ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular-sized Project Concept

Country/Region: Sri Lanka
Project Title: Empowering Coastal Sri Lanka: Livelihoods and Preparedness for a Climate-resilient Future (E-COAST Sri Lanka)
Thematic Focal Area: Multi-sector projects
Implementing Entity: World Food Programme
Executing Entities: Ministry of Environment
AF Project ID: AF00000435
IE Project ID:
Requested Financing from Adaptation Fund (US Dollars): 9,994,600
Reviewer and contact person: Alyssa Maria Gomes
Co-reviewer(s): Lystra Fletcher-Paul
IE Contact Person:

Technical Summary	The project "Empowering Coastal Sri Lanka: Livelihoods and Preparedness for a Climate-resilient Future" aims to strengthen the resilience of coastal communities to climate change by building cross-sectoral capacity, promoting climate-resilient livelihoods, and enhancing climate risk preparedness within key institutions and amongst vulnerable coastal populations. This will be done through the two components below: Component 1: Climate-resilient coastal livelihoods (USD 6,250,000) Component 2: Preparedness for climate-related hazards (USD 2,220,000) Requested financing overview: Project/Programme Execution Cost: USD 804,650 Total Project/Programme Cost: USD 9,274,650 Implementing Fee: USD 719,950 Financing Requested: USD 9,994,650 The first technical review raises some issues such as consistency of the contents of some sections, estimation of environmental benefits, alignment with the Adaptation Fund Strategic Results Framework, compliance with National Technical Standards, strategies for sustainability, and clarification on arrangements for incorporating the results of

	additional information from evaluations for Unidentified Sub-Projects, as is discussed in the number of Clarification Requests (CRs) and Corrective Action Requests (CARs) raised in the review. *Please be advised that the findings of the AFB Secretariat's review of the funding proposal(s) do not reflect, indicate, or prejudge the outcome of the reaccreditation process currently underway. The Implementing Entity (IE) shall acknowledge that the funding proposal will not be approved by the Board if the IE's accreditation has expired, and reaccreditation has not been achieved at the time of the Board's decision. Notwithstanding this potential risk, the IE has elected to proceed with the development of the funding proposal.*
Date:	June 23, 2025

Review Criteria	**Questions**	**First Technical Review Comments June 23, 2025**	**WFP Response July 14, 2025**
Country Eligibility	1. Is the country party to the Kyoto Protocol, and/or the Paris Agreement?	**Yes.**	-
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	The country is vulnerable to long-term changes in rainfall distribution, shifts in ecological boundaries, increasing temperatures and heat, and rising sea levels; all of which critically impact agriculture, fisheries, livestock, water, biodiversity, coastal and marine, health, urban planning, human settlements, and tourism. Sri Lanka is ranked 110th out of 181 countries in the 2022 ND-GAIN Index, which means that it is highly vulnerable to climate change but has a comparatively high level of readiness.	-
Project Eligibility	1. Has the designated government	**Yes.**	-

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	authority for the Adaptation Fund endorsed the project/programme?	As per the Endorsement letter dated 24 April 2025 signed by K. R. Uduwawala, Secretary of the Ministry of Environment. This name is different from the one indicated in the AF records, however, in a letter which was appended in the country's submission, it was indicated that Mr. Uduwawala has been nominated as the primary contact and signing authority of the government.	
	2. Does the length of the proposal amount to no more than Fifty pages for the project/programme concept, including its annexes?	**Yes.** However, consideration could be given to the inclusion of a Table of Contents, list of acronyms and List of Tables and Figures to enhance the structure and presentation of the document	Well noted. The requested elements have been included in the revised CN.
	3. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?	**Yes.** However, additional information is required. 1. The proposal groups Component 1 activities under a broad budget line of USD 6,250,000 and Component 2 under USD 2,220,000, but it does not provide a breakdown of costs across key thematic categories such as ecosystem-based adaptation (e.g., mangrove and dune restoration), early warning systems and climate information services, and livelihood diversification. Given that many of	**CAR1**: This is well noted. The budget allocations for the thematic areas are as follows: 1. Ecosystem-based adaptation: USD 2 117 500 (~25% of the implementation budget) 2. Livelihood diversification and value chain support: USD 4 235 000 (~50% of the implementation budget) 3. Early warning systems, climate information services USD 1 270 500 (~15% of the implementation budget) 4. Institutional capacity-building: USD 423,500 (~5% of the implementation budget) 5. Knowledge capture, learning and dissemination: USD 423 500 (~5% of the

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		these activities are listed under Unidentified Sub-projects (USPs), this lack of disaggregation makes it difficult to assess the coherence of budget allocations with the adaptation rationale and expected outcomes. 2. Additionally, the EbA interventions (particularly Activity 1.2.3) are not sufficiently costed, despite being central to the project's framing as a coastal resilience initiative. It is unclear how much of the total Component 1 budget is allocated to ecosystem restoration and biodiversity-enhancing activities as opposed to non-climate-resilient or less directly adaptation-relevant interventions. 3. The proposal outlines a wide range of activities across two components focused on livelihoods and preparedness. While the climate rationale is generally well-articulated, the links between the specific climate hazards (particularly sea level rise, rainfall variability, and temperature increases) and the proposed activities are not clearly laid out.	implementation budget) We note that these thematic areas will be further disaggregated to the activity level during development of the detailed budget at FDP stage. Regarding USPs, please refer to our response to CAR2. **CR1**: At the output level, the E-COAST project contributes to resilience by enhancing both livelihoods and climate risk preparedness. It strengthens the resilience of coastal livelihoods by raising community awareness of climate impacts, supporting sustainable production through the restoration of coastal ecosystems like mangroves, and creating social and communal assets to address climate-related barriers. Concurrently, the project builds preparedness by developing the capacity of key institutions for climate risk reduction, integrating community and scientific knowledge into early warning systems, and establishing inclusive, gender-responsive climate risk preparedness plans at both institutional and community levels. We have refined PART II, Section A of the CN to demonstrate how the project activities support resilience building at the activity level. **CR2**: Additional information on observed and projected sea-level rise and the impacts thereof has been incorporated into the 'Climate baseline and future trends' sub-heading under PART I, including Table 3. Concerning the mapping of

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		CAR1: Please provide a more detailed breakdown of budget allocations under Component 1 and 2 across the main thematic adaptation areas, particularly disaggregating: 1. Ecosystem-based adaptation (mangrove restoration, dune protection, lagoon management, etc.) 2. Livelihood diversification and value chain support 3. Early warning systems and climate information services 4. Institutional capacity-building 5. Knowledge capture, learning and dissemination. EbA, EWS, and income security are all important, but they are unevenly developed in the concept note proposal. EbA is emphasized in the justification section, yet underexplored in the components, while EWS and DRR are detailed without clear alignment to livelihood or restoration outputs. **CR1:** Please clarify how each component and activity contributes to the overarching objective of resilience-building and align them more explicitly with identified climate risks.	project outcomes and outputs to the identified climate hazards, socioeconomic barriers, and institutional risks, this has been depicted graphically in the Theory of Change requested under CR5. **CR3**: 1. We have amended the narrative to explicitly state how the project builds climate resilience at the output level, and how each activity directly or indirectly addresses an identified climate hazard, as per our response to CR1. 2. The activities under Output 1.2, which include promoting non-traditional livelihoods like ecotourism and training youth for green jobs, serve as a direct response to the decreasing viability of traditional, climate-sensitive sectors. By diversifying income sources, communities reduce their economic dependence on a single sector that could be devastated by a climate hazard, such as a drought impacting crop yields or a storm destroying fishing assets. Under Output 1.3, the creation of social and communal assets is a tangible adaptation measure designed to counteract specific climate hazards. For example, the creation of assets like communal cold chain facilities directly addresses the impacts of rising temperatures that lead to increased post-harvest losses, particularly for perishable goods like fish. By providing access to cold / improved storage, the project improves food security and protects the income of micro-retailers and fishmongers.

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		CR2: Please describe how each climate hazard (rainfall, increased temperature, sea level rise) is directly addressed by the specific activities. Information on sea level rise should also be Included in Table 3. While the components and outputs are ambitious and diverse, the adaptation rationale of some activities remains implicit. For instance, the restoration of communal assets and the promotion of green value chains are promising, but their direct role in reducing climate risk is not always explicit. Several activities fall under Unidentified Sub-Projects (USPs), which reduce clarity and limits assessment of coherence. **CR3:** 1. Please clarify how each output and activity under both components directly contributes to building climate resilience and; 2. Strengthen the climate rationale for activities under Output 1.2 (livelihood diversification and youth support) and Output 1.3 (infrastructure) by explaining their role in addressing specific climate impacts. The formulation of outputs throughout the concept note tends to be broad, often phrased in terms of intentions rather than	The narrative under outputs 1.2 and 1.3 has been revised to include the above rationale. **CR4**: Well noted. We have reworded the project's outputs as recommended. **CR5**: The importance of graphically depicting the logic and suitability of activities is well noted. We have developed and added a Theory of Change as Annex 3 to the revised CN. Regarding the selection of mangrove sites for restoration, kindly refer to our response under CR6. **CR6**: We note the importance of providing sufficient detail on EbA-related activities. 1. The selection of Ecosystem-based Adaptation (EbA) measures such as mangrove restoration, dune stabilization, and lagoon management is guided by national strategic priorities, including Sri Lanka's National Adaptation Plan (NAP) and Nationally Determined Contributions (NDCs). These interventions are prioritized in the project districts due to the presence of nationally important coastal ecosystems and their high vulnerability to climate change. The specific EbA activities for each location will be determined through a systematic, evidence-based process. This begins with a comprehensive assessment that maps climate hazards and evaluates

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		results. This hinders the ability to assess the measurability or deliverability of outputs. **CR4:** Please reword the Outputs so that they are expressed in an actionable and measurable manner. For example, Output 1.1 Increased awareness by target community groups on climate change impacts and climate resilient livelihoods. Although the narrative suggests a logical flow between problem, intervention, and impact, there is no Theory of Change diagram or concise articulation of causal pathways. A visual ToC, linking climate risks, assumptions, outcomes, and feedback loops, is strongly recommended. **CR5:** Please consider the inclusion of a Theory of Change diagram which clearly shows the logic and suitability of activities in responding to the likely climate threats posed by the likely climate scenarios. Component 1.2.3 includes mangrove restoration, dune stabilization, and lagoon management—all valuable EbA actions. However, the proposal does not sufficiently explain how these activities are selected, how they relate to climate change impacts, or how they avoid maladaptation. Additionally, potential biodiversity trade-	community and livelihood vulnerability. Based on this, nature-based solutions are identified in collaboration with communities and technical specialists. For instance, in areas highly exposed to storm surges, mangrove restoration will be prioritized as a natural coastal buffer. In regions where coastal agriculture is threatened by salinity intrusion, dune stabilization will be the primary intervention. Each selected solution is further evaluated to maximize climate and biodiversity co-benefits while applying social and environmental safeguards to prevent maladaptation. These measures directly respond to climate change impacts. Mangrove and sand dune restoration enhances natural barriers against sea-level rise, coastal erosion, and storm surges. Healthy lagoons and wetlands act as natural flood buffers, absorbing excess rainwater and mitigating the impact of flash floods. These activities inherently protect and enhance biodiversity. Mangroves serve as critical nursery habitats for estuarine fisheries, while dunes support unique coastal flora and provide nesting sites for protected species. 2. Biodiversity safeguards, including the monitoring and management of invasive alien species, are integral to the project's design. Restoration activities will use native species and follow technical guidelines from national bodies like the

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		offs (e.g., invasive species risk, aquaculture impacts) are not explored. **CR6:** 1. Please provide additional details on the selection of EbA measures, including how they respond to climate change impacts and contribute to biodiversity protection. 2. Indicate whether invasive species monitoring or biodiversity safeguards will be included in the design. 3. Clarify how EbA activities will be sustainably managed and linked with livelihoods. There are discrepancies in the types of assets mentioned across different outputs and activities. For example, small-scale water infrastructure is referenced in one section, while irrigation, hatcheries, and cold chains are mentioned in another. This should be harmonized to ensure coherence and clarity. **CR7.** In Component 1, specific communal assets, i.e. small-scale drinking water infrastructure was mentioned. However, in Activity 1.3.1 (page 23), a different set of assets was mentioned - irrigation flood defenses, hatcheries etc. Please ensure consistency between the two sections and	Forest Department and international standards such as the IUCN Global Standard for Nature-based Solutions to ensure ecological integrity and long-term sustainability. 3. The sustainable management of these EbA interventions is intrinsically linked with local livelihoods. The project will mobilize and build awareness within communities on the direct economic value of these ecosystems. Farmer organisations, fisheries societies, and village disaster management committees will be engaged in the co-management of the restored sites, ensuring that the livelihood benefits derived from these natural assets, such as improved fishery yields and protection of agricultural land, incentivize their long-term stewardship. **CR7**: Noted with thanks. We have revised the list of assets to be consistent across the document. **CR8**: We agree that assessing the effectiveness of capacity building activities is necessary to ensure sustainability. However, we have opted to leave the indicative activities under Output 2.1 unchanged as our view is that the requested detail is more suited to the cross-cutting M&E aspect of the project rather than a standalone activity. To that end, we will ensure that the logframe at fully-developed proposal stage has sufficiently detailed indicators related to tracking

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		these should coincide with the climate impacts being addressed. While capacity building is a core activity, there is no reference to follow-up assessments or learning evaluations to determine whether knowledge and skills are retained and applied. Consider adding activities for monitoring the effectiveness of training under Output 2.1. **CR8.** Output 2.1 on capacity building consider including an activity to assess the effectiveness of the Capacity Building activities to ensure the success of the training exercises. **CR9:** Please clarify the following elements in the proposal that need some elaboration: 1. While Component 1 refers to risks from "sea-level rise, salinity, erosion, and drought," please clarify how these will be contextualized and prioritized across districts, given the significant variability along Sri Lanka's coastline. If this is expected to be elaborated in the fully-developed proposal, please mention this explicitly in the main text.	performance of training-related activities, such as assessments and learning evaluations. These indicators will include details on which beneficiaries are targeted, their current capacity levels, mid-term targets, and final targets for the project. **CR9**: 1. The requirement for further details regarding the prioritization between and within target districts for activities that address coastal hazards is well noted. The selection and prioritization criteria for these activities will indeed be confirmed at FDP stage. The text under Indicative Activity 1.2.3 has been refined accordingly. 2. The proposed adaptation solutions are interventions that utilize and enhance natural ecosystems to build climate resilience. These solutions integrate both land-based (green) and water-based (blue) elements to deliver benefits for biodiversity and communities. Indicative examples of such solutions envisioned for the E-COAST project include: **a) mangrove and lagoon restoration:** the restoration of mangrove forests within lagoon ecosystems serves a dual purpose. It re-establishes a natural coastal barrier that buffers shorelines against storm surges and erosion, while simultaneously enhancing marine biodiversity by providing

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		2. Under Component 2, what specific types of "nature-positive green-blue adaptation solutions" are envisioned? Please provide indicative examples to strengthen the climate rationale and reduce ambiguity? 3. Please clarify whether DRR and early warning systems (under Component 1) will be connected to any concrete actions under Component 2 (e.g., evacuation plans, resilient infrastructure), or if they are purely capacity-building tools. 4. Food system resilience is central to the concept. Please elaborate how climate change is currently undermining food systems in these coastal areas and how the proposed actions will strengthen their adaptation to projected climate risks. There is no mention of how the project will monitor ecosystem health or protective functionality post-restoration (e.g., vegetative cover, shoreline stabilization, reduction in flood impact). **<u>At the fully developed proposal stage</u>**, please clarify if biophysical indicators and participatory monitoring tools will be part of the EbA activities.	critical nursery habitats for fish, which supports local fisheries; **b) coastal dune rehabilitation:** rehabilitating and stabilising coastal sand dunes, particularly through the planting of native vegetation, creates a natural defence system. These dunes act as physical barriers that protect inland agricultural lands from saltwater intrusion and coastal erosion, which are significant threats to coastal farming; and **c) wetland conservation:** The conservation and effective management of coastal wetlands support agricultural activities by acting as natural sponges that absorb excess water during periods of intense rainfall, thereby mitigating localised flooding. These wetlands also improve water quality by filtering runoff and sustaining local biodiversity. The revised CN has been updated to reflect these details. 3. Under Component 2, activities are designed to strengthen and mainstream existing early warning systems, mechanisms, and information – to avoid the creation of parallel systems and enable enhanced early action. Therefore, the focus is on capacity building and coordination among humanitarian and development partners on supporting national DRR and early warning efforts. 4. Climate change is undermining the resilience of coastal food systems in the project areas by directly impacting both

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		The proposal includes partially unidentified sub-projects (USPs) under Component 1, where activity types are defined but specific locations and beneficiary groups are not. While permissible, this approach requires strong justification and alignment with the AF's Environmental and Social Policy (ESP). The target coastal districts are identified, which raises questions about why specific interventions are not yet defined**.** **CAR2:** Please provide justification for the use of USPs, including why specific locations and activities have not yet been identified despite known target districts. Outline a clear process and timeline for identifying and validating USPs, including indicative sizes (e.g., farm plots), priority commodities, or restoration targets to be finalized in the full proposal. The USP guidance is available at Guidance Document for Project/Programme with Unidentified Sub-Projects	agriculture and fisheries. The agricultural sector is threatened by increased saltwater intrusion into freshwater bodies and agricultural lands, which reduces crop productivity. Food production is further compromised by the increased frequency and severity of droughts and floods, which damage crops and disrupt farming cycles. In parallel, the fisheries sector, which is a primary livelihood source, is negatively affected by the degradation of critical marine habitats. Increased salinity in lagoons impacts fish breeding grounds, leading to a reduction in the quantity and quality of fish stocks. Furthermore, the degradation of mangrove ecosystems, which serve as vital nursery habitats for lagoon fisheries, further depletes the natural resources upon which these communities depend. The E-COAST project will strengthen the adaptation of these food systems through several activities. For agriculture, resilience will be enhanced by rehabilitating community assets such as irrigation flood defences and promoting the adoption of adaptive farming practices through community capacity development. For fisheries, the project will restore and protect vital coastal ecosystems, including the integration of mangrove habitats with sustainable aquaculture, to support food production and livelihood resilience. The project will also provide targeted assistance to

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			fishmongers and seek to improve post-harvest value chains, such as the use of fish waste. **CAR2**: The project's interventions have been further specified in response to the reviewer's comment, and a clear process for final validation has been defined. Our understanding of the AF guidance is that with these clarifications, the activities no longer need to be categorised as USPs. Additional details have been incorporated into the revised CN, and further specifics will be finalised through a two-step process involving community consultations in August 2025 and the subsequent formulation of the fully-developed proposal. The additional information added to the revised CN includes the initial prioritisation of districts for mangrove-related activities; extent of arable land and number of farmers at divisional secretariat (i.e., sub-district) level; recent estimates of fish catch per district; and preliminary selection of target districts for adaptation measures to reduce coastal hazards such as sea-level rise that drives saline intrusion and coastal erosion. Regarding fishery-related data, we have included information demonstrating that recent estimates of marine fish catch reveal significant variation across the target districts, providing a baseline for understanding the scale of the sector in each area. Galle reports the highest production with 46,280 metric tons, followed by Kalutara with a substantial catch of

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			31,710 metric tons. Other notable contributions come from Gampaha at 19,210 metric tons and Trincomalee at 16,650 metric tons. The eastern districts of Batticaloa and Ampara register lower catches of 13,685 and 11,890 metric tons respectively, while Mullaitivu records the lowest production at 6,390 metric tons. This data is important for understanding where fishery-based livelihoods are most prevalent and helps inform how project activities, such as value-chain support or ecosystem restoration, will be further targeted during the FDP phase.
	4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**Yes.** The concept note clearly states how the beneficiaries will be identified, the selection criteria, including the use of the Multidimensional Vulnerability Index and the parameters which will be used to target the beneficiaries. The project concept also clearly identifies economic, social and environmental benefits, especially to vulnerable communities and groups – particularly women, youth and the disabled. (Part II B Pages 25 to 28). The concept note also demonstrates alignment with the Adaptation Gender Policy. An initial gender and age assessment was conducted. The abridged results are presented in Annex 2 (page 47). In addition, the concept note explicitly	-

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		integrates gender considerations into all components ensuring equitable participation and benefits to both women and men. The development of a gender-transforming livelihoods policy and the integration of gender perspectives in climate risk preparedness planning are also consistent with the Adaptation Fund's Gender Policy.	
	5. Is the project / programme cost effective?	**Yes.** However additional information is required. The concept proposal demonstrates the cost effectiveness of the project from a sustainability point of view. However, although the concept note provides an analysis of the cost effectiveness of the proposed project, it does not quantify the estimated benefits. **CR10:** Where possible, include indicative estimates (e.g., number of households benefiting from restored fisheries or value of avoided damages) to support the cost-effectiveness claims. If the information will be provided at the fully-developed proposal stage, please mention this in the proposal.	**CR10**: Thank you for the recommendation to include indicative estimates to strengthen the project's cost-effectiveness rationale. At CN stage we can provide indicative estimates based on available data to demonstrate the project's high potential for cost-effectiveness. The project's focus on strengthening climate-resilient livelihoods has the potential for significant returns. For example, recent estimates place the total annual marine fish catch in the target districts at approximately 145 815 metric tons. Post-harvest losses in the fisheries sector in Sri Lanka can be as high as 30%. By addressing these losses through training on value-adding and provision of equipment for fish processing (Activities 1.3.1 and 1.3.3), the project could prevent the loss of over 43 000 metric tons of fish annually. Assigning even a conservative value to this catch underscores a substantial economic benefit that exceeds the project's costs. PART II Section C has been refined along these lines to strengthen the project's cost-effectiveness rationale.
	6. Is the project / programme	**Yes.**	**CAR3**: The requirement to include additional sectoral policies is well noted. We have refined

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	consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?	The project concept refers to a number of national policies of the country. These include the Updated Nationally Determined Contribution (NDC 2021), the National Climate Change Policy (2011), the National Adaptation Plan (NAP) for Climate Change (2016 - 2025) and the National Environmental Policy of 2003). However, it omits sectoral adaptation strategies which may have additional relevant targets and priorities. **CAR3:** Please indicate whether sectoral plans such as for the Agricultural, Fisheries and Tourism Sector and a Food and Nutrition Security Plan also exist and whether they contain targets related to climate adaptation.	the CN to include additional thematic policies such as the National Agricultural Policy of 2007 and the National Policy and Strategies on Traditional Knowledge and Practices Related to Biodiversity of 2020. Similarly, we have refined the summary of Sri Lanka's 2nd NDC to include sectoral targets in agriculture, food systems, as well as coastal and marine ecosystems. Likewise, we have updated the column on how the E-COAST project aligns with the NDC and its sectoral targets.
	7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	**No.** The concept note states that the Accredited Entity and Executing Entities will ensure compliance with relevant national standards, policies, and legislation during the full proposal development. However, it does not provide any preliminary mapping of the proposed interventions—particularly those related to ecosystem-based adaptation (EbA), community-based early warning systems (CEWS), and water or livelihood-related infrastructure—to the applicable technical standards or codes.	**CAR4**: Well noted. PART II, Section E of the CN has been revised in its entirety to address the need for indicative mapping of thematic project interventions to the relevant national standards.

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		It is important to demonstrate at least indicative alignment with the most relevant technical standards from the outset. This includes standards from relevant ministries (e.g., Environment, Coast Conservation, Fisheries, Agriculture, Disaster Management, and Public Works), especially in cases where regulatory approvals or coordination are anticipated. **CAR4:** Please specify which ones apply to which components or activities (e.g., EbA, infrastructure, fisheries, EWS). Map the identified technical standards to specific activities under each component to demonstrate feasibility and compliance (e.g., mangrove restoration = relevant IUCN/NBSAP standards; resilient housing = Sri Lanka national construction codes). Provide an indicative mapping of all major interventions (especially related to EbA, CEWS, and water infrastructure) to relevant national codes, technical standards, and operational guidelines. **At the fully-developed proposal stage** clarify how compliance will be ensured and monitored through national procedures (e.g., environmental permits, engineering approvals, or sectoral integration). Identify the responsible agencies or authorities that will be involved in the review and validation of such compliance.	

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	8. Is there duplication of project / programme with other funding sources?	**No.** A total of 20 projects which have either been completed or are under implementation have been analysed with the top 7 being listed in the concept note proposal. Potential duplication risks have been identified and measures which will be undertaken by the project to avoid, offset or mitigate duplication risk are listed. However, it does not draw out lessons learned from these initiatives that could inform the current proposal's design. **CAR5**: Please indicate the lessons learned from the existing projects listed during design/implementation that can inform this new project.	**CAR5**: Key lessons learned from the identified projects under section F have been extracted and integrated into the table as part of the revised CN. Key lessons learned have also been integrated into the activity narrative where appropriate to ensure that they are considered during the project design phase, particularly in the transition from CN to FDP.
	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	**Yes.** The concept note proposal plans to develop a Knowledge Management Strategy as one of the activities of Component 2 of the project and this strategy will be implemented early in the project lifecycle to guide all efforts related to knowledge management in the project The project also includes activities which capture and disseminate lessons learned.	**CR11**: We note the importance of additional detail on the project's knowledge management aspects and have revised the draft CN (specifically Indicative Activity 2.3.2) along the following lines: Knowledge management is a shared responsibility between WFP and the Government, ensuring joint ownership and alignment with national systems. The Project Management Unit will lead the day-to-day implementation of the knowledge management plan. The project will generate, document, and disseminate knowledge on key themes including ecosystem-based adaptation (EbA) outcomes, cost-effectiveness of

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		It is also planned to actively share the information in relevant national and regional platforms as a means of accelerating and enriching the global, national and local knowledge on climate change adaptation and accelerating understanding about what kinds of interventions work. Component 3 includes knowledge capture and dissemination, but lacks clarity on: 1. Who is responsible for KM 2. What knowledge will be captured (e.g., EbA outcomes, cost-effectiveness, community innovations) 3. How it will be disseminated and embedded in institutional processes **CR11:** Please clarify: 4. The KM tools to be used (e.g., policy briefs, community manuals, platforms). 5. Stakeholder engagement in learning (local universities, ministries, etc.). 6. Strategy to ensure uptake and policy feedback loops Please consider a mechanism for double-loop learning - periodic reflection cycles or adaptive planning workshops.	interventions, and community-led innovations. To achieve this, the project will develop a range of knowledge products tailored to different audiences. Policy briefs and technical reports will synthesize findings from project activities to support evidence-based decision-making and inform policy dialogue. For community stakeholders, accessible materials such as case studies and infographics will showcase innovative adaptation practices to promote replication. Strategic partnerships with universities and national research institutions will be formed to integrate research and innovation into project activities and to disseminate findings through academic platforms. To ensure uptake and create policy feedback loops, the project will institute a mechanism for double-loop learning by convening periodic adaptive planning workshops. These forums will bring together key stakeholders, including government ministries, community representatives, and academic partners, to reflect on lessons learned from implementation and collectively identify adjustments to project strategy and inform national policy processes. **CR12:** Well noted. The suggested text has been incorporated into Indicative Activity 2.3.2.

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		CR12: In Activity 2.3.2 (page 25) mention is made of cross-sectoral awareness campaigns to promote project outcomes and strengthen knowledge beyond targeted communities. It is suggested that these awareness campaigns be accompanied by periodic assessments of the effectiveness of the campaigns to ensure that the intended messages and information have been received and understood and so lead to the intended responses.	
	10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**Yes. (Pages 34-35).** The concept includes a description of a comprehensive consultation process which was conducted as an integral part of the proposal development. These consultations included Community consultations including diverse groups (including but not limited to men, women, youth, elderly person and persons with disabilities). Local communities were directly engaged to gather detailed information on their climate vulnerabilities, coping mechanisms and adaptation needs as well as the status of climate sensitive livelihoods. Institutional consultations were also conducted by the various stakeholders who will be involved in the project design. Part H (page 34 – 35)	**CR13**: In line with the Adaptation Fund's Environmental and Social Policy, WFP confirms that both a dedicated Indigenous Peoples Plan (IPP) and a Gender Action Plan will be developed at the full proposal stage. The initial consultations recognised the presence of indigenous groups in the project area, specifically the Coastal Vedda in the Batticaloa and Trincomalee districts and Vedda communities in the Ampara district. The IPP will be informed by further targeted consultations with these recognised groups to identify and address their specific vulnerabilities, needs, and priorities. This plan will ensure culturally appropriate engagement, establish mechanisms for free, prior, and informed consent (FPIC), protect cultural heritage, safeguard traditional livelihoods, and ensure ongoing participation and grievance redress. Both the IPP and the GAP will be integrated within the project's Environmental and Social Management Plan to guarantee that all interventions are inclusive,

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		Indigenous persons were also identified but they are not considered a priority focus within the target areas of the project. Nevertheless, the concept indicates that additional evaluation will be required of this group. The concept further indicated that if specific needs or concerns related to individuals with indigenous heritage are identified during further consultations and assessments in the full proposal stage, the appropriate measures will be taken to address those concerns. (Part K, page 38) The recommended additional evaluations for all other vulnerable groups are recommended at the full proposal stage in order to ensure that their concerns are taken into consideration in the project. **CR13:** Please confirm that appropriate tools (e.g., Indigenous Peoples Plan, Gender Action Plan) will be developed in line with the AF's ESP and guidance at the full proposal stage.	equitable, and adhere to international best practices.
	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	**Yes.** See Part I, pages 35 to 36.	-
	12. Is the project / program aligned with AF's results framework?	**Yes.** However, the Alignment Table (Table 9 (page 42) could be revised to ensure better	**CR14**: We recognize the importance of aligning the project's outputs, outcomes, and indicators as accurately as possible with the Fund's SRF. We have refined the table accordingly but note that we have proposed an integrated programme that

Review Criteria	Questions	First Technical Review Comments June 23, 2025	WFP Response July 14, 2025
		alignment with the indicators and capture all aspects of the components. **CR14:** Revise the alignment table to reflect additional relevant indicators: 1. The Project Objective for Component 1 is also aligned with Outcome 3 – Strengthened Awareness and ownership of adaptation and climate risk reduction processes at local level since Awareness raising is one of the Activities under this component of the project. Hence Fund Outcome Indicator 3.1 may also be appropriate for this component 2. Fund Indicator 6.2 – Percentage of the target population with sustained climate-resilient alternative livelihoods may also be relevant for this component. 3. With respect to Outcome 2 on Climate Risk Preparedness strategies implemented to reduce risk in targeted communities and key institutions, the Fund Output and Output indicators only refer to the individuals or community level strategies. However, some of the activities in the Concept Note proposal involve capacity development of key institutions. Consequently, AF Outcome 1:	contributes to an overarching goal. We have identified the most aligned aspects and made adjustments as follows: 1. We acknowledge that Fund Outcome Indicator 3.1 is indeed relevant to the project. However, on further review of the mapping of project components to the SRF, we elected to insert Outcome 3 and Indicator 3.1 under Component 2, instead of Component 1, i.e., we replaced Fund Outcome 1 and Indicator 1.1 with Outcome 3 and Indicator 3.1. The rationale for this change is that the project targets the EWS/AA ecosystem as opposed to the response. 2. We agree that Indicator 6.2 is also relevant and have included it as suggested. 3. Noted and agreed. The suggested change has been made to the revised CN. 4. Our view is that inclusion of Fund Outcome 5 will necessitate the addition of additional project outcomes and outputs and we have therefore elected not to include it.

Review Criteria	Questions	First Technical Review Comments June 23, 2025	WFP Response July 14, 2025
		Reduced exposure to climate-related hazards and threats along and Output 1.1 Risk and vulnerability assessments conducted and updated, may also be appropriate. 4. Lastly ecosystem restoration activities may be aligned with outcome 5 of the SRF.	
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	**Yes.** However, some clarification is requested. The project promotes sustainability across social, economic, and environmental dimensions by ensuring community ownership, institutional capacity-building, and integration of climate-resilient practices into local systems. A knowledge management system will support learning, replication, and scaling, while asset ownership arrangements are outlined. Economic sustainability is expected through livelihood diversification and value chain development. The proposal also emphasizes gender equality, social inclusion, and youth empowerment to ensure long-term impact. While the proposal promotes long-term sustainability through community ownership and institutional integration. However, it does not address potential	**CR15**: The need to include a strategy to address adoption, market, or input risks for new value chains is well noted. We have revised the text in PART II, Section J to include the requested strategies to mitigate potential risks.

Review Criteria	Questions	First Technical Review Comments June 23, 2025	WFP Response July 14, 2025
		adoption risks related to new value chains or technologies introduced. **CR15:** Please clarify a strategy to address adoption, market, or input risks for new value chains. Include a strategy to mitigate potential risks such as lack of market access, insufficient supply chains, or low adoption rates for new livelihood or restoration practices.	
	14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	**Yes.** The project provides a thorough preliminary environmental and social risk analysis in accordance with the AF's 15 Environmental and Social Principles. . It classifies the project as Category B because of the presence of unidentified sub-projects in Component 1. Annex 2 (pages 47 to 48) presents an Abridged Gender Assessment in which contains the findings of a comprehensive gender and age assessment. The Concept proposal states that a comprehensive gender assessment will be conducted during the full proposal development to identify gender-related vulnerabilities and opportunities within coastal communities. (Part IIK page 37). *Note: This section will be reassessed once clarifications pertaining to comments on the components sections are addressed.*	-

Review Criteria	Questions	First Technical Review Comments June 23, 2025	WFP Response July 14, 2025
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	**Yes.**	-
	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	**Yes.** The Implementation Entity Fee is USD 719,950, which is 7.8 % of the Total Project Budget. UNDP Sri Lanka is identified as an "implementing partner" under project execution Part B – Management Arrangements, but associated cost implications are not described. Clarification is needed on whether this will be covered within the 9.5% execution cost cap. **CAR6:** Clarify if there are budgetary implications for UNDP Sri Lanka's involvement and confirm how these will be reflected within the execution cost structure.	
	3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?	**Yes.** The Project Execution Cost total is USD 804,650 which is 8.7 % of the total project cost of USD 9,994,600	-

Review Criteria	Questions	First Technical Review Comments June 23, 2025	WFP Response July 14, 2025
Eligibility of IE	1. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	WFP is currently undergoing re-accreditation. *Please be advised that the findings of the AFB Secretariat's review of the funding proposal(s) do not reflect, indicate, or prejudge the outcome of the reaccreditation process currently underway. The Implementing Entity (IE) shall acknowledge that the funding proposal will not be approved by the Board if the IE's accreditation has expired, and reaccreditation has not been achieved at the time of the Board's decision. Notwithstanding this potential risk, the IE has elected to proceed with the development of the funding proposal.*	This is well noted and acknowledged.
Implementation Arrangements	1. Is there adequate arrangement for project / programme management, in compliance with the Gender Policy of the Fund?	n/a at concept stage	
	2. Are there measures for financial and project/programme risk management?	n/a at concept stage	
	3. Are there measures in place for the management of for environmental and social risks, in line	n/a at concept stage	

Review Criteria	Questions	First Technical Review Comments June 23, 2025	WFP Response July 14, 2025
	with the Environmental and Social Policy and Gender Policy of the Fund?		
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a at concept stage	
	5. Is an explanation and a breakdown of the execution costs included?	n/a at concept stage	
	6. Is a detailed budget including budget notes included?	n/a at concept stage	
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	n/a at concept stage	
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the	n/a at concept stage	

Review Criteria	Questions	First Technical Review Comments June 23, 2025	WFP Response July 14, 2025
	supervision of the M&E function?		
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	n/a at concept stage	
	10. Is a disbursement schedule with time-bound milestones included?	n/a at concept stage	

ADAPTATION FUND

CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT INFORMATION

Title of Project:	Empowering Coastal Sri Lanka: Livelihoods and Preparedness for a Climate-resilient Future (E-COAST Sri Lanka)
Country:	Sri Lanka
Thematic Focal Area:	Multi-sector projects
Type of Implementing Entity:	Multilateral Implementing Entity
Implementing Entity:	World Food Programme
Executing Entities:	Ministry of Environment
Amount of Financing Requested:	9 994 600 (in U.S Dollars Equivalent)

Project Formulation Grant Request (available to NIEs only): Yes ☐ No ☒

Amount of Requested financing for PFG: 0 USD (in U.S Dollars Equivalent)

Letter of Endorsement (LOE) signed: Yes ☒ No ☐

NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file, check this page: *https://www.adaptation-fund.org/apply-funding/designated-authorities*

Stage of Submission:

☒ This concept has been submitted before

☐ This is the first submission ever of the concept proposal

In case of a resubmission, please indicate the last submission date: 6/2/2025

Please note that concept note documents should not exceed 50 pages, including annexes.

Contents

Table of figures

List of tables

List of acronyms

AF	Adaptation Fund	**EOC**	Emergency Operation Centre	**NAP**	National Adaptation Plan
BCP	Business Continuity Plan	**ESS**	Environmental and Social Safeguards	**NDC**	Nationally Determined Contributions
CARI	Consolidated Approach for Reporting Indicators of Food Security	**EWS**	Early Warning System	**ND-GAIN**	Notre Dame Global Adaptation Initiative
CBO	Community-Based Organisation	**FDP**	Fully-Developed Proposal	**NGO**	Non-Governmental Organisation
CBPP	Community-Based Participatory Planning	**FGD**	Focus Group Discussion	**NSC**	National Steering Committee
CCCRM	Coast Conservation and Coastal Resource Management	**GBV**	Gender-Based Violence	**OPD**	Organization of Persons with Disabilities
CCD	Department of Coast Conservation	**GCF**	Green Climate Fund	**PCR-VCA**	Participatory Climate Risk Vulnerability and Capacity Assessments
CIS	Climate Information Services	**GDP**	Gross Domestic Product	**PFG**	Project Formulation Grant
CN	Concept Note	**GEF**	Global Environment Facility	**PMU**	Project Management Unit
CRCS	Climate Resilience Capacity Score	**GPI**	Gender Parity Index	**SLP**	Seasonal Livelihoods Programming
CSO	Civil Society Organisation	**KII**	Key Informant Interview	**SLSI**	Sri Lanka Standards Institute
DA	Designated Authority	**LOE**	Letter of Endorsement	**SPEI**	Standardised Precipitation Evapotranspiration Index
DMC	Disaster Management Centre	**M&E**	Monitoring and Evaluation	**SRHR**	Sexual and Reproductive Health and Rights
DoM	Department of Meteorology	**MHPSS**	Mental Health and Psychosocial Support	**UN**	United Nations
DPS	Direct Project Services	**MIE**	Multilateral Implementing Entity	**UNDP**	United Nations Development Programme
DPSU	District Project Support Unit	**MoE**	Ministry of Environment	**USP**	Unidentified Sub-project
ECA	Economics of Climate Adaptation	**MSD**	Market-System Development	**WFP**	World Food Programme
EE	Executing Entity	**MVI**	Multidimensional Vulnerability Index	**WRO**	Women's Rights Organisation

Project Background and Context

General context

Geography

Sri Lanka is a small tropical island nation in the Indian Ocean, off the Southwest Coast of India[1]. It has a land area of 65,610 square kilometres (km^2) and a coastline of about 1,620 km. Its diverse geography includes a mountainous south-central region and extensive coastal plains. The tropical climate supports rich biodiversity and extensive forests, historically covering nearly the entire land area. However, substantial deforestation has occurred over the last century to accommodate human activities.

Institutional and administrative structure

There are nine provinces with legislative power over a variety of matters including agriculture, education, health, housing, local government, planning, road transport and social services. The North Central Province is the largest in terms of land area (10,472 km²) and the Western Province in the southwest is the smallest (3,684 km²). The nine provinces are further divided into 25 districts which are subdivided into 331 Divisional Secretariats and 14,009 Grama Niladari (GN) divisions.

Demographic and socioeconomic indicators

Sri Lanka is densely populated, and in 2022, the estimated population was 22,181,000[2]. The total population is expected to grow by ~8% between 2023 and 2050, peaking at ~24.8 million people (Figure 1~~Figure 1~~). About 50% of Sri Lanka's population reside along the vulnerable coastal regions of the west, south-west, and southern coasts. Colombo, the commercial capital, has the highest population density at 21,000 inhabitants per square kilometre.

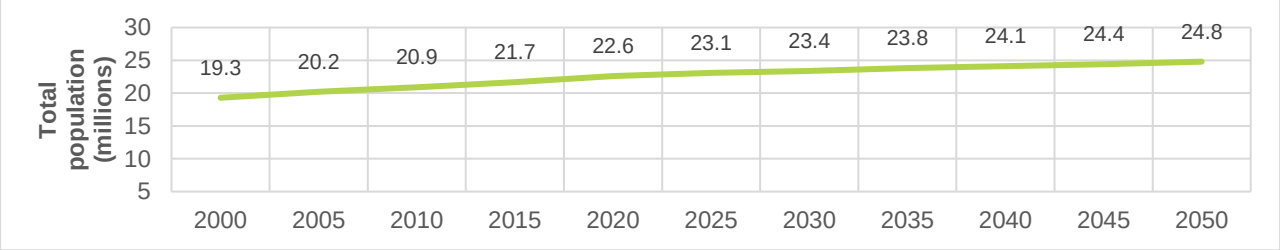


Figure 1. Observed and projected population growth for Sri Lanka between 2000 and 2050[3]

Despite significant economic challenges in recent years, Sri Lanka has shown mixed progress in various development indicators. The nation's economy experienced a contraction of 7.8% in 2022[4] but was projected to rebound with a growth rate of 4.4% in 2024. As of 2022, Sri Lanka's GDP per capita stood at $3 474, reflecting its status as a lower-middle-income country[5,6].

The country has made notable progress in several areas of social and human development. Life expectancy in Sri Lanka has reached 75 years, and the youth literacy rate is impressively high at 98.7%[7]. The nation has also achieved remarkable reductions in maternal mortality, under-five mortality, and neonatal mortality rates[8]. These improvements are partly attributed to Sri Lanka's free education and health policies, which have contributed significantly to its high human development indicators.

[1] Between 05°55′ and 09°51′N latitude, and 079°41′ and 081°53′E longitude.
[2] Sri Lanka Department of Census and Statistics. (2024). Mid-year Population Estimates by District and Sex 2014 - 2022. [Online]. Available: https://www.statistics.gov.lk/Resource/en/Population/Vital_Statistics/Mid-year_population_by_district_and_sex_2024.pdf.
[3] Source data: World Health Organization. (2023). *Health data overview for the Democratic Socialist Republic of Sri Lanka*. [Online]. Available: https://data.who.int/countries/144
[4] United Nations Sustainable Development Goals Knowledge Platform. (2022). *Sri Lanka Voluntary National Review 2022*. [Online]. Available: https://sustainabledevelopment.un.org/memberstates/srilanka
[5] World Bank Group. (2024). *Sri Lanka Development Update 2024*. [Online]. Available: https://www.worldbank.org/en/country/srilanka/publication/sri-lanka-development-update-2024
[6] World Bank Group. (2024). *Sri Lanka Overview*. [Online]. Available: https://www.worldbank.org/en/country/srilanka/overview
[7] United Nations. (2022). *Sri Lanka: Main messages of the Voluntary National Review 2022*. [Online]. Available: https://sustainabledevelopment.un.org/content/documents/29867VNR_2022_Sri_Lanka_Main_messages.pdf
[8] Sri Lanka Department of Census and Statistics. (2024). *Sri Lanka in Figures*. [Online]. Available: https://www.statistics.gov.lk/Notice/SLFigures

However, Sri Lanka continues to face challenges typical of a developing nation. The poverty rate, measured as those living below $3.65 per person per day (2017 purchasing power parity), nearly doubled to 23.4% in 2024. Unemployment remains a concern, with a rate of 4.7% in 2023[9,10]. Food insecurity is another pressing issue, affecting 23.7% of households in 2023. Additionally, the country grapples with regional disparities in access to safe drinking water, although 89.5% of the population overall has access to this essential resource[11].

Sri Lanka's development status is further reflected in its international rankings. The country ranks 73rd out of 188 countries in the gender inequality index, indicating room for improvement in gender-related issues, particularly concerning the low economic participation of women[12]. While Sri Lanka consistently performs as a High Human Development country, its score falls by 13.9% when adjusted for inequalities, highlighting persistent disparities within the population.

Looking ahead, Sri Lanka faces several common challenges among developing nations. These include the need for continued poverty reduction, sustainable economic stability, and equitable access to services across all regions. The country's recent economic crisis has underscored the importance of implementing ongoing reforms and developing sustainable strategies to address these issues and further advance its development status.

Economy

Sri Lanka's economy largely depends on services such as shipping, tourism, and aviation. In 2019, these services accounted for 58.2% of the economy, industry 27.4% and agriculture declined to 7.4%. Agriculture has declined in economic importance despite still employing 30% of the workforce. In the last few years, Sri Lanka has been experiencing its worst financial crisis in decades. Growth and poverty reduction decreased in the five years preceding the Covid-19 pandemic. External imbalances were driven by a restrictive trade regime, weak investment climate, episodes of loose monetary policy and an administered exchange rate. Low revenue collections and other fiscal indiscipline led to high deficits and large gross financing needs. Tax cuts in 2019 further contributed to a rapid growth in debt, which grew to unsustainable levels. Sri Lanka then lost access to international financial markets in 2020 following credit rating downgrades[13]. This scenario has and continues to disproportionately impact the most vulnerable communities where household purchasing power for basics has diminished and state social protection measures have not kept pace with the weakened fiscal environment.

Gender

Sri Lanka demonstrates notable gender parity in several key socioeconomic indicators, particularly education and basic financial inclusion. The country exhibits high literacy rates, with 93.3% for males and 91.6% for females in 2020 and an aggregate literacy rate of 98.8% for the population aged 15 and above between 2016 and 2018[14,15]. While Sri Lanka has achieved commendable progress in areas such as educational gender parity, significant disparities in workforce participation and political representation persist. The agricultural and fishing sectors exemplify these challenges, with female workers facing multiple barriers to equitable participation and recognition. These challenges are described below in further detail.

Educational accessibility in Sri Lanka is characterized by high equity, with primary school enrolment rates

[9] Central Bank of Sri Lanka. (2023). *Sri Lanka Socioeconomic Data 2023*. [Online]. Available: https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/otherpub/publication_sri_lanka_socio_economic_data_folder_2023_e.pdf
[10] Central Bank of Sri Lanka. (2023). *Chart pack: Macroeconomic developments in charts, second quarter 2023*. [Online]. Available: https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/statistics/mecpac/Chart_Pack_Q2_2023_e.pdf
[11] United Nations Sustainable Development Goals Knowledge Platform. (2022). *Sri Lanka Voluntary National Review 2022*. [Online]. Available: https://sustainabledevelopment.un.org/memberstates/srilanka
[12] United Nations Sustainable Development Goals Knowledge Platform. (2022). *Sri Lanka Voluntary National Review 2022*. [Online]. Available: https://sustainabledevelopment.un.org/memberstates/srilanka
[13] World Bank Group. (2020). *Sri Lanka Development Update: Protecting the Poor and Vulnerable in a Time of Crisis*. [Online]. Available: https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099052823154036369/p179559078517c0bd0bcc20748bed66c540
[14] United Nations Educational, Scientific and Cultural Organization Institute for Statistics (2024). *Bulk Data Download Service - SDG Global and Thematic Indicators: Education*. [Online]. Available: https://apiportal.uis.unesco.org/bdds
[15] United Nations Children's Fund. (2022). *Sri Lanka 2021 Budget Brief: Education Sector*. [Online]. Available: https://www.unicef.org/srilanka/reports/budget-brief-education-sector

reaching 99% and secondary school enrolment at 91%. Gender distribution in education access is remarkably balanced, with a slight advantage observed for females. In 2018, female enrolment rates for secondary education (92.3%) exceeded male rates (89.8%)[16]. The Gender Parity Index (GPI) for gross primary and secondary school enrolment was 1.02 in 2018, indicating a marginal advantage for females. This figure approximates perfect gender parity, conventionally represented by a GPI of 1.0. Sri Lanka's commitment to education is further evidenced by its expected years of schooling (14.1 years) and mean years of schooling (10.8 years) as of 2019[17][18]. Additionally, the country provides adequate healthcare services to females across all age groups, including prenatal and postnatal care. Despite advancements in education and healthcare, Sri Lanka faces significant challenges in translating these achievements into gender equality in workforce participation and political representation. Female representation in the national parliament is notably low at 9.7% (2024), with women occupying only 26.1% of senior and middle management positions in 2020. The economic activity rate for females aged 15 and older (33.1%) was substantially lower than that of males (77.7%)[19].

The agricultural sector, employing 26.7% of the total working population in the third quarter of 2022, presents specific challenges for female workers[20]. Most women in this sector are employed in informal roles characterised by low remuneration and limited labour law protections. Despite significant female involvement in agriculture, their contributions are often under-recognised, and they face substantial disparities in accessing and controlling crucial resources such as land, water inputs, markets, and skills training. Female agricultural workers encounter additional obstacles, including limited land ownership and title rights, which impede their ability to obtain agricultural assets, services, and benefits such as subsidies, credit, and irrigation water[21]. They receive significantly lower wages than males for equivalent casual labour and are predominantly confined to the lower end of agricultural value chains as primary producers, with limited involvement in trading or value-adding activities, particularly in rural areas[22,23].

Similarly, the fisheries sector is heavily influenced by several gender-related issues. The main findings of an in-depth gender assessment[24] in several coastal districts undertaken in late 2024[25] are tabled below.

Table 1. Summary of gender assessment findings[26]

Finding	Summary
Underrepresentation of women	A significant challenge is the underrepresentation of women in early warning systems and response preparations at both community and local government levels.
Gendered fisheries sector	The fisheries sector exhibits distinct gender roles, with men primarily involved in all aspects of fishing and women mainly in caregiving and post-harvest value-addition. Social and cultural norms significantly influence women's engagement in the fishing sector, limiting their opportunities for paid work. Men predominantly own fishing boats, and despite instances of women owning boats due to legal restrictions, decision-making authority regarding their use and income generally remains with men. While women are not prohibited from joining fisheries cooperatives, key positions are mainly held by

[16] World Bank Group. (2023). *Gender Landscape Brief: Sri Lanka*. [Online]. Available: https://genderdata.worldbank.org/en/economies/sri-lanka
[17] World Bank Group. (2023). *Gender Landscape Brief: Sri Lanka*. [Online]. Available: https://genderdata.worldbank.org/en/economies/sri-lanka
[18] Ibid.
[19] Food and Agriculture Organization of the United Nations. (2018). Country Gender Assessment of Agriculture and the Rural Sector in Sri Lanka. [Online]. Available: https://openknowledge.fao.org/handle/20.500.14283/ca1516en
[20] Sri Lanka Department of Census and Statistics. (2022). *Sri Lanka Labour Force Survey Quarterly Report: Third Quarter 2022*. [Online]. Available: https://www.statistics.gov.lk/Resource/en/LabourForce/Quarterly_Reports/2022Q3report.pdf
[21] Sri Lanka Department of Census and Statistics. (2022). *Sri Lanka Labour Force Survey Quarterly Report: Third Quarter 2022*. [Online]. Available: https://www.statistics.gov.lk/Resource/en/LabourForce/Quarterly_Reports/2022Q3report.pdf
[22] Food and Agriculture Organization of the United Nations. (2021). *Improving the livelihoods of women tea smallholders through sustainable land management practices.*. [Online]. Available: https://www.fao.org/srilanka/news/detail-events/zh/c/1401420/
[23] Food and Agriculture Organization of the United Nations. (2018). *Country Gender Assessment of Agriculture and the Rural Sector in Sri Lanka*. [Online]. Available: https://openknowledge.fao.org/handle/20.500.14283/ca1516en
[24] Refer to Annex 2: Gender Assessment
[25] Institute for Participatory Interaction in Development. (2024). *Gender assessment to inform the Building Coastal Resilience for Adaptation project in Sri Lanka*. Unpublished technical report.
[26] Adapted from: Institute for Participatory Interaction in Development. (2024). *Gender assessment to inform the Building Coastal Resilience for Adaptation project in Sri Lanka*. Unpublished technical report.

Finding	Summary
	men.
Disproportionate burden on women	The increased participation of men in multi-day fishing trips has led to a greater burden on women in household management, childcare, and elder care.
Livelihood impacts	Climate change negatively affects women's involvement in post-harvest activities like preparing and selling fish and dried fish, which typically have lower remuneration. However, women are exploring alternative livelihood options.
Domestic violence	Domestic violence tends to increase after husbands return from multi-day fishing trips, often linked to alcohol and substance use.
Early marriage and sexual violence	Early marriages and sexual abuse of adolescent girls are reported in several coastal districts, often remaining unreported due to social stigma. Harmful social norms perpetuate this violence.

Adaptation challenges and ND-GAIN

Key adaptation challenges in Sri Lanka include long-term changes in rainfall distribution, shifts in ecological boundaries, increasing temperatures and heat, and rising sea levels. These changes critically impact climate-sensitive sectors such as agriculture, fisheries, livestock, water, biodiversity, coastal and marine, health, urban planning, human settlements, and tourism[27]. A major underlying challenge is the limited availability of sector-specific risk information, assessments, and localised modelling tools for effective decision-making. Furthermore, downscaled risk and vulnerability information at sub-national levels is lacking, hindering adaptation efforts at provincial, river-basin, or divisional levels[28].

Regarding global adaptation indices, the University of Notre Dame Global Adaptation Initiative (ND-GAIN) Index[29] ranks 181 countries using a score that calculates their vulnerability to climate change and other global challenges and their readiness to improve resilience. Due to a combination of political, geographic, and social factors, Sri Lanka is categorised as vulnerable to climate change impacts and is consequently ranked 110th[30] out of 181 countries in the 2022 ND-GAIN Index[31]. Its location in the upper right quadrant of the ND-GAIN matrix (Figure 2~~Figure 2~~A and B) means that Sri Lanka is highly vulnerable to climate change but has a comparatively high level of readiness. Progress has been made in responding effectively to climate change, but the country's adaptation needs and urgency to act are greater.

[27] Ministry of Mahaweli Development and Environment, Democratic Socialist Republic of Sri Lanka. (2021). *Sri Lanka Updated Nationally Determined Contributions to the United Nations Framework Convention on Climate Change (UNFCCC)*. [Online]. Available: https://unfccc.int/sites/default/files/NDC/202206/Amendmend%20to%20the%20Updated%20Nationally%20Determined%20Contributions%20of%20Sri%20Lanka.pdf

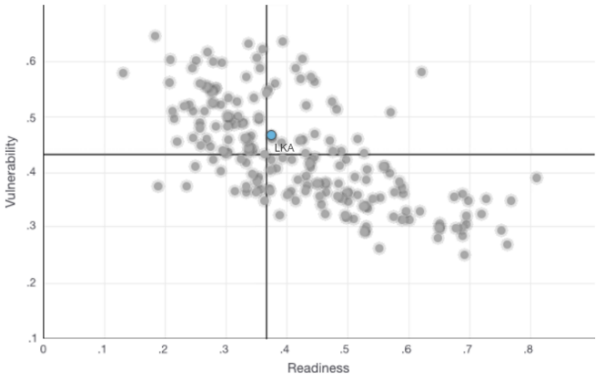
[28] ~~Ibid.~~ *Ibid.*

[29] University of Notre Dame Research Environmental Change Initiative. (2024). *Helping countries and cities counter the risks of a changing climate*. [Online]. Available: https://gain.nd.edu/

[30] When the overall ND-GAIN score is disaggregated, Sri Lanka is the 62nd most vulnerable country and the 107th most ready country.

[31] University of Notre Dame Global Adaptation Initiative. (2024). *ND-GAIN Country Index*. [Online]. Available: https://gain.nd.edu/our-work/country-index/rankings/

A.



B.

Upper left quadrant	Upper right quadrant
High level of vulnerability to climate change but low readiness. These countries have acute needs for both investment and innovation to improve readiness, and great urgency for adaptation action.	High level of vulnerability to climate change and a high level of readiness to respond, but adaptation needs are great. The private sector may be more likely to participate here than in countries with low readiness.
Low levels of vulnerability to climate change and low readiness levels. Countries in this quadrant face relatively fewer climate-related challenges but investment capabilities for adaptation action are constrained.	Low levels of vulnerability to climate change and a high level of readiness. Although countries like this are well positioned to adapt, they still face several adaptation-related challenges.
Lower left quadrant	**Lower right quadrant**

Figure 2. Sri Lanka's position on the ND-GAIN matrix in 2022 (A.) and description of ND-GAIN quadrants (B.)[32]

Over time, Sri Lanka's ND-GAIN score shows a fluctuating trend with both growth and decline periods. From 1995 to 2002, there was a gradual upward trend, peaking in 2002 at approximately 44.85. This was followed by a significant decline from 2003 to 2010, reaching the lowest point in 2010 at around 42.14. After this, the trend reverses, showing a strong recovery and growth from 2011 to 2020, culminating in a peak of approximately 46.95 in 2020. However, from 2021 to 2022, Sri Lanka's score declined slightly, ending at around 45.64 (Figure 3~~Figure 3~~).

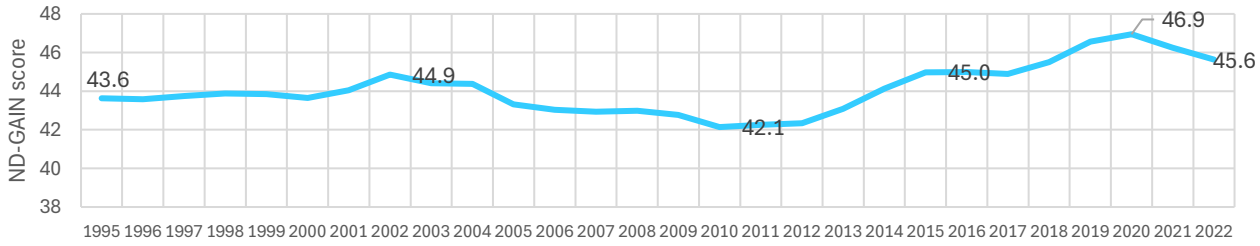


Figure 3. ND-GAIN score for Sri Lanka between 1995 and 2022[33]

Mangrove and lagoon ecosystems

Mangroves are salt-tolerant trees and shrubs that thrive in intertidal zones of tropical and subtropical coastal regions. These unique ecosystems serve as critical interfaces between terrestrial and marine environments, providing a wide array of ecosystem services, including coastal protection, carbon sequestration, water quality improvement, and support for biodiversity[34,35] that benefit both local communities and the global environment[36,37]. Mangroves act as natural barriers against coastal erosion, storm surges, and extreme weather events, helping to stabilise shorelines and reduce the vulnerability of coastal communities to climate-related hazards[38,39]. Mangroves also play a crucial role in supporting fisheries by providing nursery grounds for many commercially important fish and invertebrate species,

[32] University of Notre Dame Global Adaptation Initiative. (2024). *ND-GAIN Matrix*. [Online]. Available: https://gain-new.crc.nd.edu/country/sri-lanka
[33] Source data: University of Notre Dame Global Adaptation Initiative. (2024). *ND-GAIN Index*. [Online]. Available: https://gain.nd.edu/our-work/country-index/download-data/
[34] Ellison, A. M., Felson, A. J., & Friess, D. A. (2020). Mangrove Rehabilitation and Restoration as Experimental Adaptive Management. *Frontiers in Marine Science*, 7, 1-19. [Online]. Available: https://doi.org/10.3389/fmars.2020.00327
[35] Dabalà, A., Dahdouh-Guebas, F., Dunn, D. C., Everett, J. D., Lovelock, C. E., Hanson, J. O., Buenafe, K. C. V., Neubert, S., and Richardson, A. J. (2023). Priority areas to protect mangroves and maximise ecosystem services. *Nature Communications* (14:1). [Online]. Available: https://doi.org/10.1038/s41467-023-41333-3
[36] Emerson, S. (2023). *The benefits of mangrove restoration from blue carbon to biodiversity*. [Online]. Available: https://dendra.io/blog/the-benefits-of-mangrove-restoration-from-blue-carbon-to-biodiversity/
[37] United Nations Environment Programme. (2023). *An inside look at the beauty and benefits of mangroves*. [Online]. Available: https://www.unep.org/news-and-stories/story/inside-look-beauty-and-benefits-mangroves
[38] ~~*Ibid.*~~ *Ibid.*
[39] Barão-Nóbrega, J.A.L. (2024). *Ecosystem service benefits of mangroves*. [Online]. Available: https://www.replanet.org.uk/article/678/

contributing to food security and local livelihoods[40,41]. Additionally, mangroves help regulate local climate conditions and contribute to the overall resilience of coastal ecosystems vulnerable to the impacts of climate change[42].

Mangrove ecosystems in Sri Lanka cover a tiny proportion of the country, constituting only about 0.1–0.2% of the total land area, but are host to a diverse array of species, with approximately 20 true mangrove species and 18 associated species identified. These species belong to multiple plant families and are distributed across various coastal ecosystems, including estuaries and lagoons.

Climatologically, the vast majority of Sri Lanka's mangroves are found in the more saline Dry Zone (82%), followed by the substantially less saline Intermediate (11%) and Wet (7%) zones (Table 2~~Table 2~~ and Figure 5~~Figure 5~~). Recent estimates of the extent of Sri Lanka's mangroves are approximately 16,000–19,500 hectares. At the district level in 2010, over half of Sri Lanka's mangroves occurred in Jaffna, Trincomalee, Puttalam, and Batticaloa. Despite their limited extent in Sri Lanka, mangroves play a critical role in the provision of ecosystem services, coastal protection, and biodiversity conservation[43,44,45].

Table 2. Climate data and distribution of true mangrove and associate species for different climate zones in Sri Lanka[46]

Climate zone	Mean annual rainfall (mm)	Average annual temperature (°C)	Tidal amplitude (m)	Average salinity (ppt)	True species	Associate species
Dry	<1 750	31.5	0.4 – 0.6	13.8 ±0.7	11	12
Wet	> 2 500	28.5	0.5	5.0 ±2.5	10	14
Intermediate	1 750 – 2 500	30	0.5	5.6 ±0.4	16	14

Notable mangrove species in Sri Lanka include *Rhizophora* and *Avicennia* (Figure 4~~Figure 4~~**Error! Reference source not found.**), commonly used in restoration projects. The diversity of mangroves is influenced by regional variations in climate and geography, with higher species richness observed in areas like the Puttalam Lagoon and Negombo[47,48,49].

[40] ~~*Ibid.*~~ *Ibid.*
[41] Amhadia, G. (2022). *Mangroves for community and climate*. [Online]. Available: https://www.worldwildlife.org/initiatives/mangroves-for-community-and-climate
[42] ~~*Ibid.*~~ *Ibid.*
[43] Vijitharan, S. (2021). Restoration and Conservation Benefits of Mangrove Forest to the Coastal Communities: A Review on Sri Lankan Perspective. *Asian Journal of Science and Applied Technology,* 10 (2), pp. 42–49. [Online]. Available: https://doi.org/10.51983/ajsat-2021.10.2.3117
[44] Karunathilake, K.M.B.C. (2003). Status of mangroves in Sri Lanka. *Journal of Coastal Development*, 7(1), pp. 5–9. [Online]. Available: https://ejournal.undip.ac.id/index.php/coastdev/article/view/383
[45] The Sylcan Trust. (2020). *Blue Carbon Ecosystems: Climate Change, Vulnerable Communities, and Mangroves in Sri Lanka*. [Online]. Available: https://www.slycantrust.org/post/blue-carbon-ecosystems-climate-change-vulnerable-communities-and-mangroves-in-sri-lanka
[46] Adapted from: Kodikara, K. A. S., Mukherjee, N., Jayatissa, L. P., Dahdouh-Guebas, F., and Koedam, N. (2017). Have mangrove restoration projects worked? An in-depth study in Sri Lanka. *Restoration Ecology*, 25(5), 705–716. [Online]. Available: https://onlinelibrary.wiley.com/doi/abs/10.1111/rec.12492
[47] Karunathilake, K.M.B.C. (2003). Status of mangroves in Sri Lanka. *Journal of Coastal Development*, 7(1), pp. 5–9. [Online]. Available: https://ejournal.undip.ac.id/index.php/coastdev/article/view/383
[48] Arulnayagam, A., Khim, J.-S., and Park, J. (2021). Floral and Faunal Diversity in Sri Lankan Mangrove Forests: A Systematic Review. *Sustainability* (13:17) pp. 9487). [Online]. Available: https://doi.org/10.3390/su13179487
[49] Jayatissa, L. P., Dahdouh-Guebas, F., and Koedam, N. (2002). A review of the floral composition and distribution of mangroves in Sri Lanka. *Botanical Journal of the Linnean Society*,138 (1), pp. 29–43. [Online]. Available: https://doi.org/10.1046/j.1095-8339.2002.00002.x

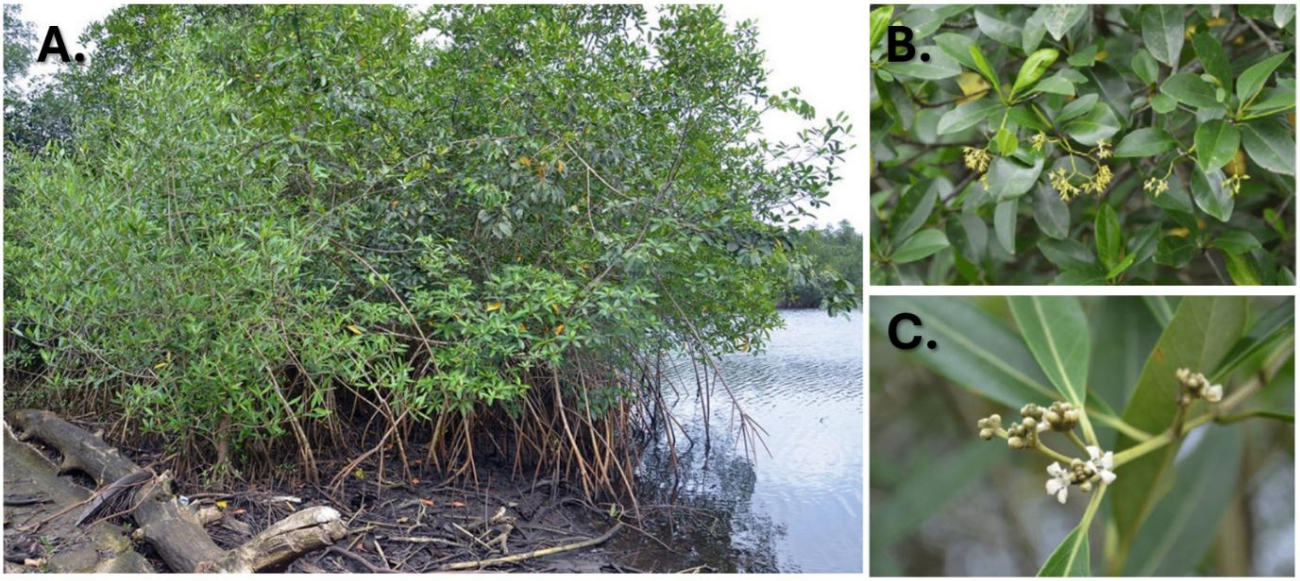


Figure 4. Avicennia (Black Mangrove) and Rhizophora (Red Mangrove) species (A.) with their respective flowers (B. and C.)[50]

Figure 5~~Figure 5~~ overleaf shows the spatial distribution, climatological classification, and district disaggregation of mangrove ecosystems in Sri Lanka.

[50] Adapted from: Haroun, R., Herrero Barrencua, A., & Abreu, A. D. (2018). *Mangrove Habitats in São Tomé and Príncipe: Conservation and Management Status*. In: Coastal Research Library, pp. 589–605. Springer International Publishing. [Online]. Available: https://doi.org/10.1007/978-3-319-73016-5_27

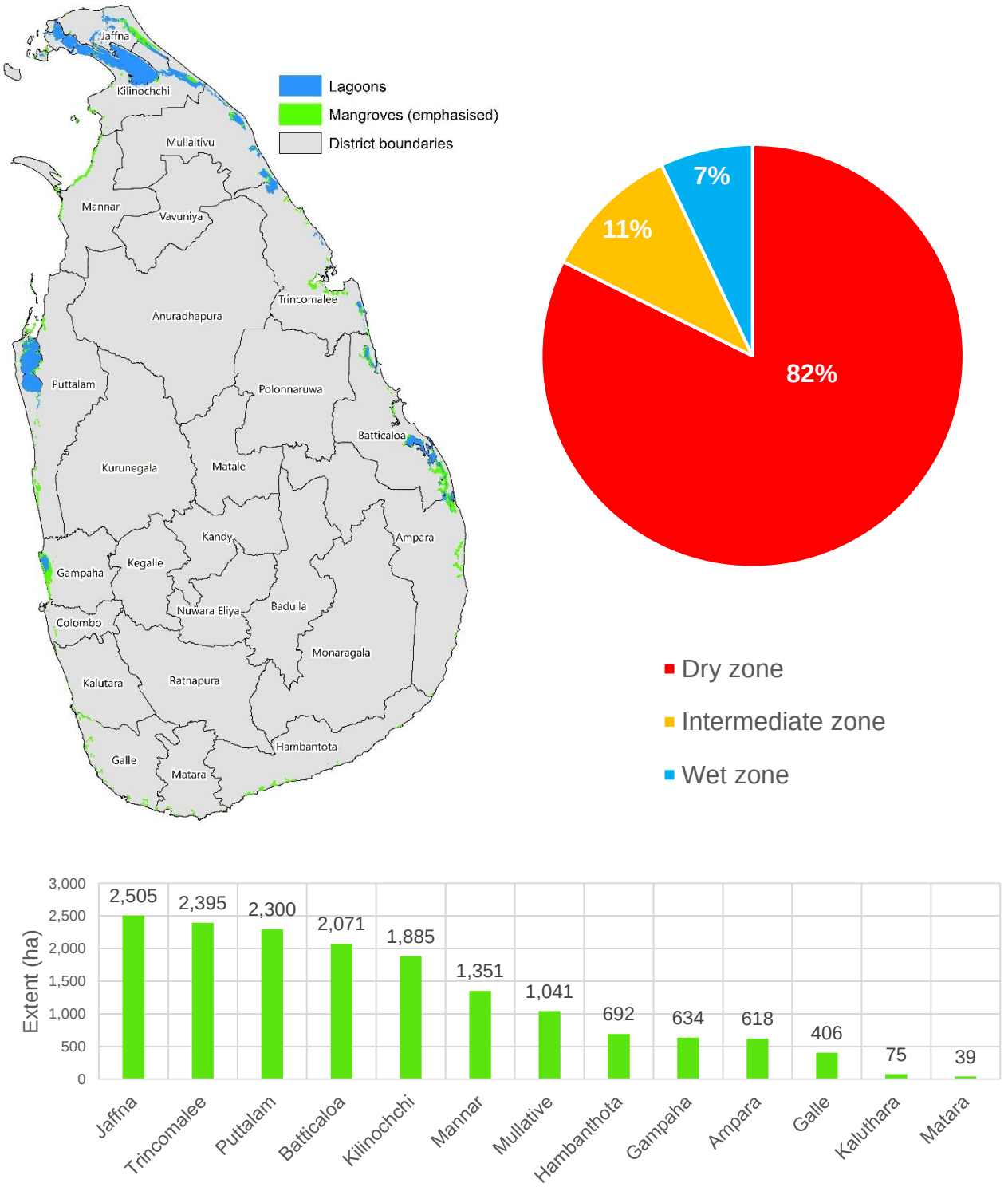


Figure 5. Distribution of mangroves in Sri Lanka by climate zone and district[51,52]

[51] Adapted from: Kodikara, K. A. S., Mukherjee, N., Jayatissa, L. P., Dahdouh-Guebas, F., and Koedam, N. (2017). Have mangrove restoration projects worked? An in-depth study in Sri Lanka. *Restoration Ecology*, 25(5), 705–716. [Online]. Available: https://onlinelibrary.wiley.com/doi/abs/10.1111/rec.12492

[52] Adapted from: Ranawana, K.B. (2017). Mangroves of Sri Lanka. *Publication of Seacology-Sudeesa Mangrove Museum* 1(1): 25-28. [Online]. Available: https://www.researchgate.net/publication/322924654_Mangroves_of_Sri_Lanka

Restoration efforts focused on mangrove ecosystems can significantly enhance climate resilience in coastal areas. By rehabilitating degraded mangrove forests and creating new mangrove habitats, these initiatives can strengthen natural coastal defences against erosion, storm surges, and sea-level rise[53,54]. Restored mangroves can attenuate wave energy, reduce flood risks, and protect coastal infrastructure and communities from the impacts of extreme weather events[55,56]. Furthermore, mangrove restoration projects can help offset greenhouse gas emissions through increased carbon sequestration, providing a nature-based solution to climate change mitigation[57,58].

Mangrove and lagoon ecosystems in Sri Lanka face numerous threats, including habitat destruction for aquaculture (e.g., shrimp farming), agriculture, urban development, and tourism. Overexploitation of mangrove resources for timber, fuelwood, and other products further exacerbates degradation. Additionally, invasive alien species, pollution, and climate change pose significant challenges to their conservation. Despite legal protections, enforcement remains inadequate to prevent ongoing degradation[59,60,61]. Mangroves are vital to the livelihoods of coastal communities in Sri Lanka. They provide resources such as seafood, timber, fuelwood, and vegetables for subsistence and commercial purposes. Communities also rely on mangroves for ecosystem services like coastal protection against erosion and natural disasters[62,63] .

Sri Lanka has implemented several mangrove restoration initiatives to address the loss of these critical ecosystems. Notably, the Sri Lanka Mangrove Conservation Project launched in 2015 aimed to replant 4,000 hectares of mangroves. The government has also committed to restoring an additional 10,000 hectares by 2030. Restoration efforts often involve partnerships between government entities, non-governmental organisations (NGOs), and private stakeholders. Key projects focus on replanting native species like *Rhizophora* and *Avicennia*, promoting community-based management, and integrating sustainable livelihood programs such as ecotourism[64,65].

Climate baseline and future trends

Observed climate

Sri Lanka experiences two primary seasons: the *Maha* season, linked with the northeast monsoon from September –to March, and the *Yala* season, associated with the southwest monsoon from May to August. The country's average temperature ranges from approximately 27°C to 28°C (Figure 6~~Figure 6~~A), placing it among the warmer regions globally. The predominant factor influencing temperature variations across Sri Lanka is altitude, with cooler temperatures evident in the south-central mountain ranges[66].rainfall can vary markedly within short distances, resulting in significant spatial variability in precipitation. Sri Lanka's precipitation is characterized by a division into three distinct zones as tabled below and shown spatially in Figure 6~~Figure 6~~B.

[53] Noor, Y.R. (2019). *Mangroves: cost-efficient and risk-informed coastal defence infrastructure for Indonesia*. [Online]. Available: https://www.wetlands.org/blog/mangroves-cost-efficient-and-risk-informed-coastal-defence-infrastructure-for-indonesia/
[54] Peña, M. (2024). *Mangroves save $855 billion in flood protection globally, new study shows*. [Online]. Available: https://news.ucsc.edu/2024/12/mangroves-coastal-resilience.html
[55] ~~Ibid.~~ *Ibid.*
[56] Blankespoor, B., Dasgupta, S., and Lange, G-M. (2019). *Mangroves as protection from storm surges in a changing climate*. [Online]. Available: https://documents1.worldbank.org/curated/pt/703121468000269119/pdf/WPS7596.pdf
[57] Dabalà, A., Dahdouh-Guebas, F., Dunn, D. C., Everett, J. D., Lovelock, C. E., Hanson, J. O., Buenafe, K. C. V., Neubert, S., and Richardson, A. J. (2023). Priority areas to protect mangroves and maximise ecosystem services. *Nature Communications* (14:1). [Online]. Available: https://doi.org/10.1038/s41467-023-41333-3
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[59] Karunathilake, K.M.B.C. (2003). Status of mangroves in Sri Lanka. *Journal of Coastal Development*, 7(1), 5–9. [Online]. Available: https://ejournal.undip.ac.id/index.php/coastdev/article/view/383
[60] Wickramasinghe, S., Wijayasinghe, M., & Sarathchandra, C. (2022). *Sri Lankan Mangroves: Biodiversity, Livelihoods, and Conservation*. In: Mangroves: Biodiversity, Livelihoods and Conservation, pp. 297–329. Springer Nature Singapore. [Online]. Available: https://doi.org/10.1007/978-981-19-0519-3_13
[61] The Sylcan Trust. (2020). *Blue Carbon Ecosystems: Climate Change, Vulnerable Communities, and Mangroves in Sri Lanka*. [Online]. Available: https://www.slycantrust.org/post/blue-carbon-ecosystems-climate-change-vulnerable-communities-and-mangroves-in-sri-lanka
[62] Vijitharan, S. (2021). Restoration and Conservation Benefits of Mangrove Forest to the Coastal Communities: A Review on Sri Lankan Perspective. *Asian Journal of Science and Applied Technology,* 10 (2), pp. 42–49. [Online]. Available: https://doi.org/10.51983/ajsat-2021.10.2.3117
[63] The Sylcan Trust. (2020). *Blue Carbon Ecosystems: Climate Change, Vulnerable Communities, and Mangroves in Sri Lanka*. [Online]. Available: https://www.slycantrust.org/post/blue-carbon-ecosystems-climate-change-vulnerable-communities-and-mangroves-in-sri-lanka
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[66] World Bank Group. (2021). *Climate Risk Country Profile: Sri Lanka.* [Online]. Available: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15507-WB_Sri%20Lanka%20Country%20Profile-WEB.pdf

Climate zone	Features
Dry	Located in the southwest, this zone receives over 2,500 mm of rainfall annually, significantly influenced by the southwest monsoon. The southwest slopes of the central hills can experience annual rainfall reaching up to 5,000 mm.
Intermediate	Found in the south and northwest, this zone receives less than 1,750 mm of rainfall annually.
Wet	This region encompasses the eastern and central areas of the country, receiving between 1,750 mm and 2,500 mm of rainfall annually, predominantly from the northeast monsoon.

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[69] ~~Ibid.~~*Ibid.*
[70] Blankespoor, B., Dasgupta, S., and Lange, G-M. (2019). *Mangroves as protection from storm surges in a changing climate*. [Online]. Available: https://documents1.worldbank.org/curated/pt/703121468000269119/pdf/WPS7596.pdf
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[80] World Bank Group. (2021). *Climate Risk Country Profile: Sri Lanka.* [Online]. Available: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15507-WB_Sri%20Lanka%20Country%20Profile-WEB.pdf

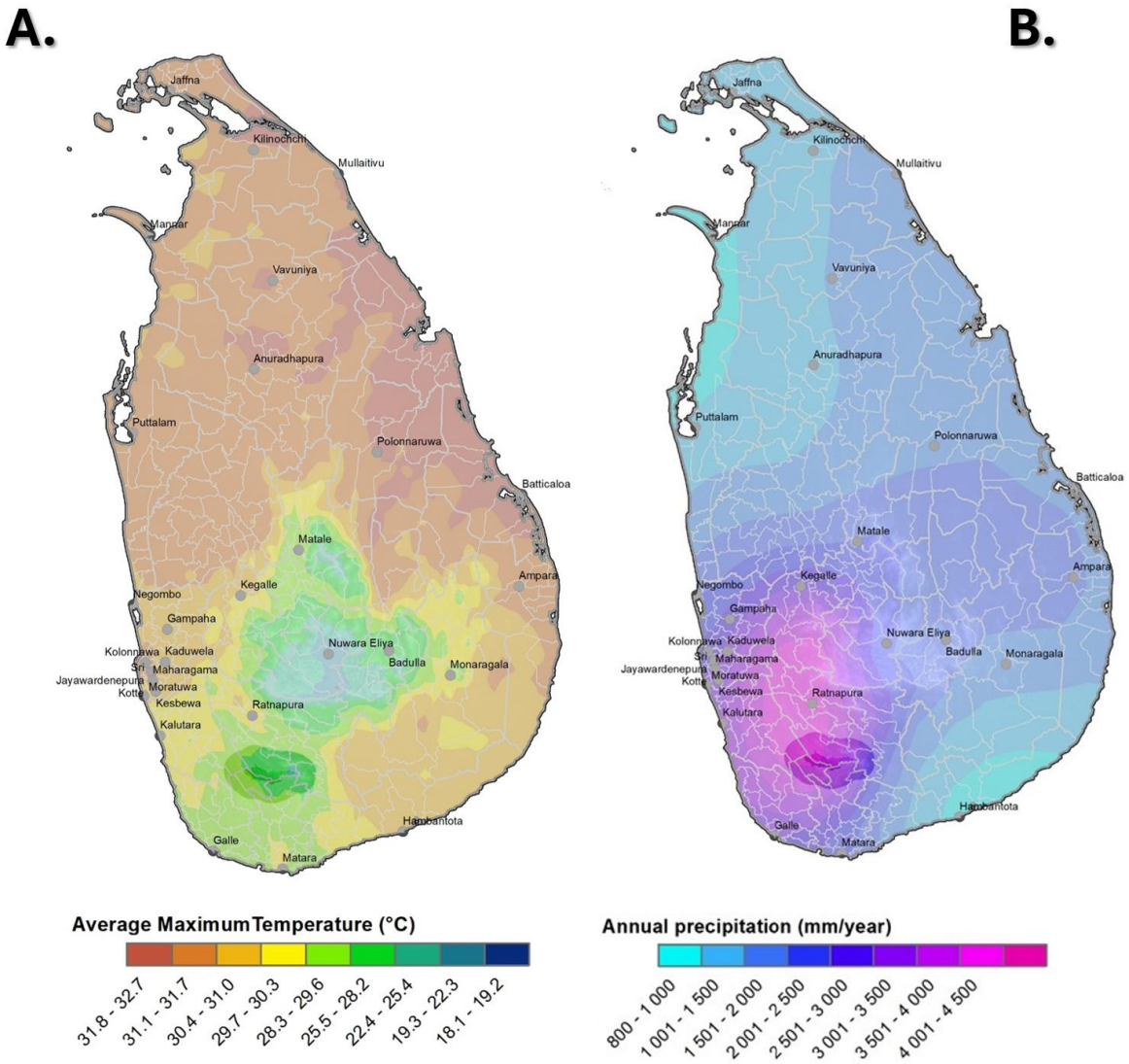


Figure 6. Observed average maximum temperature (°C) and annual precipitation (mm/year) in Sri Lanka

Projected future climate

Sri Lanka's warm and wet climate is undergoing significant changes, with rising temperatures, variable rainfall, and more frequent extreme weather events like storm surges. These changes threaten agriculture, food security, water resources, and human health, increasing vector-borne diseases such as malaria and dengue fever and heightening the risk of water pollution. Projected changes include a mean annual rainfall increase of 19.66 mm per decade, reaching about 1813 mm annually by 2050-2080. Days with over 20 mm of precipitation are expected to rise by 0.20 days per decade, along with increases in 1-day (0.59 mm per decade) and 5-day (1.21 mm per decade) peak precipitation events. While consecutive wet days are anticipated to rise by 0.89 days per decade, dry days may decrease by 0.17 days per decade.

Overall mean temperatures have risen by approximately 0.19 to 0.20°C per decade, with a significant increase in the Warm Spell Duration Index (27.59 days per decade). Hot days over 35°C are projected to increase by 3.08 days per decade, while tropical nights above 20°C are expected to rise by 1.08 nights per decade. Expected spatial anomalies in peak monthly temperatures and standardised precipitation evapotranspiration index (SPEI) are depicted overleaf in Figure 7~~Figure 7~~A and Figure 7~~Figure 7~~B, respectively.

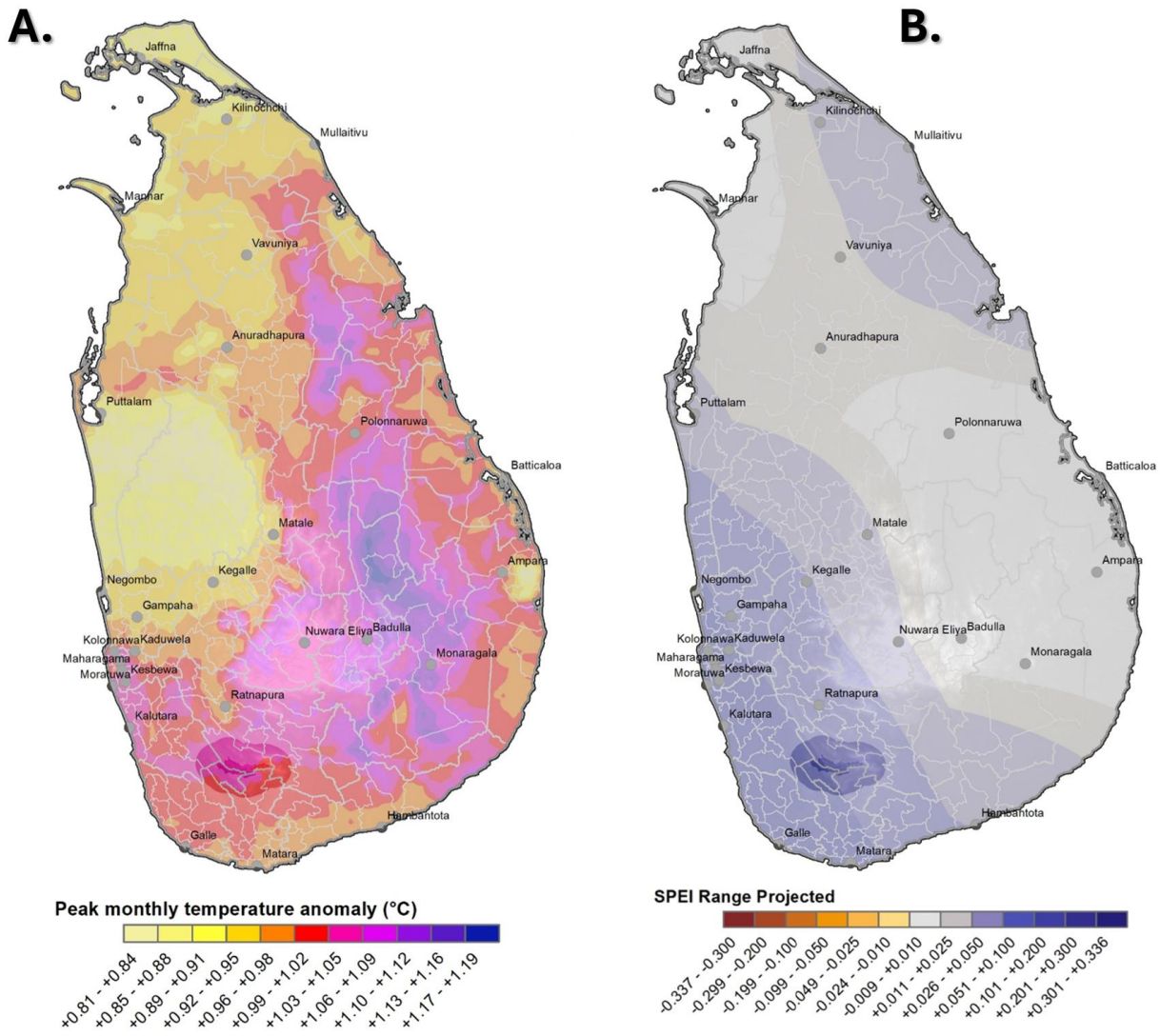


Figure 7. Projected peak monthly temperature anomaly (°C) and projected changes in standardised precipitation evapotranspiration index (SPEI) in Sri Lanka

Sea-level rise

Based on tidal gauge data from Colombo, Sri Lanka, for the period 2006 to 2017, sea-level has been observed to increase at an annual rate of 3.46±1.42 mm/year[81]. Future sea-level rise (SLR) for the region has been projected at annual rates of 2 to 4 mm/year over the next 50 years, and at 3.5 mm/year over the next 200 years, with these projections anticipated to cause coastal inundation ranging from 3.5 to 15.0 metres inland from the present sea-level[82]. While Sri Lanka has a moderate vulnerability to slow-onset sea-level rise, it has a particularly high vulnerability to the combined impacts of sea-level rise and storm surge[83]. Sea-level rise is expected to significantly alter coastal vegetation communities through changes in soil salinity and inundation frequency. For example, along the east coast, a 1 m sea-level rise

[81] Perera, K. A. R. S., De Silva, K. H. W. L., and Amarasinghe, M. D. (2018). Potential impact of predicted sea level rise on carbon sink function of mangrove ecosystems with special reference to Negombo estuary, Sri Lanka. *Global and Planetary Change*, 161, 162–171. [Online]. Available: https://doi.org/10.1016/j.gloplacha.2017.12.016

[82] Palamakumbure, L., Ratnayake, A. S., Premasiri, H. M. R., Ratnayake, N. P., Katupotha, J., Dushyantha, N., Weththasinghe, S., and Weerakoon, W. A. P. (2020). Sea-level inundation and risk assessment along the south and southwest coasts of Sri Lanka. *Geoenvironmental Disasters*, 7(1). [Online]. Available: https://doi.org/10.1186/s40677-020-00154-y

83 World Bank Group. (2021). *Climate Risk Country Profile: Sri Lanka*. [Online]. Available: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15507-WB_Sri%20Lanka%20Country%20Profile-WEB.pdf

is predicted to shift the permanent coastal vegetation front 30 to 45 metres landward[84]. The resulting changes could include altered physiognomy and diversity, the expansion of salt-tolerant species such as mangroves, and the creation of unfavourable conditions for existing species through increased soil salinity and immersion periods. Predicted sea-level rise could permanently inundate between 37% and 67% of the current mangrove extent, resulting in die-back of mangrove plants due to suffocation and erosion that could cause a net loss of carbon sink function[85].

Regarding the salinization of coastal resources, saline intrusion into freshwater wetlands also threatens cultivated areas, such as paddy fields. Sea-level rise is already affecting livelihoods in Sri Lanka through the salinization of coastal soils and groundwater. This intrusion of salinity into rivers has become significant, necessitating the construction of a salinity barrier to protect Colombo's water supply[86]. Similarly, Sri Lanka's east coast is characterised by a steep soil salinity gradient, and with rising sea-levels, this saline front is expected to push further inland, altering soil characteristics and rendering previously productive land unsuitable for existing crops in low-lying coastal areas[87]. The combination of coastal inundation, salinization, and ecosystem degradation threatens the livelihoods of communities dependent on agriculture, fisheries, and tourism, potentially amplifying existing inequalities and creating significant economic costs associated with adaptation and retreat from the most vulnerable coastal areas[88,89].

Impacts of climate changes

The anticipated changes to these climate parameters and the associated impacts are described in Table 3~~Table 3 overleaf~~.

Table 3. Summary of projected changes to temperature, precipitation, and biomes and expected impacts for Sri Lanka[90]

Climate parameter[91]	Projected changes	Anticipated impacts
Temperature 	The models suggest an increase in maximum temperatures from +0.3°C to 0.9°C. Most models are closely clustered between +0.45°C and +0.7°C, and the median is ~+0.5°C.	The increases in baseline average maximum temperatures will result in a prolonged and more extreme warm spell. In the most severe outlying model, these are anticipated to be longer by up to ~190 days. Most models indicate an increase in warm spell duration of between 18 and 105 days annually; half the models are between 22- and 50-day increases. The median increase is 49 days annually. The general increase in average temperatures also leads to an increase in very hot days. There is an anticipated increase in days above 35°C of up to ~8 days annually. A few models suggest a slight decrease in these very hot days by less than 1 day annually. Most models suggest an increase of between 0.5 and 6.0 days with a median of ~+2 days per year. The rise in

[84] Mathiventhan, T., Gorman, D., & Jayasingam, T. (2022). Sea-level rise, coastal salinity and vegetation changes in Sri Lanka. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 380 (2221). [Online]. Available: https://doi.org/10.1098/rsta.2021.0142
[85] Perera, K. A. R. S., De Silva, K. H. W. L., and Amarasinghe, M. D. (2018). Potential impact of predicted sea level rise on carbon sink function of mangrove ecosystems with special reference to Negombo estuary, Sri Lanka. *Global and Planetary Change*, 161, 162–171. [Online]. Available: https://doi.org/10.1016/j.gloplacha.2017.12.016
[86] World Bank Group. (2021). *Climate Risk Country Profile: Sri Lanka*. [Online]. Available: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15507-WB_Sri%20Lanka%20Country%20Profile-WEB.pdf
[87] Mathiventhan, T., Gorman, D., & Jayasingam, T. (2022). Sea-level rise, coastal salinity and vegetation changes in Sri Lanka. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 380 (2221). [Online]. Available: https://doi.org/10.1098/rsta.2021.0142
[88] Palamakumbure, L., Ratnayake, A. S., Premasiri, H. M. R., Ratnayake, N. P., Katupotha, J., Dushyantha, N., Weththasinghe, S., and Weerakoon, W. A. P. (2020). Sea-level inundation and risk assessment along the south and southwest coasts of Sri Lanka. *Geoenvironmental Disasters*, 7(1). [Online]. Available: https://doi.org/10.1186/s40677-020-00154-y
[89] World Bank Group. (2021). *Climate Risk Country Profile: Sri Lanka*. [Online]. Available: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15507-WB_Sri%20Lanka%20Country%20Profile-WEB.pdf
[90] Adapted from: Ogier, D. (2024). *Sri Lanka Climate Change Assessment*. Available on request from: https://www.doclimate.co/contact
[91] All projected changes are for the future SSP2-45 scenario for the near future 2020-2040.

Climate parameter[91]	Projected changes	Anticipated impacts
		minimum, average and maximum temperatures will shift the temperature profile away from more moderate temperatures towards more severe and extreme single-day and multi-day events.
Precipitation 	Average daily intensity is projected to increase, but there is a variance in the models projecting changes in peak single-day rainfall volumes. Likewise, the rainfall seasonality changes don't show a clear trend into the future. The increased rainfall is, however, anticipated to show an increase in the standardised precipitation evapotranspiration index (SPEI), i.e., a shift away from more severe drought conditions. Annual average rainfall shows variability in the future projected rainfall anomaly, with models indicating changes of +12.0% to -2.0%, with an outlier of -6.0% noted by a single model. Most models show a range of +1.0% to +6.5% and a median anomaly of +4.0mm.	The projected increase in average rainfall volumes will coincide with greater daily rainfall intensity, with models showing a spectrum of changes. Most suggest an increase of up to 0.35mm per day, while half indicate a rise of +0.05 to +0.1. Extreme single-day rainfall volumes vary significantly, with projections ranging from increases to decreases of -30mm and most indicating a narrower range of -10mm to ++20mm. The noted increase in annual rainfall will increase SPEI values (note that increased SPEI values mean a shift away from more severe drought conditions). The SPEI range suggests a future change of -0.17 to +0.79 in the outlying models. Most models range from -0.16 to +0.60, with a median of +0.22. This indicates that, on average, the drought state will be near normal/wet conditions ranges, but there will, however, still be variability in this state into the future. Overall, increased average rainfall will make rain events feel more severe despite limited changes in extreme volumes. An increase in annual rainfall, particularly intensification during shorter peak periods, raises the risk of soil saturation and exceeding drainage system capacities. Higher volumes can erode infrastructure and lead to property and asset damage.
Sea-level rise 	Future sea-level rise (SLR) for the region has been projected at annual rates of 2 to 4 mm/year over the next 50 years, and at 3.5 mm/year over the next 200 years, with these projections anticipated to cause coastal inundation ranging from 3.5 to 15.0 metres inland from the present sea-level[92].	While Sri Lanka has a moderate vulnerability to slow-onset sea-level rise, it has a particularly high vulnerability to the combined impacts of sea-level rise and storm surge[93]. The impacts of SLR are multifaceted, affecting coastal geomorphology, ecosystems, and biogeochemical cycles[94]. A primary physical impact is coastal flooding and the subsequent inundation of low-lying coastal land[95,96]. Additional impacts from SLR in Sri Lanka include changes to vegetation distribution and

[92] Palamakumbure, L., Ratnayake, A. S., Premasiri, H. M. R., Ratnayake, N. P., Katupotha, J., Dushyantha, N., Weththasinghe, S., and Weerakoon, W. A. P. (2020). Sea-level inundation and risk assessment along the south and southwest coasts of Sri Lanka. *Geoenvironmental Disasters*, 7(1). [Online]. Available: https://doi.org/10.1186/s40677-020-00154-y

93 World Bank Group. (2021). *Climate Risk Country Profile: Sri Lanka*. [Online]. Available: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15507-WB_Sri%20Lanka%20Country%20Profile-WEB.pdf

94 Palamakumbure, L., Ratnayake, A. S., Premasiri, H. M. R., Ratnayake, N. P., Katupotha, J., Dushyantha, N., Weththasinghe, S., and Weerakoon, W. A. P. (2020). Sea-level inundation and risk assessment along the south and southwest coasts of Sri Lanka. *Geoenvironmental Disasters*, 7(1). [Online]. Available: https://doi.org/10.1186/s40677-020-00154-y

95 World Bank Group. (2021). *Climate Risk Country Profile: Sri Lanka*. [Online]. Available: https://climateknowledgeportal.worldbank.org/sites/default/files/2021-05/15507-WB_Sri%20Lanka%20Country%20Profile-WEB.pdf

96 Perera, K. A. R. S., De Silva, K. H. W. L., and Amarasinghe, M. D. (2018). Potential impact of predicted sea level rise on carbon sink function of mangrove ecosystems with special reference to Negombo estuary, Sri Lanka. *Global and Planetary Change*, 161, 162–171. [Online]. Available: https://doi.org/10.1016/j.gloplacha.2017.12.016

Climate parameter[91]	Projected changes	Anticipated impacts
		composition, a loss of ecosystem services such as carbon sinks, and degradation of freshwater and agricultural resources from saline intrusion.
Vegetation biomes 	The projected future climate changes suggest a decrease in the temperate and tropical rainfall forest climate areas in the elevated southern areas of the country. These are anticipated to be replaced by the expansion of the tropical savanna climates, which are more prevalent in the northern and southeastern regions of the country.	Changes to ecosystem structure and function that negatively affect biodiversity and the provision of ecosystem services. Climate-sensitive livelihoods such as small-scale agriculture will be acutely affected.

Climate hazards and early-warning systems in Sri Lanka

Climate hazards

Sri Lanka is inherently vulnerable to various coastal hazards due to its location. The country frequently experiences floods, cyclones, thunderstorms, and coastal erosion while facing potential risks from tsunamis. In recent history, Sri Lanka has endured significant natural disasters, including devastating floods in 2003 and the catastrophic Indian Ocean tsunami in 2004, which claimed approximately 35,000 lives in the country[97]. Data on the occurrence of hazards in Sri Lanka from the World Bank Group's Climate Change Knowledge Portal (Figure 8~~Figure 8~~A and B, and Table 4~~Table 4~~) show that the country has faced recurring climate-related hazards, with floods being the most persistent threat, averaging almost 70 events annually. There was an increasing trend in the frequency and impact of various hazards in the most recent years between 1980 and 2020.

[97] Hippola, H. M. S. S., Jayasooriya, E. M. S. D., Jayasiri, G. P., Randil, C., Perera, C., Sylva, K. K. K., Kulathunga, A. K., Bandara, C. S., Siriwardena, C. S. A., and Dissanayake, P. B. R. (2019). Gap Assessment of Warning and Dissemination Process of Early Warning System in Coastal Areas of Sri Lanka. In: *Lecture Notes in Civil Engineering*, pp. 36–44. [Online]. Available: https://doi.org/10.1007/978-981-13-9749-3_4

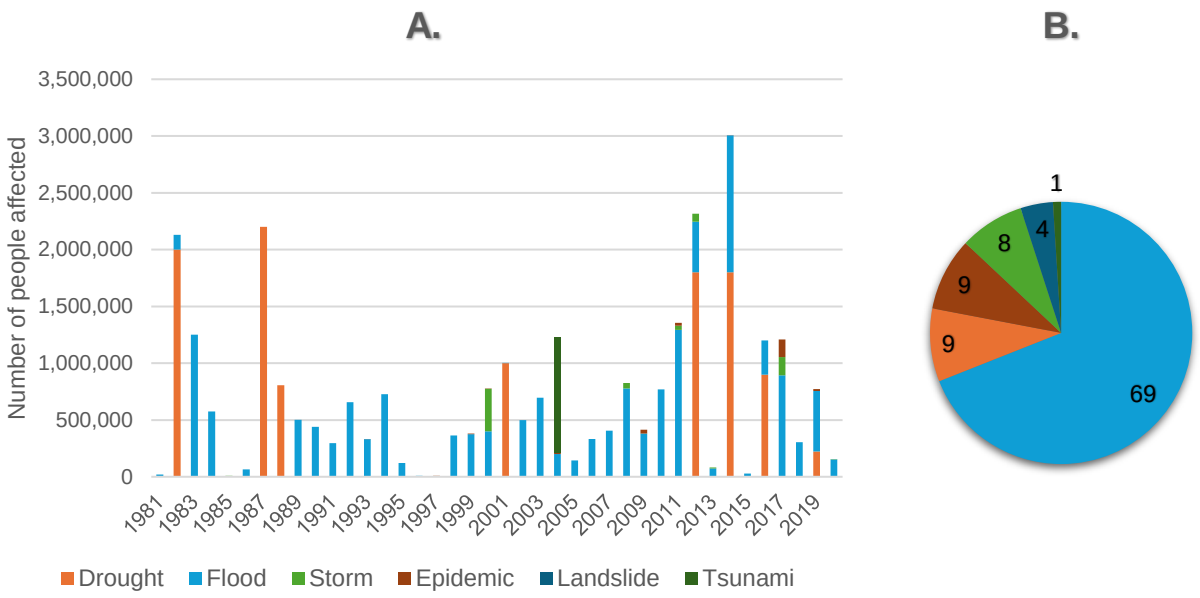


Figure 8. Number of people affected (A.) and average annual occurrence of hazards (B.) in Sri Lanka between 1980 and 2020[98]

The historical trend for each hazard is tabled below, based on the abovementioned data.

Table 4. Overview of historical trends by hazard in Sri Lanka between 1980 and 2020[99]

Hazard	Historical trend
Flood	Floods have been the most consistently reported hazard throughout the period, affecting people almost every year. The number of people affected by floods has fluctuated dramatically, with notable peaks in 1983 (1,250,000 people), 1994 (728,150 people), and 2011 (1,293,924 people).
Drought	Droughts have occurred less frequently but have affected large numbers of people when they did happen. Major drought events were recorded in 1982 (2,000,000 people affected), 1987 (2,200,000 people), and more recently in 2012 and 2014 (1,800,000 people each year). The data suggests that droughts have become more frequent in the latter part of the period, with significant events also occurring in 2016 and 2019.
Storm	Storms have been reported sporadically throughout the period, with the most significant impacts in 2000 (375,000 people affected) and 2017 (160,077 people affected). The frequency of reported storm events appears to have increased in the latter half of the period, particularly from 2008 onwards.
Epidemic[100]	Epidemics have been reported intermittently, with the most significant number of people affected in 2009 (35,007 people) and 2017 (155,715 people). The data shows an increase in reported epidemic events in the latter part.
Landslide	Landslides have been reported infrequently, with only a few instances recorded. The most significant landslide event in terms of people affected occurred in 2014, impacting 1,797 individuals.
Tsunami	The most devastating single event between 1980 and 2020 was the 2004 Indian Ocean tsunami, driven by an earthquake which affected 1,019,306 people. This event is an anomaly in the dataset due to its massive impact and regional rarity.

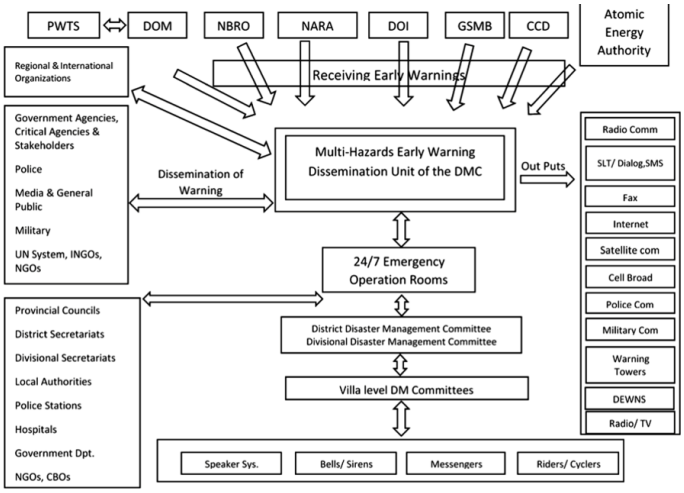
[98] Source data: World Bank Group. (2021). *Climate Change Knowledge Portal Vulnerability Profile: Sri Lanka*. [Online]. Available: https://climateknowledgeportal.worldbank.org/country/sri-lanka/vulnerability
[99] Source data: World Bank Group. (2021). *Climate Change Knowledge Portal Vulnerability Profile: Sri Lanka*. [Online]. Available: https://climateknowledgeportal.worldbank.org/country/sri-lanka/vulnerability
[100] Excludes the Covid-19 pandemic.

Early-warning systems and emergency preparedness

Sri Lanka has implemented a comprehensive Early Warning System (EWS) from national to sub-national levels. The Emergency Operation Centre (EOC), under the Disaster Management Centre (DMC), is the focal point for coordinating and disseminating early warning messages. The Department of Meteorology (DoM) functions as the National Tsunami Warning Centre, responsible for forecasting and issuing tsunami warnings[101]. The Disaster Management Centre (DMC) serves as the key centralised stakeholder responsible for receiving early warnings from the Department of Meteorology (DOM) and disseminating them to relevant units. Disaster communication channels In Sri Lanka can be categorised into traditional (pre-digital) and modern (digital) media. While dedicated mobile applications and social media have become efficient global platforms for emergency response and disaster information sharing, their use remains low in Sri Lankan coastal villages[102]. The methods used to disseminate early warnings to institutions and communities and the institutional arrangements for EWS in Sri Lanka are tabled below.

Table 5. Communication methods used in the dissemination of early warnings to institutions and communities in Sri Lanka[103]

Communication method	Institutional	Community
Police and military communication	X	
Satellite and radio communications	X	
Intra government network	X	
Fax	X	
Internet	X	
Early warning towers	X	X
Media	X	X
Telephones/SMS	X	X
Police vehicles		X
Public address system		X
Sirens		X
Temple/church bells		X



Several studies have been undertaken regarding the status and challenges of generating, disseminating, and acting on Sri Lanka's EWS. The main findings from recent work[104,105] are summarised below.

Early warning systems and disaster preparedness structures in Sri Lanka exhibit several interconnected challenges. The communication network demonstrates moderate effectiveness, yet weaknesses exist in the flow of information between the Emergency Operations Center, administrative levels, and the media. Dissatisfaction has been reported regarding the speed of communication and the technologies utilized. Inter-agency communication presents difficulties, particularly concerning adherence to Emergency Operation Procedures. The use of social media for disseminating early warnings faces limitations due to concerns about reliability, costs, and the potential for misinformation. Furthermore, the adoption of dedicated mobile applications and social media for emergency response remains low in coastal

[101] Jayasekara, R.U., Jayathilaka, G.S., Siriwardana, C., Amaratunga, D., Haigh, R., Bandara, C., and Dissanayake, R. (2021). Identifying gaps in early warning mechanisms and evacuation procedures for tsunamis in Sri Lanka, with a special focus on the use of social media. *International Journal of Disaster Resilience in the Built Environment*, 14 (1), pp. 1–20. [Online]. Available: https://doi.org/10.1108/ijdrbe-02-2021-0012

[102] Jayasekara, R.U., Jayathilaka, G.S., Siriwardana, C., Amaratunga, D., Haigh, R., Bandara, C., and Dissanayake, R. (2021). Identifying gaps in early warning mechanisms and evacuation procedures for tsunamis in Sri Lanka, with a special focus on the use of social media. *International Journal of Disaster Resilience in the Built Environment*, 14 (1), pp. 1–20. [Online]. Available: https://doi.org/10.1108/ijdrbe-02-2021-0012

[103] Adapted from: Hippola, H. M. S. S., Jayasooriya, E. M. S. D., Jayasiri, G. P., Randil, C., Perera, C., Sylva, K. K. K., Kulathunga, A. K., Bandara, C. S., Siriwardena, C. S. A., and Dissanayake, P. B. R. (2019). Gap Assessment of Warning and Dissemination Process of Early Warning System in Coastal Areas of Sri Lanka. In: *Lecture Notes in Civil Engineering*, pp. 36–44. [Online]. Available: https://doi.org/10.1007/978-981-13-9749-3_4

[104] Jayasekara, R.U., Jayathilaka, G.S., Siriwardana, C., Amaratunga, D., Haigh, R., Bandara, C., and Dissanayake, R. (2021). Identifying gaps in early warning mechanisms and evacuation procedures for tsunamis in Sri Lanka, with a special focus on the use of social media. *International Journal of Disaster Resilience in the Built Environment*, 14 (1), pp. 1–20. [Online]. Available: https://doi.org/10.1108/ijdrbe-02-2021-0012

[105] Hippola, H. M. S. S., Jayasooriya, E. M. S. D., Jayasiri, G. P., Randil, C., Perera, C., Sylva, K. K. K., Kulathunga, A. K., Bandara, C. S., Siriwardena, C. S. A., and Dissanayake, P. B. R. (2019). Gap Assessment of Warning and Dissemination Process of Early Warning System in Coastal Areas of Sri Lanka. In: *Lecture Notes in Civil Engineering*, pp. 36–44. [Online]. Available: https://doi.org/10.1007/978-981-13-9749-3_4

communities despite a reported openness to these new approaches. Insufficient staffing within disaster management institutions poses a significant challenge, compounded by a lack of technological data monitoring and information dissemination methods. A key concern is the inadequate community response and awareness, with a noted lack of disaster knowledge within communities and limited awareness of communication platforms, contributing to a reluctance to evacuate. Public trust in warning systems and institutional responses is also a concern. Critical governance challenges have been identified, including potential power struggles between authorities and a historical emphasis on technical aspects of disaster management over administrative ones. Specific gaps include the absence of a Technical Advisory Committee, insufficient training for Department of Meteorology officials, the need to update Standard Operating Procedures, and shortcomings in evacuation planning, such as inadequate shelters, unsatisfactory cooperation, neglect of vulnerable groups, and biases in resource allocation. Finally, the lack of specific consideration for individuals with special needs in community response represents another significant gap.

Project area

District selection

The project will be implemented in seven of Sri Lanka's 12 coastal districts, as follows: Ampara, Batticaloa, and Trincomalee, and Mullaitivu on the east coast; and Gampaha, Kalutara, and Galle on the west coast. (Figure 9~~Figure 9~~). The districts were selected based on their physical vulnerability to climate shocks (floods and drought in particular, Figure 9~~Figure 9~~A), and their socioeconomic vulnerability, i.e., poverty and food insecurity (Figure 9~~Figure 9~~B) as well as selected outcomes from the Multidimensional Vulnerability Index (MVI) component of UNDP's report[106] "*Understanding Multidimensional Vulnerabilities: Impact on People of Sri Lanka*[107]". Additional targeting parameters included the location and extent of mangrove and lagoon ecosystems within the districts.

In terms of overall socioeconomic vulnerability, both the MVI[108] and incidence[109] of vulnerability of the selected districts are approximately 4% higher in the seven target districts on average compared to the national average. The target districts also exhibit substantially higher deprivation and vulnerability in several other parameters, shown overleaf in Figure 10~~Figure 10~~ and Table 6~~Table 6~~, respectively.

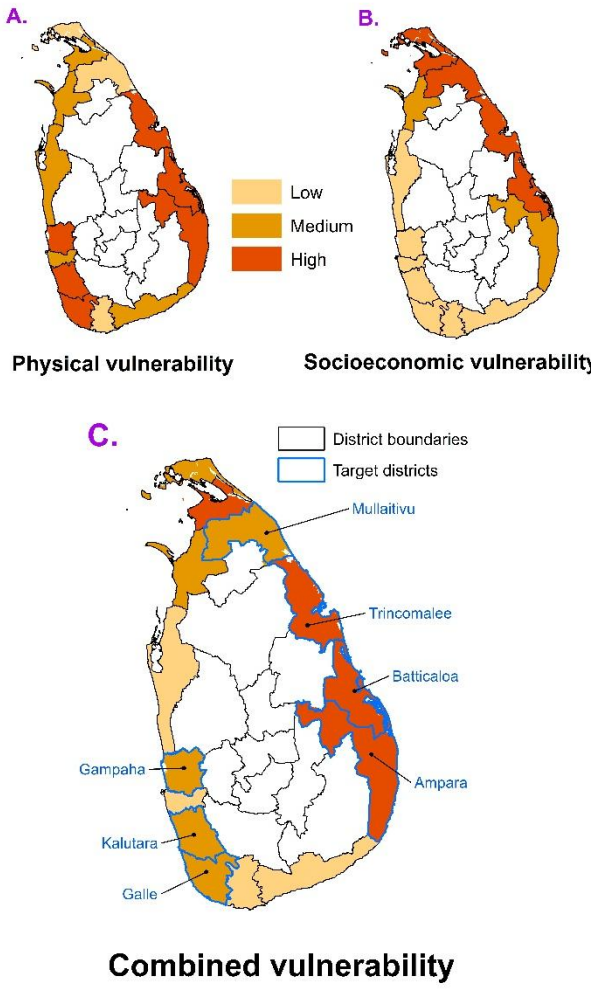


Figure 9. Physical (A), socioeconomic (B), and combined (C) vulnerability to climate change in the target districts

[106] Based on UNDP's National Citizen Survey 2022-23, it provides a comprehensive and data-driven assessment of vulnerability nationwide. Utilizing a robust dataset from a survey of over 25,000 households across all 25 districts, the report analyses multifaceted aspects of vulnerability beyond income poverty, encompassing education, health, living standards, and exposure to disasters.
[107] United Nations Development Programme. (2023). *Understanding Multidimensional Vulnerabilities: Impact on People of Sri Lanka*. [Online]. Available: https://www.undp.org/srilanka/publications/understanding-multidimensional-vulnerabilities-impact-people-sri-lanka
[108] The MVI is a comprehensive measure that captures the *degree* of vulnerability experienced by households across multiple dimensions, including education, health, living standards, and exposure to disasters. The MVI value ranges from 0 to 1, with higher values indicating greater overall vulnerability and a higher average intensity of deprivations.
[109] Also known as the "headcount ratio," this refers to the percentage of the population identified as multidimensionally vulnerable based on the MVI. It indicates the proportion of people experiencing significant overlapping deprivations across the measured dimensions. A higher incidence of vulnerability means a larger share of the population is facing multiple and interconnected challenges.

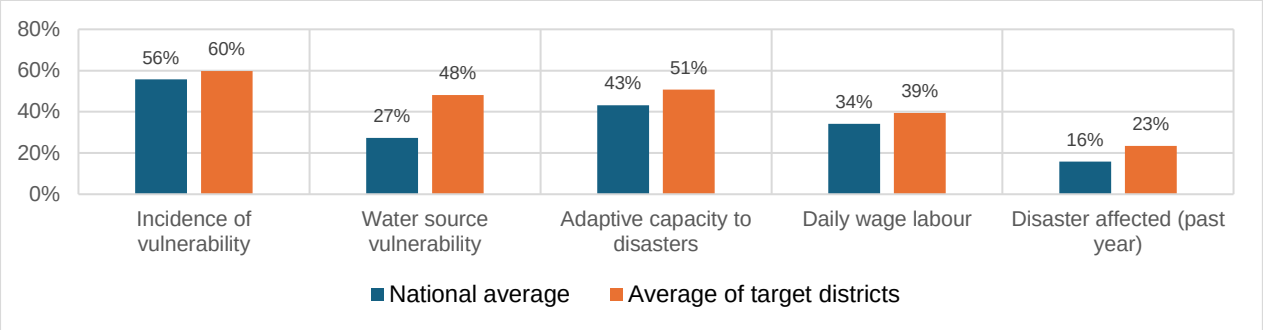


Figure 10. Comparison of multidimensional vulnerability indicators between the target districts and the national average[110]

Table 6. Description and analysis of multidimensional vulnerability parameters between the target districts and the national average[111]

Parameter	Description	Scenario in target districts vs. the national average
Water source vulnerability	Indicates vulnerability related to access to safe and reliable water sources. Households relying on unimproved water sources or facing challenges in accessing sufficient water are considered more vulnerable. This indicator reflects the risk of water scarcity, waterborne diseases, and the burden of water collection, all of which can significantly impact well-being and resilience.	Water source deprivation is over 20% higher on average in the target districts compared to the national average. This is a striking difference and highlights a critical area of vulnerability to the impacts of climate changes and disasters in Sri Lanka.
Disaster affected	Self-reported experience of natural disaster impacts within the previous year. It is a broad indicator of *perceived* disaster impact, without specific details on the type or severity of the disaster.	Target districts show a notably higher level of disaster impact compared to the national average. While some districts within the group (like Trincomalee, Gampaha, Kalutara, and Galle) are at or below the national average individually, the significantly higher disaster impact in Ampara, Batticaloa, and Kilinochchi (up to 21% higher than the national average) significantly elevates the overall average for the seven districts.
Adaptive capacity to disasters	A household's ability to prepare for, cope with, and recover from disasters and other shocks. Low adaptive capacity is considered a vulnerability and is measured through indicators reflecting households' preparedness, access to information, and resources to mitigate disaster impacts. Households with low adaptive capacity are more vulnerable to the damaging effects of events like floods, droughts,	Censored headcount for adaptive capacity is 7.6% higher on average in the target districts. This, along with the disaster affected percentage being slightly higher, reinforces the heightened physical vulnerability to disasters in the seven districts.

[110] Source data: United Nations Development Programme. (2023). *Understanding Multidimensional Vulnerabilities: Impact on People of Sri Lanka*. [Online]. Available: https://www.undp.org/srilanka/publications/understanding-multidimensional-vulnerabilities-impact-people-sri-lanka
[111] Adapted from: United Nations Development Programme. (2023). *Understanding Multidimensional Vulnerabilities: Impact on People of Sri Lanka*. [Online]. Available: https://www.undp.org/srilanka/publications/understanding-multidimensional-vulnerabilities-impact-people-sri-lanka

Parameter	Description	Scenario in target districts vs. the national average
	and economic crises.	
Daily wage labour	Refers to employment where individuals are paid daily for their work, often in sectors like agriculture, construction, or informal services. While providing immediate income, daily wage labour is frequently characterised by precariousness and informality. Workers in daily wage jobs typically lack job security, benefits, and stable income streams, making them particularly vulnerable to economic downturns, seasonal changes in work availability, and external shocks.	Reliance on daily wage labour in the target districts is 5.3% higher than the national average, indicating a more precarious employment structure in those districts.

Beneficiary targeting

A data-driven geographical targeting approach based on the preceding district selection methodology was used to determine direct and indirect project beneficiaries within the seven target districts. The estimated total population in the selected districts was 7.1 million in 2025. To ensure that beneficiaries residing at or near the coast were prioritised, the total population of coastal sub-districts was used, i.e. approximately 3.1 million people. The project will directly target approximately 10 000 households per district as direct beneficiaries, which equates to a total of ~280 000 individuals (9% of the coastal population) across the seven selected districts, assuming an average household size of four people. Indirect project beneficiaries are estimated at 550 000 individuals, i.e. 17% of the coastal population in the target districts. These initial calculations will be further refined and validated during the fully-developed proposal (FDP) phase.

Project Objectives:

To address the risks and challenges described under the background and context section, the proposed project employs an overarching objective, and two specific objectives as described below.

General Objective

Strengthen the resilience of coastal communities to climate change by building cross-sectoral capacity, promoting climate-resilient livelihoods, and enhancing climate risk preparedness within key institutions and amongst vulnerable coastal populations.

Specific Objective 1

Enhance the climate resilience of coastal livelihoods to improve food and economic security for vulnerable coastal communities.

Specific Objective 2

Establish inclusive and gender-responsive climate risk preparedness frameworks at institutional and community levels to effectively manage and reduce climate-related hazards.

Project Components and Financing:

Table 7~~Table 7~~ below and overleaf summarises the proposed project's components, outputs, outcomes, and corresponding budget allocation.

Table 7. Overview of project components, expected outputs, outcomes, and budget

Project Component	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Component 1 Climate-resilient	1.1 Improved awareness of target community groups on climate change impacts and climate resilient livelihoods	Outcome 1: Livelihoods and food security for vulnerable coastal	6 352 500 ~~6 250 000~~

Project Component	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
coastal livelihoods	increased through training sessions and workshops ~~Awareness-raising for targeted communities on climate change impacts~~ & climate-resilient livelihoods 1.2 Sustainable production practices adopted and support services for climate-resilient livelihoods and coastal ecosystems improved~~Sustainable production and improved support services for climate-resilient livelihoods and ecosystems in the coastal landscape~~ 1.3 Climate-resilience of social and communal assets enhanced and gender-specific barriers to livelihoods addressed~~Social and communal assets for targeted communities to promote climate-resilient livelihoods and address gender-specific barriers~~	communities improved These costs include: Ecosystem-based adaptation: USD 2 117 500 (~25% of the implementation budget) Livelihood diversification and value chain support: USD 4 235 000 (~50% of the implementation budget)	
Component 2 Preparedness for climate-related hazards.	2.1 Capacity of key national and local institutions for climate preparedness and risk reduction strengthened~~Capacity development of key institutions for preparedness and climate risk reduction~~ 2.2 Community and scientific knowledge integrated to enhance last-mile early-warning systems and anticipatory action~~Integration of community knowledge & scientific information into early-warning systems~~ 2.3 Inclusive and gender-responsive climate risk preparedness plans and mechanisms established at institutional and community levels ~~Inclusive and gender-responsive climate risk preparedness plans~~	Outcome 2: Targeted communities & key institutions implement climate risk preparedness strategies~~.~~ to reduce climate-related risk These costs include: Early warning systems, climate information services USD 1 270 ~~,~~ 500 (~15% of the implementation budget) Institutional capacity-building: USD 423,500 (~5% of the implementation budget) Knowledge capture, learning and dissemination: USD 423 500 (~5% of the implementation budget)	2 117~~220~~ ~~50~~00
6. Project Execution cost			804 650
7. Total Project Cost			9 274 650
8. Project Cycle Management Fee charged by the Implementing Entity (if applicable)			719 950

Project Component	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
Amount of Financing Requested			**9 994 600**

Projected Calendar:

Milestones	Expected Dates
Start of Project Implementation	June 2027
Mid-term Review (if planned)	June 2029
Project Closing	December 2031
Terminal Evaluation	February 2028

PART II: PROJECT JUSTIFICATION

A. Describe the project components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

The proposed project comprises two interrelated components: (1) Climate-resilient coastal livelihoods, and (2) Preparedness for climate-related hazards. Concerning site selection, the project will be implemented in seven coastal districts. These districts were selected based on multidimensional vulnerability as well as their physical vulnerability to the impacts of climate change as described in Part I (District selection) of this Concept Note.

Component 1: Climate-resilient coastal livelihoods

The first project component is focused on creating climate-resilient coastal livelihoods in the target districts. The primary goal is to enhance the livelihoods and food security of vulnerable coastal communities who are disproportionately affected by climate change. This will be achieved through a comprehensive approach encompassing awareness-raising and capacity-building on climate change impacts and adaptive livelihood strategies, particularly in agriculture, fisheries, tourism and micro-enterprises. ~~The exact location(s) of several activities within the target districts under Component 1 has not yet been defined, and they are therefore categorised as Unidentified Sub-projects (USPs). Specifically, there are considered '*Partially unidentified: specific activity identified, location to be determined*'.~~ TThe component emphasises the sustainable development of livelihoods by focusing on market-led value chains, youth engagement in green job sectors, and the critical restoration and protection of coastal ecosystems like mangroves and dunes. It also aims to strengthen social and communal assets, such ~~as small-scale drinking~~ water infrastructure for water harvesting, and address gender-specific barriers through targeted policies and programs, ensuring equitable access to resources and opportunities for all members of the coastal communities, especially women, youth, and other vulnerable groups. There is an estimated total of 120 000 active farmers in the target districts. The average extent of arable land per divisional secretariat (DS[112]) is 3 500 ha[113].

Outcome 1. Livelihoods and food security for vulnerable coastal communities improved

Output 1.1. Improved awareness of target community groups on climate change impacts and climate resilient livelihoods increased through training sessions and workshops ~~Awareness-raising for targeted communities on climate change impacts & climate-resilient livelihoods~~

This output builds resilience by empowering communities with knowledge about climate change impacts and adaptive strategies.

Indicative Activity 1.1.1. Community capacity development and awareness-raising for climate resilience

- Conduct Seasonal Livelihoods Programming (SLP) consultations at the district level to enhance livelihood interventions by analysing livelihood domains and seasonal patterns impacting communities and project activities.
- Implement community-based participatory approach (CBPP) needs assessments at the local level to inform inclusive training and awareness programs for communities, CSOs (including Women's rights organisations (WROs) and Organizations with persons with disability (OPDs),

[112] There are a total of 45 divisional secretariats within the seven target districts.
[113] This information will form the basis of sub-district targeting and refinement of activities during the upcoming community consultations and development of the FDP.

and private sector on climate risks and resilient livelihoods (including agriculture, fisheries, tourism, micro-enterprises, aquaculture, EWS, and SRSP). CBPP will identify and prioritise disadvantaged communities' needs and empower them on relevant issues.

- Organise workshops and training for coastal communities including farmers and fishers on climate change impacts, resource mapping, adaptive livelihood farming and fishing practices, water budgeting, resource mapping, and sustainable coastal resource management in which gender-specific barriers are considered through which the workshop will ensure sustainable gender-responsive solutions. These will target vulnerable groups and consider governance and management of coastal resources.

Output 1.2 Sustainable production practices adopted and support services for climate-resilient livelihoods and coastal ecosystems improved~~Sustainable production and improved support services for climate-resilient livelihoods and ecosystems in the coastal landscape~~

This project output enhances economic and environmental resilience by implementing activities that diversify income sources and protect coastal ecosystems, adopting an ecosystem-based adaptation (EbA) approach[114]. These include promoting non-traditional livelihoods like ecotourism and training youth for green jobs, serving as a direct response to the decreasing viability of traditional, climate-sensitive sectors. The activities under this output support communities to reduce their economic dependence on a single sector that could be devastated by an acute or chronic extreme weather event.

The selection of Ecosystem-based Adaptation (EbA) measures such as mangrove restoration, dune stabilization, and lagoon management is guided by national strategic priorities, including Sri Lanka's National Adaptation Plan (NAP) and Nationally Determined Contributions (NDCs). These interventions are prioritized in the project districts due to the presence of nationally important coastal ecosystems and their high vulnerability to climate change. The specific EbA activities for each location will be determined through a systematic, evidence-based process. This begins with a comprehensive assessment that maps climate hazards and evaluates community and livelihood vulnerability. Based on this, nature-based solutions are identified in collaboration with communities and technical specialists. For instance, in areas highly exposed to storm surges, mangrove restoration will be prioritized as a natural coastal buffer. In regions where coastal agriculture is threatened by salinity intrusion, dune stabilization will be the primary intervention. Each selected solution is further evaluated to maximize climate and biodiversity co-benefits while applying social and environmental safeguards to prevent maladaptation. These measures directly respond to climate change impacts. Mangrove and sand dune restoration enhances natural barriers against sea-level rise, coastal erosion, and storm surges. Healthy lagoons and wetlands act as natural flood buffers, absorbing excess rainwater and mitigating the impact of flash floods. These activities inherently protect and enhance biodiversity. Mangroves serve as critical nursery habitats for estuarine fisheries, while dunes support unique coastal flora and provide nesting sites for protected species.

Biodiversity safeguards, including the monitoring and management of invasive alien species, are integral to the project's design. Restoration activities will use native species and follow technical guidelines from national bodies like the Forest Department and international standards such as the IUCN Global Standard for Nature-based Solutions to ensure ecological integrity and long-term sustainability.

The sustainable management of these EbA interventions is intrinsically linked with local livelihoods. The project will mobilize and build awareness within communities on the direct economic value of these ecosystems. Farmer organisations, fisheries societies, and village disaster management committees will be engaged in the co-management of the restored sites, ensuring that the livelihood benefits derived from these natural assets, such as improved fishery yields and protection of agricultural land, incentivize their long-term stewardship.

[114] The proposed adaptation solutions are interventions that utilize and enhance natural ecosystems to build climate resilience. These solutions integrate both land-based (green) and water-based (blue) elements to deliver benefits for biodiversity and communities. Indicative examples of such solutions envisioned for the E-COAST project include: a) mangrove and lagoon restoration; b) coastal dune rehabilitation; and c) wetland conservation as detailed in Indicative Activity 1.2.3.

Indicative Activity 1.2.1. Market-led livelihoods and value chain assessments and support

- Lessons learned from previous projects (PART II, Section F): promotes integrated governance by establishing multi-stakeholder platforms to foster value chain innovation involving communities, civil society organisations (CSOs), and the private sector.
- Conduct a mapping exercise to identify livelihood assets of the selected livelihood groups and existing and potential climate change-induced threats to livelihood assets
- Identify strategies to protect and strengthen the existing livelihood assets
- Assess the potential of selected value chains, such as climate-resilient aquaculture and agriculture, using a food systems approach to identify opportunities for sustainable livelihood diversification, considering local context and market conditions. Entry points for engagement of women, youth and other vulnerable groups will be explored.
- Following a needs assessment of existing livelihood activities, assess non- traditional livelihood diversification opportunities, such as ecotourism, through youth-led data collection and analysis. This will evaluate flora, fauna, aquatic resources, cultural heritage, and socioeconomic factors for holistic and sustainable livelihood development including community-based ecotourism development.
- Implement livelihood support activities using a participatory market-system development (MSD) approach, based on assessments and private sector engagement. This will focus on fostering value chain linkages and co-developing activities with private sector stakeholders to ensure sustainability.
- Establish KPIs through a participatory approach to track progress, likely including increased income and participation in income-generating activities post-training. Provide targeted support to specific community clusters to ensure social inclusion and dignified participation.
- Establish multi-stakeholder platforms to foster value chain innovation and develop market and climate information systems to inform stakeholders (tourism operators, farmers, fishers). Support stakeholders with business continuity plan (BCP) guidelines and training, covering entrepreneurship, market assessment, and business plan development.

Indicative Activity 1.2.2 Youth-led advocacy and livelihood support

- Undertake comprehensive workshops to train youth in market research for livelihood value chains, focusing on green job opportunities within sectors relevant to coastal Sri Lanka, such as sustainable fisheries, aquaculture, renewable energy, ecotourism, waste management, and sustainable agriculture. This will include support to analyse gender disparities in the value chains and identify entry points to provide equitable access to diverse groups. Co-developed with the private sector, these workshops will equip youth with digital literacy and employability skills to analyse green economy trends using job labour market information. Trained youth will support data collection for market-led livelihood assessments.
- Deliver detailed training sessions on value chain analysis, specifically targeting climate-resilient and sustainable value chains relevant to the local context. These sessions will teach youth to map value chains, identify opportunities and actors, analyse inefficiencies, and propose sustainable solutions for green job development.
- Post-training support will help youth realise income generation through job fairs, networking, seed funding, marketing, and public-private partnerships involving relevant national and provincial ministries.

Indicative Activity 1.2.3 Restoration, protection, and sustainable consumption of coastal ecosystems

- For mangrove-related activities, the prioritization of target districts aligns with national initiatives

such as the 30x30 Programme[115]. These ecosystems have suffered significant degradation from post-conflict infrastructure development, aquaculture expansion, and unsustainable harvesting. The vulnerability of local communities that depend on these ecosystems is exacerbated by increasing exposure to climate-induced hazards, including sea-level rise, storm surges, and salinity intrusion. Therefore, restoration activities will be focused on the east coast districts of Batticaloa, Ampara, Trincomalee, and Mullaitivu.

- Regarding adaptation measures to reduce coastal hazards such as sea-level rise that drives saline intrusion and coastal erosion, preliminary priority will be given to Galle, Kalutara and Batticaloa and Trincomalee districts. Further detail regarding the prioritization between and within target districts for other activities that address coastal hazards, including selection and prioritization criteria for these activities will be confirmed at FDP stage.
- Regarding lessons learned from previous projects (PART II, Section F), this activity reflects a holistic approach by not only targeting mangrove restoration but also focusing on the broader littoral zone, including dunes, beaches, and wetlands, to mitigate erosion and enhance storm surge barriers. Likewise, the activity draws on lessons learned to link ecosystem restoration to economic resilience by promoting good aquaculture practices that are integrated with mangrove ecosystems, thereby supporting both food production and livelihoods.~~The exact locations for implementation of this activity have not been determined at Concept Note stage. It is therefore categorized as an unidentified sub-project (USP).~~
- Develop coastal resource profiles using participatory GIS tools to identify land uses and interventions for sustainable coastal resources management Map stakeholders involved in coastal ecosystem protection and management to identify opportunities for co – management, collaboration and knowledge sharing
- Implement coastal resource restoration activities to protect shorelines and biodiversity supporting food production and livelihood resilience. This includes ecosystem protection and restoration and co-~~-~~management of coastal resources with community engagement, including M&E systems to track progress and impact.
- Target restoration and protection at vulnerable littoral zones (dunes, beaches, wetlands) to mitigate erosion and enhance natural storm surge barriers, using techniques like sand fencing and dune vegetation.
- Promote good aquaculture practices for sustainable environmental and lagoon management and climate-resilient food production. This involves training fish farmers in feed management, water quality monitoring, and disease prevention, emphasising integration with mangrove ecosystems and equitable opportunities for youth and women. Value and supply chain management training will also be included.

Output 1.3 Climate-resilience of social and communal assets enhanced and gender-specific barriers to livelihoods addressed~~Social and communal assets for targeted communities to promote climate-resilient livelihoods and address gender-specific barriers~~

This output strengthens resilience by creating physical assets and equitable policies that support communities. The activities under this project output are designed to counteract the impact of climate hazards such as rising temperatures that lead to reduced production from crops, livestock & poultry and fish ~~harvests, and~~harvests, and increased post-harvest losses, particularly for perishable goods like fish, milk and fruits. Under this output, the project improves food security and protects the income of small-holder producers, micro-retailers and fishmongers by providing communal access to cold / improved supply chain facilities including storage.

[115] This programme promotes science-based, community-inclusive management and equitable benefit sharing. Data on mangrove loss between 1996 and 2020 indicates that Batticaloa and Ampara Districts are restoration hotspots, containing over 1,900 hectares of degraded but restorable mangrove habitat

Indicative Activity 1.3.1 Social and communal asset needs assessment and asset creation for livelihoods

~~The exact locations for implementation of this activity have not been determined at Concept Note stage. It is therefore categorized as an unidentified sub-project (USP).~~

- ~~storm water drainages, such as improvement to irrigation structures, structures conserving soil, preventing erosion~~ Conduct a needs-based assessment of existing community assets and specific needs across target communities, considering infrastructure, resources, gender-specific needs, and vulnerable groups' requirements. This assessment will inform social and communal asset rehabilitation and creation.
- Based on the assessment, support the rehabilitation and creation of tailored community assets to enhance climate resilience and livelihoods. Potential assets include communal cold chain facilities, irrigation flood defences, drainage channels, improved irrigation structures, ~~hatcheries~~, check dams, soil ~~contours, and~~contours, and renewable energy. Cash transfers will support asset creation and livelihood diversification, including integrated homestead development.
- Provide targeted assistance to micro-retailers, particularly fishmongers linked to project beneficiaries under the ~~Aswesuma~~ social protection scheme~~s~~. This support will include financial assistance and business management training.
- Biological and vegetative infrastructures will also be considered.

Indicative Activity 1.3.2 Gender-transformative livelihoods policy

- Lessons learned from previous projects (PART II, Section F): addresses gender barriers by ensuring women have equal access to resources and decision-making power.
- Develop gender-responsive climate-resilient coastal development and management strategies. This will ensure equal representation and decision-making for women and equal access to resources and services, including financial mechanisms.
- Use the outputs of this activity to assist the Climate Change Secretariat to integrate gender and inclusion into the forthcoming adaptation plan and advocate for gender and inclusion into the implementation of the National Adaptation Plan for Climate Change Impact from 2016 to 2025.
- Deliver capacity-building programmes, linked to Activity 1.1.1, providing targeted training on climate risk management techniques, leadership and entrepreneur skills to empower women in sectors like agriculture coastal fisheries and tourism.
- Promote and support livelihood activities focused on non-forest mangrove products, such as bee farming, medicinal plants, herbal product processing, handicrafts, and tree seed collection that have been identified by value chain analysis. Similarly, activities like the use of fish waste as animal feed have potential for improvement through analysis of this value chain.

Component 2: Preparedness for climate-related hazards

Component 2 aims to strengthen preparedness for climate-related hazards at both institutional and community levels. A key focus is on enhancing the capacity of national and local institutions to effectively manage climate risks through participatory climate risk vulnerability and capacity assessments (PCR-VCA), technical training, and improved climate information systems. This component also prioritises the integration of local community knowledge with scientific early warning systems to ensure these systems are both practical and culturally relevant, leading to improved risk communication and action at the last mile.

Furthermore, Component 2 emphasises the development of inclusive and gender-responsive climate risk preparedness plans. This includes conducting gender-sensitive risk assessment and consultations, strengthening early warning protocols to be accessible to all, and improving disaster response mechanisms through social protection systems. Ultimately, Component 2 seeks to build a robust and equitable climate risk preparedness and response framework, reducing the vulnerability of communities and institutions to climate-related shocks.

Outcome 2. Climate risk preparedness strategies implemented to reduce climate-related risk in targeted communities & key institutions

Output 2.1. Capacity of key national and local institutions for climate preparedness and risk reduction strengthened~~Capacity development of key institutions for preparedness and risk reduction~~

This output builds resilience by strengthening the ability of national and local institutions to prepare for and manage climate risks.

Indicative Activity 2.1.1. Institutional capacity needs assessments, roadmap, and technical training

- Lessons learned from previous projects (PART II, Section F): supports sectoral agencies responsible for infrastructure (agriculture, fisheries, tourism) in generating and co-developing reliable climate advisories, directly linking information services to the management of physical and economic sectors. Similarly, this activity targets key government bodies, including the Department of Meteorology, disaster management agencies, and ministries responsible for agriculture, fisheries, and the environment, to build a culture of risk-informed decision-making.
- Conduct a cross-sectoral institutional capacity needs assessment for climate services and EWS, social protection, and livelihoods, developing a capacity development roadmap for stakeholder institutions. The assessment will define thematic training areas, focusing on climate risk, EWS, CIS, SRSP, anticipatory action, and climate-resilient livelihoods (agriculture, micro-enterprises, aquaculture, and small-scale coastal fisheries and tourism). Targeted institutions include the Department of Meteorology, national disaster management agencies, Ministries of Agriculture, Fisheries and Aquatic Resources, Rural Development and Environment, Department of Coast Conservation and Coastal Resource Management, Department of Samurdhi Development, the Welfare Benefit Board, and Sri Lanka Tourism Development Board aligning with national priorities like the National Disaster Management Plan 2023-2030 and Nationally Determined Contribution.
- Based on the capacity needs assessment, deliver training to identified institutional stakeholders using appropriate modalities such as knowledge-sharing workshops, seminars, field visits, and learning exchanges.
- Support relevant sectoral agencies (such as agriculture, fisheries, and tourism) in generating and co- developing reliable climate advisories and developing effective dissemination strategies, building a culture of risk-informed decision-making for both hazard response and long-term climate adaptation.

Output 2.2 Community and scientific knowledge integrated to enhance last-mile early-warning systems~~Integration of community knowledge & scientific information into early-warning systems~~

This output enhances resilience by making early warning systems more practical, effective, and fit-for-purpose in the Sri Lankan coastal district context.

Indicative Activity 2.2.1 Economics of climate adaptation (ECA) risk assessment and CIS/EWS support

Lessons learned from previous projects (PART II, Section F): integrates climate information with physical management by proposing a multi-hazard climate risk assessment to develop coastal resource and risk profiles. This information will then be used to improve early warning systems (EWS) and climate information services (CIS) for last-mile communities.

- Using the Economics of Climate Adaptation (ECA) approach, undertake a multi-hazard climate risk assessment in target districts. This will identify vulnerable areas and populations and develop coastal resource and risk profiles as developed under Activity 1.2.1, analyse impacts across sectors, and develop cost-effective adaptation measures for community-driven preparedness and response plans.
- Following the ECA assessment, comprehensively assess how to improve EWS and CIS to reach last-mile communities. This will involve government agencies, meteorological services, relevant partners from various sector and local stakeholders to analyse hazards, vulnerabilities, and risks related to EWS and CIS and disseminate targeted climate advisories and early warnings to most at-risk populations.

- Prioritise capturing and integrating community/local knowledge into weather forecasting and anticipatory action. Research integrating community and scientific knowledge in Sri Lanka and the region, documenting traditional early warning signs and coping mechanisms to refine and culturally adapt EWS and CIS processes.
- Utilise the monsoon forum and seasonal weather predictions and updates to share critical climate information and early warnings with stakeholder agencies and coastal communities. Select communities to demonstrate effective methods for accessing, - interpreting, disseminating, and using climate information to enhance resilience and minimise extreme weather impacts.
- Support coastal communities in using Climate Information Services (CIS) to manage risks in fisheries and other coastal livelihoods. This includes accessing and interpreting forecasts, understanding sea state predictions, and recognising early warning signs, emphasising the integration of CIS into daily decision-making and early action for safety and preparedness.

Output 2.3. Inclusive and gender-responsive climate risk preparedness plans and mechanisms established at institutional and community levels~~Inclusive and gender-responsive climate risk preparedness plans~~

This output builds resilience by creating equitable and comprehensive disaster preparedness frameworks.

Indicative Activity 2.3.1 Co-develop climate risk preparedness plans

- Lessons learned from previous projects (PART II, Section F): mandates inclusive and gender-responsive stakeholder consultations as the foundation for creating preparedness plans, ensuring that different groups and entities are part of the planning process.
- Conduct inclusive and gender-responsive stakeholder consultations throughout the project, incorporating gender assessments into preparedness plans to identify specific vulnerabilities and capacities of women and girls and other vulnerable groups facing climate risks & shocks.
- Include a section in the plan on preparedness for prevention of GBV that can be exacerbated during climate risks, including but not limited to engaging men and boys including youth in innovative social norm change campaigns.
- Strengthen climate early warning systems protocols at local and national levels, ensuring equal access and actionable information for all community members, regardless of gender, age, or disability.
- Improve disaster preparedness and response through social protection systems and channels by piloting flexible beneficiary registration systems for rapid horizontal and vertical expansion during crises, addressing exclusion errors in the Aswesuma program.
- Develop and test pre-established mechanisms for scaling up assistance during shocks, such as increasing transfer amounts or expanding the coverage of assistance mechanisms.
- Identify and strengthen risk transfer mechanisms and disaster recovery strategies for highly vulnerable livelihoods and communities
- Develop a mental health and psychosocial support (MHPSS) referral pathway by mapping existing services, assessing mental health needs related to climate change, mapping existing support services, and establishing referral mechanisms to ensure beneficiaries receive necessary MHPSS support.

Indicative Activity 2.3.2 Knowledge management and communications plan

- Develop and implement a Knowledge Management and Learning (KML) Plan that specifies roles and responsibilities for knowledge capture, defines key knowledge products, and outlines a dissemination strategy for various stakeholders including policymakers, communities, and research institutions.~~Develop a comprehensive project knowledge management and communication plan to document evidence for climate-resilient livelihoods and climate risk preparedness and response in Sri Lanka. This plan will draw from project activities and best~~

practices across all components to facilitate project replication and upscaling.

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- Produce and disseminate targeted knowledge products that document evidence from project activities. These will include awareness-raising campaigns[116], policy briefs on effective adaptation strategies, technical reports on the cost-effectiveness of EbA interventions, and community-focused case studies and manuals on local innovations. The plan will include cross-sectoral awareness campaigns to promote project outcomes and strengthen knowledge beyond targeted communities and institutions. These campaigns will aim for transformative change and will be complemented by donor visibility products to highlight project contributions and objectives. Knowledge management outputs will include best practice case studies, videos, beneficiary testimonials, and replicable formats for addressing data gaps, such as on climate-related mental health.
- Facilitate periodic adaptive planning workshops with government agencies, academic partners, and community representatives. These workshops will serve as a formal mechanism for double-loop learning, allowing for reflection on implementation progress and lessons learned to inform adaptive project management and contribute to national policy dialogues.

B. Describe how the project provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Economic benefits

The project is anticipated to yield substantive economic benefits for the vulnerable coastal communities in the targeted regions. These benefits will primarily arise from improved and diversified livelihood opportunities, enhanced productivity, and reduced economic losses associated with climate-related hazards.

Under Component 1: Climate-resilient coastal livelihoods, the project's activities are specifically designed to bolster the economic well-being of the target beneficiaries. Output 1.1 focuses on raising awareness and building capacity within communities regarding climate change impacts and climate-resilient livelihood strategies. This knowledge transfer will empower individuals to make informed decisions impacting their livelihoods leading to more effective resource management and income generation.

Output 1.2 directly addresses the enhancement of sustainable production and support services. The market-led livelihoods and value chain assessments (Activity 1.2.1) will identify opportunities for expanding and diversifying income streams, particularly in climate-resilient aquaculture and agriculture. By adopting a market-system development (MSD) approach, the project aims to foster sustainable economic growth by strengthening linkages throughout the value chain (producer to consumer) and engaging the private sector. Furthermore, the support for non-agricultural livelihood diversification, such as ecotourism (Activity 1.2.1), offers additional avenues for income generation and overall awareness of the importance of well-managed ecosystems. The youth-led advocacy and livelihood support (Activity 1.2.2) will equip young individuals with valuable skills for green jobs and entrepreneurship, fostering future economic opportunities within the coastal context. The provision of job opportunities for the youth is key to project sustainability and overall community well-being. The promotion of good aquaculture practices

[116] Awareness campaigns be accompanied by periodic assessments of the effectiveness of the campaigns

(Activity 1.2.3) will contribute to climate-resilient food production and potentially increase income for fish farmers through improved efficiency and sustainability.

Output 1.3 focuses on the creation of social and communal assets that directly support livelihoods. Needs-based asset assessments (Activity 1.3.1) will ensure that the created assets, such as cold chain facilities and irrigation systems, are tailored to the specific economic needs of the communities. The provision of cash transfers for productive asset creation and livelihood diversification will provide crucial seed capital for income-generating activities. Additionally, the targeted assistance to micro-retailers, particularly fishmongers (Activity 1.3.1), will strengthen local businesses and improve economic stability within the communities. The promotion of livelihood activities based on non-forest mangrove products (Activity 1.3.2) offers opportunities for sustainable income generation while simultaneously contributing to ecosystem conservation.

Social benefits

Several activities are anticipated to generate significant social benefits for the vulnerable coastal communities and promote less reliance on social safety nets. These benefits encompass improved well-being, enhanced social equity, increased community empowerment, and strengthened resilience to climate-related shocks.

Component 1: Climate-resilient coastal livelihoods directly contribute to social well-being through various avenues. Output 1.1. focuses on community capacity development and awareness-raising regarding climate change impacts and climate-resilient livelihoods. This process will empower communities with knowledge and understanding of their challenges and potential solutions, fostering a sense of agency and social cohesion. The development of a mental health and psychosocial support (MHPSS) referral pathway under the same output acknowledges the psychological impacts of climate change. It aims to provide the necessary support, thereby enhancing the overall well-being of individuals within the communities. The gender-responsive workshops and training sessions, explicitly targeting disproportionately vulnerable groups including women, girls, youth, and people with disabilities, promote social inclusion and equity by ensuring that these groups have access to knowledge and skills for building resilience.

Output 1.2, focusing on youth-led advocacy and livelihood support, will empower young people by equipping them with green jobs and entrepreneurship skills. This not only provides economic opportunities but also fosters a sense of purpose and engagement within the community. Output 1.3 aims to create social and communal assets based on community needs assessments. The development of assets such as improved infrastructure or community resource centres will strengthen social capital and provide shared resources that benefit the community as a whole. Furthermore, the development of a district-level gender-transformative livelihoods policy under this output will promote gender equality by ensuring women's equal representation, decision-making power, and access to resources in livelihood initiatives.

Component 2: Preparedness for climate-related hazards also yields crucial social benefits. Output 2.2 emphasises the integration of community knowledge into early-warning systems. This participatory approach enhances the effectiveness of these systems by incorporating local insights and fosters a sense of ownership and trust within the community. Output 2.3 focuses on co-developing inclusive and gender-responsive climate risk preparedness plans. By ensuring that these plans are developed through gender-responsive stakeholder consultations and consider the specific vulnerabilities and capacities of all community members, including women and girls, the project promotes social equity. It ensures that preparedness measures are effective and inclusive. Strengthening local and national protocols for climate early warning systems to ensure universal accessibility will further enhance community safety and reduce vulnerability. The knowledge management and communications plan under Output 2.3 will contribute to broader social benefits by raising awareness and sharing knowledge on climate-resilient livelihoods and climate risk preparedness, fostering a culture of resilience within the targeted communities and beyond.

In summary, the project is designed to generate significant social benefits by empowering vulnerable coastal communities, promoting social inclusion and gender equality, enhancing well-being, and strengthening their capacity to prepare for and respond to climate-related hazards. Overall, the project is expected to develop shared values and inclusiveness that aim to improve community and household well-being.

Environmental benefits

The project is designed to generate several positive environmental benefits within the coastal zone. These benefits are primarily focused on the restoration and protection of critical coastal ecosystems and the promotion of sustainable practices, which may directly or indirectly improve eco-tourism potential as a co-benefit.

Under Component 1: Climate-resilient coastal livelihoods, Output 1.2 directly addresses the environmental aspects of the project. The mangrove stabilisation and restoration efforts (Activity 1.2.3) will contribute to the protection of shorelines from erosion and storm surges, while simultaneously improving and protecting biodiversity that supports essential ecosystem services, including those underpinning food production. Establishing nurseries and engaging local communities in conservation activities will ensure the long-term sustainability of these efforts. The project's focus on restoring and protecting vulnerable and degraded parts of the littoral active zone, such as dunes, beaches, and coastal wetlands (Activity 1.2.3), will further mitigate coastal erosion and enhance natural barriers against climate-related hazards. Techniques such as sand fencing and dune vegetation planting will help to stabilise dune systems and promote natural beach replenishment.

Promoting good aquaculture practices (Activity 1.2.3) is also expected to yield environmental benefits by ensuring sustainable ecological management and climate-resilient food production. Training fish farmers on efficient feed management, water quality monitoring, and disease prevention will minimise negative environmental impacts associated with aquaculture. The emphasis on integrating aquaculture with mangrove ecosystems aims to create mutually beneficial environments, further enhancing the ecological value of these areas.

The project's overarching goal of promoting climate-resilient agriculture and diversified livelihoods can indirectly contribute to environmental protection. By enabling communities to adopt sustainable practices and reduce their reliance on climate-sensitive activities, the project can potentially alleviate pressure on natural resources and reduce environmentally damaging coping mechanisms.

Gender considerations

The project strongly emphasises integrating gender considerations across all its components and activities. Recognising the differentiated vulnerabilities and capacities of men and women in the context of climate change, the project will adopt a gender-responsive approach to ensure equitable participation and benefits. Under Component 1, Output 1.1, gender-responsive workshops and training sessions will be conducted, explicitly targeting disproportionately vulnerable groups, including women and girls. These sessions will address their specific needs and build their capacity to engage in climate-resilient livelihoods. Furthermore, Output 1.3 aims to develop a district-level gender-transformative livelihoods policy. This policy will ensure women's equal representation and decision-making power in designing, implementing, and evaluating climate-resilient livelihood initiatives and asset creation. It will also provide women with equal access to climate-resilient resources, technologies, and services, including tailored financial mechanisms to support their participation in sustainable livelihood activities. Component 2 will also incorporate gender considerations by conducting gender-responsive stakeholder consultations throughout the project lifecycle to inform climate risk preparedness plans (Output 2.3). These plans will incorporate gender assessments to identify specific vulnerabilities and capacities of women and girls, boys and men, people with disability, elderly, internally displaced, and other socially excluded groups facing climate risks, ensuring that preparedness and response strategies are inclusive and effective for all community members.

Alignment with Adaptation Fund policy

The project is fully aligned with the Adaptation Fund’s Environmental and Social Policy and Gender Policy. The project design incorporates robust environmental and social safeguards to prevent or mitigate any potential negative impacts, as demonstrated through the planned environmental impact assessments and adherence to best practices in mangrove restoration and infrastructure development. Furthermore, the project explicitly integrates gender considerations throughout all components, ensuring the equitable participation and benefit of women and men. This commitment is evidenced by the dedicated activities focused on gender-responsive training, the development of a gender-transformative livelihoods policy, and the integration of gender perspectives in climate risk preparedness planning, thereby promoting

gender equality and women's empowerment in line with the Adaptation Fund's Gender Policy.

Avoiding or mitigating negative impacts

The project is committed to adhering to the Environmental and Social Policy and Gender Policy of the Adaptation Fund throughout its implementation. Measures to ensure the avoidance or mitigation of potential negative impacts are tabled below.

Potential negative impact	Prevention/mitigation measure
Environmental	Mangrove restoration efforts will be planned and executed with careful consideration of local ecosystems, prioritizing native species and involving communities in monitoring. Construction activities for social and communal assets will follow environmental best practices and adhere to relevant regulations. Environmental impact assessments will be conducted where necessary to identify and mitigate potential risks.
Social	The project will utilize participatory approaches, including community-based assessments, to tailor interventions to local contexts and ensure inclusivity. Targeted strategies will be employed to reach the most vulnerable populations. Grievance mechanisms will be established to address any concerns arising from project activities.
Gender	A comprehensive gender analysis will be conducted during the fully developed proposal phase to further inform project design and ensure that gender-specific barriers to participation and benefits are addressed. Livelihood activities and training programs will be designed to be accessible and beneficial to women, considering their roles and responsibilities. The project will actively monitor women's participation and outcomes across all activities and implement corrective measures as needed. Awareness-raising campaigns will aim to address gender norms that may impede women's engagement in climate resilience efforts. The MHPSS referral pathway will be designed to be accessible and sensitive to the needs of women and girls.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project.

Proposed project interventions have been designed to be cost-effective and efficient to ensure that maximum adaptation benefits are conferred to the project's ~280 000 direct and ~550 000 indirect beneficiaries. The project will maximize the cost-effectiveness of the Adaptation Fund's investment through a multi-pronged approach that emphasises community participation, leverages existing resources and prioritises sustainable and replicable interventions. The project's activities have been identified through stakeholder consultations, ensuring that they align with local needs and priorities, thereby enhancing their effectiveness and impact. By building upon existing community structures and fostering strong partnerships, the project aims to optimise resource utilisation and minimise overhead costs.

Cost-effectiveness will be further promoted through the focus on capacity development and awareness-raising (Component 1, Output 1.1), which entails a relatively low initial ~~invgeestment~~investment with the potential for significant long-term benefits by empowering communities to adopt climate-resilient practices. The emphasis on sustainable production and improved support services for climate-resilient livelihoods (Component 1, Output 1.2), including market-led value chain assessments and youth-led initiatives, aims ~~nder~~to diversify income streams and enhance economic stability in a cost-efficient manner. The restoration and protection of coastal ecosystems (Component 1, Output 1.2) offer cost-effective natural solutions for coastal protection and support ecosystem services that underpin local livelihoods. For example, recent estimates indicate the total marine fish catch across the target districts is approximately 145,815 metric tons annually. Given that post-harvest losses can be as high as 30%, interventions to improve fish processing and value chains (Activities 1.3.1, 1.3.3) can secure significant economic value, demonstrating a high potential return on investment. Similarly, the restoration of coastal ecosystems (Activity 1.2.3) offers cost-effective natural solutions for coastal protection; the value of

avoided damages to infrastructure from these nature-based solutions will be quantified during the fully-developed proposal stage. Similarly, the creation of social and communal assets (Component 1, Output 1.3) will provide long-term benefits to the community with a focused investment.

In Component 2, the project's focus on preparedness for climate-related hazards emphasizes cost-effective strategies for risk reduction. Building the capacity of key institutions (Output 2.1.) and integrating community knowledge into early warning systems (Output 2.2) are cost-efficient ways to enhance resilience and reduce the potential for costly disaster response. detailed analysis during the FDP phase will estimate the economic value of these risk reduction measures, including the avoided costs of humanitarian relief and infrastructure repair following climate-related events like floods and storms. The co-development of inclusive and gender-responsive climate risk preparedness plans (Output 2.3) ensures that resources are allocated effectively to address the specific needs of vulnerable populations.

The project's knowledge management and communication plan (Output 2.3) will further contribute to cost-effectiveness by documenting lessons learned and promoting the replication and upscaling of successful interventions, maximising the impact of the initial investment. By adopting a proactive and preventive approach to climate change adaptation, such as reducing post-harvest losses in fisheries and enhancing natural coastal protection, the project aims to avoid or reduce future economic losses associated with climate-related hazards and reliance on reactive humanitarian support, demonstrating a strong rationale for its cost-effectiveness~~By adopting a proactive and preventive approach to climate change adaptation, the project aims to avoid or reduce future economic losses associated with climate-related hazards and reliance on reactive humanitarian support when climate events hit, demonstrating a strong rationale for its cost-effectiveness~~.

D. Describe how the project is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

The project is strategically aligned with the overarching national policy framework of Sri Lanka, which prioritizes climate change adaptation, environmental sustainability, and the enhancement of livelihoods for vulnerable communities. The project's objectives and proposed activities are consistent with national priorities aimed at building resilience to climate change impacts in coastal regions, promoting sustainable resource management, and fostering socio-economic development in line with national goals and strategic directions. Consistency of the project with specific policies is shown in the table below and overleaf.

Table 8. Summary of project alignment with relevant national policy in Sri Lanka

Policy	Summary	Project alignment
Updated Nationally Determined Contribution (NDC) 2021[117]	Sri Lanka's updated Nationally Determined Contributions (NDCs) emphasise adaptation due to the country's high vulnerability to climate change impacts such as altered rainfall, temperature increases, and sea-level rise. The NDC 2.0 identifies nine key adaptation sectors with specific targets. In the Agriculture sector, these include the full	This project strongly aligns with the adaptation priorities and specific sectoral targets outlined in Sri Lanka's Nationally Determined Contributions (NDCs). Component 1, focusing on climate-resilient coastal livelihoods, directly supports key NDC goals. For instance, project activities promoting adaptive

[117] Ministry of Mahaweli Development and Environment, Democratic Socialist Republic of Sri Lanka. (2021). *Sri Lanka Updated Nationally Determined Contributions to the United Nations Framework Convention on Climate Change (UNFCCC)*. [Online]. Available: https://unfccc.int/sites/default/files/NDC/202206/Amendmend%20to%20the%20Updated%20Nationally%20Determined%20Contributions%20of%20Sri%20Lanka.pdf

Policy	Summary	Project alignment
	adoption of Climate Smart Agriculture (CSA) technologies in vulnerable regions by 2030 and the development of climate-resilient cropping systems, supported by enhanced agrometeorological advisory services. For the Coastal and Marine Ecosystems sector, targets focus on mangrove restoration, community-based co-management of marine resources, and the rehabilitation of degraded coastal lagoons. The Tourism sector aims to designate climate-resilient tourist destinations and enforce green building codes, while the Biodiversity sector includes targets for habitat restoration and the integration of ecosystem-based adaptation. Cross-cutting needs such as improved climate risk data, technology transfer, capacity building, and significant financial support are identified as critical for implementation. These targets are further operationalised in the NDC Implementation Plan (2023), which defines measurable KPIs, timelines, and responsible institutions for their execution.~~Sri Lanka's updated Nationally Determined Contributions (NDCs) emphasise adaptation due to the country's high vulnerability to climate change impacts such as altered rainfall, temperature increases, and sea-level rise. Sector-specific adaptation NDCs outline actions including climate-smart agriculture, ecosystem-based fisheries management, resilient livestock farming, integrated water resource management, biodiversity habitat restoration, shoreline protection, strengthening health systems for climate-related risks, climate-resilient urban planning, and sustainable tourism practices. Cross-cutting needs include improved climate risk data, localised assessments, technology transfer, capacity building, and significant financial support. Key adaptation strategies include mainstreaming climate considerations into sectoral planning, developing climate-resilient crop varieties and farming systems, implementing ecosystem-based management for fisheries and biodiversity, improving water resource management through integrated approaches, strengthening health surveillance for climate-sensitive diseases, enhancing coastal protection, and promoting climate-resilient urban infrastructure and tourism practices. The document highlights the critical need for enhanced climate data, risk assessments, technology transfer, capacity building, and substantial financial support to implement these adaptation measures effectively.~~	farming practices contribute to the NDC target of adopting Climate Smart Agriculture (CSA) technologies. The project's emphasis on mangrove restoration, community-based resource management, and sustainable aquaculture directly corresponds to the adaptation targets for the Coastal and Marine Ecosystems sector. Furthermore, by supporting livelihood diversification and eco-tourism, the project aligns with the NDC's objectives for sustainable tourism. Component 2 enhances preparedness for climate-related hazards, addressing the NDC's call for strengthened institutional capacity, improved climate information services, and effective early warning systems. By developing inclusive, gender-responsive preparedness plans and strengthening risk management frameworks, the project contributes directly to executing the strategies envisioned in the NDC Implementation Plan (2023).~~This project strongly aligns with the adaptation priorities outlined in Sri Lanka's Nationally Determined Contributions (NDCs). Component 1, focusing on climate-resilient coastal livelihoods, directly addresses NDC adaptation goals for key vulnerable sectors including agriculture, fisheries, tourism, water, biodiversity, and coastal management. Project activities such as promoting adaptive livelihood practices, diversifying value chains, restoring vital coastal ecosystems (mangroves, dunes), and improving small-scale water infrastructure align with specific sectoral adaptation NDCs. Furthermore, the project's strong emphasis on gender-transformative approaches and empowering vulnerable groups fulfils a key requirement highlighted throughout the NDCs. Component 2 enhances preparedness for climate-related hazards, aligning clearly with the Loss and Damage NDCs and various sectoral adaptation NDCs calling for strengthened institutional capacity, improved climate information services, and effective early warning systems. The focus on integrating local and scientific knowledge, developing inclusive, gender-responsive preparedness plans, and enhancing risk management frameworks directly contributes to building the climate resilience envisioned in Sri Lanka's national strategy.~~

Policy	Summary	Project alignment
National Climate Change Policy 2011[118]	This policy aims to address key climate change issues relevant to Sri Lanka and to promote adaptation and mitigation efforts within the framework of sustainable development. The primary objectives of this climate change policy are: i) to create awareness among the communities regarding the country's vulnerability to climate change; ii) to minimize the adverse impacts of climate change on vulnerable communities, livelihoods, and ecosystems; iii) to mitigate greenhouse gas emissions and promote green economic development; iv) to promote sustainable consumption of natural resources; v) to enhance the knowledge on the multifaceted issues related to climate change and build communities' capacity to make prudent choices in decision making; vi) to develop the country's capacity to address the impacts of climate change effectively and efficiently; and vii) to mainstream and integrate climate change issues into the national development process.	The proposed project's prioritization of climate-resilient livelihoods in key sectors like agriculture, fisheries, and micro-enterprises contributes significantly to minimizing the adverse impacts of climate change on vulnerable communities, livelihoods, and ecosystems. This is further enhanced by mangrove stabilisation and restoration efforts that protect coastal ecosystems and the communities that depend on them. Capacity building is a key component of the project, with programs for public sector stakeholders on climate risk, early warning systems, climate information services, and climate-resilient livelihoods. Community-level training and awareness-raising empower communities with knowledge and skills to make informed decisions. The project's extensive community-level engagement and awareness-raising activities on climate risks, impacts, and adaptation strategies directly support the policy's objective of creating awareness among communities regarding climate change vulnerability. Furthermore, the knowledge management and communication plan, which includes awareness-raising campaigns to disseminate project outcomes, contributes to a broader understanding of climate resilience.
National Adaptation Plan (NAP) for Climate Change Impacts in Sri Lanka (2016 to 2025)[119]	Sri Lanka's NAP aims to enhance the climate change resilience of vulnerable sectors such as agriculture, fisheries, water, human health, coastal and marine ecosystems, biodiversity, infrastructure and human settlements. The plan aids a guiding mechanism to develop policies, mobilise adaptation resources and strengthen cooperation between stakeholders. NAP's additional objectives are promoting sustainable livelihoods, food and water security and increasing the climate change resilience of vulnerable communities.	The proposed project is consistent with Sri Lanka's National Adaptation Plan (NAP), supporting its goals of enhancing climate resilience and promoting sustainable development. The focus on climate-resilient livelihoods in agriculture and fisheries directly contributes to the NAP's objectives of enhancing resilience in these sectors and increasing food security. Mangrove stabilisation and restoration activities advance the NAP's goal of enhancing the resilience of coastal and marine ecosystems, mitigating the impacts of climate change on coastal communities and biodiversity. Community-level engagement and capacity building align with the NAP's objective of increasing climate resilience

[118] Ministry of Mahaweli Development and Environment, Democratic Socialist Republic of Sri Lanka. (2011). *National Climate Change Policy of Sri Lanka*. Climate Change Laws of the World. [Online]. Available: national climate change policy of sri lanka 2011 climate change ON Climate Change Laws of the World climate-laws.org
[119] Ministry of Mahaweli Development and Environment, Democratic Socialist Republic of Sri Lanka. (2016). *National Adaptation Plan for Climate Change Impacts in Sri Lanka, 2016-2025*. [Online]. Available: https://www4.unfccc.int/sites/NAPC/Documents%20NAP/National%20Reports/National%20Adaptation%20Plan%20of%20Sri%20Lanka.pdf

Policy	Summary	Project alignment
		for vulnerable communities.
National Agricultural Policy of 2007[120]	This policy's objectives are to improve the production of Sri Lanka's agricultural systems to ensure domestic food and nutritional security and maximise the potential of globalisation. This includes adopting farming systems and technologies that are sustainable, environmentally friendly, and safe. Further objectives include improving employment opportunities, income for farmers, and living standards of communities.	This project proposal supports the National Agriculture Policy of Sri Lanka by promoting sustainable and climate-resilient agricultural practices that enhance food security and improve livelihoods. The project's activities related to climate-smart agriculture and aquaculture align with the policy's objectives of adopting environmentally friendly and sustainable farming systems. By increasing productivity and resilience in the face of climate change, the project contributes to ensuring domestic food and nutritional security, a key objective of the policy. Furthermore, by promoting sustainable livelihoods and enhancing income opportunities for farmers and fishers, the project supports the policy's goals of improving employment opportunities and living standards of communities.
National Policy and Strategies on Traditional Knowledge and Practices Related to Biodiversity of 2020[121]	The policy ensures that preserving traditional knowledge and practices within a sustainable development framework is crucial for managing natural resources and enhancing the quality of life for local communities. It aims to identify areas rich in traditional knowledge, promote their sustainable use, and ensure that benefits are shared fairly and equitably. It guarantees respect and protection for custodians and users, develops the necessary infrastructure, and provides legal support to facilitate conservation programmes. Additionally, it recognises the socio-economic and environmental value of traditional knowledge, seeks to recover and stabilise knowledge lost or taken out of the country, and uses this knowledge to position Sri Lanka as a knowledge hub, thereby safeguarding local identity. Strategies focus on the conservation, utilisation, and exchange of traditional knowledge, institutional frameworks for support, addressing social and economic aspects, promoting education, and establishing legal measures for protection.	The project proposal aligns with the National Policy on Traditional Knowledge, Innovations and Practices by recognizing the importance of traditional knowledge in environmental management and sustainable development. The project's emphasis on community engagement and participatory approaches reflects the policy's aim of ensuring fair and equitable sharing of benefits derived from traditional knowledge. By integrating community knowledge into early warning systems and climate information services, the project promotes the sustainable use of traditional practices for climate change adaptation. Furthermore, the project's focus on capacity building and knowledge sharing contributes to the policy's objectives of preserving and promoting traditional knowledge for the benefit of local communities and the country as a whole.
The National Environmental Policy of	This policy makes it incumbent on all organisations and individuals who use environmental resources or whose activities	The proposed project demonstrates a commitment to environmental sustainability by integrating environmental

[120] Ministry of Agriculture. National Agriculture Policy 2007. Available online.
[121] UNEP Law and Environmental Assistance Programme 2024. Available online.

Policy	Summary	Project alignment
2003[122]	impact the environment to exercise environmental care and sound environmental management. It also sets out outcomes to achieve in relation to the environmental resources through the effective application of the policy. The policy places a responsibility on all development sectors to incorporate environmental strategies into their development programmes and includes environmental strategies relevant to the different sectors. It presents a strategic approach for ensuring sound management of natural resources and emphasises the role of civil society in maintaining the integrity of the environment.	considerations into climate change adaptation and livelihood development, contributing to the policy's goals of environmental protection and sustainable development. Mangrove stabilisation and restoration activities support the policy's emphasis on the sound management of natural resources and maintaining the integrity of the environment. Promoting climate-smart agriculture and aquaculture aligns with the policy's call for environmental strategies in development programmes. Community engagement and capacity building reflect the policy's recognition of civil society's role in environmental protection. The project fosters environmental stewardship and promotes broader environmental awareness.

E. Describe how the project meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

This section summarizes the indicative mapping of **the project's thematic** interventions to relevant national technical standards and operational guidelines to ensure feasibility and compliance. All **small-scale** infrastructure development will adhere to the principles of the forthcoming National Building Code, under the purview of the Construction Industry Development Authority (CIDA), and energy efficiency codes from the Sri Lanka Sustainable Energy Authority (SLSEA) **where relevant**. Ecosystem-based adaptation, including mangrove and sand dune restoration, will be guided by specific policies within the Coastal Zone and Coastal Resource Management Plan (CZ&CRMP) and implemented in coordination with the CC&CRMD, Forest Department, and Department of Wildlife Conservation. Livelihood interventions will align with Climate-Smart Agriculture guidelines from the Department of Agriculture and aquaculture standards from the Department of Fisheries and Aquatic Resources (DFAR), while ensuring adherence to national food safety and labour laws. Furthermore, early warning system activities will be designed in alignment with the national frameworks established by the Disaster Management Centre (DMC) and the Department of Meteorology (DoM).

This alignment will be formalized in a detailed compliance matrix during the fully-developed proposal (FDP) stage, ensuring all regulatory approvals are secured prior to implementation. ~~The accredited entity and the executing entities will ensure compliance with all laws, policies and regulations of the Government of Sri Lanka regarding environmental management, labour relations, health and safety, public health, and protection of natural resources and ecosystems in the coastal zone, as well as policies and guidelines related to coastal zone management, disaster management, and sustainable development as outlined in the relevant national policy frameworks. The project will also comply with applicable building codes and standards regarding infrastructure development or rehabilitation activities that may be undertaken. It will likewise comply with and adhere to all technical standards regarding equipment and infrastructure. For example, the Sri Lanka Standards Institute (SLSI) has promulgated several standards relevant to the project activities. Following the technical endorsement of the CN activities, a detailed analysis of the~~

[122] Ministry of Environment and Natural Resources, Democratic Socialist Republic of Sri Lanka. (2003). *National Environmental Policy and Strategies*. [Online]. Available: https://env.gov.lk/web/images/downloads/policies/national_environmental_policy_2003.pdf

~~relevant national standards, policies, and legislation will be undertaken at the fully-developed proposal (FDP) stage of project development. This will include an assessment of the relevant SLSI standards, including engagement with the SLSI if it is not immediately clear which standards apply to project activities.~~ Furthermore, the project is fully committed to complying with the Environmental and Social Policy (ESP) of the Adaptation Fund and WFP safeguards. The environmental and social impacts and risks associated with the project have been identified through an initial screening process (as described in Part II, Section K), and a comprehensive Environmental and Social Management Plan (ESMP) will be developed during the FDP stage.

F. Describe if there is duplication of project with other funding sources, if any.

A total of 20 projects completed or under implementation in Sri Lanka were analysed to determine duplication risk and identify opportunities for synergy with the proposed project. Due to page limits, a summary of the seven most relevant[123] projects is provided; the full analysis will be presented during the fully-developed proposal (FDP) phase or is available on request during technical review of the CN.

The projects span 2016 to 2029 and are funded by various sources, including the Adaptation Fund (AF), the Green Climate Fund (GCF), and the Global Environment Facility (GEF). Geographically, these projects are implemented across different regions of Sri Lanka, including the Dry Zone, the Mullaitivu District, the Knuckles/Amban Ganga highlands and lowlands, coastal and marine ecosystems, and the Eastern Coastal Region. The duration and key lessons learned from the most relevant projects are tabled below.

Duration	Fund	Title	Key lessons learned
2023-2028	Adaptation Fund	Strengthening Resilience of Vulnerable Communities in Sri Lanka and India to Increased Impacts of Climate Change	– The effectiveness of climate services is contingent upon adopting a bottom-up, co-production model. Generic, top-down advisories are often not trusted or used by farmers because they lack local relevance – Gender-responsive adaptation must actively dismantle the structural barriers limiting women's access to financial resources
2023-2025	Adaptation Fund	Build Resilience to Climate Change and Climate Variability of Vulnerable Communities in Mullaitivu District of Sri Lanka	– Integrate small-scale infrastructure solutions to address interconnected climate risks – Utilise community-led implementation models for cost-effectiveness and sustainability – Link ecosystem restoration directly to tangible livelihood benefits
2020-2026	Green Climate Fund	Strengthening Climate Resilience of Subsistence Farmers and Agricultural Plantation Communities residing in the vulnerable river basins, watershed areas and downstream of the Knuckles Mountain Range Catchment of Sri Lanka	– Adaptation interventions should explicitly link the management of upstream catchments with the water security of downstream communities – To address fragmented governance, it is effective to establish nested, multi-stakeholder platforms that operate at multiple scales, from local to sub-basin
2016-	Green	Strengthening the	– Implement rehabilitation activities holistically

[123] Relevance was determined based primarily on: (1) timeframe; (2) thematic alignment; (3) spatial overlap; (4) opportunities for replication, upscaling, and synergy. Climate change projects, or projects with a substantive climate change adaptation aspect, were prioritised for the analysis.

Duration	Fund	Title	Key lessons learned
2025	Climate Fund	resilience of smallholder farmers in the Dry Zone to climate variability and extreme events through an integrated approach to water management	at an appropriate scale, such as the sub-basin level – Strengthen existing local-level institutions to serve as coordination hubs for planning and service delivery – Integrate climate information services with the management and operation of physical water infrastructure
2023-2029	Global Environment Facility	Natural Capital Values of Coastal and Marine Ecosystems in Sri Lanka Integrated into Sustainable Development Planning	– Adopt an integrated landscape and seascape management approach to address the interconnected threats across terrestrial, coastal, and marine ecosystems. – Ensure the long-term sustainability of conservation by developing innovative financial instruments and public-private partnerships that create economic incentives for nature-positive practices. – Establish multi-stakeholder coordination platforms at all governance levels to facilitate integrated planning and resolve resource use conflicts.
2024-2029	Global Environment Facility	Promoting sustainable economic benefits through the conservation of critical biodiversity and ecosystem services in the Eastern Coastal Region of Sri Lanka	– Employ an integrated and inclusive landscape/seascape approach to planning and management to address the interconnectedness of terrestrial, coastal, and marine ecosystems in building climate resilience. – Ensure the long-term viability of conservation and restoration initiatives by directly linking them to the generation of sustainable, nature-based economic benefits and livelihood opportunities for local communities. – Establish and operationalise multi-stakeholder coordination mechanisms at provincial, district, and local levels to facilitate integrated planning and decision-making for climate adaptation.

The main potential duplication risks identified across the analysed projects are: i) activities focused on climate information services, including the provision of training, the raising of awareness, and the establishment of communication channels for the dissemination of climate information; ii) efforts dedicated to community-based adaptation and the enhancement of climate resilience at the community level, encompassing both planning and implementation phases; iii) initiatives involving community engagement and capacity building related to climate change adaptation and resilience strategies; iv) the undertaking of climate risk assessments and vulnerability analyses within local communities; v) the implementation of climate-smart agriculture practices and nature-based solutions as adaptation measures; vi) the development and strengthening of early warning systems designed to address climate-related hazards; vii) interventions aimed at enhancing community resilience to water-related climate change impacts through the adoption of improved water management practices; viii) activities centred on the restoration of coastal ecosystems, with a particular emphasis on mangrove restoration; and ix) the engagement of communities in conservation activities on natural resources and biodiversity.

To avoid, offset, or mitigate duplication risk, the primary opportunities for synergy and collaboration with the proposed new Sri Lanka AF project include: i) establishing effective mechanisms for the sharing of information regarding planned activities, identified target communities, implemented methodologies, and

lessons learned, with the aim of preventing redundancy and promoting mutual learning among projects; ii) exploring the potential for the joint organization of training workshops, community engagement events, and knowledge-sharing platforms to achieve optimal resource utilization and maximize the overall impact of interventions; iii) harmonizing approaches to community engagement and capacity building initiatives to ensure consistent messaging and avoid placing undue burden on local communities; iv) identifying specific activities that could be jointly implemented, such as the development of climate action plans or the execution of vulnerability assessments, to enhance efficiency and effectiveness; v) collaborating on knowledge management and advocacy efforts to amplify the impact of both projects and encourage the broader adoption of climate-resilient policies and practices; vi) sharing expertise and best practices in relation to specific thematic areas, such as climate-smart agriculture, sustainable land management techniques, the development of innovative financing mechanisms for adaptation projects, the integration of biodiversity considerations into development planning, and effective ecosystem restoration techniques; vii) developing collaborative communication strategies and awareness campaigns to improve public understanding and engagement in climate change adaptation efforts; viii) considering the formation of joint working groups or coordination committees to facilitate regular communication and ensure effective collaboration; and ix) strategically aligning project activities to capitalise on the specific strengths and geographical focus of each project.

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

The project will incorporate a robust learning and knowledge management component to systematically capture, analyse, and disseminate lessons learned throughout its implementation. This component will be central to fostering an evidence-based approach to climate change adaptation in the coastal zone. A learning and knowledge management strategy will be developed early in the project lifecycle to guide these efforts. This strategy will outline mechanisms for internal learning among project partners and stakeholders, as well as external dissemination of key findings and best practices. The project will document innovative approaches and activities, including developing and implementing climate-resilient livelihood strategies and preparedness measures for climate-related hazards. Knowledge products, such as case studies, policy briefs, and reports, will be created and tailored for various audiences, including local communities, policymakers, and other relevant stakeholders. Furthermore, the project will actively participate in relevant national and regional platforms to share its experiences and learn from other initiatives in the field of climate change adaptation. The monitoring and evaluation framework will also contribute to the learning process by identifying successes, challenges, and areas for improvement, which will be documented and disseminated to inform future adaptation efforts in Sri Lanka and potentially in other similar coastal contexts.

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Consultation process

A comprehensive and inclusive consultative process was integral to the preparation of this project concept note, ensuring alignment with national priorities and the needs of vulnerable coastal communities, with specific attention to gender considerations as per the Adaptation Fund's Environmental and Social Policy and Gender Policy. Consultations were conducted at both the national and sub-national levels, engaging a diverse range of stakeholders across the seven targeted coastal districts. These districts were selected based on multidimensional vulnerability and physical exposure to

climate change impacts[124].

Community consultation

Sub-national consultations were undertaken to engage with local communities directly. Focus Group Discussions (FGDs) were conducted with community members and relevant local organizations as part of the gender assessment in late 2024. Purposive sampling was used to select participants, ensuring the inclusion of diverse groups such as government officers, community members, women, men, youth, elderly individuals, and people with disabilities. Data collection tools were designed to capture sex-disaggregated data and information on gender relations, roles, and responsibilities, as well as access to and control over resources, decision-making processes, and coping mechanisms in the context of climate change and disasters[125]. These consultations aimed to gather detailed information on community climate vulnerabilities, existing coping mechanisms, specific adaptation needs, and the status of climate-sensitive livelihoods.

Institutional consultation

Institutional stakeholders were closely involved in project ideation, design, and refinement at several stages. These initial consultations included the Ministry of Environment, Department of Coast Conservation and Coastal Resource Management, and several other institutional stakeholders. Similarly, as part of the gender assessment, key informant interviews (KIIs) were undertaken with institutional stakeholders, including government officers at national and local levels.

Consultation outcomes

The outcomes of this consultative process have directly informed the design of the project's two components. Component 1, focusing on climate-resilient coastal livelihoods, was shaped by the identified needs for awareness-raising, capacity building in climate-resilient agriculture, fisheries, and micro-enterprises, the importance of sustainable value chain development, youth engagement in green jobs, and the critical role of coastal ecosystem restoration and protection. Component 2, focusing on preparedness for climate-related hazards, was informed by the need to strengthen institutional and community-level preparedness, integrate community knowledge into early warning systems, and develop inclusive and gender-responsive climate risk preparedness plans. The emphasis on addressing gender-specific barriers and promoting equitable access to resources and opportunities for women and vulnerable groups throughout both components is a direct result of the consultations undertaken.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Component 1: Climate-resilient coastal livelihoods

Baseline scenario (without Adaptation Fund resources)

The livelihoods of coastal communities in Sri Lanka are highly dependent on climate-sensitive sectors such as fisheries and agriculture, making them particularly vulnerable to the impacts of climate change, including sea-level rise, increased frequency of extreme weather events, and altered rainfall patterns. Currently, many households lack diversified livelihood options and rely on traditional practices that are increasingly becoming unsustainable under changing climatic conditions. Access to information on climate-resilient practices, technologies, and alternative livelihood opportunities is limited, particularly for vulnerable groups such as women and youth. Social and communal assets that could support livelihood resilience are often lacking or inadequate. Furthermore, gender inequalities persist, limiting women's participation and access to resources and decision-making in livelihood activities.

Additionality (with Adaptation Fund resources)

[124] Refer to the District selection subheading under Part I.
[125] A summary of the main findings of this assessment can be found in the General context section of Part I.

The project, through Component 1, will address these vulnerabilities by promoting climate-resilient coastal livelihoods. Awareness-raising initiatives will empower communities with knowledge on climate change impacts and adaptation strategies. The project will facilitate the adoption of sustainable production practices in key sectors, enhancing productivity and reducing reliance on climate-vulnerable approaches. The creation of social and communal assets, identified through participatory needs assessments, will provide essential infrastructure and resources to support livelihood resilience. Moreover, the development of a district-level gender-transformative livelihoods policy will ensure that women have equal opportunities and access to resources, promoting gender equality and enhancing overall household resilience. These interventions, supported by Adaptation Fund resources, will move beyond the current baseline by building long-term adaptive capacity and diversifying livelihood options, thereby reducing vulnerability to climate change impacts.

Component 2: Preparedness for climate-related hazards

Baseline scenario

Coastal communities in Sri Lanka face increasing threats from climate-related hazards such as storms, floods, and coastal erosion. While some early warning systems and disaster preparedness mechanisms exist, there are gaps in their effectiveness, particularly at the local level. Institutional capacities for climate risk management and preparedness are often limited, and coordination among different stakeholders can be challenging. Preparedness plans may not adequately consider the specific vulnerabilities and capacities of all community members, including marginalised groups and women. Furthermore, the integration of community knowledge into early warning systems is often insufficient, limiting their relevance and effectiveness at the local level.

Additionality

The project will enhance preparedness for climate-related hazards by strengthening the capacity of key institutions involved in climate risk management. The project will support the integration of community knowledge into early warning systems, ensuring that these systems are more accurate, timely, and relevant to local needs. Inclusive and gender-responsive climate risk preparedness plans will be co-developed with the active participation of all stakeholders, ensuring that the specific vulnerabilities and capacities of different groups are considered. By strengthening local and national protocols for climate early warning systems to ensure universal accessibility, the project will improve community safety and reduce vulnerability to climate-related shocks. These activities, enabled by Adaptation Fund funding, will build upon the existing baseline by establishing more robust, inclusive, and effective systems for climate risk preparedness, ultimately reducing the potential for loss and damage from climate-related hazards.

J. Describe how the sustainability of the project outcomes has been taken into account when designing the project.

The sustainability of the project has been a central consideration in its design. The project prioritises community participation and ownership throughout all stages, from planning and implementation to monitoring and evaluation, ensuring that interventions are relevant to local needs and fostering a sense of responsibility for their long-term maintenance. By working closely with local communities, government institutions, and other relevant stakeholders, the project aims to build local capacity and integrate climate-resilient practices into existing systems and development plans. The focus on enhancing climate-resilient livelihoods includes activities aimed at diversifying income sources and improving the long-term economic viability of coastal communities. Furthermore, the knowledge management component will capture lessons learned and best practices, facilitating the replication and scaling up of successful interventions beyond the project's lifespan. Clear arrangements for the ownership, management, and maintenance of any assets created will be established in collaboration with the beneficiary communities and relevant local authorities. The project's emphasis on gender equality and social inclusion will ensure that benefits are sustained across all segments of the community. By strengthening local capacities, fostering ownership, and integrating climate resilience into development planning, the project is designed to generate lasting positive impacts beyond the project's implementation period. Similarly, the project’s substantive focus on youth empowerment lends further support to its long-term sustainability.

A risk mitigation strategy will be applied to address core areas of potential risk – adoption, market, and

supply chain/input risk. To address adoption risks, which includes resistance to new practices, low awareness, or perceived financial risk, the project utilizes a participatory and incentive-based approach. This involves co-designing value chains and restoration activities with communities, particularly women, youth, and marginalized groups, to ensure local relevance and ownership. Providing tailored technical training and business development support, complemented with peer-to-peer knowledge exchanges, will help build local capacity. To mitigate market risks, such as limited demand or exploitative market conditions, the project will seek to prioritize building strong and inclusive market linkages. Conducting thorough market analysis at the outset and periodically through implementation will help identify emerging demand trends, pricing dynamics, and potential buyers. Collective action through cooperatives or women-led enterprises can enhance producers' bargaining power and improve access to stable and fair markets. Facilitating direct linkages between producers and private sector actors such as exporters, tourism businesses, or retailers through matchmaking forums or trade fairs will be beneficial. Addressing input and supply chain risks requires improving access to essential resources, services and infrastructure needed to sustain new value chains. This includes mapping of critical supply chain nodes such as input providers, logistics systems, cold storage and processing units. Establishing decentralized service hubs within communities can improve access to agricultural or aquaculture inputs, equipment rental, and extension support. Additionally, engaging the private sector through public-private partnerships can facilitate co-investment in essential infrastructure like fish landing centers or nurseries. The success of this strategy will depend on enabling conditions such as robust monitoring and feedback systems, gender and youth-sensitive approaches, and alignment with relevant national policies and public sector programmers. Regular tracking of adoption rates, income changes, and market access outcomes will support adaptive management. Addressing barriers to women and youth participation in value chain will improve equity and sustainability. Policy coordination with key ministries will help institutionalize a support mechanism and ensure long-term impact.

A comprehensive risk mitigation strategy will be available in the fully-developed proposal.

K. Provide an overview of the environmental and social impacts and risks identified as being relevant to the project.

Below is a preliminary screening of the potential environmental and social impacts and risks that may arise because of the proposed project. Due to the presence of unidentified sub-projects (USPs) in Component 1, the project has an overall ESS rating of Category B (potential adverse environmental and social impacts). This screening was undertaken in accordance with the Adaptation Fund's Environmental and Social Principles.

Checklist of environmental & social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the law	Additional evaluation required	**Low/no risk**: the project has been developed at concept note phase in compliance with the legal frameworks of Sri Lanka. Relevant national and district authorities have been/will continue to be consulted during proposal development to ensure compliance with all applicable laws. During full project formulation, follow-on stakeholder engagements will be conducted with relevant national and local governments to ensure that the project meets all applicable legal requirements of the country.
Access and equity	Additional evaluation required	**Low/no risk**: the project is committed to ensuring fair and equitable access to all project activities and benefits for all stakeholders, with a particular focus on vulnerable coastal communities. The project design incorporates a participatory approach that will actively involve women, youth, marginalized groups, and other

Checklist of environmental & social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		relevant stakeholders in the planning and implementation phases. Specific measures will be put in place to identify and address potential barriers to access and ensure that all community members have an equal opportunity to participate in and benefit from the project's interventions, including livelihood enhancement activities, capacity building initiatives, and preparedness measures. The full proposal stage will further detail the mechanisms for beneficiary identification and engagement to guarantee equitable access and promote inclusivity in line with the Adaptation Fund's Environmental and Social Policy.
Marginalised and vulnerable groups	Additional evaluation required	**Low/no risk**: the project recognizes that certain groups within the coastal communities are disproportionately vulnerable to the impacts of climate change. The project is committed to actively engaging marginalized and vulnerable groups, including women, youth, the elderly, and persons with disabilities, in all stages of the project cycle. Through participatory assessments and consultations, the project will identify the specific vulnerabilities and needs of these groups to ensure that project activities are tailored to address their concerns and priorities. The community-based adaptation planning processes will specifically seek to empower these groups by valuing their local knowledge and ensuring their meaningful participation in decision-making regarding adaptation actions. The project will strive to ensure equitable access to project benefits and will integrate appropriate measures into the Environmental and Social Management Plan to mitigate any potential risks to these groups and promote their inclusion.
Human rights	Additional evaluation required	**Low/no risk**: the project is committed to upholding and respecting the fundamental human rights of all individuals within the project areas. The project's activities are designed to improve the resilience and livelihoods of vulnerable coastal communities and are not anticipated to pose any risks to human rights. In fact, by enhancing access to sustainable livelihoods, strengthening preparedness for climate-related hazards, and promoting equitable participation, the project is expected to contribute positively to the realization of certain human rights. The Implementing Entity and its partners affirm their commitment to the principles outlined in international human rights declarations. The full proposal stage will further consider the integration of human rights principles in project

Checklist of environmental & social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		implementation and monitoring.
Gender equality and women's empowerment	Additional evaluation required	**Low/no risk**: the project places a strong emphasis on gender equality and the empowerment of women as integral to achieving climate resilience. The project is committed to mainstreaming gender considerations across all its components and activities to ensure that both women and men, as well as female and male youth, have equal opportunities to participate in and benefit from the project's outcomes. A comprehensive gender analysis will be conducted during the full proposal development to identify specific gender-related vulnerabilities and opportunities within the coastal communities. The findings of this analysis will be used to inform the project design and implementation, ensuring that activities are gender-responsive and contribute to the empowerment of women. The project will strive to ensure that women are not only beneficiaries but also active participants and leaders in climate change adaptation efforts, thereby enhancing the overall effectiveness, sustainability, and equity of the project.
Core labour rights	Additional evaluation required	**Low/no risk**: the project is committed to upholding core labour rights in accordance with national labour laws and internationally recognized standards. The project will ensure that no child labour is employed in any project-related activities. Furthermore, the project will promote safe and healthy working conditions for all individuals involved in its implementation. The Implementing Entity and its partners are committed to respecting the rights of workers and will integrate appropriate safeguards into project activities and the Environmental and Social Management Plan to ensure compliance with core labour rights throughout the project lifecycle. This includes adherence to fair wages, working hours, and the right to freedom of association, where applicable and in accordance with national legislation.
Indigenous peoples	Additional evaluation required	**Low/moderate risk**: distinct, territorially established indigenous communities are not the primary focus within the specific project areas in the target districts. However, the project recognizes and respects the rights and cultural heritage of all individuals and communities, including those who may identify as having indigenous ancestry or connections to traditional lands. The project will ensure non-discrimination and promote the widest possible participation of all community members in its activities, adhering to principles of respect for cultural identity and

Checklist of environmental & social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		traditional knowledge. If any specific concerns or needs related to individuals with indigenous heritage are identified during further consultations and assessments in the full proposal stage, appropriate measures will be taken to address them in accordance with the Adaptation Fund's Environmental and Social Policy.
Involuntary resettlement	Additional evaluation required	**Low/no risk**: The project will not result in any form of involuntary resettlement. The project activities are designed to be implemented within existing coastal communities and focus on enhancing their resilience and livelihoods in their current locations.
Protection of natural habitats	Additional evaluation required	**Low/moderate risk**: The project is designed to protect and enhance natural habitats within the coastal zone. The project's activities, which include the restoration of degraded coastal ecosystems such as mangroves and the promotion of sustainable land management practices, are intended to contribute to the health and resilience of these valuable habitats. The project will ensure that no activities lead to the conversion or degradation of critical natural habitats, including legally protected areas or areas recognized for their high conservation value. The project will prioritize ecosystem-based adaptation approaches that support the conservation and sustainable use of natural resources, thereby contributing to the long-term protection of natural habitats in the project areas.
Conservation of biological diversity	Additional evaluation required	**Low/moderate risk**: the project is committed to the conservation of biological diversity within the coastal ecosystems of Sri Lanka. Project activities, such as the restoration of mangrove forests, and other degraded coastal habitats, are specifically designed to enhance biodiversity and ecosystem health. The project will take precautions to avoid any negative impacts on biological diversity, including careful selection of native and locally appropriate plant species for restoration efforts. Measures will be implemented to prevent the introduction or spread of invasive alien species and project activities will be designed to minimize disturbance to sensitive habitats.
Climate change	Additional evaluation required	**Low/no risk**: the project is fundamentally designed to address the impacts of climate change and enhance the resilience of vulnerable coastal communities and ecosystems in Sri Lanka. The primary objective of the project is to support adaptation to the adverse effects of climate change, including sea-level rise,

Checklist of environmental & social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		increased frequency and intensity of extreme weather events, and altered rainfall patterns. While the project's focus is on adaptation, it is not expected to generate significant greenhouse gas emissions. Indeed, project activities such as the restoration of coastal vegetation, including mangrove forests, and the promotion of sustainable land management practices can potentially contribute to carbon sequestration.
Pollution prevention and resource efficiency	Additional evaluation required	**Low/no risk**: the project is committed to pollution prevention and the efficient use of resources throughout its implementation. It will promote environmentally sustainable practices, such as climate-smart agriculture and the restoration of natural coastal ecosystems, which inherently contribute to minimizing pollution from agricultural runoff and other sources. The project will also strive to maximise the efficient use of water and other natural resources.
Public health	Additional evaluation required	**Low/no risk**: the project is not anticipated to have any significant negative impacts on public health. In fact, by enhancing climate resilience and improving livelihoods, the project is expected to contribute positively to the overall well-being of coastal communities. The project's focus on strengthening preparedness for climate-related hazards may also help reduce health risks associated with extreme weather events. Potential public health considerations related to project activities, such as water management or changes in agricultural practices, will be carefully assessed during the full proposal development. Appropriate safeguards and mitigation measures will be integrated into the project design and the Environmental and Social Management Plan to ensure the health and safety of the beneficiary communities. The project will also consider opportunities to raise awareness about climate-related health risks and promote healthy practices as part of its community engagement activities.
Physical and cultural heritage	Additional evaluation required	**Low/moderate risk**: the project is committed to respecting and protecting the physical and cultural heritage of the coastal communities in Sri Lanka. The project will consult with local communities and relevant authorities to identify any sites or practices of cultural significance within the project areas. Project activities will be designed and implemented to avoid any potential negative impacts on physical and cultural heritage, including archaeological sites, historical structures, and traditional cultural practices. Where appropriate, the project will seek

Checklist of environmental & social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		opportunities to incorporate traditional knowledge and practices into climate change adaptation strategies, recognising their value and contribution to local culture and resilience.
Lands and soil conservation	Additional evaluation required	**Low/no risk**: The project is designed to have a positive impact on lands and soil conservation within the coastal zone. Project activities, such as the restoration of mangrove forests and other coastal vegetation, will play a crucial role in stabilising shorelines and reducing coastal erosion, thereby conserving land. Promoting sustainable agricultural practices, including climate-smart agriculture techniques, will contribute to improved soil health, reduced soil erosion, and enhanced soil fertility in agricultural areas.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Demonstrate how the project aligns with the Results Framework of the Adaptation Fund

The proposed project's overall and specific objectives, as well as the anticipated project outcomes align closely with several Fund outcomes (~~2,~~ 3, and 6) and outputs (~~3.2, 4.0~~1.1, and 6.0). Table 9~~Table 9~~ cross-references the objectives and outcomes of the proposed project to the respective fund outcome and output, including the relevant project and fund indicators and the corresponding amount of funding requested.

Table 9. Overview of alignment between the project's objectives and outcomes with the Adaptation Fund Results Framework

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Enhance the climate resilience of coastal livelihoods to improve food and economic security for vulnerable coastal communities	WFP Climate Resilience Capacity Score (CRCS)	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1: Percentage of households and communities having more secure access to livelihood assets 6.2: Percentage of targeted population with sustained climate-resilient alternative livelihoods	6 352 500~~250 000~~
Establish inclusive and gender-responsive climate risk preparedness frameworks at institutional and community levels to effectively manage and reduce climate-related hazards	Number of climate risk preparedness frameworks developed or updated at institutional and community levels.	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level~~Outcome 1: Reduced exposure to climate-related hazards and threats~~	3.1: Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses ~~1.1: Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis~~	2 117 500~~220 000~~
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
Outcome 1: Livelihoods and food security for vulnerable coastal communities improved	Consolidated Approach for Reporting Indicators of Food Security (CARI) score	Output 6.0: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (physical as well as knowledge) created in support of individual- or community-	6 352 500~~250 000~~

			livelihood strategies	
Outcome 2: Climate risk preparedness strategies implemented to reduce climate-related risk in targeted communities & key institutions	Number of climate risk preparedness actions implemented by targeted communities and key institutions.	Output 1.1 Risk and vulnerability assessments conducted and updated	1.1: No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	2 117 500~~220 000~~

B. Management arrangements

Implementing Entity

WFP is submitting this project as the AF's accredited Multilateral Implementing Entity (MIE). At the national level, the WFP Sri Lanka Country Office will coordinate the project. Additional technical support will be provided to the Country Office as needed by the WFP Regional Bureau in Bangkok and WFP Headquarters in Rome. In its capacity as MIE, WFP will support the Executing Entity through direct project services (DPS), strategic technical advice and solutions, quality assurance, and monitoring and evaluation (M&E).

Executing Entity

The Executing Entity (EE) will be the Ministry of Environment, Department of Coast Conservation and Coastal Resource Management (MoE CCCRM). The CCCRM is the government agency mandated to conserve and manage coastal resources in Sri Lanka. It will be responsible for effectively and efficiently delivering the project activities and ensuring that objectives and outcomes are achieved per the approved proposal. The MoE CCCRM will collaborate with several line ministries and departments to coordinate project implementation, including but not limited to the MoE Climate Change Secretariat, the Ministry of Agriculture, the Department of Coast Conservation and Coastal Resource Management, the Ministry of Women and Child affairs, the Department of Meteorology, the Department of Agrarian Development, the Department of National Community Water Supply, and District Secretariats.

Implementing Partner

The United Nations Development Programme (UNDP) Sri Lanka will serve as an Implementing Partner for the project. In this capacity, UNDP will be responsible for executing activities on resilient livelihood development and restoring and protecting critical ecosystems, specifically targeting mangrove and lagoon environments. Furthermore, UNDP will play a key role in the project's governance and management structures through its representation on the National Steering Committee and the Project Management Unit, contributing to coordination, and technical guidance necessary for the effective implementation of the selected components of the project.

National Steering Committee

The project will establish a National Steering Committee (NSC) responsible for providing overall strategic direction and policy support. This involves reviewing and approving the project's work plans, budgets, and proposed deviations or modifications. The NSC will ensure the project aligns with the AF’s reporting requirements and the relevant AF gender and social policy guidelines.

Project Management Unit

The project will establish a project management unit (PMU) to manage all execution responsibilities and report progress on all field-level activities. The PMU will be tasked with the day-to-day operations and management of project activities under the direct supervision of the Project Manager (PM). A full-time PM will be hired and supported by several staff members on administration and financial matters, as well as gender, monitoring and evaluation (M&E), and environmental and social safeguards (ESS).

District Project Support Unit

A district project support unit (DPSU) will be established, consisting of local authorities from the target districts, community-based organisations (CBOs), and other representatives from the supported communities. The DPSU will strengthen community ownership and participatory planning by supporting continuous engagement and open communication channels between the PMU and the beneficiaries, receiving direct and indirect support through the project activities.

The implementation arrangements, flow of funds, reporting lines, and oversight are shown graphically overleaf in Figure 11~~Figure 11~~.

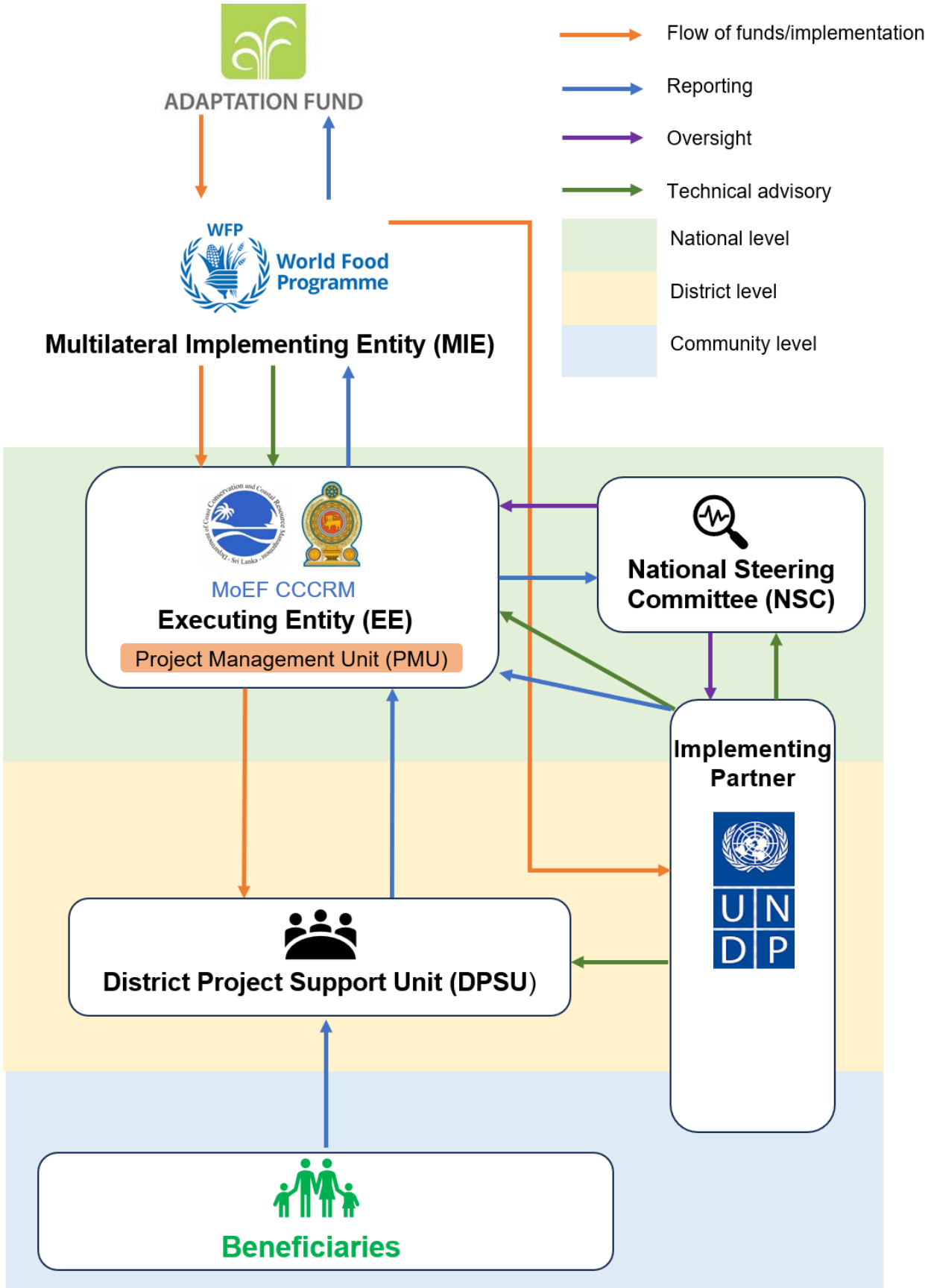

Figure 11. Organogram showing project governance and execution structures.

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[90]

Provide the name and position of the government official and indicate date of endorsement. If this is a regional project, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project proposal. Please attach the endorsement letter(s) with this template; add as many participating governments as possible if a regional project:

Mr. K. R. Uduwawala Secretary, Ministry of Environment	Date: 24/04/2025

K.R. Uduwawala
Secretary
Ministry of Environment
[illegible] Piyasa, No 416/C/1,
Gunawardena Mawatha,
Battaramulla.

B. Implementing Entity certification

Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Also provide the project contact person's name, telephone number and email address.

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing national development plan – the Sustainable Sri Lanka 2030 Vision – and the National Adaptation Plan (NAP) for Climate Change Impacts in Sri Lanka 2016 to 2025 and subject to the approval by the Adaptation Fund Board, commit to implementing the project in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project.

Abdur Rahim Siddiqui ***WFP Representative*** ***Sri Lanka***	Date: 24 April 2025

UN WORLD FOOD PROGRAMME WFP COLOMBO

Project Contact Person: ***Shirantha Gamage***
Telephone & Email: +94 11 2555 250 (ext. 2438) | shirantha.gamage@wfp.org

ANNEX 1: LETTER OF ENDORSEMENT

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පරිසර අමාත්‍යාංශය
சுற்றாடல் அமைச்சு
Ministry of Environment

"සොබාදම් පියස", අංක 416/සී/1, රොබට් ගුණවර්දන මාවත, බත්තරමුල්ල, ශ්‍රී ලංකාව.
"சொபாதம் பியச", இல. 416/சீ/1, றொபர்ட் குணவர்தன மாவத்தை, பத்தரமுல்லை, இலங்கை.
"Sobadam Piyasa", No. 416/C/1, Robert Gunawardana Mawatha, Battaramulla, Sri Lanka.
Gen. Tel. +94-11-2034100

ලේකම්
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Secretary
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ෆැක්ස්
தொலை நகல்
Fax
+94-11-2879944

මගේ අංකය / எனது இல / My No: ENV/CC/04/04/01/09/AF-10

අංකය / இல / No:

දිනය / திகதி / Date: 24.04.2025

The Chairman
The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat

Dear Sir/Madam

Endorsement for Concept: Empowering Coastal Sri Lanka: Livelihoods and Preparedness for a Climate-resilient Future (E – COAST Sri Lanka)

In my capacity as designated authority for the Adaptation Fund in Sri Lanka, I confirm that the concept of the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Sri Lanka.

Accordingly, I am pleased to endorse the above project concept note with support from the Adaptation Fund. If approved, the project will be implemented by UN World Food Programme and executed by the Government of Sri Lanka.

Thank you

Yours sincerely

K. R. Uduwawala
Secretary

Cc: Country Director, World Food Programme – for your information and necessary action please

"මේ මහා පොළොව සහ එහි පැළෑටි සියල්ලට සමානව අයිතියක් තියෙන්නේ අහසේ පියාඹන පක්ෂීන්ටත් බිම ඇවිදින සතුන්ටත් සහ පොළොවේ ජීවත් වෙන සියලු සත්වයින්ටත්"
"இந்த மகத்தான பூமி மற்றும் அதன் தாவரங்கள் அனைத்தும் வானில் பறக்கும் பறவைகளுக்கும், பூமியில் வாழும் நான்கு கால் விலங்குகளுக்கும், பூமியில் வாழும் அனைத்து உயிரினங்களுக்கும் சமமாக சொந்தமானது"
"This great earth and the flora on it equally belong to the man and the birds flying in the sky, the quadrupeds and all creatures living on earth"

ANNEX 2: GENDER ASSESSMENT (ABRIDGED)

Introduction

The comprehensive gender and age assessment[126] following the *'Guidance Document for Implementing Entities on Compliance with the Adaptation Fund Gender Policy*' aims to integrate gender equality considerations throughout the project lifecycle, including design, implementation, monitoring, and evaluation. The following areas are covered by the assessment:

- **Assessment of conditions:** Analyse the conditions of men, women, girls, and boys by sex and age, as well as other intersectional factors, within the context of climate change and adaptation in the specified geographical locations.
- **Identification of roles and needs:** Identify and understand the current roles, needs, capacities, and perceptions of women and men separately concerning climate vulnerabilities and their involvement in adaptation practices.
- **Analysis of gender inequalities:** Evaluate gender inequalities, norms, and cultural practices that impede equal participation of women, men, boys, and girls in leadership roles within environmental resilience and climate adaptation programmes (e.g., negative forms of masculinity).
- **Social, political, and economic analysis:** Conduct an analysis linking the social, political, and economic effects on women and men within food systems, framed within the context of environmental sustainability.
- **Mapping best practices:** Review and map best practices within the community for environmental sustainability, resilience building, and climate adaptation. Identify gender-responsive and transformative approaches, especially for coastal communities, which can be scaled up.

Socio-economic and climate change context

Sri Lanka has a national policy framework that integrates gender considerations into climate change and adaptation efforts. However, the country is highly vulnerable to climate change impacts, ranking high on the Global Climate Risk Index. Coastal areas are particularly at risk from sea-level rise, coastal erosion, and extreme weather events, threatening infrastructure and livelihoods. The socio-economic context of the selected districts reveals varying demographic compositions, poverty levels, and labour force participation rates, with women often facing higher unemployment rates.

Gender roles, responsibilities, and access to resources

In the fisheries sector, men are predominantly involved in all aspects of fishing, while women primarily handle caregiving responsibilities and post-harvest value-addition activities. Increased male participation in multi-day fishing trips has expanded women's roles in household management and community involvement. Social and cultural norms significantly influence women's engagement in paid work within the fishing sector, often limiting their opportunities. While men predominantly own fishing boats, some women have ownership due to legal restrictions, though decision-making often remains with men. Women have limited representation in key positions within fisheries cooperative societies.

Vulnerability to climate change and adaptation practices

Coastal communities face extended off-fishing seasons due to changing rainfall patterns and increased stormy weather. This impacts the income of fishing families, leading to debt and migration for alternative livelihoods. Women involved in post-harvest activities like Maldive fish and dried fish production are particularly affected by prolonged rainfall, hindering drying processes. Adaptation practices include reusing damaged fishing nets and utilizing fish waste, but these require more structured guidance for sustainability. Some fishermen are exploring alternative fishing methods or seeking employment in other

[126] Adapted from: Institute for Participatory Interaction in Development. (2024). *Gender assessment to inform the Building Coastal Resilience for Adaptation project in Sri Lanka*. Unpublished technical report.

sectors, while women are engaging in small-scale businesses to supplement income.

Gender-based violence

Domestic violence tends to escalate following the return of men from multi-day fishing trips, often linked to increased alcohol and substance use. Early marriages and sexual abuse of adolescent girls are reported in some districts, often remaining unreported due to social stigma. Harmful social norms perpetuate violence against women, who often endure abuse until severe or identified by community health workers.

Best practices

Community-driven initiatives promote environmental sustainability through fish bone recycling and beach clean-ups. Alternative livelihood programs like eco-tourism offer new income streams. The Saubhagya project supported the establishment of production villages for Maldive fish and dried fish, empowering women through savings and loan programs. Government and NGO initiatives also promote marine growth like sea cucumber farming to enhance climate resilience.

Conclusion and recommendations

Recommendations from the assessment are clustered around several key areas:

- **Awareness Creation and Capacity-Building:** Conduct needs assessments for vulnerable communities, research gender-transformative approaches, and develop localized training on climate adaptation for community organizations. Building awareness on gender-related considerations will improve understanding of differential impacts on men and women.
- **Facilitate Livelihood Options:** Provide training on climate-adaptive livelihoods, support existing women-led livelihoods, enhance skills in product development and business planning, and facilitate market linkages for women's products. Offer vocational training for youth aligned with labour market demands.
- **Provision of SRH and GBV Services:** Acknowledge the impact of climate change on sexual and reproductive health and rights (SRHR) and gender-based violence (GBV). Conduct prevention activities for GBV, enhance data systems to include SRHR and GBV in climate vulnerability assessments, and strengthen health systems to incorporate SRHR in disaster preparedness plans.
- **Collection of disaggregated data and dissemination:** improve access to reliable, gender-specific data for effective policy development and ensure this information is accessible to marginalized groups.
- **Representation and participation in decision-making:** Ensure representation of marginalized groups, including women, at all levels and in all sectors. Implement gender-specific consultation processes and include women in disaster management committees. Provide targeted funding and mentorship for women's entrepreneurship and leadership.
- **Strengthen Linkages between National and International Processes:** Align national climate action policies with international frameworks like the UNFCCC and the Paris Agreement, ensuring human rights and reproductive rights are safeguarded.
- **Advocacy:** Support the integration of gender and inclusion into national adaptation plans and advocate for their implementation.

ANNEX 3: THEORY OF CHANGE