67	67%

3.5.9. Digital Literacy and Mobile Phone Use

Basic mobile phone use is relatively common, with 72% using mobile phones. However, smartphone access, internet use, and digital payment or app use remain limited.

Around 34% have no digital skills. This indicates that mobile-based communication can be useful, but digital literacy support is needed before introducing app-based or online livelihood services.



3.5.10. Women's Interest in Entrepreneurship or Small Business Development

Women's interest in entrepreneurship is promising. Around 37% showed high interest and 43% showed moderate interest in small business development.

This suggests strong potential for women-focused livelihood support, particularly in fish processing, dry fish, livestock rearing, homestead gardening, tailoring, poultry, small trading, and home-based enterprises.

Category	Number	%
High interest	37	37%
Moderate interest	43	43%
Low/no interest	20	20%

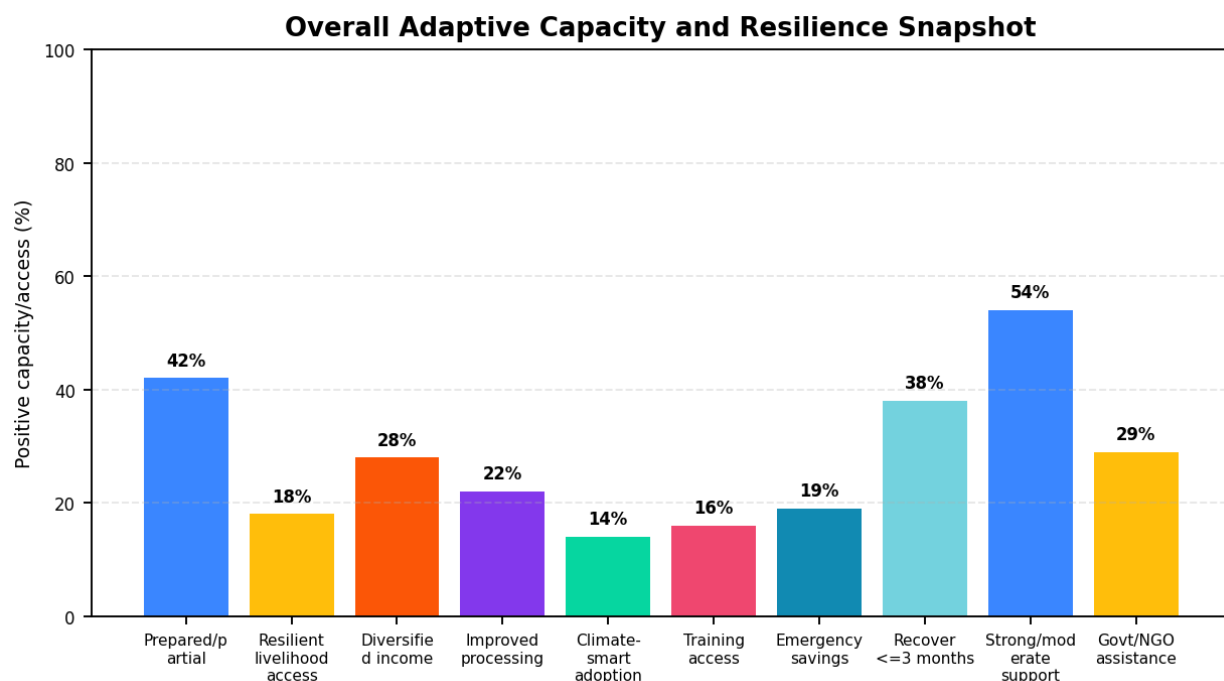
3.6. Adaptive Capacity and Resilience

Overall Findings

The composite adaptive capacity snapshot is low: the average positive capacity/access score across 10 indicators is 28.0%. This means that fewer than one-third of households have meaningful access to preparedness, adaptation training, resilient livelihoods, emergency savings, or recovery support.

The weakest areas are climate-smart agriculture/aquaculture adoption, training access, climate-resilient livelihood options, emergency savings, and improved fish processing technology. These gaps increase women fishers' dependence on informal debt and low-paid climate-sensitive work.

The strongest relative asset is social network support, but even this is moderate rather than strong because entire fishing communities are often affected at the same time during cyclones, floods, erosion, waterlogging, or salinity shocks.

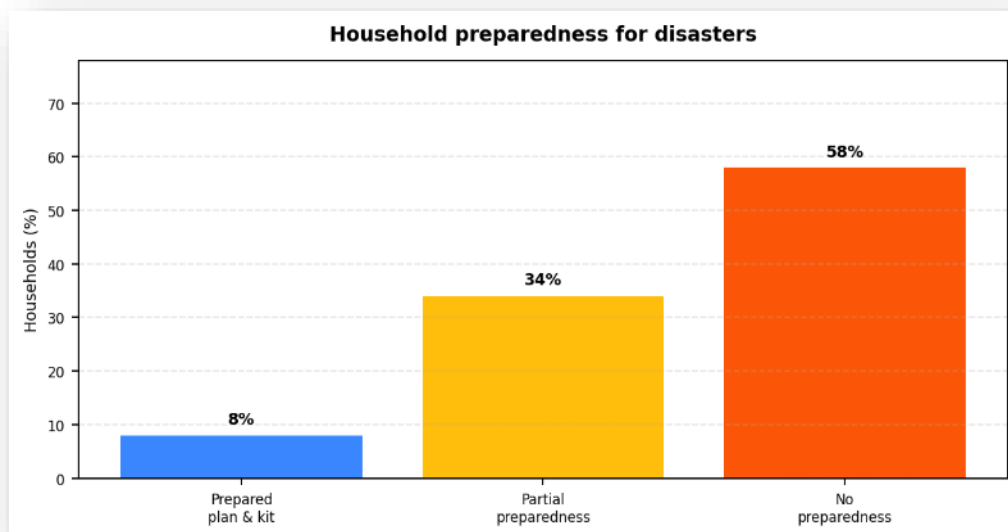


3.6.1 Household preparedness for disasters

Narrative: Only a small proportion of women fisher households have an organized preparedness plan with emergency items, safe documents, dry food, torch, medicine, and family evacuation arrangements. Most households remain unprepared because of low income, fragile housing, lack of savings, and limited awareness on pre-disaster action.

Statistical analysis: Out of 100 households, 58 have no preparedness measures and only 8 have a clear plan and emergency kit. The preparedness gap is therefore very high, indicating that disaster preparedness should be treated as a priority intervention area.

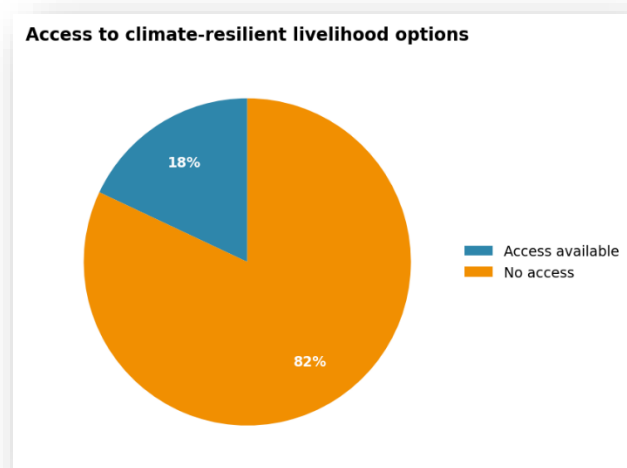
Response category	Number (n=100)	Percentage (%)
Prepared plan & kit	8	8%
Partial preparedness	34	34%
No preparedness	58	58%



3.6.2 Access to climate-resilient livelihood options

Narrative: Climate-resilient livelihood options such as small livestock, crab fattening, saline-tolerant homestead gardening, alternative petty trade, or adaptive aquaculture are limited among women fishers. Most women continue to depend on fishing-linked low-paid work and informal labor.

Statistical analysis: Only 18% of households have access to any climate-resilient livelihood option, while 82% do



not. This suggests low adaptive capacity and a high risk of income collapse during fishing bans, floods, cyclones, or river erosion events.

Response category	Number (n=100)	Percentage (%)
Access available	18	18%
No access	82	82%

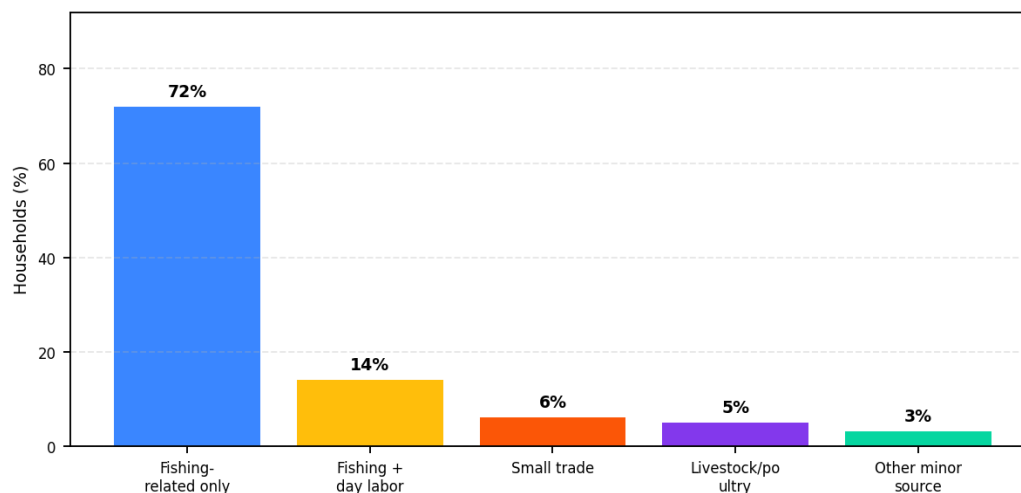
3.6.3 Diversification of income sources

Narrative: Income diversification is weak. A large majority of women fisher households depend only on fishing-related work, fish sorting, drying, net repairing, or daily wage support. Very few households have a second source of income that can continue during disaster or lean season.

Statistical analysis: About 72% of households are dependent on a single fishing-related income stream. Only 28% have any form of secondary income. This indicates high livelihood sensitivity to climate shocks and seasonal income disruption.

Response category	Number (n=100)	Percentage (%)
Fishing-related only	72	72%
Fishing + day labor	14	14%
Small trade	6	6%
Livestock/poultry	5	5%
Other minor source	3	3%

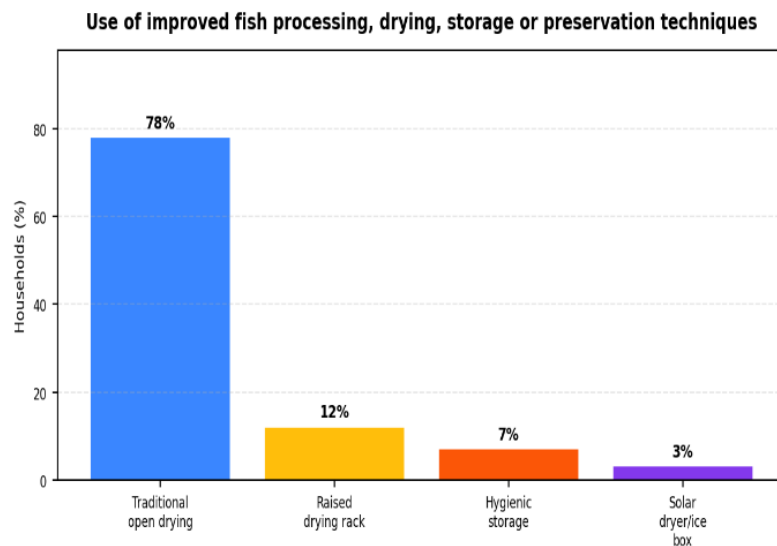
Diversification of income sources



3.6.4 Use of improved fish processing, drying, storage or preservation techniques

Narrative: Most women use traditional fish drying and preservation practices, often on open ground or low-cost materials. Limited access to drying racks, clean storage, ice boxes, solar dryers, and market linkage reduces product quality and selling price.

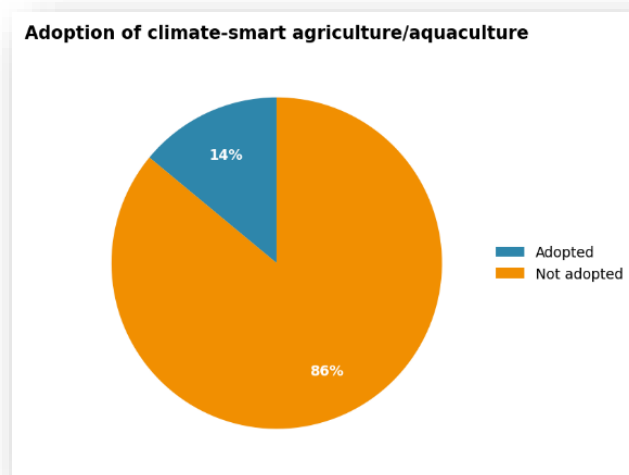
Statistical analysis: Traditional methods are used by 78% of households. Only 22% use any improved processing, drying, storage, or preservation technique. This shows a strong need for technology support and skill-based training.



Response category	Number (n=100)	Percentage (%)
Traditional open drying	78	78%
Raised drying rack	12	12%
Hygienic storage	7	7%
Solar dryer/ice box	3	3%

3.6.5 Adoption of climate-smart agriculture/aquaculture

Narrative: Adoption of climate-smart agriculture and aquaculture remains very low. Some households practice small homestead gardening, duck rearing, floating bed cultivation, or adaptive fish culture, but these are not yet common due to land scarcity, salinity, input cost, and limited technical support.



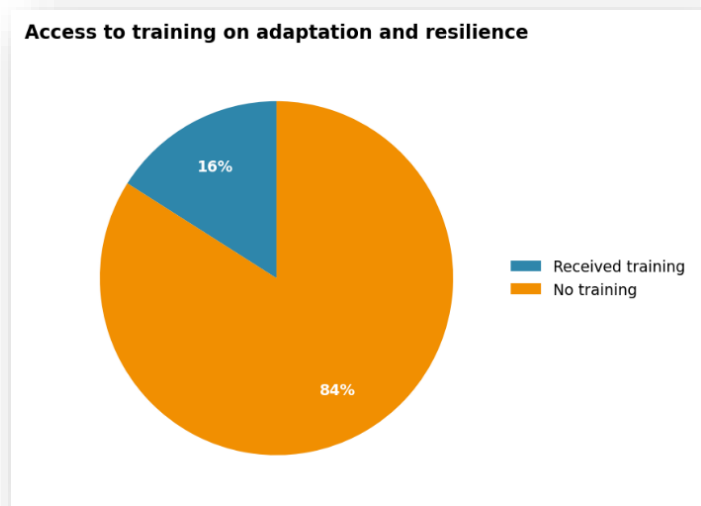
Statistical analysis: Only 14% of households have adopted climate-smart agriculture or aquaculture practices. The remaining 86% have not adopted such practices, showing a major gap in resilience-building services.

Response category	Number (n=100)	Percentage (%)
Adopted	14	14%
Not adopted	86	86%

3.6.6 Access to training on adaptation and resilience

Narrative: Training access among women fishers is limited. Most women have not received structured training on climate adaptation, disaster risk reduction, improved fish processing, savings, livelihood diversification, or post-disaster recovery planning.

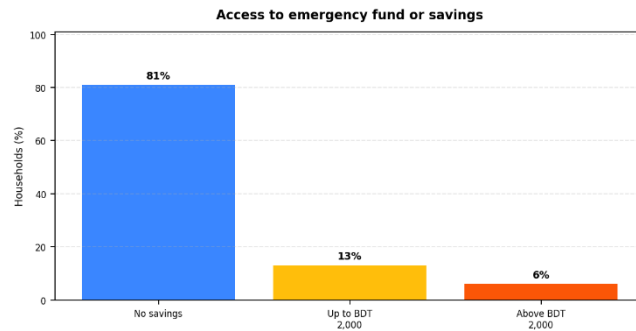
Statistical analysis: Only 16% of women or households received any adaptation or resilience-related training. The 84% training gap directly affects knowledge, preparedness, income diversification, and recovery capacity.



Response category	Number (n=100)	Percentage (%)
Received training	16	16%
No training	84	84%

3.6.7 Access to emergency fund or savings

Narrative: Emergency savings are almost absent. Women fishers usually use daily income for food, debt repayment, health costs, and children's needs. During disasters, many households depend on borrowing from relatives, shopkeepers, moneylenders, or informal advance arrangements.

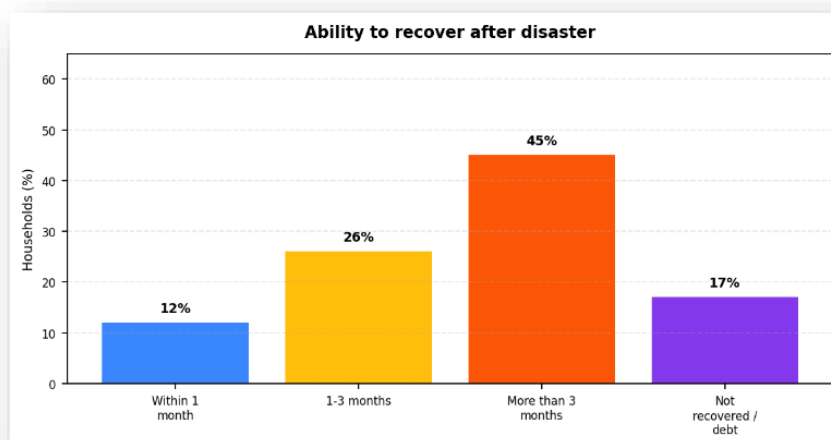


Statistical analysis: About 81% of households have no emergency savings, while only 6% have more than BDT 2,000 available. This creates high dependence on debt and external assistance after disaster events.

Response category	Number (n=100)	Percentage (%)
No savings	81	81%
Up to BDT 2,000	13	13%
Above BDT 2,000	6	6%

3.6.8 Ability to recover after disaster

Narrative: Recovery after disaster is slow because women fisher households often lose working days, nets, drying materials, stored fish, livestock, household items, and small productive assets. Many households recover only through borrowing or reducing food and essential expenditure.



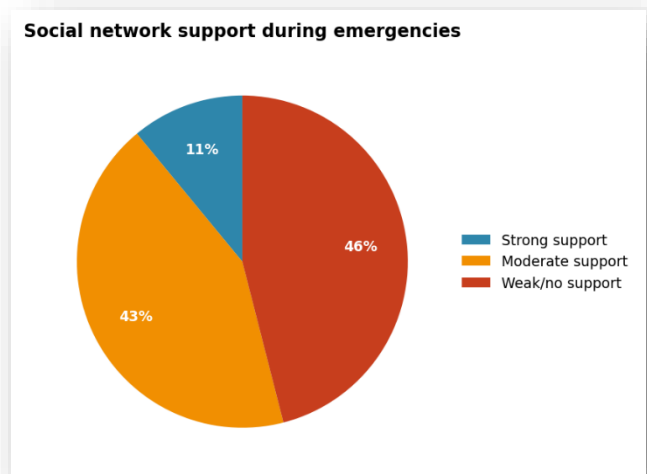
Statistical analysis: Only 38% recover within three months, while 45% need more than three months and 17% remain unrecovered or indebted. This shows that recovery capacity is weak and highly dependent on external support.

Response category	Number (n=100)	Percentage (%)
Within 1 month	12	12%
1-3 months	26	26%
More than 3 months	45	45%
Not recovered / debt	17	17%

3.6.9 Social network support during emergencies

Narrative: Informal support from relatives, neighbors, fish traders, community leaders, and local groups plays an important role during emergencies. However, support is often limited because the whole community is affected by the same disaster.

Statistical analysis: Strong support is available to only 11% of households, while 46% have weak or no support. This indicates the need to strengthen women's groups, savings groups, community preparedness committees, and local referral systems.



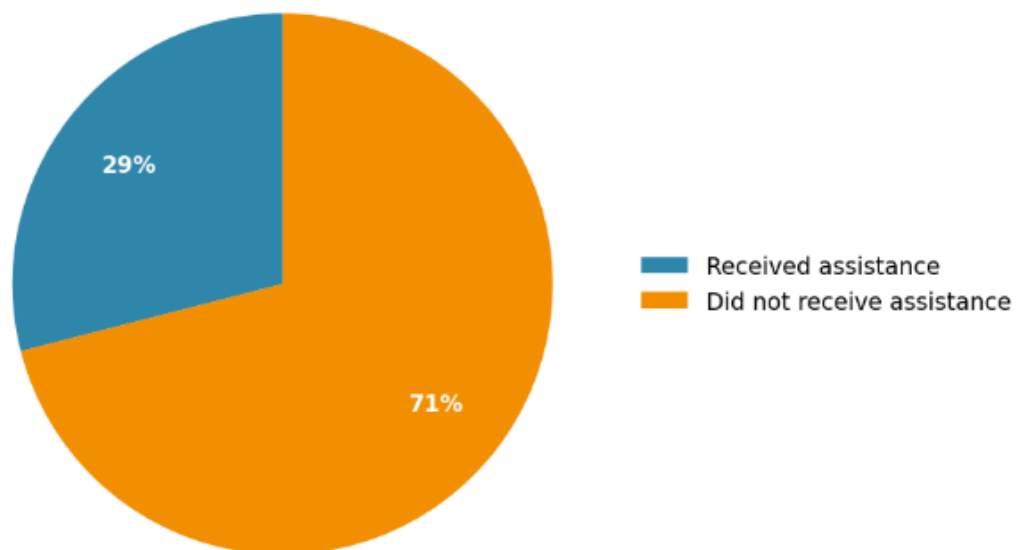
Response category	Number (n=100)	Percentage (%)
Strong support	11	11%
Moderate support	43	43%
Weak/no support	46	46%

3.6.10 Access to government/NGO recovery assistance

Narrative: Access to recovery assistance remains uneven. Some households receive relief, cash, food, livelihood inputs, or recovery support, but many women fishers are left out because of weak documentation, limited mobility, low participation in committees, and poor targeting.

Statistical analysis: Only 29% of households received government or NGO recovery assistance after disaster or livelihood shock, while 71% did not. This shows a clear gap in inclusive recovery coverage for women fisher households.

Access to government/NGO recovery assistance



3.7. Findings of Consultation Meeting

The consultation and needs assessment meeting with women fishers at Kachubunia Shamshan Ghat, Jalma, Batiaghata Upazila, Khulna revealed that women fishers are living in highly vulnerable socio-economic and environmental conditions. The discussion highlighted their strong dependence on river-based fishing, limited income opportunities, exposure to climate-induced risks, and the urgent need for sustainable alternative livelihood support.

The consultation found that most women fishers rely primarily on fishing as their main source of household income. However, this livelihood is seasonal, uncertain, and highly affected by natural disasters, adverse weather, strong river currents, and government-imposed fishing restrictions. During such periods, women are unable to go to the river for fishing, which directly affects household food security. Many families are compelled to reduce their daily meals from three times to one or two times a day, particularly during income-scarce periods.

The meeting also revealed that most of the participating families live in fragile huts along the riverbank, making them highly exposed to flooding, storms, river erosion, and other environmental hazards. Their housing conditions are poor, and their location near the river increases their vulnerability to climate-related shocks. Women fishers also reported that fishing involves significant physical risk, including fear of sudden storms, strong currents, and crocodile attacks.

Income from fishing was found to be very limited. On average, women earn around BDT 200 after spending 2–3 hours in the river when fishing is possible. Most women can catch fish only around 10 to 15 days per month, generating an average monthly income of approximately BDT 2,000 to 3,000. During peak fishing seasons, income may increase to around BDT 5,000 to 6,000, depending on fish availability, weather conditions, and access to fishing areas. However, this income remains insufficient to meet the basic needs of households, which usually consist of 4–5 family members.

Although the Government has provided Fisherman Cards as a form of safety net support, the participants reported that this assistance is not adequate to sustain their families throughout the year. The existing support does not fully address periods of income loss, food insecurity, or livelihood disruption caused by fishing bans, disasters, and climate-related challenges.

The consultation further identified the need for alternative and climate-resilient livelihood options for women fishers. Participants expressed interest in income-generating activities that can be managed from their homes or communities and that do not fully depend on river access. Potential livelihood options included handcrafted fishing net making, poultry rearing, livestock rearing, tailoring and sewing, small-scale tea stalls, mobile or van-based vending, handmade

product development, food processing, crab fattening, small-scale aquaculture, fish drying, and value-added fish product preparation.

Additional opportunities were also identified, including vegetable gardening for household consumption and local sale, and linkage with existing eco-tourism-based business opportunities. These options have the potential to diversify household income, reduce dependency on fishing, strengthen food security, and contribute to biodiversity conservation by reducing pressure on river and aquatic resources.



Overall, the consultation confirmed that alternative livelihood support is urgently needed for marginalized women fishers in the project area. Such support should include skills development, start-up inputs, market linkage, technical guidance, and continuous follow-up. Promoting sustainable livelihood options will not only improve the socio-economic resilience of women fishers but also contribute to biodiversity conservation, ecosystem protection, and long-term community well-being.

Chapter 04:Key Findings and Recommendations

Key Findings:

1. Women fisher households face multidimensional vulnerability

The assessment shows that the surveyed community is highly dependent on fisheries-based livelihoods, with **91% of households relying on fishing as their primary income source**. Women are central to household and livelihood management, but their economic power remains limited, as only **28% of women have control over their own income**. Most respondents are married women and many households have high dependency burdens, creating pressure on income, food security, caregiving, and disaster coping capacity.



2. Livelihoods are fragile, low-income, and poorly diversified

More than half of the households earn **below BDT 7,500 per month** from fisheries-related activities, while **88% have no access to alternative livelihood options**. Around **74% depend on moneylenders**

for productive assets, and 63% of households are in debt. This indicates a high-risk livelihood system shaped by low income, limited productive ownership, weak bargaining power, and dependency on informal credit and market actors.

3. Food security and nutrition conditions are concerning

Food and nutrition vulnerability is significant. About **27% of households consume only two meals per day**, while only **12% of women met the minimum dietary diversity standard**. This is far below the national benchmark and indicates a serious nutrition gap among women in the surveyed area. Poor dietary diversity may increase health risks, especially for pregnant and lactating women, adolescent girls, and children.

4. Access to formal healthcare is limited

During serious illness, **76% of respondents rely on local pharmacies**, while use of government hospitals, community clinics, and union-level health facilities remains very low. This suggests barriers related to cost, distance, awareness, service quality, and trust in formal health systems. Overdependence on pharmacies may lead to delayed diagnosis, incomplete treatment, and increased health risks.

5. WASH conditions remain below national standards

Although no open defecation was reported, only **68% of households use hygienic latrines with slab and water seal**, which is lower than the national improved sanitation benchmark. Handwashing knowledge and practice are also weak: only **26% know the five critical moments of handwashing**, and only **23% practice handwashing at all five critical times**. In addition, only **38% of households have functional handwashing facilities with both water and soap**, exposing families to preventable diseases.

6. Climate and disaster risks are severe and recurring

The community faces multiple climate and disaster hazards. **Flood affects 88% of households**, followed by **river erosion at 76%**, heat stress, waterlogging, cyclone, tidal surge, and salinity. Housing vulnerability is very high, with **82% living in kutcha or temporary houses**. Climate events directly reduce fishing days, lower fish catch, damage assets, and increase debt.

7. Disaster preparedness and early-warning action are weak

Only **23% of households always receive early warning information**, and only **18% can fully understand and act on warnings**. Shelter access is also limited, as only **22% have easy access to cyclone shelters or safe spaces**, while many face constraints related to distance, transport, safety, disability, women-friendly facilities, and protection of assets. Around **73% of households have no disaster preparedness plan**, showing a critical preparedness gap.

8. Recovery capacity after disasters is low

Disasters cause major income shocks, with **52% of households losing more than 40% of monthly income** during disaster periods. Around **80% lose more than 10 working days**, and average workdays lost are estimated at around 19 days. Only **12% have cash savings available during emergencies**, and many households depend on borrowing, distress sale, or informal support. This increases long-term debt and slows recovery.

9. Education continuity is fragile among children

Only **58% of children attend school regularly**, while **27% attend irregularly** and **15% are out of school**. Poverty, disaster, river erosion, distance to school, child labor, and early marriage are

major barriers. Girls face higher dropout risks due to early marriage, household responsibilities, insecurity, and poverty, while boys are also vulnerable to child labor and fishing-related work.

10. Skills development and information access are inadequate

Only **18% of respondents have access to vocational training**, and training coverage on fisheries, aquaculture, business, digital skills, climate adaptation, DRR, and leadership remains very low. Business skills, digital skills, market linkage, financial literacy, and climate-resilient livelihood skills are major gaps. Only **9% have regular access to information and extension services**, limiting their access to market prices, weather information, livelihood schemes, training, and social protection.

11. Women's participation in decision-making remains limited

Women's participation in disaster preparedness committees and local decision-making platforms is very low, with only **6% reporting active participation**. This reduces the likelihood that women's needs related to safety, privacy, childcare, livelihood recovery, health, and protection are included in local planning and response systems.



Recommendations

1. Promote climate-resilient and diversified livelihoods

INGOs, NGOs, local government, and development partners should prioritize livelihood diversification for women fisher households. Support may include small livestock, poultry, crab fattening, saline-tolerant homestead gardening, fish processing, dry fish production, tailoring,

petty trade, and climate-adaptive aquaculture. Livelihood support should combine training, start-up inputs, market linkage, technical follow-up, and access to finance.

2. Strengthen women's economic empowerment and income control

Programs should focus on improving women's access to productive assets, savings groups, financial literacy, business skills, and safe market participation. Women's control over income should be promoted through household-level gender dialogue, women-led producer groups, cooperative models, and linkage with formal financial institutions.

3. Reduce harmful debt dependency

Given the high reliance on moneylenders and debt, interventions should introduce community savings groups, emergency funds, revolving funds, flexible grants, and linkages with low-interest formal credit. INGOs should also advocate for shock-responsive financial services tailored to women fishers and climate-vulnerable households.

4. Improve nutrition security for women and children

A targeted nutrition package should be introduced, focusing on dietary diversity, maternal nutrition, adolescent girls' nutrition, homestead food production, nutrition-sensitive livelihood support, and behavior change communication. Special priority should be given to pregnant women, lactating mothers, adolescent girls, children, female-headed households, and food-insecure families.



5. Strengthen access to affordable and quality healthcare

Formal health service utilization should be improved through referral linkages with community clinics, union health facilities, government hospitals, and mobile health camps. Awareness

sessions should focus on danger signs, maternal health, child health, nutrition, communicable diseases, and responsible use of medicine. Community health volunteers may be trained to improve last-mile health referral.

6. Upgrade WASH facilities and hygiene practices

Existing slab latrines should be upgraded to hygienic water-sealed latrines. Low-cost household handwashing stations should be promoted, especially among poorer households. Hygiene promotion should focus on the five critical moments of handwashing, use of soap, safe water handling, menstrual hygiene, and child hygiene practices.

7. Strengthen early warning systems and last-mile communication

Early warning messages should be made more accessible, understandable, timely, and actionable for riverbank and fishing communities. Communication channels should combine mobile phones, miking, mosque announcements, community leaders, CPP volunteers, women volunteers, local government, and NGOs. Messages should be simple, gender-sensitive, disability-inclusive, and linked with clear evacuation guidance.

8. Improve disaster preparedness at household and community level

Households should be supported to prepare family disaster plans, emergency kits, safe document storage, dry food reserves, evacuation plans, and asset protection strategies. Community-based disaster preparedness committees should be strengthened, with meaningful participation of women fishers, female-headed households, persons with disabilities, elderly people, and youth.

9. Improve access to cyclone shelters and gender-friendly facilities

Shelter accessibility should be improved through community mapping, transport support, evacuation volunteers, and safe routes. Existing shelters should be upgraded with separate toilets, privacy spaces, lighting, security, safe drinking water, women and child corners, and disability-friendly access. Women's concerns must be integrated into shelter management planning.

10. Provide shock-responsive relief and recovery support

Emergency response should move beyond short-term relief and include livelihood recovery support such as cash assistance, fishing equipment repair, replacement of nets and boats, food support, WASH support, shelter repair, and debt protection measures. Targeting should prioritize female-headed households, ultra-poor households, households with children out of school, disaster-displaced families, and households with no savings.

11. Protect children's education and reduce dropout risks

Education support should include school material assistance, conditional cash support, transport support, remedial learning, disaster-resilient education planning, and community-based dropout monitoring. Girls' education should be linked with early marriage prevention, adolescent clubs, parental awareness, and protection referral systems.

12. Expand vocational training and market-oriented skills

Training should be practical, income-linked, and followed by input support and market access. Priority areas include fish processing, dry fish production, aquaculture, small business management, digital literacy, financial literacy, tailoring, livestock rearing, climate-resilient livelihoods, leadership, and DRR. Training should be designed around women's time, mobility, safety, and household responsibilities.

13. Strengthen extension services and information access

Government and non-government service providers should improve regular outreach to women fisher households. Information should cover weather alerts, market prices, social protection schemes, fishing ban support, livelihood services, training opportunities, health services, and disaster preparedness. Mobile-based communication can be used, but it should be supported with digital literacy training.

14. Promote women's leadership and participation

Women fishers should be included in community committees, disaster preparedness platforms, livelihood groups, WASH committees, market groups, and local advocacy forums. INGOs should support leadership training, collective voice-building, and safe participation spaces so that women's priorities are reflected in local planning and resource allocation.

15. Strengthen coordination and advocacy

INGOs and NGOs should coordinate with local government, Department of Fisheries, Department of Women Affairs, Department of Disaster Management, health authorities, education offices, WASH actors, and social protection programs. Advocacy should focus on inclusive safety-net coverage, climate-resilient livelihoods, women fisher recognition, disaster recovery financing, and improved access to services for riverbank communities.



Conclusion

The assessment clearly shows that women fisher households in the surveyed riverbank community are facing overlapping livelihood, gender, nutrition, WASH, education, health, and climate-related vulnerabilities. Their dependence on fisheries, low income, limited savings, high debt, weak market power, and lack of alternative livelihood options make them highly exposed to economic and climate shocks.

Climate hazards such as flood, river erosion, cyclone, heat stress, salinity, and waterlogging are not isolated events for this community; they directly affect income, food security, housing, education, health, and recovery capacity. The findings also show that women carry a major burden of household survival and livelihood support but remain underrepresented in income control, training, market access, disaster preparedness, and local decision-making.

From an INGO programming perspective, the situation requires an integrated resilience-building approach rather than a single-sector response. Priority should be given to climate-resilient livelihoods, women's economic empowerment, nutrition-sensitive programming, WASH improvement, inclusive disaster preparedness, education protection, and stronger access to government and NGO services.

Overall, the assessment highlights an urgent need for targeted, gender-responsive, climate-smart, and community-led interventions that strengthen household resilience, reduce dependency on harmful coping mechanisms, and support women fisher households to recover, adapt, and build safer and more dignified futures.