FACTSHEET

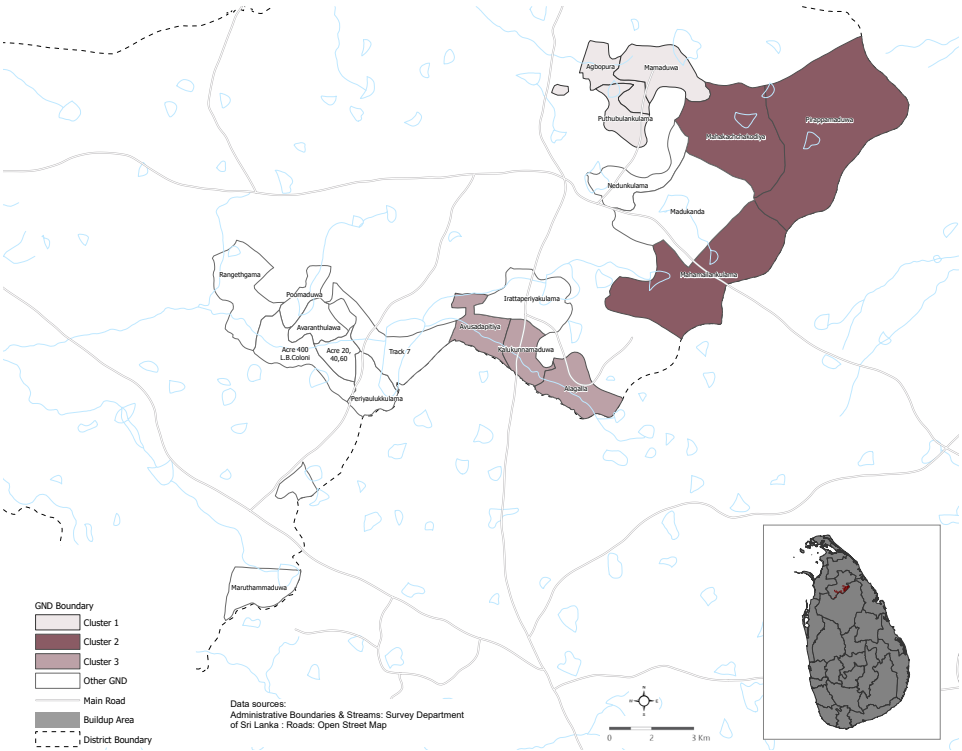
Livelihood Resilience Assessment in Vavuniya South, Sri Lanka

March, 2024 | Vavuniya South, Vavuniya District

KEY MESSAGES

- As reported by KIs and FGD participants from Vavuniya South, **droughts**, **heavy rains with floods**, and **human-elephant conflict (HEC)** were the main hazards impacting the communities.
- **Damage** to **agricultural land** and **crops**, along with the **loss of livestock**, **endangered farming livelihoods,** according to KIs and FGD participants. Respondents also noted that **reduced fish populations threatened fishing livelihoods.** These factors reportedly **decreased income, triggering food insecurity and poverty**.
- According to reports from KIs and FGD participants, **poor infrastructure**, such as the **absence of appropriate drainage systems** and **limited access** to **farming lands** and **water**, contributed to experienced **vulnerability**. **Low levels** of **education** and **technical knowledge** on **Disaster Risk Reduction (DRR)** and **livelihood resilience** measures also **aggravated vulnerability**.
- **Priority mitigation** activities **recommended** by respondents for **droughts** included **constructing** or **repairing agricultural water facilities**. While for **floods**, **improving** and **maintaining drainage systems** were recommended by respondents. To address **HEC**, **constructing elephant fences** was recommended as a priority.

Map 1 - Vavuniya South division and clusters of Grama Niladhari



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CONTEXT & RATIONALE

Located in the Northern province, Vavuniya district, Vavuniya South division (DSD) covers an area of 188.5 km^2, with a population of 16,617 individuals, of whom 51% are female and 29% are children. It is estimated that the dependency ratio reaches 36,4%, which is the population below 15 and above 60 years old. The average population density is 88,2/ km^2. The terrain in Vavuniya South is mainly flat, with several lagoons and water bodies in the region contributing to agriculture, livestock, and fishing activities. Vavuniya South was strongly affected by the 26-year civil war and now faces various natural hazards. Vavuniya South's geography significantly shapes its economy, with livelihood activities primarily revolving around agriculture. Out of 188.5 km^2 of the area, 54.6 km^2 is for paddy cultivation, making it the predominant agricultural activity. The farmers primarily engage in highland crop cultivation in this region. In addition, freshwater fishing is being conducted on a small scale in the inland water sources.

ASSESSMENT OVERVIEW

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

Methodology

A qualitative, semi-structured questionnaire was administered to 20 key informants (KIs) and 12 focus group discussions (FGDs) from January to February 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 Management practices in place

In Vavuniya South, the mainstreamed Disaster Risk Management (DRM) mechanism featured a functioning disaster management committee at the district level, responsible for establishing and implementing disaster management plans and activities. A district-level local authority (LA) KI explained that when a risk mitigation activity was identified, the Grama Niladhari was notified, who then informed the Divisional Secretariat. This was then shared with the District Secretariat, which then alerted the relevant departments such as the Department of Irrigation, Department of Agriculture, and Department of Wildlife Conservation.

Another KI reported that early warning dissemination was supervised by the Disaster Management Centre (DMC), which was then shared with village leaders, agricultural organizations, farmers, CBOs, and the rest of the community through social media platforms like WhatsApp and Viber. Participants from a female FGD in cluster 3 added that religious leaders also played a role in disseminating warnings to the community.

KIs further reported that the Department of Agriculture provided risk financing support through agricultural loans for farmers, supported by a local women's CBO. Organizations involved in disaster risk reduction (DRR) included local CBOs, such as farmer organizations and women-led organizations, and international INGOs, such as the Agriculture Food Agency, UN, USAID, and Oxfam in partnership with Cargill marketing centre, to support farmers' livelihood resilience through initiatives such as papaya cultivation and jam production.

Main hazards in Vavuniya South

As depicted in the table below, the main hazards reported by KIs were drought, followed by heavy rains with flooding, storms and strong winds, and human-elephant conflict (HEC). Less frequently reported hazards included other animal conflicts, climate change, and COVID-19. On the other hand, participants from FGDs identified heavy rains, HEC, and drought, with equal significance. Other animal conflicts and storms with strong winds were reported less frequently. KIs and FGD participants noted floods occurred annually, droughts every two years, and elephant attacks year-round.

Table 1: Main hazards in Vavuniya South as reported by KIs (total no. 25) and FGD participants (total no.12)

Major hazards	No. KI	No. FGD
Drought	18	6
Heavy rain with flooding	14	6
Human-elephant conflict	12	6
Storms and strong winds	13	1
Other animal conflict	8	2

Primary impacts of hazards

KIs and FGD participants reported that the most recurring impacts of floods, droughts and HEC were the loss or damage of crops on agricultural land. Floods were frequently reported to inundate low-lying agricultural lands and home gardens, worsened by heavy rains overflowing neighbouring water sources such as the Madukanda reservoir, and the lack of adequate drainage. LA and CBO KIs suggest that stagnant floodwaters led to root rot and the spread of crop diseases, particularly in rice crops. The crops most reported as lost or damaged included paddy, chena, chilli, brinjal, grams, pumpkin, and other vegetables, reported KIs. A district-level LA KI noted a 50% loss in black gram production and a CBO KI from cluster 2 noted 60 acres of lost paddy crops this year due to heavy rains.

Excessive heat and water scarcity in tanks and ponds during droughts hindered crop irrigation, leading to the loss of profitable harvests for farmers. KIs and FGD participants reported elephants destroying fruit trees such as coconut, banana, mango, and jackfruit. Additionally, KIs reported on the loss or damage of agricultural equipment and structures caused by elephants and muddy conditions from heavy rains cattle farming FGD participants reported livestock losses and harm from diseases such as hoof rot during heavy rains and lack of water or food during drought. A CBO KI from cluster 3 reported reduced dairy production caused by the limited food for cattle. These hazards reduced or halted agricultural activities, affecting farmers' livelihoods and economic stability, reported KIs.

Some KIs, such as a CBO KI from cluster 3, noted that Vavuniya South's fishing industry is small. Participants from a fishing FGD in cluster 3 reported decreasing fish numbers in Lake Alagalla during drought and fish swimming too deep to catch during heavy rains. Fishing activities were limited by associated risk with heavy rains and fish scarcity during droughts, reported KIs. A DSD KI and FGD participants reported damage to fishing boats and equipment in Mullikulam from elephants and fishing nets by strong winds.

In Vavuniya South, community houses, particularly those made of wattle and daub, collapsed or were severely damaged during heavy rains. Participants from a female farming FGD in cluster 3 reported the loss of fifty houses in Ausdapitiya when tanks in Upper Pudukulama and Lower Pududukulama overflowed from heavy rains. Houses were also damaged when Lake Sinnakulama overflowed affecting the community in Sinnakulama and neighboring canal overflow in Kaekunnamduwa. Participants from a farming FGD in cluster 1 reported houses in Mamaduwa were damaged by elephants. A few KIs and FGD participants reported that damaged or collapsed houses during heavy rains and water scarcity during droughts displaced families. One DSD KI reported the displacement of 15 families from Palaya Wadi, Muthumari Nagar, because of flooding.

Sanitation facilities, such as toilet pits, overflowed during rainy periods, reported KIs. FGD participants from cluster 3 added that damaged sanitary systems increased health concerns for cholera, diarrhoea, and dengue fever. KIs and FGD participants reported water-blocked roads in Pattikkudiyiruppu, Olumadu and Kaekunnamduwa. Drinking water became scarce during drought, reported FGD participants and KIs. Female participants from an FGD in cluster 3 reported that cattle herders and their cattle lost their lives in their search for grazing pastures. Wild elephants have also harassed villagers and damaged motorcycles, three-wheelers, and small lorries, reported participants from a male FGD in a cluster.

Secondary consequences of hazards

Economic

Key findings from KIs and FGD participants highlighted the loss of income or investment as a significant secondary consequence of hazards. Heavy rains, droughts, and HEC primarily reduced or halted crop production and sales, decreasing farmers' income and increasing poverty. Participants from a fishing FGD in cluster one noted that the decline of the local farming industry contributed to the local economy's collapse. Female participants from a cattle farming FGD in cluster 3 reported a decrease in livestock and dairy production, from 5 litres to barely 1 litre of milk, due to water and food scarcity during droughts, severely impacting income and exacerbating poverty for cattle farmers.

A DSD KI reported the loss of daily income during hazards, leaving fishers without alternative employment opportunities. A DSD LA KI suggested that while recurring hazards significantly increase poverty, it is not the sole contributor; mental health concerns and limited socio-economic opportunities also played a role. They added that 650 families live below the poverty line in Vavuniya South.

KIs and FGD participants observed that as a result of reduced harvest sales, the prices of vegetables and grains such as rice increased significantly. However, weak market pricing policies forced farmers to sell produce at low prices to third parties who inflated the rates, as reported by LA KIs. Lastly, reduced access to loans, debt repayments, and issues with pawned items were also reported as a challenge to economic security by LA KI and FGD participants.

Food access

KIs and FGD participants reported that the increase in food prices, especially staples like rice and vegetables, was the most significant secondary consequence of hazards affecting communities' access to food. Factors such as reduced harvest, on account of hazards, the absence of fixed-price policies, and the influence of third-party traders led to scarcity and price increases in local markets.

Destroyed home gardens, which had been used as a household food supply, further reduced food availability, reported KIs. LA KIs reported that the inflation in food prices combined with farmers' loss of income, had affected families' ability to afford three meals, with parents skipping meals to ensure their children are fed. A CBO KI from cluster 1 added that children or adults with special needs, pregnant mothers, and young children were not able to meet nutritional needs. FGD participants revealed the daily struggle to access meals due to high food prices and reduced financial means.

Social tension

While most KIs reported the absence of social tension as a secondary consequence of hazards, FGD participants and some KIs emphasized community disputes over water and farming land access. A CBO KI from cluster 2 and a KI LA reported that during drought when water levels are low, poor water management and distribution resulted in tension between farmers and fishers. A local farming organization, authorized by the local government to distribute water from tanks for cultivation, caused disputes by preventing fishers from accessing water sources. The CBO KI and male FGD participants from cluster 2 added that government-endorsed cultivation well on private land, designed to be shared amongst four farmers, led to conflicts as the landowner restricted access to other farmers, impacting cultivation during drought.

Participants from a cattle farming FGD in cluster 3 reported limited grazing lands during droughts force cattle farmers to herd on private lands, damaging harvest and leading to demands for compensation. Divisional-level LA KIs reported an increase in familial disputes over land rights and conflict with the Department of Welfare services over development projects, in response to hazards and the economic situation. An LA KI cited an instance where an expanded pond reduced the size of the community farming land, increasing land-related tensions.

FGD participants most frequently reported theft as a cause of social tension, on account of economic instability caused by hazards. Participants from cattle farming FGDs in clusters 1 and 3 reported the theft of cows as particularly challenging for female cattle farmers.

Education

KIs findings provided conflicting reports on school dropout rates. Most CBO KIs reported no increase in school dropouts, while most LA KIs noted a rise in dropouts and attendance interruptions due to hazards. LA KIs suggested that reduced income and rising poverty prevent families from affording school supplies and transportation, leading to dropouts in the division. Participants from FGDs also reported an increase in school dropouts due to poverty triggered by recurring hazards, which left families unable to afford school supplies, bus transportation, and proper child nutrition.

Health

Key findings from FGD participants identified the decline in mental well-being and the increase in psychological distress as a secondary consequence of hazards. Participants from farming and cattle farming FGDs in clusters 1 and 3 reported that crop destruction and livestock illness or loss led to income losses, debt increases, poverty, and an inability to afford daily costs, leading to psychological stress and mental anguish.

Additionally, KIs and FGD participants reported that during heavy rains, sanitation facilities were destroyed, spreading water-borne diseases such as cholera and diarrhoea. FGD participants also noted an increase in dengue caused by stagnant flood waters. An LA KI noted that floods disrupt transportation and health services, affecting emergency services.

Vulnerability to hazards

Groups in vulnerable positions

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

Farmers

KIs reported farmers as the group in the most vulnerable position. The main reason for this is attributed to their dependence on agriculture and a lack of other skills to engage in alternative livelihoods. KIs and FGD participants noted that farmers often cultivate in high-risk areas such as flood-prone areas near lakes (Mamaduwa Lake, Rambuklan Lake) or tanks that overflowed during heavy rains in monsoon season. FGD participants added that mismanagement of sluice gates led to flooding in cultivation lands, destroying crops. KIs also cited that highland cultivations were susceptible to drought, and areas near forests were prone to elephant attacks, exacerbated by the absence of protective fencing and deterrents.

Participants from cattle farming FGDs emphasized inadequate access to grazing land for dairy cows. While government-owned lands can be used, there was no support mechanism from the government to permit grazing or provide other solutions. KIs identified that limited land for cultivation is a key factor in

vulnerability against recurrent hazards. Grama Niladhari (GN) KIs from clusters 2 and 3 reported the absence of land ownership for farmers who are dependent on home gardens, often no larger than half an acre in size.

FGD participants from clusters 1 and 2 reported that Pirappanmaduwa lacked accessible water sources such as lakes and catchment areas. They highlighted that available water sources were blocked by an army settlement and the construction of houses near the tanks, making it inaccessible to farmers and the broader community. Water access was further reported to be restricted to privileged private landowners, not farmers, exacerbating challenges during droughts, and impacting harvests.

Participants from cattle farming FGDs identified the lack of cattle sheds as a primary vulnerability. During heavy rains, livestock contract illnesses such as hoof diseases due to the absence of dry shelter. Limited finances prevented farmers from purchasing medicine or travelling to distant veterinary offices. Transporting cattle to veterinary clinics during heavy rains was also challenging. Participants added that they had limited knowledge of best practices in cattle farming and the absence of government interventions to improve their expertise. A cattle farming FGD in cluster 2 added that older community members held poor attitudes towards dairy farmers and their livelihoods.

Participants from farming FGD mentioned poor access to proper agricultural equipment that could withstand hazards, which led to the constant repurchasing of new tools, adding to the financial strain from hazards. Female farming participants from an FGD in cluster 3 reported the absence of life-saving equipment for emergencies such as floods, reducing their resilience.

Fishers

Following farmers in Vavuniya South, fishers were reported by KIs as another group vulnerably positioned against hazards. A district-level KI highlighted fishers' main vulnerability as their lack of knowledge or skills in alternative livelihoods. However, other KIs suggested that fishers are engaged in alternative livelihoods such as farming, daily wage, and civil service. A women-led CBO in cluster 1 commented on the financial dependency of female fishers on their husband's income, suggesting intersectional vulnerability for female fishers.

Participants from a male fishing group in cluster 1 reported that the lack of financial support impacted their ability to stock lakes with fish fingerlings. They also mentioned lake silting as a cause for limb and skin infections, and nail rot among fishers.

Participants from a male fishing group in cluster 3 emphasized the absence of high-quality fishing gear that could withstand hazards, thereby increasing fishers' vulnerabilities. Moreover, Vavuniya South fishers reportedly experienced conflict with farmers over access to water sources, such as Lake Alagalla, which authorized fishing for one month a year, significantly affecting their livelihood and economic stability. These participants also noted insufficient capacity-building opportunities, knowledge-building initiatives, and access to relevant stakeholders to share grievances as factors increasing vulnerability.

Female-headed households, people with a disability

FHH and people with a disability/households with a member with a disability were reported to be vulnerably positioned against recurrent hazards. A GN KI from cluster 1 reported that their jurisdiction housed three households with a member with a disability and 40 FHH. Participants from a female farming FGD in cluster 3 added that Kalukunnammaduwa housed around 30 households with a member with a disability and 25 FHH.

A district-level LA KI suggested an increase in FHH, widowed due to the recent civil war. The KI emphasized that FHH received low wages from wage labour income, which was insufficient to sustain their households. A divisional-level KI added that they also engaged in farming, and experienced greater impacts from hazards to their livelihood. Participants from an FGD in cluster 2 noted instances where FHH were not engaged in any livelihood and were dependent on government benefits.

Other groups

Additionally, school dropouts and low-income households dependent on government Samurdhi benefits were other groups vulnerable to the impact of hazards, as reported by KIs.

Pre-existing infrastructural conditions

KIs most frequently reported pre-existing infrastructural conditions contributing to community vulnerability included inadequate drainage and canals. These poorly installed systems failed to filter out excess floodwater from roads and agricultural land, leading to increased damage. One such example, highlighted by FGD participants, was the absence of proper drainage in Kalukunnammaduwa, which resulted in the loss of vegetables and legumes. Some CBO KIs noted that certain drains were only partially constructed, with no indication of completion. Poorly installed irrigation systems, from lakes to cultivation lands, further impacted farming livelihoods. Additionally, poorly constructed roads in the area exacerbated vulnerability to heavy rains and flooding, resulting in difficulties for farmers to access markets to sell their yield.

Poor infrastructure and urban planning, including illegal housing, houses and lands in flood-prone areas (near lakes and canals), and houses constantly in states of repair from recurrent hazard damages reduced the resilience of communities.

Pre-existing attitudinal conditions

KIs primarily identified the lack of education on technical livelihood skills, resilience, and DRR for fishers, farmers, and the broader community as key attitudinal factors contributing to vulnerability. Some KIs suggested the lack of education stemmed from the limited availability of awareness or capacity-building programs, while others attributed it to low community participation in existing programs.

Alternative sources of income

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

Alternative sources of income	No. KI	No. FGD	No. KI	No. FGD
	Farming		Fishing	
Daily wage labour	9	0	6	0
Government Civil Service	9	1	5	0
Livestock rearing and husbandry	2	0	7	1
Self-employment	3	0	0	0
Shop owner	1	0	4	0
Agriculture	0	0	4	0
Agriculture	0	0	4	0

Most KIs reported main fishing locations to be in nearby freshwater rivers, ponds, and tanks such as Pavakkalang Lake and Mamaduwa tank. Alternative fishing locations were identified to be other freshwater sources such as Mahamaylankulam Lake, used when main freshwater sources are affected by heavy rains or droughts.

Disaster preparedness and risk mitigation measures

Community disaster preparedness and response

Data from CBO and LA KIs indicated that the community's involvement in disaster preparedness and response was predominantly confined to participating in training and activities conducted by government departments or CBOs, adhering to emergency warning and evacuation plans, and disseminating information within the community. A few KIs noted that the community's role had yet to be clearly defined. However, KI reported communities' involvement in infrastructure maintenance, such as repairing waterways (e.g., drains, and canals) and trimming tree branches to prevent damage during heavy storms.

Moreover, FGD participants reported more community engagement against recurring HEC compared to other hazards, including collective crop protection, using nets to safeguard crops, and employing deterrents such as gunshots and explosives to drive elephants away. During droughts, FGD participants reported engaging in rainwater harvesting during the Maha season for crop irrigation providing drinking water for both humans and cattle.

Government disaster preparedness and response

In Vavuniya South, LA KIs reported that community awareness of DRR and livelihood resilience were the most common disaster preparedness measures conducted by the government for communities. A divisional-level LA KI mentioned introducing heat tolerant and high-yield crop varieties to farmers, along with sustainable farming techniques to enhance farmers' productivity and resilience. Two LA KIs discussed current efforts to raise DRR awareness but noted challenges with community participation and cooperation.

LA KIs also reported that the divisional Disaster Management Centre (DMC) oversaw risk management activities in the communities. The DMC had created a risk map illustrating the most high-risk areas, though this map was only available at the DMC department office. The divisional secretariat or village service officer plays the primary role in disseminating emergency warnings via Whatsapp group messages or loudspeakers. A DMC KI noted that emergency drills, known as 'Mukkrill' were conducted twice a year in the division. Additionally, a district-level KI reported annual meetings with the DMC, other relevant departments, and NGOs to discuss and plan risk mitigation activities.

Some KIs, including a CBO KI from cluster 1, reported that the most common joint DRM actions were evacuation support and immediate relief by authorities in collaboration with local VCDs and community members. Evacuations were directed to locations such as Alagalla Seva Piyasa, Kalukunnamduwa Community Hall, Ausadapitiya Community Hall, Periya Ulukkulam Fishing Village Kindergarten, and other schools or public buildings. The district secretariat office was reportedly responsible for supplying food and water to these temporary evacuation centres.

However, a few LA KIs and CBO KIs commented, that to their knowledge there was a lack of risk maps, early warning systems, and emergency drills.

Other actions reported by KI included constructing an estimated 19-kilometre elephant fence and conducting annual pond repairs. Financial assistance from the government, as reported by KIs, included crop compensation, with authorities conducting field visits to estimate damage costs, caused by hazards, crop insurance after the crop sowing stage, and low-interest loans provided by Grama Shakti's ranging from Rs 20,000 to Rs 100,000 with a one-year tenure without collateral. In addition to the Grama Shakti loan, the Revival loan scheme by the National Institute of Agricultural Policy (NIAP) with a 4% interest rate, was facilitated by development officers from the divisional secretariat and the district secretariat.

Civil Society disaster preparedness and response

The most reported disaster preparedness and response activity was supporting government officials in disseminating early warnings to the community. After CBOs, particularly farming CBOS and religious leaders were notified of a hazard, they collaborated with the Department of Rural Service to share warnings via a WhatsApp group with farmers. Although local CBOs reportedly lacked their own early warning systems and relied on local governments, their primary role was to disseminate warnings. A CBO KI added that they played a leading role in evacuating and directing the community to safe locations during heavy rains. CBOs' role in climate change awareness, DRR awareness, and capacity building were also frequently reported by CBO KIs. Farming CBOs were cited as the main facilitators of awareness and capacity building, with farmers being the primary targets of these initiatives, much like early warning dissemination.

Other initiatives, though reported with lower frequency, included a VCD from cluster 2 sharing that female farmers affected by reducing cultivation activities due to hazards were provided with crop seeds. The World Bank along with the EU reportedly funded the Agriculture Sector Modernization Project (ASMP) under the Ministry of Agriculture to implement a papaya cultivation project. A GN from cluster 2 reported on CBOs' involvement in data collection on the loss of crops, livestock, and fishers' loss of equipment.

A KI in cluster 2 reported that their organization monitored the distribution of tank water for irrigation during drought. During heavy rains, the organization also managed the opening and closing of sluice gates. Other activities noted by CBOs, though less frequently reported, included the repair, deepening, and cleaning of water sources and waterways.

Livelihood risk mitigation measures

The most reported livelihood risk mitigation measures reported by Vavuniya Souths KI were community awareness programs on climate change, DRR, and livelihood resilience. LA KIs reported previous actions to mitigate risk, including providing farmers with agriculture inputs such as seeds and fertilizers. A KI mentioned that relevant government departments also stocked lakes with fish fingerlings. Participants from a fishing FGD in cluster 3 reported that the district secretariat provided livelihood capacity building to the fishing community on fish drying and sales. Participants from a farming FGD in cluster 3 reported that the government provided free seeds, such as maize and sorghum, in Kalukunnammaduwa and Ausadapitiya. However, they pointed out that these projects often benefited the already financially privileged people rather than those with fewer resources. FGD participants from cluster 2 also shared instances of unfair distribution of government provisions in Selalihini Village.

FGD participants from another FGD in cluster 3 noted that farmers could not harvest crops from seeds provided by the government as a disaster occurred, reducing yield. FGD participants from cluster 2 also mentioned an incomplete elephant fence project in Mahakachchakodiya. Notably, more KI highlighted the absence of

previous activities or projects aimed at livelihood risk mitigation.

Traditional stratagies

Traditional strategies to mitigate disaster impacts, as reported by FGD participants, included a mantra performed by farmers to drive away elephants. Participants from cattle farming FGDs mentioned using coconut oil and mustard to kill and prevent the spread of worms on cows. They also used coconut oil on injured cattle and saltwater to prevent hoof disease. Milk was also used as an offering to a deity in July. To prevent wild pig intrusions, cattle farmers reportedly hung torches to protect fields and placed their hair across fields.

Barriers to risk mitigation

Governance capacity needs

Barriers to incorporating risk mitigation measures were primarily attributed to capacity and governance gaps, as highlighted by both KIs and FGD participants. KIs and FGD participants frequently cited limited funding for government and CBOs, specifically noting the limited support for DRR, livelihood resilience awareness and training, and agricultural subsidy programs.

Additionally, KIs and FGD participants reported the limited implementation of policies or interventions. Although LA KIs noted the presence of a disaster management centre, they experienced challenges in operational effectiveness, primarily due to the limited number of individuals managing these efforts. Another KI emphasized the shortage of officials capable of implementing effective mitigation measures. KIs also reported on previous initiatives with low impacts, such as incomplete elephant fences, poorly designed rainwater harvesting systems, and inadequate drainage infrastructure. Furthermore, participants from male farming FGDs in cluster 2 reported community visits to gather opinions and perceptions for potential solutions. However, the solutions haven't been implemented yet.

In addition, there is a need to strengthen cooperation among government departments, CBOs focused on fishing and farming, and the broader community were identified as a significant barrier to the effective incorporation of risk mitigation measures by CBOs and LA KIs.

Governmental policy impact on hazard mitigation

KI reports implied that there was no direct policy influence on hazard mitigation. For instance, a GN KI noted that government policies had no impact on hazard mitigation. However, this was contradicted by reports from district-level LAs and CBO KIs.

Gazette Extraordinary No.2238/45, issued July 31, 2021, lifted the previous ban on chelated minerals and micronutrients in favour of an Import Control License (ICL) regulation. Farmers without a valid ICL were unable to purchase chemical fertilizers, insecticides, urea, and other essential agricultural inputs. A district-level KI reported that this act, aimed at increasing organic fertilizer use, resulted in urea and fertilizer shortages, market inflation, and devasted yield outputs.

In early 2023, the Minister of Agriculture and Plantation Industries announced changes to the fertilizer subsidy program, providing Rs 20,00 per hectare and Rs 40,000 per two acres, as detailed in the budget progress 2023/2034 reported by the Ministry of Agriculture and Plantation Industries, under Expenditure Head No. 118-2-03-021-1504.

A CBO KI mentioned the provision of fertilizer subsidies to low-income families as a mitigation policy. However, another CBO KI shared that farmers with more than two hectares of land were excluded from the fertilizer subsidy program, impacting farmers' financing of cultivation

Risk financing

Vavuniya Souths KIs reported that private and government-owned banks, such as the Co-operative Rural Bank (CRB) and the Samurdhi Development Bank, provided low-interest loans and credit schemes as the most common form of risk financing. These loans assisted farmers in purchasing modern agricultural equipment and technology. However, a district-level KI noted potential challenges with loan repayments. Additionally, a district-level KI reported a risk financing mechanism by the Department of Public Welfare Service, applied when crops were damaged by elephants. Another KI mentioned government compensation for droughts and a fertilizer subsidy for low-income families in the division. However, other KIs suggested an absence of risk financing, with significant delays when available. For example, a CBO KI reported that remotely located farmers and fishers lacked access to banks or insurance companies for risk financing. An LA KI added that fishers' whose nets were destroyed by crocodiles had been informed that the relevant government department was short of funds to adequately compensate fishers for their losses.

Limitations of funding or technical capacity

Data from KIs revealed that the unavailability of adequate funding and technical capacity impacts the development and potential for agricultural training or capacity building. An LA KI emphasized the absence of training on innovative agricultural practices, climate resilience crops, and modern technology is due to the lack of funds for budgeting a training facility, training potential trainers from government departments, and acquiring new technologies and methodologies. Participants from a farming FGD in cluster 1 further noted that farmers are unaware of protective measures against extreme heat and heavy flooding, which reduces their resilience. Another LA KI added that this deficit has resulted in poor crop yield, hindering sales in both domestic and international markets. Additionally, KIs highlighted the lack of recurring DRR training for farmers due to funding constraints.

Subsequent findings from KIs and FGD participants revealed that various infrastructure projects could not be constructed due to limited funding from government departments, CBO, individuals, cooperatives, and inadequate technical capacity. These projects included elephant fencing, irrigation systems, agricultural and drinking wells, draining systems, and waterways (canals and culverts). KIs also noted the shortage of manpower for maintaining and cleaning waterways and water sources. The absence of these infrastructures and poor maintenance of existing ones has heightened vulnerability to recurrent hazards such as HEC, drought, and flooding.

Moreover, KIs and FGD participants reported that limited personal financial capacity to purchase new seeds and agricultural equipment impacts farmers. Participants from fishing FGDs identified that the priority activity, the restoration of lakes, could not be accomplished due to limited funding. They suggested that restoring the lake would enable fishers to engage in activities for six months of the year, thereby stabilizing their economic situation. Other cost-related activities not implemented by fishers included removing silt from the lakes to improve fishing, stocking lakes with fingerlings, repurchasing damaged fishing equipment, and constructing a pier.

Participants from cattle farming FGDs reported that high costs prevented the implementation of several activities, including providing adequate food and nutrients for cattle, improving dairy production and marketing capacity, constructing cattle sheds, making and storing fodder, acquiring hygienic dairy machinery and medicine or vaccination for cows. Cattle farmers supposed that access to these resources would enhance resilience and

reduce vulnerability to hazards.

Solutions suggested by KIs and FGD participants for disaster resilience building

Recommended DRR activities

KIs and FGD participants emphasized the importance of establishing and increasing DRR awareness. A representative from a women-led CBO KI from cluster 2 recommended creating and posting awareness posters in community spaces and providing residents with reading material to familiarize themselves with DRR concepts. This would reportedly improve communities' ability to cope with hazards. Participants from FGDs suggested increasing DRR awareness training to address risk reduction for droughts. It was also noted that only farmers benefited from previous DRR awareness programs, suggesting the scope should be expanded to include fishers and the broader community.

KI findings also noted the necessity of improving DRR communication and coordination between government departments, CBOs, and the community. CBO KIs suggested improving communication by the local DRR committee and proposed granting more roles to community members to improve local coordination. An LA KI recommended forming a WhatsApp group for the community to share notifications and early warnings. The KI further added early warning timing must be improved to provide communities with ample time to employ emergency protocols

Livelihood solutions for fishing communities

Data collected from KIs indicated that restoring water sources by repairing and deepening tanks and ponds, combined with increasing fingerlings, would enhance the resilience of fishers' livelihoods. KIs also recommended improving disaster compensation for fishers to secure their livelihood post-disaster. Participants from fishing FGDs and an LA KI suggested increasing access to loans to purchase fishing gear and modern equipment to improve livelihoods and reduce financial difficulties. An NGO KI recommended increasing training on alternative skills to enable engagement in other livelihoods when fishing is reduced or ceased because of hazards.

Livelihood solutions for farming communities

KI findings highlighted agricultural crop insurance and compensation as a priority solution for farmers' resilience against the impacts of hazards. A CBO KI suggested that post-disaster compensation supports farmers in financing replanting efforts. Participants from farming FGDs also recommended establishing or increasing access to risk financing, such as government disaster compensation, loans, and credit schemes This was followed by recommendations to raise awareness and build capacity on livelihood resilience, including cultivation of climate-resilient crops, composting, and using modern agricultural technologies. An NGO KI proposed that livelihood resilience training could create opportunities to develop additional income sources from agriculture. A representative from a women-led CBO from cluster 1 recommended creating networks and improving coordination between farmers, CBOs, and government departments.

Recommendations by male and female participants from cattle farming FGD in cluster 3 prioritized the provision of adequate grazing land or fodder for dairy cows. Cattle farming FGD participants further suggested establishing a milk collection centre to improve dairy sales, encouraging the production and sale of curd, and improving coordination between veterinarians and dairy farmers to ensure the health of cows. Additionally, participants recommended the construction of high-rise cow sheds to reduce health concerns during floods.

Recommended solutions for flood mitigation

As portrayed in the table below, KIs priority recommendation to mitigate the effects of floods was to improve and maintain drainage or canal systems for enhanced floodwater management. An LA KI suggested constructing a canal system in Alagalla, Ausadapitiya, and Kalukunnamduwa, including a canal leading flood water away from the Ausdapitiya and Pubudugama main roads.

The construction or repair of water sources was also recommended by KIs, with CBO KIs suggesting building an embankment by the lower part of a lake and deepening existing lakes and ponds to reduce overflow during heavy rains. Additionally, KIs reported the necessity of improving government flood relief assistance to support community resilience against the impacts of floods on their livelihood. Participants from a female farming FGD in cluster 3 suggested developing the scope and efficiency of community-led disaster relief initiatives

Table 3: Recommended solutions for flood mitigation

Recommended mitigation solutions	No. KI	No. FGD
Construct or improve drainage facilities	6	0
Construct or renovate water stores	4	0
Increase or improve government flood relief measures	2	0
Improve community-led relief initiatives	0	1

Recommended solutions for drought mitigation

As depicted in the table below, the priority solution recommended by KIs and FGD participants was to construct and rehabilitate agricultural water stores such as tanks, dams, and ponds to mitigate water scarcity during droughts. A divisional-level KI recommended constructing and renovating water sources using technology to prevent water depletion during drought. Divisional-level KIs and FGD participants recommended increasing drinking water facilities such as tube wells and deepening existing facilities to withstand extreme drought. Cleaning silt from a lake for improved access to water was also recommended by a CBO KI. Participants from a female cattle farming FGD in cluster 1 suggested constructing water tanks to reduce cattle dehydration.

A representative from a village committee for disaster (VCD) from cluster 2 recommended increasing home gardening, while participants from a male farming group in cluster 1 recommended increasing food stockpiling to prepare for food scarcity during droughts. Moreover, a representative from a VCD in cluster 1 solution prioritized promoting new irrigation methods such as rainwater harvesting. An LA KI recommended introducing sustainable cultivation methodologies and technologies such as water-conserving agriculture practices during droughts. FGD participants from cluster 2 recommended afforestation with trees such as the Arjun tree to develop water catchment areas. Participants from a female FGD in cluster 1 suggested the provision of seeds to improve grasslands for cattle consumption.

Table 4: Recommended solutions for drought mitigation

Recommended mitigation solutions	No. KI	No. FGD
Construction or rehabilitation of agricultural water storage facilities	11	3
Drinking water facilities	3	1
Introduce new cultivation methods and technology	1	0
Introduce new irrigation systems	1	0
Home gardening	1	0
Food stockpiling	0	1
Afforestation of catchment area	0	1
Provision of seeds	0	1

Recommended solutions for human-elephant conflict

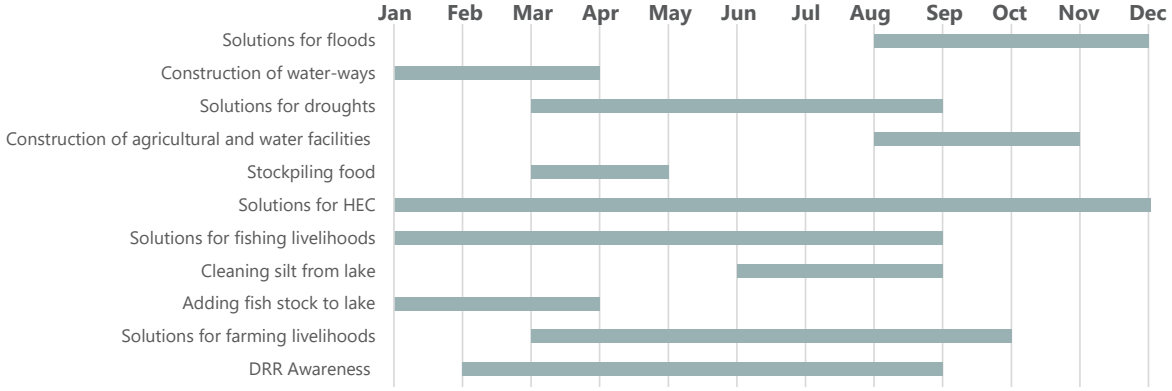
As shown in the table below, the priority solution recommended by KIs and FGD participants was to construct and maintain elephant fences. KIs suggested that fencing would efficiently protect farmers' home gardens and crops. A woman-led CBO in cluster 1 specifically recommended the construction of an electric fence along the perimeter of their village. Male participants from farming FGDs in cluster 2 noted wealthy landowners with private fencing could deter elephant intrusion, and they recommended similar fencing for farmers with less economic resources in Mahakachchakodiya. These participants also recommended that officials from the Department of Wildlife Conservation improve measures to drive away wild elephants. A CBO KI from cluster 2 suggested installing night lights to assist communities in identifying elephant movements.

Table 5: Recommended solutions for human-elephant conflict

Recommended solutions for HEC	No. KI	No. FGD
Construction or maintenance of elephant fences	10	2
Install night lights	1	0
Increase security through the Department of Wildlife Conservation	0	2

Recommended implementation period

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



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 three Clusters of GNDs in Vavuniya South identified by the ABRA. Cluster 1 included Agbopura, Mamaduwa, and Puthubulankulama. Cluster 2 included Mahakachchakodiya, Pirappanmaduwa, and Mahamailankulama. Cluster 3 included Alagalla, Kalkunnamaduwa, and Ausadapitiya.

A purposive and snowballing sampling method was employed, with 20 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 key informant interviews (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 third-party professionals 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 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 The Gazette Extraordinary No.2238/45, Imports and Exports Controls Department, Operating instructions No.22/2021, IECD/6/1/10/2021/Vol 1. Retrieved July 30, 2024.

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