Livelihood Resilience Assessment in Poonakary, Sri Lanka

March, 2024 | Poonakary, Kilinochchi District

KEY MESSAGES

- As reported by KIs and FGD participants from Poonakary, **heavy rains with floods**, **droughts** and **human-elephant conflict (HEC)** were the main hazards impacting the communities.
- Damages to agricultural land and fresh harvest endangered farming livelihoods by reducing income, triggering food insecurity and poverty, according to KI and FGD participants reports.
- The **restricted livelihood opportunities** and **poor infrastructure**, such as weak water drainage and limited transportation services were reportedly factors contributing to community vulnerability, observed by respondents.
- KIs and FGD participants recommended increasing participation in Disaster Risk Reduction (DRR) awareness and capacity-building programs for authorities and community members and implementing financial assistance mechanisms.
- The priority mitigation activity recommended by respondents for floods included constructing and maintaining drainage systems. While For droughts, constructing or repairing agricultural water storage facilities was suggested by respondents. To address (HEC), the construction of elephant fences was recommended as a priority.

Map 1 - Poonakary division and clusters of Grama Niladhari



This report is made possible by the generous support of the American People through the United States Agency for International Development (USAID). The contents are the responsibility of Acted/IMPACT Initiatives and do not necessarily reflect the views of USAID or the United States Government

🗙 acted

IMPACT Shaping practic Influencing polit Impacting lives

USAID

CONTEXT & RATIONALE

Located in the Northern province, Poonakary Divisional Secretariat Division (DSD) has a total population of 27,120 individuals, 50% female. The estimated dependency ratio reaches 37%, the population below 15 and above 60 years old. Paddy cultivation stands out as the predominant agricultural activity, with 2600 families involved in agriculture and 1494 families in fishery activities, according to the data provided by local authorities.

Poonakary experiences significant rainfall during the northeast monsoon (Maha season) from November to February, while the southwest monsoon (Yala season) from May to September is relatively drier. During heavy monsoon rains, lower areas in Poonakary may be prone to flooding, leading to property damage, coastal erosion and disruption of livelihood activities, especially agriculture. Periods of drought can affect water availability for agriculture, impacting crop yields and livestock health. Poonakary is surrounded by forests used in the migration path of elephants, which may result in humanelephant conflict, loss of lives, and damage to infrastructure and agricultural land.

ASSESSMENT OVERVIEW

IMPACT profiled the situation of farmers' and fishers' livelihoods in Poonakary to inform the strategic programming of actors at the local level. The assessment focused on four clusters of Grama Niladhari (GND) (Map 1), chosen based on their level of risk to natural hazards identified in th<u>e Area</u> <u>Based Risk Assessment (ABRA) conducted</u> by IMPACT in 2023.

Methodology

A qualitative, semi-structured questionnaire was administered to 25 key informants (KIs) and 12 focus group discussions (FGDs) from January to March 2024 to understand the livelihood resilience context. KI profiles included Government actors, Community-Based Organisations (CBOs), and National and International Non-Governmental Organisations (NGO/INGOs). FGDs were conducted with members from agricultural and fisheries communities, divided by gender and age.

Risk governance and hazard impacts

Disaster Risk Reduction practices in place

In Poonakary, local authority (LA) KIs identified governmentled disaster preparedness and response actions as the primary strategies for disaster risk management (DRM) planning. The most frequently cited government measures included emergency early warning notifications and community awareness initiatives focused on disaster preparedness, response, and livelihood resilience, as reported by KIs.

The Disaster Management Center (DMC), was regularly reported by KIs as the lead actor in DRM mechanisms in Poonakary, as reported by KIs. The DMC coordinated joint DRM efforts with key actors such as the Divisional Secretariat (DSD) and Grama Niladhari (GN) for emergency activities, including disseminating emergency warnings to communities. Community awareness programs, designed by the DMC, were facilitated by GN departments and relevant departments such as the Department of Agriculture, Department of Agrarian Development and Department of Fisheries and aquatic resources. KIs also cited the Department of Agrarian Development's role in facilitating emergency alerts to farming CBOs or village members, once informed by the DMC. Reports highlighted the involvement of the Department of Predesiya Sabha in infrastructural renovation such as road repairs, to mitigate flood effects, while security forces, including the police army, navy, were reportedly engaged in emergency relief activities.

FGD participants similarly identified the DMC, GN, and DSD secretariat as the main actors in DRM mechanisms. They observed increased coordination by of Grama Niladhari in disaster risk reduction (DRR) with the community, particularly in disseminating emergency warnings via loudspeakers and social media platforms. Participants from a female farming FGD also noted the GN's role in distributing elephant deterrents to community members on behalf of the Department of Wildlife Conservation. In comparison to KIs, FGD participant emphasized the role of community members in implementing DRR activities, such as disseminating floods and elephant attacks warnings, conducting community flood rescues, transportation efforts and infrastructure renovations. The DMC and divisional secretariat involvement were mentioned less frequently. Participants from a fishing FGD in cluster 4 reported the DMC's involvement in infrastructure renovation as a flood mitigation activity. KIs suggested that enhancing centralized DRM mechanisms required increased coordination among government agencies, civil society, and the broader community.

Stakeholders involved in DRR actions, as reported by KIs, included World Vision, Caritas HUDEC, Chrysalis, World Bank, United Nations, Sri Lanka Red Cross Society, and the Climate Smart Irrigated Agriculture Project (CSIAP).

Main hazards in Poonakary

As shown in the table below, the hazards most frequently reported in Poonakari by both KIs and FGDs included floods with heavy rains, droughts, animal conflict—particularly humanelephant conflict (HEC)—and storms with strong winds. Reports predominantly indicated that flooding with heavy rain had been the most common hazard, causing the most damage to communities yearly. Fishing FGDs more frequently observed strong sea turbulence, strong winds, and cyclones. Thunderstorms and lightning had been more recurrent in KIs' observations. While reporting on hazard frequency, FGDs indicated that Poonakari had been affected by some form of disaster each year, primarily either floods or HEC. Local authority KIs also reported droughts, which occurred annually or biannually.

Table 1: Main Hazards in Poonakary as reported by KIs (totalno. 25) and FGD participants (total no.12)

Major hazards	No.KI	No. FGD
Heavy rain with floods	25	12
Drought	22	10
Human-elephant conflict	18	8
Other animal conflict (moneky, peacock)	14	7
Storms and strong winds	13	3
Cyclones	6	4
Thunderstorms and lightning	4	1
Civil war	3	0
COVID-19	3	1

Primary impacts of hazards

The primary reported impact was the loss or damage to crops in agricultural fields and home gardens. The DMC reported that 1300-1500 acres of agricultural land was destroyed by hazards. Coconut plantations and vegetables including grams, chilli, and groundnut, were particularly affected by elephants and other animals, such as peacocks and monkeys. While floods mainly damaged rice crops. A KI LA representative reported on entire paddy fields in the area damaged due to disasters. Another LA KI reported an estimated 1000 acres lost to drought. Floods led to the spread of diseases like root rot and pests, reported female participants in FGDs. KIs reported a significant reduction in crop yield due to these damages. As a result of infertile lands caused by floods, farming and livestock activities, such as dairy, egg and meat production, were reduced.

The second most reported direct impact was the loss and harm of livestock due to floods, extreme cold, and disease spread in these conditions, reportedly resulting in livestock deaths, reported by KI divisional authority representatives. Additionally, human lives were lost most by HEC in cultivation lands close to forests while storms and sea turbulence were reported as the main cause by participants from fishing FGDs.

Participants in farming and fishing FGDs and most KIs reported a scarcity of drinking water and irrigation water for agriculture during periods of drought. Fishermen in the FGDs noted reduced fishing activities, mainly because of the loss or damage of fishing equipment and a decreased availability of fish, primarily caused by floods and storms. HEC, monkeys, and floods were cited as the cause for damaged homes, particularly roofs, and leakage from floodwaters. Floods disrupted transportation by submerging roads, impacting market sales, children's education, and health emergencies. It also led to migration and internal displacements, with victims residing in public buildings or with family and friends.

Secondary consequences of hazards

Economic

Floods, drought, HEC, and other hazards indirectly affected the economic stability of agricultural and fishery livelihoods. As a result of reduced harvests, farmers experienced losses in income, investment, and employment, leading to increased poverty. This resulted in reduced purchasing power, difficulty affording basic goods, and challenges in maintaining living standards. As reported by KIs and FGD participants, to address financial losses and improve security by repairing or replacing damaged equipment and other essential livelihood tools, farmers and fishermen frequently found themselves trapped in cycles of debt. The increase in fuel and paddy market prices further exacerbated the economic situation for farmers and fishers. Participants in fishing FGDs reported inconsistent produce prices that favored traders.

Food access

Crop damage, reduced fish availability, and transportation disruptions in Poonakary led to food shortages and increased food prices, affecting the local market, as reported by almost all KIs and FGDs. Damage to crops from home gardens and cultivation fields, along with limited fish catches, resulted in income losses that impacted the communities' ability to afford food, with some families reportedly unable to consume three meals daily. Female farmers reported that children experienced nutritional deficiencies, affecting their growth and increasing their susceptibility to disease.

Social tension

In Poonakary, KIs and FGD participants observed an increase in illegal activities such as substance production, sale, trafficking, illegal mining, and theft. Reportedly, community youth were drawn to these activities due to rising poverty and school dropout rates. Family violence was also reported to have been on the rise, driven by higher drug use, loss of income or employment, and increasing poverty levels. Respondents reported disputes over farming land, which stemmed from government agencies asserting that farmers' land was part of conserved forests and from conflicts over ownership, permits, and legal rights. Conversely, there were also reports of disputes concerning fishing area facilities and water sources. An example provided concerned a particular pond that had been leased to both agricultural and fishing communities, with tension arising from shared water sources.

Education

Local authorities and CBOs alike reported school dropouts which were mainly caused by rising poverty levels and the need to seek employment. It was also mentioned that students are unable to afford basic school materials due to the financial losses families incurred.

Health

The most reported health issue was the increase in substance abuse, including both illegal alcohol and drugs, among both youth and adults. There was also a rise in psychological distress and mental health declines, such as depression, anxiety, and suicide, linked to worsening economic hardships triggered by disasters. This trend was noted more by KIs than within FGDs. Cases of dengue and infectious viral diseases increased when floodwaters stagnated. Access to hospitals and treatments was also reported as an indirect consequence of hazards; one KI shared that between three and five people died every year due to the flooding of roads and the inability to reach healthcare facilities.

Vulnerability to hazards

Groups in vulnerable positions

The groups in vulnerable positions to hazards were identified as farmers, fishers, people with a disability/households with a member with a disability, female-headed households (FHH) and the elderly people.

Farmers

It was reported that during the aftermath of a disaster, the high dependence on agricultural livelihoods forced farmers into a state of paralysis, as they had no other skills to pursue alternative livelihoods. Female farming FGD groups reported challenges in obtaining high-quality organic fertilizer at an affordable price, especially after the ban on chemical fertilizers, which led to an increase in crop disease and reduced livelihood resilience. Another key factor contributing to the vulnerability of farming groups was cited as the high number of elderly people, FHH, and people with disabilities or households with members with disabilities.

Elderly people, female-headed households, people with a disability

These families were viewed as more vulnerably positioned to cope with hazards, with socio-economic preconditions that increased community vulnerability to hazards and were exacerbated during disasters. A KI estimated there were approximately 100 FHH in their area, and it was also reported that the national conflict had significantly disempowered many of them. Local authorities also reported that people with disabilities or households with members with disabilities, who were also Sumardhari and Aswesuma beneficiaries, were in particularly vulnerable positions during disasters due to their low-income status, as were other lowincome families in the area.

Fishers

There was an absence of supporting infrastructural fishing facilities, such as lighthouses and emergency warning towers. This absence led to instances of fishers being stranded at sea during heavy rain and forced to seek refuge, as reported by participants from a male fishing group. Additionally, there was an absence of financial facilities that provided loans and subsidies for disaster mitigation and resilience building. Such financial resources could have supported fishers in constructing safe and suitable boat landing platforms. The lack of this resulted in frequent damage to or stranding of boats during windy periods. Similarly, there was an absence of fish storage and preservation facilities, preventing fishers from increasing their catch size, with the price of fish dropping after the morning, according to female fishers.

The insufficient availability of fishing resources due to poor stock management, water pollution (e.g., oil spills), and inadequate marine ecosystem management further increased fishing vulnerabilities. Participants also reported that increased coastal and lake erosion was a significant cause of vulnerability.

Pre-existing infrastructural conditions

The pre-existing factors contributing to community vulnerability in Poonakary were predominantly related to poor infrastructure. Weak and damaged ponds, tanks, and other water sources were frequently reported by KIs. Reports from cluster 3 noted that deteriorating local tanks leaked and overflowed during heavy rain, flooding agricultural land. District authority KIs and female farming participants in FGDs mentioned the absence of adequate drainage systems, with blocked drains causing additional flooding.

Reports also highlighted poor infrastructure, construction, and urban planning, particularly the lack of effective flood reduction

measures. Limited transportation services, such as roads in a constant state of disrepair and covered with garbage, exacerbated flooding and affected farmers' and fishers' ability to market their produce.

District authority KIs reported on the vulnerability caused by limited farming land, noting that a large percentage of farmers leased land. This absence of land ownership affected livelihood stability and amplified losses after a disaster. Environmental degradation due to human activities, such as sand mining, deforestation, and urban expansion, was also reported, primarily by DS authorities. A DS level KI noted that such activities caused HEC and other wild animal conflicts.

CBO KIs reported on the scarcity of drinking and irrigation water sources (wells, tanks) during periods of drought. This situation was worsened by saltwater intrusion, primarily a consequence of limestone mining. Female participants in fishing FGDs highlighted a yearly shortage of fresh drinking water during periods of drought when village wells dried up, necessitating long travels for clean water.

Further reports highlighted additional issues, such as the lack of irrigation infrastructure, riverbank and coastal erosion, unidentified pests without control measures, unpredictable weather, lack of elephant fences and maintenance, inadequate livestock shelters, and absence of or limited streetlights.

Pre-existing organisational conditions

The pre-existing organisational factor of vulnerability with the highest frequency was cited as the cost of agricultural inputs such as seeds and fertilizers. The ban on fertilizers was mentioned to have led to an increase in the cost of fertilisers which in turn impacted yield production and subsequently reduced their income. Gazette Extraordinary No.2238/45, issued on, July 31, 2021, stated that the previous ban on chelated minerals and micronutrients would be lifted in favour Import Control License (ICL) regulation of these goods. Farmers without a valid ICL would be unable to purchase chemical fertilizers, insecticides and other essential agricultural chemical inputs.

The lack of community education and technical knowledge of DRR practices was reported mostly by KI LAs as a factor for vulnerability. Similarly, a lack of awareness, expertise, and capacity building in agriculture led to poor agricultural practices. It was mentioned that since farmers lack the knowledge of seasonal crops for cultivation, crop protection, inappropriate fertilizer use, and poor water management, their resilience towards hazards is hindered. The lack of modern agricultural tools and preference for traditional farming further hinder the farming community.

Lack of resources across all government institutions, primarily financial resources (loans, subsidies, compensation) to support the community's resilience along with the lack of cooperation between community and government, largely stemming from ongoing conflict, are other reported preconditional challenges increasing vulnerability.

Additional reported factors include increased economic migration, the lack of fish, the cost of equipment and tools and the lack of community participation and knowledge.

Areas most at risk

The The most frequently reported at-risk areas were low-lying farming lands along water sources. The Department of Agriculture KI highlighted cultivation near Iranimadu, Kanagarayan tank, and Akkarayan River, which overflowed during heavy rain, flooding farmers' lands. Additionally, female fishers who also engaged in cultivation reported increased vulnerability when farming due to such overflows, with particular references made to Kiranji and Valaipadu areas located near the Kariyalainagapaduan tank and Vanneri tank. This issue was exacerbated by the inadequate drainage system in the area. Conversely, CBOs reported that farming lands near forest reserves were prone to attacks by elephants and other wild animals, such as monkeys. One VCD noted that GS Divisions from Kiranchi to Ponnaveli, located near a large forest, were frequently threatened by wild animal attacks. Less frequently reported were cultivation in dry conditions, which led to water scarcity for crops and livestock; areas near coastal regions affected by saltwater intrusion; and cultivation along hills and slopes.

Alternative sources of income

The most regularly mentioned fishing source were saltwater or coastal fishing followed by freshwater fishing and river pond tanks, including the Akkarayan Pool, the Iraniyamadu Pool and the Aanaivilunthaan Pond under seasonal leasing. As an alternative fishing source, fishers from Poonakary fish in village ponds/tanks and sea fishing, including the Kirani beach. There were also reports of no alternative fishing source and freshwater fishing.

Table 2: Alternative sources of income to farming and fishing when livelihood activities are impacted by natural hazards

Alternative sources of	No. Kl	No. FGD	No. Kl	No. FGD
Income	Farr	ning	Fisł	ning
Daily wage labour	14	1	10	0
No other source	9	0	3	0
Livestock rearing and husbandry	6	1	3	1
Shop owner or small business	5	1	0	0
Handicraft	3	0	0	0
Private sector	2	0	0	0
Fish drying	0	0	4	1
Constructing, cleaning and repairing nets and boats	0	0	3	2
Sea cumber and algae farming	0	0	2	2
Agriculture	0	0	2	0
Garment factory	0	2	0	0

Disaster preparedness and risk mitigation measures

Community disaster preparedness and response

Participants in the FGDs and KIs identified early warning systems, either through media or in-person, and training and awareness programs as the existing community disaster preparedness practices. Communities often physically implemented infrastructure interventions, such as cleaning drainage systems and waterways, and building and maintaining elephant fences. They used elephant deterrents, such as explosives and shots, rotational elephant guarding with farmers remaining overnight in the paddy field, and nets and traps to protect against other animals. Community participation in evacuation plans and DRR committee

meetings was also reported. According to KIs, community responses included emergency announcements, covering disease outbreaks, displacement and relocation, relief services, and security measure protocols for fishers.

Government disaster preparedness and response

The common government mitigation measures included community emergency alerts shared by the district DMC through social media platforms like WhatsApp, Viber, and Facebook. This was followed by community awareness campaigns on disaster preparedness and response plans, and farming and fishing livelihood resilience awareness with technical support and advice, as reported by LA KIs. KI reports noted capacity building for agricultural resilience, such as providing solutions for crop diseases, as reported by VCD from cluster 1. A LA KI mentioned that capacity building for women in the community was also provided, although its reach was limited.

Temporary accommodation was provided in schools, halls, temples, and churches. Recently, people were relocated to schools in Marudanagar and Pannangandi villages, according to district and divisional DMC officials. The DMC coordinated evacuation, search, and rescue operations with the Army, Navy, local Police, and the Grama Niladhari.

Infrastructure rehabilitation, including road and waterway repairs, was reported by LA KIs. Some KIs mentioned the existence of risk mapping developed by the Department of Irrigation, though most departments lacked access to it. Financial assistance through interest-free loans was provided by government departments. However, some reported the need for further centralized risk mitigation actions. KIs also noted, less frequently, the usage of precautionary measures for fishing during heavy rain by local CBOs as a governmental strategy to protect fishermen against aggressive waters. Rescue operations and emergency support, distribution of drinking water, weather forecasts, and annual reports were also reported by CBOs and LAs.

Civil Society disaster preparedness and response

Most KIs reported that CBOs and NGOs focus on early warning announcements as their risk mitigation actions. This was followed by KI reports for the provisions of cooked food and relief items in anticipation of hazards such as floods. Additionally, some mentioned the provision of crop damage insurance, subsidies for fertilizers and seeds, and livelihood awareness programmes. Other reported actions included relocation announcements during heavy rains, community awareness on climate change and DRR, construction of water supply infrastructure, and maintaining drainage canals.

Livelihood risk mitigation measures

As for the previous actions to build fishery communities' livelihood resilience, not many points were mentioned during the FGDs. The main action reported was the improvement of fish market facilities by female and male fishers. The provision of fishing equipment and boats, seeds, home gardening equipment, algae cultivation training for women, and drinking water facilities and sources were reported by women fishers and FGD participants in clusters 2 and 4. KIs reported dry fish production and the construction of the dock.

Previous actions to support farmers' livelihoods, according to female farmers in cluster 3, included elephant or animal protective fencing, provision of agricultural inputs, irrigation materials, and pond reconstruction. KIs reported the provision of elephant crackers and medicine for livestock. Actions benefiting both communities included tank and canal rehabilitation, the provision of transportation during floods, community awareness and training programs, business development projects and opportunities, and swimming lessons.

Few effective actions were reported, and they were mentioned infrequently, only by female participants in the FGDs. These included the construction of boat docks, wells for drinking water, provision of fish nets and boats, cash for work, and algae cultivation support and training, which resulted in improved income. KIs mentioned DRR awareness programs and training, emergency first aid awareness, drainage and tank renovation, support for DRR grants, temporary shelters and evacuation plans for flood victims, and the provision of agricultural inputs.

Ineffective actions included the tsunami notification system not being in service, the canal not being widened, ineffective drainage construction, and a lack of planning leading to failed tank renovation.

Traditional knowledge

In Poonakary, the only reported traditional practice to reduce disaster impact mentioned was afforestation along riverbanks in cluster 1.

Barriers to risk mitigation

Governance capacity needs

Participants in both farming and fishing FGDs most frequently reported the importance of establishing further access to supporting technical facilities and expertise on new cultivation methodologies such as the use of short-term and high-yield crops. They also commented on the necessity of technical facilities and technical expertise for the construction of these facilities, such as agricultural tube wells and irrigation systems as well as support in procuring machinery (tractors, transplanters, spray machines).

Moreover, FGD participants reported on the crucial nature of an improved disaster compensation system, that accuretly accounts for damaged crops and reduced fish catch as a result of hazards. Responding farmers and fishers also reported on the challenges in selling products due to inadequate local market systems such as fixed produce prices. Participants in a male fishing FGD commented that traders purchase fish at a low price and resell it at a higher price in distant markets, leading to disparities in income between fishers and traders.

According to KIs, the primary centralised capacity-building action to incorporate risk mitigation measures and build resilient livelihoods were to increase local knowledge and access to new technology and equipment. It was mentioned that even when new technologies and climate-friendly farming is introduced, farmers tend to continue with traditional methods. Increasing cooperation between community groups and government departmenets, was deemed crucial to reduce barriers to risk mitigation. Increasing awareness training programs were also reported.

Mentioned with less frequency by KIs, were reports of government policies that required broader community outreach. For instance, some farmers did not know how to apply for crop insurance due to limited access to knowledge and guidance. They also reported limited access to training on DRR, cultivation planning, and livelihood improvement. The support provided by the government was perceived as varying by respondents, deducing that more consisteny in government support is needed to improve collaborative risk mitigation. Respondents suggested introducing stable economic policies as there were observations of variability in economic frameworks, policies and development plans.

Governmental policy impact on hazard mitigation

LAs, INGOs, and CBOs all referenced the new tax policy (VAT 18 %) as a detrimental financial burden for farmers' and fishers', impacting their ability to mitigate hazards. An INGO KI indicated that the community lacked understanding of the new policy and lacked the means to obtain an explanation. Consequently, they sold their produce at low prices without understanding the reason, which increased their difficulty in purchasing necessary goods for their livelihoods. The INGO KI further claimed that this situation led to psychological distress, including suicidal ideation and alcoholism. A DSD LA KI also supported this claim of psychological distress as a direct impact of governmental policy on livelihoods. The KI stated that the government ban on chemical fertilizers had forced farmers to bear the rising costs of organic fertilizers, leading to economic decline and depression. Comparatively, other DSD LA KIs reported no policy impacts on hazard mitigation.

Risk financing

Most LAs reported the availability of low-interest loans or benefits provided by government agencies, including the Departments of Agriculture, Agrarian Development, Rural Development Society, Samurdhi Development, and the District Secretariat. Additionally, the DS Department of Agriculture announced a new microfinance scheme called "Aravanapupkadan," which was intended to support fishing and farming CBOs in Poonakary. The "Varappuyara loan scheme" was also introduced, offering loans at a 6% interest rate with one-time repayments.

Comparatively, high-interest loans were also reported, with KIs noting that while risk financing was available, many opted out or were unable to repay, falling into debt due to these rates. Local NGO KIs pointed out that FHH, PWD, and low-income households were in the most vulnerable positions with these loans and were likely to fall into a debt trap.

Female government agents reported on the availability of lowinterest loans from government banks with a six-month payback period. Female LAs also highlighted the absence or limited presence of risk financing and insurance but noted the availability of compensation for disaster damages to crops, housing, and injuries. However, they observed that disaster compensation was often inadequate or exclusive, with a preference given to landowners.

Limitations of funding or technical capacity

KIs and FGD participants reported that the inability to construct or repair infrastructure was the most recurring issue. This included water sources (wells, ponds, and tanks) requiring deepening, widening, and general repairs, irrigation and drainage systems, roads, waterways (canals), boat docks, other transportation facilities, electric elephant fences, floodwalls, lightning rods, electric lights, and greenhouses. KIs additionally reported an inability to afford weather forecast equipment.

Activities related to cultivation included the provision of nets to protect home gardens, drought-tolerant crops, modern agricultural technology, agricultural inputs, and crop insurance. KIs also reported a need for more grazing land for cattle and elephants and the use of firecrackers as a deterrent. FGD participants in cluster 4 reported an inability to afford livestock medical attention, including transportation, medication, and veterinarian visits.

Activities related to fishing included the inability to obtain modern technologies such as GPS systems, protective gear, and the rehabilitation of fish markets and rest halls.

Moreover, KIs reported that funding and technical constraints caused an inability to develop livelihoods and other sources of income, promote capacity-building programs on DRR, enhance

community engagement, develop local markets, and create opportunities for women.

Solutions suggested by KIs and FGD participants for disaster resilience building

Recommended DRR activities

DRR activities predominantly recommended by KIs included introducing or increasing access to and participation in DRR awareness programs. KI authorities suggested improving early warning systems, such as emergency plans and conducting drills. Participants from a fishing FGD in cluster 4 added the necessity for improving early warnings for fishers before they went out to sea, as they could not be warned while at sea unless through the support of navy patrols. These participants further recommended identifying and prioritizing vulnerable groups during a disaster to provide immediate assistance.

Other DRR recommendations related to governance included improving mechanisms for disaster relief and financial assistance, such as compensation for damages and insurance schemes. This was reported as a priority for both farming and fishing communities. Improving DRR coordination between government agencies was also suggested. Additionally, enhancing communication and disaster coordination, along with increasing human resource capacity, was recommended for CBOs.

Livelihood solutions for fishing communities

For fishers, the most recommended livelihood solution was to restore and deepen water sources such as ponds, bunds, and tanks. Participants of an FGD reported that the rehabilitation of ponds would prevent saltwater intrusion into water sources, which impacted fishing catches. KIs reported on the provision of equipment and training for fishermen, such as on nets and protective gear, which could increase profits and safeguard livelihoods. Increasing technical knowledge and awareness was also reported as valuable.

Similarly, the repair and extension of a beach dock, construction of barrier nets, fishermen's rest halls, and fish markets were suggested as factors that could help safeguard livelihoods.

Another solution suggested by KIs was the promotion of aquaculture with fingerlings. Some financial recommendations for fishing communities included compensation and rehabilitation assistance and improving access to interest-free loans.

Livelihood solutions for farming communities

Key findings of livelihood solutions for farmers included the awareness, training, and capacity building of DRR and livelihood resilience, as reported most frequently by Kls. Kls suggested that a priority DRR mitigation activity would have been introducing and increasing access to and participation in agricultural training programs, such as capacity building on modern agricultural techniques and technologies. Examples provided by Kls and FGDs alike included the cultivation of short-duration, high-yield resistant crop seeds, drip and sprinkler irrigation, and the planting of traditional crops. FGD participants also suggested access to cattle medical care facilities.

Financial solutions specific to farming communities included establishing crop insurance and compensation schemes, increasing financial support through low or no-interest loans, expanding livelihood options with an increase in sources of income, and the timely disbursement of subsidies.

Recommended solutions for flood mitigation

The most reported priority solution from KIs was improving and maintaining drainage systems. A DSD LA KI emphasized that maintaining central drains would have protected homes and agricultural lands from floods. A CBO KI from cluster 1 suggested constructing spill channels to direct water from sources like the Uppuveil tank to the sea. A DS LA KI noted that efficient drainage systems would have reduced transportation disruptions caused by floods.

FGD participants, especially female farmers, less frequently recommended drainage improvements. Instead, their most recurring priority recommendation was road rehabilitation. They highlighted that poorly constructed roads worsened flood effects when the Kariyalainagapaduan pond overflowed during monsoon seasons.

Both KIs and FGD participants prioritized the need for constructing or renovating water sources (ponds, tanks) and waterways (canals) to prevent overflow from heavy rains affecting agricultural livelihoods. Additionally, they stressed the necessity of organizing evacuation centers, temporary shelters, and building emergency shelters. KIs further recommended relocating people from vulnerable areas and establishing early warning systems. They also suggested prohibiting illegal sand mining, as it exacerbated flooding effects. The construction of a coastal floodwall was also recommended by participants from the fishing FGDs.

Table 3: Recommended solutions for flood mitigation

Recommended mitigation solutions	No. Kl	No. FGD
Constructing or improving drainage facilities	11	2
Road rehabilitation	2	5
Constructing or renovating water stores	6	3
Setup evacuation centres	4	0

Recommended solutions for drought mitigation

The construction or rehabilitation of agricultural water storage facilities was reported as a priority recommendation for droughts. Water storage facilities for both agriculture and drinking, aimed at reducing water scarcity during droughts, included water tanks, ponds, tube wells, and common wells. Examples of recommended irrigation systems included drip, sprinkler, and rainwater harvesting. New cultivation methods and technologies recommended by KIs and FGD participants included droughtresistant seeds and plants.

Table 4: Recommended solutions for drought mitigation

Recommended mitigation solutions	No. Kl	No. FGD
Construction or rehabilitation of agricultural water storage facilities	11	4
Drinking water facilities	9	5
Irrigation systems	6	0
Home gardening	3	0
Introducing new cultivation methods and technology	3	2

Recommended solutions for human-elephant conflict

The most recommended priority solution for HEC was the construction and maintenance of elephant fences, with a suggested preference for electric fences. Examples of elephant deterrents included explosives, firecrackers and airguns; these are not readily provided to farmers and are costly to purchase independently. A few KIs such as the DS DMC recommended introducing a bio-fence where thorny plants such as lemon and palm trees, and even cactuses are used to deter elephants.

Table 5: Recommended solutions for HEC

Recommended solutions for HEC	No.	No.
	КІ	FGD
Construction or maintenance of elephant fences	11	5
Elephant deterrents	3	1
Bio-fence	2	0

The most recommended priority solution for HEC was the construction and maintenance of elephant fences, with a suggested preference for electric fences. Examples of elephant deterrents include explosives, firecrackers and airguns; these are not readily provided to farmers and are costly to purchase independently. A few KIs such as the DS DMC recommended introducing a bio-fence where thorny plants such as lemon and palm trees, and even cactuses are used to deter elephants.



Implementation period

Graph 1: Recommended time of year for the implementation of disaster resileence solutions

Solutions for floods Infrastructural repairs (roads, ponds, tanks, drains) Solutions for droughts Construction of drinking water facilities Solutions for HEC Construction of elephant fence Solutions for farming livelihoods Solutions for fishing livelihoods Construct boat landing platform DRR Awareness



Methodology Overview

Research Design: The primary research tool for the LRA was a qualitative and semi-structured data collection questionnaire, designed to assess and strengthen sectoral understanding of communities' experiences regarding the primary and secondary consequences of hazards on agricultural and fishing communities. It also explored pre-existing vulnerabilities to hazards, existing governmental, civil society and community disaster preparedness and response capacities, barriers to risk mitigations, and key solutions for disaster resilience building.

Data Collection: The geographic coverage of the LRA included four clusters of GNDs in Poonakary DS identified by the ABRA. Cluster 1 included Mulankavil, Nachchikuda and Kariyalainagapaduwan. Cluster 2 included Kiranchi and Ponnaveli. Cluster 3 included Jeyapuram North, Jeyapuram South and Pallawarayankaddu. Cluster 4 included Pallikuda.

A purposive and snowballing sampling method was employed, with 25 KI profiles and 12 FGDs selected per division. KI profiles included government actors, Community-Based Organizations (CBOs), and National or International Non-Governmental Organizations (NGO/INGOs). FGDs were conducted with members from agricultural and fisheries communities, divided by gender, age and cluster.

Enumerators trained by IMPACT conducted the KIIs and FGD in Tamil or Sinhala, with the support of field officers. Detailed notes in the local languages were recorded in IMPACTS debrief forms. These debrief forms were then translated into English by a thirdparty professional organization and then shared with the research analysis team.

Data analysis and outputs: Using a data-saturation and analysis grid (DSAG) in Excel, data from KIs and FGDs were logically coded into categories based on the research purpose, objectives and themes of the research questionnaire. The data was analyzed and compiled into key findings. Each coded topic was organized within the grid and tracked to identify the frequency of points mentioned across the qualitative session per division for KIs and FGDs. Data cleaning and analysis were reviewed by the IMPACT HQ research department.

A more comprehensive overview of the methodology is found in the LRA $\underline{\mathsf{TOR.}}$

Research limitations

Availability: Instances occurred where KIs or FGD participants, including CBO leaders and LA officials, were unavailable. Issues arose when several interviews, particularly in specific clusters, were not conducted as originally agreed upon, resulting in the prioritization of data collection in other areas or with different groups.

Clarity: While most of the reported information reported during the FGDs and KIIs are included in these final outputs, some interview notes were too brief to be able to interpret respondents' intended comments, for this reason, certain reports have not been included. This led to a loss of specificity in some of the findings. Language and translation: The questionnaires, designed in English and containing academic and technical language, may have posed challenges for third-party translators. Specialized terminology often requires theoretical understanding in addition to strong bi- or trilingual language skills. The use of technical jargon and academic language during interviews might have hindered access to more personal and nuanced responses, which could have been achieved with more accessible language. Furthermore, it is possible that errors in accurate translation, omissions, repetition, or the loss of emotional experiences occurred when responses were translated from Sinhala and Tamil into English. These issues may have resulted in a loss of contextual perspectives, thereby impacting data quality.

Sampling: The LRA was conducted in eight DSDs across four districts in Sri Lanka (Ampara, Batticaloa, Kilinochchi, and Vavuniya). The total amount of interviews conducted was 256 (160 KIIs and 96 FGDs). The large sample generated a large volume of data with varied responses, which proved challenging to streamline data, code, analyse, and report within the expected time frame.

ENDNOTES

1 Jayasinghe, N., Fernando, S., Haigh, R., Amaratunga, D., Fernando, N., Vithanage, C., Ratnayake, J., & Ranawana, C. (2022). Economic resilience in an era of "systemic risk": Insights from four key economic sectors in Sri Lanka. Progress in Disaster Science, 14, 100231.

2 Ministry of Home Affairs, Divisional Secretariat, Poonakary

3 <u>Poonakary (Divisional Secretariat, Sri Lanka) - Population</u> <u>Statistics, Charts, Map and Location. (n.d.). Citypopulation.de</u> Retrieved June 26, 2024

Disclaimer: The views and opinions expressed in this factsheet are thereflections gathered through a participatory approach from interviewees and do not necessarily reflect the position of IMPACT or Acted.

