



ADAPTATION FUND

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Adaptation Fund Board
Project and Programme Review Committee
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Bonn, Germany, 19-23 October 2026

PROPOSAL FOR KAZAKHSTAN



ADAPTATION FUND

ADAPTATION FUND BOARD SECRETARIAT
TECHNICAL REVIEW OF PROJECT PROPOSAL FOR
"ADAPTING KAZAKHSTAN'S CASPIAN COAST: BUILDING CLIMATE-RESILIENT CITIES AND
COMMUNITIES"

Project Title **Adapting Kazakhstan's Caspian Coast: Building Climate-Resilient Cities and Communities**

Project ID **AF00000583**

Category **Regular size project (over \$1 million)**

Type **Single country project**

Stage **Concept**

Country **Kazakhstan**

Implementing Entity **UNHAB**

Financing Requested **USD 10,000,000.00**

Reviewer **Ahmad Ghosn**

Co-reviewer(s)

IE Contact Person

Cerin Kizhakkethottam, Jane Lumumba, Odicea Angelo Barrios, Telman Maharramov, Yasmine Mostafa

Secretariat's Overall Comment

The project “Adapting Kazakhstan’s Caspian Coast: Building Climate-Resilient Cities and Communities” aims to reduce the climate change vulnerability of the Atyrau and Aktau coastal communities.

The proposal includes a request for project formulation assistance grant of USD 150,000.

The first technical review raises several issues, such as clarifying the IE in the LoE and justifying/ indicating the IE involvement as EE; aligning the CN document with AF template; revising the components financing table and terminal evaluation date; providing more details on the activities targets and specifying the USPs along with related arrangements to ensure compliance with AF requirements; specifying the executing entities for listed components/ outputs/ interventions; revising the cost-effectiveness analysis for more clarity; providing clarification on the NAP progress and adding other relevant national plans/ strategies; revising related projects discussion to ensure no duplication; providing consultations summary table; revising the AF E&S checklist in compliance with AF related format/ requirements; clarifying if the IE share execution cost is calculated as per AF requirements; allocating grant amounts in AF RF alignment table at AF outcome/ output levels; among other Clarification Requests (CRs), Corrective Action Requests (CARs) and notes raised in the review.

Country Eligibility

Is the country party to the Kyoto Protocol, or the Paris Agreement?

Response: Yes

Secretariat: Yes. Kazakhstan is a party to both the Kyoto Protocol and the Paris Agreement.

Is the country a developing country particularly vulnerable to the adverse effects of climate change?

Response: Yes

Secretariat: Yes. Kazakhstan is vulnerable to the climate change adverse effects including rising temperatures, erratic rainfall, fluctuating/ declining sea-level, droughts, flooding/ mudslides, etc., all of which lead to natural ecosystems degradation and imply negative economic, social, health and environmental impacts.

Project Eligibility

Has the designated government authority for the Adaptation Fund endorsed the project/programme?

Response: Yes

Secretariat: Yes. As per the Endorsement letter dated 20 July 2026.

Note: The letter of endorsement (LoE) indicates that the project will be implemented by Ministry of Ecology and Natural Resources and at the same time it refers to UN-Habitat as the Implementing Entity (IE). Also, the CN refers to UN-Habitat as one of the executing entities, while the LoE does not indicate this. Accordingly, The LoE may need to be revised to clarify the above.

Does the length of the proposal amount to no more than Fifty pages for the project/programme concept, including its annexes?

Response: Not Cleared

Secretariat: No. The proposal is 50 pages excluding annexes and additional information to be provided as per the review comments, among other issues noted below.

CAR1: Align the CN document with the AF CN template found at <https://www.adaptation-fund.org/apply-funding/project-funding/project-proposal-materials/>.

1. Remove “Image 1” on p.1 and revise the amounts requested funding and PFG to the nearest dollar (no decimals). Apply the same for similar cases across the document.
2. Part IIIB: Theory of Change (ToC), move/ include as appropriate to the end of Part I (e.g.: after project objectives) or the beginning of Part IIA, and add figure number and title.
3. The implementation arrangements in Part IIIC are not needed at CN stage. However, they need to be briefly reflected as appropriate in Part IIA to indicate the roles and responsibilities of involved entities in the delivery of the components outputs.
4. Part IIID: Not required at CN stage.
5. Part IIIE: Not required at CN stage but some mentioned information can be briefly reflected as appropriate in Part IIK and in the discussions related to the Unidentified Sub-Projects (USPs).
6. Part IIIF: Not required at CN stage.
7. Attach Annexes (consultations and initial gender assessment) to the CN document and refer to at related discussions. Or alternatively include the information contained in these annexes in related sections. For example, the consultations annex information can be included as appropriate and as requested by related review comments in Part IIH, and the initial gender assessment annex can be included under a dedicated heading, preferably in Part I (Context and Background) or in Part IIB.

CR1: Consider revising the project objective statement (as a standalone statement) to read “The project objective is to reduce the climate change vulnerability of the Atyrau and Aktau coastal communities” followed by the text how to achieve this objective.

CR2: Ensure that the components titles in the components and financing table and across the document are consistent with those mentioned on p. 15 (i.e.: Component 1- Strengthened technical and institutional capacities; Component 2- Local adaptation solutions piloted and scaled; Component 3- National framework for scalable adaptation solutions).

CAR2: Revise the components and financing table to address the following:

1. In addition to component level, please Include allocated amounts at output level.
2. Round up allocated amounts and totals to the nearest dollar (no decimals). Apply the same across the document.
3. remove the US\$ from the amounts as its indicated in the column heading.

CAR3: In the project calendar (Table 6) revise the date of the terminal evaluation to be within 9 months after project closing.

Editorial Notes:

1. Add table of contents, lists of abbreviations, and tables & figures. (will not count towards document length).
2. Replace "Picture" numbers with "Figure" numbers
3. Spell out abbreviations when first used and refer to figures, tables, annexes (if any) at related discussions.
4. A round of document editing/ proofreading after revising it to address the review comments is recommended. (Note: change "outpuy-level" at the end of Table 13 to "output-level"). Also, ensure that the document length remains within AF limits.

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?

Response: Not Cleared

Secretariat: Yes. See Part IIA, pp.17-23. Besides building the technical and institutional capacities, concrete pilot adaptation interventions will be implemented including nature-based coastal defenses (wetland/ dune restoration), climate-resilient water and sanitation infrastructure, and livelihood diversification. A national framework for replicating/ scaling climate adaptation solutions across Kazakhstan will be also established. However, more details/ clarifications on the project activities targets and Unidentified Sub-Projects (USPs) are needed, among other issues noted below.

CR3: Please provide some quantification (targets/ numbers) for the planned interventions/ activities (including USPs) to demonstrate the size of work and substantiate allocated budgets.

CAR4: The components outputs and activities descriptions imply Unidentified Sub-Projects (USPs). Please specify these USPs and indicate which USPs will be identified at full proposal stage, if any, and others that will be fully identified during project implementation. For those that would be identified during implementation, please ensure/ confirm that they will be managed in accordance with related AF guidance found at: Guidance Document for Project/Programme with Unidentified Sub-Projects.

CR4: Please specify the EE for the respective components/ outputs/ activities and related implementation arrangement, as relevant.

CR5: please include a brief paragraph to indicate the AF Strategic Objectives/ outcomes supported by the project (related information can be extracted from Part IIIA - Table 13).

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?

Response: Not Cleared

Secretariat: Yes. See Part IIB, pp. 23-24. However, providing more details is recommended.

CR6: Where possible at this stage, please provide more quantification/dollar estimates of the project benefits based on and including project activities targets.

CR7: in a brief paragraph please confirm that the project planned interventions will not raise/ imply any concerns of negative development/ maladaptation that would increase vulnerability of beneficiaries/ non-beneficiaries or reduce their capacity to adapt to climate change.

Is the project / programme cost effective?

Response: Not Cleared

Secretariat: Not fully addressed. See Part IIC, p. 24 .

CAR5: Please revise Part IIC discussion to demonstrate cost effectiveness from a sustainability point of view and to include a comparison analysis with alternative options including “no action”. This analysis should be supported by related verified statistics and estimates of the losses avoided and/ or gains to demonstrate the cost-effectiveness of the project proposed options against other alternatives. The above comparison would be best presented in a tabulated form, along with related conclusions.

Is the project / programme 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?

Response: Not Cleared

Secretariat: Not clearly presented. See Part IID, pp. 26. Please address the below comments.

CAR6: Please address the following:

1. The development of the NAP which started in 2019 is still in progress (we are now in 2026). Please clarify at what stage the NAP development process is, and indicate the key priorities identified so far in relation to the project intervention.
2. Please clarify the key strategies listed on page p. 25 (e.g.: Energy Efficiency and Sustainable Housing; Urban Planning and Infrastructure Resilience; etc.). Are they standalone strategies that intersect with the NAP key priorities identified so far? If it is the case, they should be presented as such along with dates, focus and relations to project interventions.

3. The project interventions include rehabilitation of degraded land and restoration of ecosystems, which would strongly imply the relevance of UNCBD and UNCCD related national plans/ strategies to meet the country's obligation under these conventions/ MEAs and hence should be included if/ as available.
4. For more clarity and focus, it is recommended to present relevant plans/ strategies in a tabulated form. The table should include: plan title and date, focus/ objective, and the project interventions/ outputs relevant to the plan/ strategy.

Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?

Response: Not Cleared

Secretariat: Yes. See Part IIE, pp. 26-27. However, more information is needed.

CR8: In Part IIE, Table 9, please indicate the related expected project outputs/ interventions for all entries in column 1 of the table (these are only indicated for the first two entries in column 1).

Is there duplication of project / programme with other funding sources?

Response: Not Cleared

Secretariat: No, See Part IIF, pp. 27-29. However, the presented information needs to be revised for more clarity.

CR9: In Part IIF (particularly Table 10), please revise the table to reflect/ include: project title and funding source, date (start- end) and status (ongoing, completed, etc.); project interventions objectives focus and location; synergy/ lessons learned/ complementarities with the proposed project. More related projects, if any, could be added during full proposal stage.

Does the project / programme have a learning and knowledge management component to capture and feedback lessons?

Response: Not Cleared

Secretariat: Yes. Learning and Knowledge elements are embedded in all components. See Part IIG, pp. 29-32. Sufficient for CN stage. However, please address the below comment.

CR10: indicate the Indicator "I" for the learning objectives (LO) of all components. it is only indicated for component 1.

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?

Response: Not Cleared

Secretariat: Yes. See Part IIH, pp. 32-33 and consultations annex (to be attached to the proposal document – see earlier related review comment). However, more information needs to be reflected in Part H.

CR11: In Part IIH, please include a summary table of all conducted consultations and refer to related annex, if it contains further details. The table should include consultations dates, consulted entities/ local communities, participants number disaggregated by gender, topics discussed and outcomes, and how these outcomes are considered in project design. Also, clearly indicate further consultations to be conducted during full proposal stage and project implementation (if any).

Is the requested financing justified on the basis of full cost of adaptation reasoning?

Response: Not Cleared

Secretariat: Yes. See Part II"l", pp. 33-34. However, please address the below comment.

CR12: Add a brief paragraph at the end of Part II"l" to confirm that the planned project will achieve its objectives/ outcomes solely based on the requested funds from the AF.

Is the project / program aligned with AF's results framework?

Response: Not Cleared

Secretariat: Yes. See Part IIIA, pp. 38-40. However, allocated grant amounts need to be indicated at AF outcome and output indicators levels.

CAR7: Please allocate grant amounts at AF outcome and output indicators levels.

Has the sustainability of the project/programme outcomes been taken into account when designing the project?

Response: Not Cleared

Secretariat: Yes. See Part IIJ, pp. 34-35. Sufficient for CN stage. However, it is recommended to further clarify the sustainability of the O&M for the infrastructures or installations to be developed by the project.

CR12: Please briefly further clarify the arrangements to ensure sustainability of the O&M of infrastructures/ installations planned to be developed by the project.

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?

Response: Not Cleared

Secretariat: Yes. See Part IIK, pp. 35-37. However, Table 12 (AF E&S Checklist) should be revised to align with AF format/ requirements.

CAR8: Align the AF E&S checklist table with Part IIK of the AF CN template format found at <https://www.adaptation-fund.org/apply-funding/project-funding/project-proposal-materials/>. The Table should include three columns:

1. Column 1: AF E&S principle;
2. Column 2: No further assessment required for compliance; In this column, please indicate with a check mark (✓) the principles that do not require further assessment. (Note E&S principles 1, 4 and 6 always require further assessment).
3. In Column 3 specify the risks/ impacts and level for all listed principles and clearly highlight related mitigation measures. Also refer to USPs and related arrangements, and the initial gender assessment at related E&S principles.

Resource Availability

Is the requested project / programme funding within the cap of the country?

Response: Cleared

Secretariat: Yes.

Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?

Response: Not Cleared

Secretariat: Yes. The implementing entity fee (USD 783,410) is 8.5% of total project/programme Cost (USD 9,216,590). However, while the CN clearly indicates UN-Habitat as the IE, the The letter of endorsement (LoE) indicates that the project will be implemented by the Ministry of Ecology and Natural Resources and at the same time it refers to UN-Habitat as the Implementing Entity (IE). This inconsistency needs to be clarified, among other issues noted below.

CAR8: The letter of endorsement (LoE) indicates that the project will be implemented by Ministry of Ecology and Natural Resources and at the same time it refers to UN-Habitat as the Implementing Entity (IE). Please address this inconsistency.

CR13: Please ensure all dollar figure amounts are revised to be rounded to the nearest dollar across the document and PFG.

Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?

Response: Not Cleared

Secretariat: Yes. The project/programme execution cost (USD 799,613) is 8.68% of the total project/programme cost (USD 9,216,590). However, justification of UN-Habitat's role as executing entity (EE) needs to be provided (e.g.: indicated in the LoE). Also, the share of UN-Habitat's execution costs needs to comply with related AF requirements.

CAR9: Please address the following:

1. The letter of endorsement (LoE) does not indicate UN-Habitat as one of the executing entities. Such indication is needed to justify UN-Habitat's involvement as such.
2. Please ensure that the UN-Habitat's execution costs are calculated as per AF requirements. As per AF requirements, when the IE provides part of execution services for the project, to limit the execution costs of the IE to 1.5 per cent of the cost of the part of the project or programme executed by the IE. Please ensure compliance with the above, revise the execution costs accordingly, and reflect any related changes/ revisions across the document.

Eligibility of IE

Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?

Response: **Cleared**

Secretariat: Yes. UN-Habitat is accredited by the AFB (Special extension per Decision B.46/9). Accreditation Expiration Date: 30 October 2027.

CONCEPT NOTE PROPOSAL FOR SINGLE COUNTRY

PART I: PROJECT INFORMATION

Adapting Kazakhstan's Caspian Coast: Building Climate-Resilient Cities and Communities



Image 1: Kazakhstan Caspian Sea coast (source: Google Earth; cited on 22 April 2025)

Country:	Republic of Kazakhstan
Thematic Focal Area:	Urban development, coastal zone management, disaster risk reduction and early warning systems, water management
Implementing Entity:	United Nations Human Settlements Program (UN-Habitat)
Executing Entities:	United Nations Environment Programme (UNEP); and International Organization for Migration (IOM)
Type of Implementing Entity:	Multilateral Implementing Entity
Amount of Financing Requested:	10,000,000.00 US\$
Project Formulation Grant Request:	Yes
Amount of Requested Financing for PFG:	150,000.00 US\$
Letter of Endorsement (LOE) signed:	Yes
Stage of Submission:	This is the first submission of the proposal at any stage.
Submission date:	13 August 2026

A. Project Background and Context

Background

The Caspian Sea region is one of the most geopolitically active and environmentally unique areas in the world. Spanning 371,000 square kilometers, it is the largest enclosed inland body of water on Earth. Its 7,000-kilometer shoreline extends across five countries: the Russian Federation, the Republic of Kazakhstan, Turkmenistan, the Islamic Republic of Iran, and the Republic of Azerbaijan.

The Caspian Sea's diverse topography, which includes both deep and shallow zones, coupled with its unique chemical composition, creates ideal conditions for a distinct and fragile ecosystem. The Caspian is home to numerous endemic and endangered species, including the critically endangered Caspian seal and several species of sturgeon, which are highly valued for their caviar. Additionally, the region serves as an essential stopover for migratory birds along the Central Asian Flyway, making it a crucial habitat for biodiversity conservation.

The Caspian Sea's diverse topography, which includes both deep and shallow zones, coupled with its unique chemical composition, creates ideal conditions for a distinct and fragile ecosystem. The Caspian is home to numerous endemic and endangered species, including the critically endangered Caspian seal and several species of sturgeon, which are highly valued for their caviar. The region also serves as an essential stopover for migratory birds along the Central Asian Flyway. Critically, these species depend on a mosaic of coastal habitats - wetlands, reed beds, delta systems, dune systems, and coastal vegetation - that are themselves the region's first line of defense against climate impacts. The same ecosystems that sustain the Caspian's biodiversity also regulate the physical conditions on which coastal communities depend, which is why their degradation is not only a conservation concern but an adaptation deficit.



These coastal ecosystems form natural infrastructure that directly buffers communities against the climate hazards intensifying across the Caspian basin. Wetlands and reed beds absorb and slow storm surge and flood waters, reducing inundation risk as sea-level fluctuation and extreme weather events become more erratic. Delta and dune systems stabilize shorelines against erosion and saltwater intrusion, protecting freshwater supplies and arable land from the advancing effects of drought and declining water levels. Coastal vegetation filters pollutants and sediment, safeguarding water quality under mounting heat and evaporative stress, while vegetated and wetland areas provide localized cooling that moderates rising temperatures. Just as importantly, these systems underpin the livelihoods - fisheries, grazing, and reed harvesting - that give coastal populations the economic resilience to withstand climate shocks. As climate change accelerates habitat loss, shifting water levels, and rising temperatures, protecting and restoring this natural infrastructure becomes a cost-effective, ecosystem-based adaptation strategy: it lowers the physical exposure of communities to flooding, water scarcity, and heat while sustaining the resource base on which their adaptive capacity rests.

Figure 1: Caspian Sea Basin (Source: <http://www.grida.no>; cited on 28 July 2025)

Human Settlements and Economic Activities

Kazakhstan, the world's ninth-largest country by land area, is sparsely populated, with just over 20 million people. The population is concentrated in key urban centers - cities of national significance, notably the capital, Astana, and the largest cities Almaty and Shymkent. Along the Caspian Sea, significant cities like Atyrau and Aktau play crucial roles in the country's economy and social landscape and are central to the country's economic activities, particularly in the energy sector and regional trade.

The main settlements along Kazakhstan's Caspian Sea coast are concentrated in the Atyrau and Mangystau Regions, in the country's southwest. Key cities and towns include:

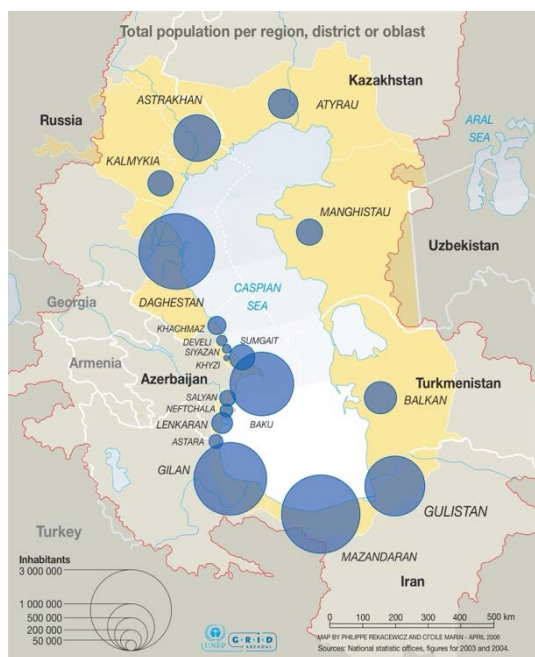
Aktau, Kazakhstan's largest city on the Caspian Sea and its main port, had a population of 183,350 according to the 2021 official census. As the regional capital of Mangystau Region, Aktau plays a vital role in trade, energy exports, and industry, particularly the oil and gas sector. The city is also notable for its distinctive Soviet-era architecture and planned urban layout, reflecting its origins as a purpose-built industrial center.

Atyrau, situated at the mouth of the Ural River in the oil-rich Caspian Depression, is a major hub for Kazakhstan's energy sector. According to the 2021 official census, the city had a population of 306,548, while the broader Atyrau Region was home to approximately 673,601 people. Its strategic location and proximity to key oil fields make it central to the country's oil production and export.

Fort-Shevchenko, a small coastal town in Mangystau Region located north of Aktau, had a population of 5,086 according to the 2021 official census. Historically significant, it was founded as a military fort and later renamed after the Ukrainian poet Taras Shevchenko, who was exiled there in the 19th century.

Bautino, a small port town in Mangystau Region just north of Fort-Shevchenko, had a population of 3,247 according to the 2021 official census. It serves as a key logistics hub, particularly supporting offshore oil field operations, including services related to the Kashagan project.

Kuryk, a developing port town in Mangystau Region located south of Aktau, had a population of 13,372 according to the 2021 official census. It is home to the Kuryk Ferry Terminal, a key infrastructure component of the Trans-Caspian International Transport Route (TITR), strengthening Kazakhstan's role in regional trade and connectivity.



Beyond these main urban centers, numerous smaller settlements along Kazakhstan's Caspian coast - rural communities and work settlements - contribute to the local economy through fishing, logistics, tourism, and oil-related services. Though modest in size, these towns remain integral to the region's socio-economic fabric, even as oil and gas extraction continues to dominate employment and infrastructure development along the coastline.

According to the 2021 official census, the combined population of Kazakhstan's five key Caspian coastal cities - Aktau (183,350), Atyrau (306,548), Kuryk (13,372), Fort-Shevchenko (5,559), and Bautino (3,247) - totals approximately 512,000. Including the surrounding rural and satellite settlements across Mangystau and Atyrau Regions, the coastal population is estimated to exceed 600,000, underlining the region's strategic importance for the national economy.

Figure 2: The Caspian Sea Basin – Total population per region, district or oblast (Source: <http://www.grida.no>; cited on 28 July 2025)

Rapid urbanization, industrialization, and economic expansion along the Caspian coast have placed increasing pressure on natural resources, infrastructure, and local communities. The combination of climate change, environmental degradation, and economic exploitation is leading to a range of challenges, including the increased demand for services and infrastructure, straining urban planning and municipal capacities. Moreover, higher waste production and pollution is affecting both coastal ecosystems and public health while overexploitation of natural resources is threatening biodiversity and

long-term sustainability. In recent years, more frequent and severe extreme weather events - such as droughts and floods – have been exacerbating vulnerabilities for communities and infrastructure, and there is evidence of shifts in economic stability, with potential disruptions to key industries such as fisheries, tourism, and agriculture.

If these challenges are not addressed through climate-resilient policies, sustainable urban planning, and environmental protection measures, the region could face severe consequences, including declining agricultural productivity, economic downturns, and climate-induced migration. Coordinated action is essential to ensure that the Caspian region remains livable, economically vibrant, and environmentally sustainable for future generations.

Environmental and Climate Vulnerabilities, and Adaptation Options in Kazakhstan's Caspian Sea Region

According to the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6), the countries of North and Central Asia bordering the Caspian Sea are already experiencing warming trends that exceed the global average. This is particularly pronounced in the central parts of the region during the summer months, where rising temperatures are accompanied by decreasing precipitation levels. Climate models project a continued increase in the frequency, intensity, and duration of heatwaves, as well as a higher likelihood of extreme precipitation events. These changes are expected to intensify over the course of the 21st century, contributing to persistent warming in the Caspian Sea region (IPCC, 2023, Sixth Assessment Report, Working Group I).

Kazakhstan features a diverse landscape that ranges from lowland plains to towering mountain ranges. Approximately one-third of the country consists of lowlands, with the western region near the Caspian Sea lying below sea level, while the mountains near Almaty soar to over 7,000 meters. This varied topography results in distinct climate zones, but Kazakhstan is largely characterized by a continental climate, marked by hot summers and cold winters, along with significant temperature fluctuations between day and night, as well as throughout the year. In winter, average temperatures hover around -10.5°C (+/- 1.5°C), with harsher conditions in northern regions. In summer, the national average temperature reaches approximately 22.5°C, though certain areas experience even higher extremes. Kazakhstan receives low annual precipitation, with monthly rainfall ranging between 14mm and 30mm. However, spring sees a temporary increase in precipitation, which, when combined with melting winter snow, can lead to riverine and lowland flooding, particularly in vulnerable regions along low-lying river systems such as the Ural, which is directly relevant to the project's Caspian coastal target sites.

According to the World Bank *Climate Knowledge Portal*, temperature rise in Kazakhstan will outpace not only other Asian countries, but largely the rest of the world. By the end of the century, warming in the country is estimated to be as high as 5.3 degrees Celsius under the highest-emissions scenario (RCP8.5), compared to years 1986 - 2005. Kazakhstan's daily maximum and minimums, along with its extremes, will see the strongest warming. The country will likely experience more frequent severe droughts. Dust storms, desertification, and land degradation often follow severe droughts and will likely occur in the country.

Kazakhstan's glaciers, concentrated in the country's southeastern mountain ranges, will experience more rapid melting under increasingly warmer temperatures, driving increased river flow, riverine flooding, and mudflow risk in those mountainous catchments through mid-century. This hazard is geographically distinct from the Caspian coastal lowlands where this project operates, and mudflows are therefore not treated as a direct project-relevant risk. Of greater relevance to the Atyrau and Aktau project sites is the longer-term hydrological trend: by the end of the century, river flow - including in Caspian-draining systems such as the Ural - is projected to decline significantly, compounding water scarcity and drought pressures already affecting the region.

Several climate-related challenges have been identified by the Government of Kazakhstan and documented in various national reports. Aligning national climate priorities with the specific actions and intended outcomes of this project will be essential to ensuring its relevance and long-term impact.

The issues highlighted below are particularly relevant to the Atyrau and Aktau regions along the Caspian Sea coast, where the project will be implemented. They are drawn from the National Reports on the State of the Environment and Use of Natural Resources of the Republic of Kazakhstan for the period 2021 - 2023.

The accompanying table has been narrowed to the hazards directly addressed by project activities: heatwaves, drought/water scarcity, Ural River flooding, urban drainage flooding, Caspian Sea level decline/fluctuation, dust/desertification, biodiversity loss, and ecosystem degradation. For each, the table details causes and context, and outlines concrete adaptation measures based on current climate trends and regional conditions.

Table 1: Climate-related issues, and proposed adaptation measures based on current climate trends and regional conditions

Climate-related Issue		Cause and Context (Atyrau and Aktau Regions)	Possible Adaptation Measures
1	Rising temperatures and heatwaves resulting in desertification and land degradation and dust storms	Annual temperature increase of 0.9°C since 1991. More frequent and prolonged days above 35°C, especially in Aktau. Stress on urban cooling, agriculture, and labor productivity. Expansion of arid zones and loss of arable land, accompanied by increasingly frequent dust storms following prolonged drought conditions. Decline in pasture productivity, impacting livelihoods of pastoralist communities.	(1.1) Develop urban greening plans and expand shaded areas in Aktau. (1.2) Introduce heat-resilient building codes. (1.3) Deploy early warning systems and public health outreach, including for dust storm events. (1.4) Adjust work schedules for outdoor labor. (1.5) Introduce efficient irrigation systems and rainwater harvesting. ¹ (1.6) Improve monitoring and regulation of groundwater use.
2	Drought and water scarcity resulting in biodiversity loss and ecosystem degradation	Higher evapotranspiration and rainfall variability reducing water availability for agriculture, livestock, and ecosystems. Livestock loss in Mangystau extended into Atyrau. Emergency declarations in nearby districts. Shrinking habitats endanger species like the Caspian seal and sturgeon. Decreased fish stocks impact local food security and livelihoods. Disruption of unique ecosystems such as wetlands and coastal habitats. Loss of ecosystem services like clean water and food sources.	(2.1) Scale up drought-resilient agriculture and livestock practices. (2.2) Establish livestock insurance schemes. (2.3) Promote climate-smart pasture rotation and fodder reserves. (2.4) Implement marine and coastal protected areas (MPAs). (2.5) Support conservation programs for endangered species (e.g., Caspian seal). (2.6) Promote livelihood diversification, including safe and orderly migration pathways.
3	Wildfires and steppe fires	Rising temperatures and wind increase wildfire risk in dry grasslands. Fires near steppe zones of Atyrau spread quickly with low moisture. Lack of rural firebreaks and response infrastructure.	(3.1) Create buffer zones and firebreaks in high-risk areas. (3.2) Equip local responders with fire detection and control tools. (3.3) Implement community fire awareness programs.
4	Flooding from the Ural River and urban drainage systems	Spring floods from Ural River overflow and snowmelt. Risk of flash flooding in urban and peri-urban Aktau due to poor drainage. Inundation of low-lying zones in Atyrau city.	(4.1) Rehabilitate and expand urban drainage systems. (4.2) Implement nature-based flood retention measures (e.g., wetlands). (4.3) Develop flood zoning regulations and relocation plans. (4.4) Promote livelihood diversification, including safe and orderly migration pathways.
5	Caspian Sea level decline and fluctuations	The Caspian Sea is steadily declining, with water levels dropping by up to 25 cm annually, totaling a 2-meter loss in recent decades. This is driven by climate-induced evaporation, reduced inflows (mainly from the Volga River) and upstream water use. This trend poses serious challenges in Atyrau and Aktau. In Aktau, it disrupts port operations, transport, and tourism. In Atyrau, it leads to the loss of wetlands, harming biodiversity, flood protection, and livelihoods. Fisheries and water quality are also declining, with salinization threatening agriculture and ecosystem health.	(5.1) Promote flexible land-use zoning to accommodate shifting shorelines. (5.2) Redesign port infrastructure for lower sea levels. (5.3) Restore critical wetland ecosystems and delta water flows. Restore and protect buffer ecosystems (e.g., wetlands, reed beds). (5.4) Improve regional transboundary water coordination. (5.5) Promote livelihood diversification (beyond fisheries) including safe and orderly migration pathways.
6	Public health impacts	Increased heat stress, air quality decline from dust and fires. Greater vector-borne disease risk near flood-prone zones. Mental health impacts from displacement and economic stress.	(6.1) Expand heat-health action plans and mobile health services. (6.2) Improve water quality monitoring and sanitation in flood zones. (6.3) Integrate climate-health risk analysis into health planning. (6.4) Launch community awareness campaigns on early response.

¹ Per Kazhydromet input (see p. 9), rainwater harvesting has limited effectiveness and sustainability in this low-precipitation region. Feasibility should be carefully assessed at the site level before implementation, with efficient irrigation and groundwater management prioritized as the primary water-saving measures under this action.

Socio-economic Vulnerabilities, and Adaptation Options in Kazakhstan's Caspian Sea Region

Fluctuations in the Caspian Sea's water levels have long posed risks to human settlements and infrastructure. Between 1930 - 1978 and 1995 - 2019, a sharp decline in sea levels led to the degradation of natural habitats and the extinction of coastal wetlands, significantly affecting coastal economies (Khoshnavan et al., 2019). In contrast, the sea level rise of 250 cm from 1978 to 1995 caused an estimated \$17 billion in economic damage, disrupting infrastructure, ecosystems, and livelihoods (Kroonenberg et al., 2000).

The Caspian Sea coastline continues to shift, threatening ports, power plants, fishing docks, and coastal tourism facilities. These changes are compounded by more frequent extreme weather events, such as intense rainfall, which contribute to flooding, soil erosion, and damage to urban infrastructure, water systems, and transport networks (Zarrin et al., 2022).

Environmental degradation remains a critical issue, especially for rural populations dependent on natural resources. The loss of wetlands and rising salinity impact agriculture, fisheries, and water quality, undermining regional food and economic security.

Population growth and urbanization are increasing, especially among the aging population, putting pressure on healthcare systems and the working-age population. Wealth remains unevenly distributed, concentrated in urban centers, leaving rural communities more vulnerable. Internal migration from the Caspian coastal regions appears multi-causal rather than driven by a single factor: current data point primarily to economic drivers, with environmental degradation acting as a compounding push factor that is projected to become more significant over the project timeframe. For example, more people left Atyrau region for other destinations within Kazakhstan than those who migrated to Atyrau from within the country in 2024. A similar pattern of net internal out-migration was observed in the Mangystau region (Bureau of National Statistics, 2024); nationally, this rural-to-urban movement is documented as being driven predominantly by economic opportunity and uneven rural development rather than a single identifiable cause (Eurasianet, 2025). At the same time, Mangystau attracts a higher number of immigrants due to oil and gas production, illustrating how the same region can see both significant out-migration and in-migration, driven by differing economic push and pull factors. According to a report, climate out-migration hotspots by 2050 are expected along the southern border of Kazakhstan, and areas close to the Aral Sea and the Caspian Sea, due to projected decreases in water availability and crop productivity. This suggests that while current internal migration in the Caspian coastal regions is predominantly economically driven, climate-related environmental degradation is expected to become an increasingly significant contributing factor within the project's operating horizon, strengthening, rather than weakening, the rationale for early adaptation investment. This migration is likely to increase population in urban and peri-urban areas.²

People living in low-lying and informal settlements along the coast are at particular risk from flooding and sea-level changes. These risks are escalating as the value of coastal assets and population density increase. The precise locations of these settlements in Atyrau and Aktau, and whether they are formally recognized, are not yet systematically documented at the level of detail needed for targeting; the Project Formulation Grant (PFG) phase will map these settlements and confirm their formal recognition status. As a rough, illustrative proxy for exposure ahead of that detailed mapping, an estimated 2,748 residential and administrative structures were reported flooded in Atyrau region during the peak of the 2024 flood emergency (Ministry of Emergency Situations reporting), though this figure reflects general flood-affected structures rather than a verified count of informal or low-lying settlements specifically, and comparable data for Aktau, where the dominant coastal hazard is sea-level decline and drainage rather than riverine flooding, is not yet available. Settlement-level estimates of exposed households, disaggregated by formal/informal status for both Atyrau and Aktau, will be developed during PFG-funded baseline assessments. Vulnerable groups include older persons, persons with disabilities, female-headed households, children, seasonal workers, and migrants, especially those employed in climate-sensitive sectors like agriculture and fisheries.

The economy, while diversified, remains heavily dependent on the petroleum sector, making it vulnerable to global oil price fluctuations. Other key sectors, including agriculture, tourism, and banking, are

² Source: Centre for International Earth Science Information Network (Unpublished) Internal Climate Migration Projections for the Republic of Kazakhstan. IOM-UNDP: Astana.

increasingly affected by climate variability. Despite global inflation and oil price shocks, Kazakhstan's economic growth has continued, although wealth inequality and rural underdevelopment persist.

Changes throughout the century to the country's water regimes will have deleterious effects on its agricultural sector. Agricultural productivity could decrease substantially as water scarcity first decreases then increases through the century. According to the World Bank *Climate Knowledge Portal*, "spring wheat yields in Kazakhstan are projected to decline by as much as 50% by the 2050s due to higher temperatures and reduced soil moisture. The country is one of the world's largest exporters of grain. A significant decrease in grain production in Kazakhstan will have wide-ranging effects on global food supplies.

An estimated 80 - 100 million people across the Caspian region may be affected by climate-related hazards. In Kazakhstan, the poor and marginalized, especially women, children, the older persons, people with disabilities, and migrants, will bear the brunt of climate impacts. Climate change will also pose public health risks, both directly (e.g., heat stress, floods) and indirectly (e.g., waterborne and vector-borne diseases). These are exacerbated by existing environmental pollution in the Caspian region (State of the Caspian Sea Environment Report, 2019).

To safeguard vulnerable communities and sustain economic development, Kazakhstan must implement inclusive, targeted adaptation strategies aligned with its specific demographic, environmental, and economic context.

Table 2: Socio-economic issues, and proposed adaptation measures based on current climate trends and regional conditions

Socio-economic Issue		Cause and Context (Atyrau and Aktau Regions)	Possible Adaptation Measures
1	Aging and inadequate infrastructure	Aging roads, pipelines, housing, and port facilities are increasingly exposed to erosion, sea-level fluctuations, salinization, and extreme weather (e.g., heavy rainfall, heatwaves). Atyrau and other coastal cities face challenges in ensuring uninterrupted delivery of water, electricity, waste management, and transportation under growing climate pressures. Drainage and sewage systems are outdated and often overwhelmed during flooding, leading to contamination and health risks.	(1.1) Invest in climate-resilient retrofitting and new construction using nature-based and hybrid solutions (e.g., raised platforms, flood-proof buildings, and salt-resistant materials). (1.2) Upgrade urban drainage, sanitation, and water supply systems. (1.3) Introduce decentralized, solar-powered water and energy systems in remote areas. (1.4) Develop early warning systems, contingency plans, and community-level response protocols.
2	Economic vulnerability	Regional economy is highly dependent on oil, gas, agriculture, and fishing; all vulnerable to climate-induced volatility and environmental degradation. Overfishing and warming waters are reducing fish stocks; desertification and salinization are affecting pastureland and crops. Coastal erosion and infrastructure risk undermine long-term investment. Youth and women have limited access to alternative employment.	(2.1) Promote economic diversification through green jobs, ecotourism, renewable energy, sustainable aquaculture, and circular economy models. (2.2) Support climate-smart agriculture and resilient coastal fisheries. (2.3) Develop vocational training for low-carbon sectors targeting women and youth. (2.4) Build enabling environments for small and medium-sized enterprises (SMEs) in non-extractive sectors. (2.5) Promote livelihood diversification, including safe and orderly migration pathways.
3	Poverty and inequality	Coastal and rural communities face persistent poverty and limited access to markets, insurance, credit, and public services. Climate-related income losses deepen existing social inequalities and marginalization. Informal settlements lack infrastructure and protection against climate shocks.	(3.1) Design inclusive social safety nets, including climate-responsive cash transfers. (3.2) Establish adaptation and social protection funds accessible to low-income and vulnerable groups. (3.3) Support cooperatives and community-based adaptation initiatives. (3.4) Expand microfinance and insurance for climate-vulnerable livelihoods.
4	Health risks	Dust storms, high salinity, poor air quality, and water contamination increase respiratory, skin, and waterborne diseases. Heatwaves and weather extremes increase cardiovascular risk, particularly for older persons and sick. Medical facilities in remote areas are often under-resourced.	(4.1) Strengthen public health systems with a climate focus, especially mobile and telemedicine units. (4.2) Improve water quality through treatment and infrastructure investment. (4.3) Introduce early health warning systems. (4.4) Conduct awareness campaigns on climate-health links.
5	Education and awareness gaps	Limited climate change awareness in schools and communities, particularly in rural and remote areas. Technical and vocational training does not yet address green jobs or adaptation skills. Civil society engagement on climate is still emerging.	(5.1) Integrate climate and sustainability modules in school curricula. (5.2) Develop vocational programs on renewable energy, water management, sustainable agriculture, and construction. (5.3) Launch community awareness and capacity-building campaigns through local NGOs and media.

6	Migration and risk to cultural heritage	Decline in Caspian Sea levels and erosion are leading to relocation of settlements, damaging culturally significant coastal landmarks, and migration of people. Migration erodes traditional social structures and identity. Lack of preservation or documentation strategies for threatened sites.	(6.1) Develop safe and orderly migration pathways with full community participation and cultural sensitivity. (6.2) Map and digitize at-risk heritage sites. (6.3) Promote heritage tourism and crafts as adaptive livelihood strategies. (6.4) Strengthen land-use and coastal zone planning to reduce future risks.
7	Limited institutional capacity	Gaps in local governance, coordination, data availability, and emergency preparedness slow adaptation. Municipalities lack technical expertise or funding for climate planning. Inter-agency and regional coordination remain fragmented.	(7.1) Build local government capacities for risk assessment, planning, and coordination. (7.2) Establish local climate task forces and knowledge hubs. (7.3) Strengthen national-regional-municipal dialogue on adaptation priorities. (7.4) Support integrated data platforms for climate and socio-environmental monitoring.
8	Limited investment in adaptation	Public spending often prioritizes short-term development over long-term resilience. Green technologies, nature-based solutions, and inclusive planning are underfunded. Budgeting and planning processes lack climate mainstreaming.	(8.1) Leverage climate finance (e.g., GCF, AF, GEF) and co-financing from public and private sources. (8.2) Develop investment-ready project pipelines. (8.3) Integrate climate adaptation into budgeting and infrastructure planning at national and local levels. (8.4) Promote public-private partnerships for adaptation innovation.
Specific Impacts on the Most Vulnerable			
9	Women, children, and youth	Women face increased workloads in water collection, caregiving, and food security under climate stress. Children's education and nutrition are disrupted during extreme events. Access to land, finance, and participation is limited. Lack of green job opportunities reduces local adaptive capacity. Youth voices are underrepresented in decision-making.	(9.1) Mainstream gender and age considerations in all adaptation planning. (9.2) Ensure equal access to climate-resilient infrastructure, training, and resources. (9.3) Support women-led adaptation initiatives and ensure children's services (schools, clinics) are climate-proofed. (9.4) Involve youth in local resilience planning. (9.5) Expand training and financing for youth-led green enterprises. (9.6) Support climate innovation hubs and internships.
10	Older persons, persons with disabilities, ethnic minorities, and remote communities	Mobility limitations reduce access to shelters, healthcare, or information. Disproportionately affected by heatwaves, flooding, and infrastructure gaps. Often live in hazard-prone areas with weak infrastructure and poor access to public services. Cultural and language barriers hinder access to information and aid.	(10.1) Design inclusive early warning systems, shelters, and public spaces. (10.2) Provide targeted health and support services during climate events. (10.3) Involve elders in local knowledge sharing. (10.4) Provide culturally and linguistically appropriate outreach and services. (10.5) Strengthen infrastructure and governance in remote areas. (10.5) Ensure full inclusion in risk reduction and adaptation planning.

Towards Climate Resilience for Communities Along the Caspian Sea Shores in Kazakhstan

The Caspian Sea region of Kazakhstan faces a convergence of environmental, economic, and social vulnerabilities exacerbated by the growing impacts of climate change. Coastal erosion, biodiversity loss, water scarcity, and pollution are compounding existing infrastructure deficits and socioeconomic challenges. The communities along the shoreline, many of whom depend on natural resources and extractive industries, are increasingly exposed to climate-related hazards and economic risks. The analysis and summary of the current resilience gaps propose a comprehensive set of adaptation measures to enhance community well-being, safeguard natural ecosystems, and support sustainable development.

Despite Kazakhstan's climate commitments and environmental reform efforts, significant resilience gaps persist along the Caspian coastline. Coastal zone management remains fragmented and often excludes community participation. Infrastructure in sectors such as water supply, sanitation, and health care is outdated and vulnerable to climate stressors. Economic reliance on oil, gas, and fisheries limits livelihood diversity and increases the exposure of households to climate shocks. Furthermore, local planning and budgeting frameworks rarely integrate climate risk assessments, and the capacity of local authorities to coordinate and implement adaptation measures remains limited. This assessment is consistent with the World Bank's Kazakhstan Country Climate and Development Report (2023), which identifies historic underinvestment in infrastructure and water-sector governance as central constraints, and projects that flooding alone could reduce national GDP by 1.3% by 2060 in the absence of adaptation action. Regarding social vulnerability, demographic screening of the target sites (Atyrau region: approximately

88% ethnic Kazakh, 8% ethnic Russian, with all other groups individually below 1% of the population as of 2020 (Bureau of National Statistics)) did not identify Indigenous Peoples or distinct ethnic-minority safeguards issues requiring free, prior, and informed consent processes under international safeguards frameworks. Vulnerability in these communities is therefore driven by socioeconomic and demographic factors rather than ethnicity; the project's social inclusion focus is accordingly directed at verified vulnerable groups - women (including female-headed households), youth, older persons, persons with disabilities, seasonal workers, and migrants - rather than generic ethnic-minority language. Disaggregated baseline figures for these groups (e.g., share of population over 65, registered persons with disabilities, female-headed households) were not identified in available national statistics at the time of writing and will be established during PFG-funded vulnerability assessments.

There are, however, important opportunities to close these gaps. Investing in climate-resilient infrastructure, mainstreaming nature-based solutions, and fostering green jobs and vocational skills development can strengthen adaptive capacity. Decentralized, community-led resilience initiatives hold potential for scaling across the region. Intersectoral cooperation at national and regional levels can accelerate coordinated action and policy coherence.

A package of strategic interventions is proposed to address the unique risks faced by communities along Kazakhstan's Caspian Sea shores. The table below summarizes the resilience gap addressed by each intervention area; detailed narrative follows.

Table 3: Resilience Gap Summary

Sector	Baseline Vulnerability	Climate Risk	Adaptation Gap	Proposed AF Response
Coastal Zoning and Land Use	Static zoning that does not account for shoreline change	Shoreline retreat, sea-level decline, erosion	No dynamic/adaptive zoning or buffer-zone framework	Flexible coastal management zones; protective buffer zones for infrastructure and settlements
Natural Coastal Barriers	Degraded wetlands, reed beds, and dunes	Loss of natural erosion/flood buffering; dust storm exposure	No systematic restoration programme	Rehabilitation of wetlands/dunes; native, salt-tolerant green belts
Climate-Resilient Infrastructure	Roads, pipelines, and public buildings not designed for projected sea-level/flood conditions	Sea-level decline, flooding, heat stress on assets	Infrastructure planning does not incorporate climate projections	Elevation/relocation of critical infrastructure; mandatory integration of sea-level and flood projections into planning
Pollution and Environmental Degradation	Aging municipal/industrial wastewater systems; weak enforcement	Compounding water and soil contamination under climate stress	Limited nature-based treatment options; weak monitoring capacity	Upgraded wastewater systems; constructed wetlands in smaller settlements; strengthened enforcement and community monitoring
Biodiversity and Ecosystem Integrity	Shrinking habitats for Caspian seal, sturgeon, and wetland/estuary species	Habitat loss from sea-level decline, pollution, and warming	No coordinated MPA network or species recovery programme	Marine and Coastal Protected Areas; species recovery programmes; ecological corridor and climate-refugia mapping
Water Scarcity and Quality	High evaporation, low precipitation (~100 - 120 mm/year), rising demand	Declining water availability and quality	Water-saving approaches not systematically deployed; rainwater harvesting not viable given regional climate (Kazhydromet)	Climate-smart irrigation, aquifer recharge, water reuse, decentralized treatment; community-based water-quality monitoring
Social Inclusion and Community Resilience	Limited disaggregated vulnerability data; uneven representation in planning	Disproportionate impacts on women, youth, older persons, persons with disabilities, migrants	No standing inclusive resilience-planning structure	Community resilience committees; targeted livelihood/skills programmes; disability-inclusive and gender-responsive budgeting and monitoring
Governance and Institutional Capacity	Fragmented interagency coordination; climate risk rarely integrated into local budgets	Limited capacity to plan/respond at scale	No integrated coastal zone management plan aligned to national strategy	Integrated coastal zone management plans; stronger interagency coordination; climate finance mobilization (GCF, GEF, Adaptation Fund); early warning systems

The first three intervention areas address the physical and spatial dimension of coastal resilience; how land use, infrastructure, and natural buffers are planned and managed as the Caspian shoreline shifts. Together, they form the foundation on which the remaining sectoral responses build.

- *Flexible Coastal Zoning and Land Use Planning:* Dynamic coastal management zones and protective buffer zones will accommodate shoreline retreat and rising sea levels, safeguarding infrastructure and settlements from erosion and inundation.
- *Restoration of Natural Coastal Barriers:* Rehabilitating wetlands, reed beds, and dunes, and establishing native, salt-tolerant green belts, will restore natural buffering, stabilize soil, and reduce dust storms.
- *Climate-Resilient Infrastructure Upgrades:* Critical infrastructure - roads, pipelines, public buildings - will be elevated or relocated where feasible, with projected Caspian Sea-level decline and flood risk built into all urban development and infrastructure planning to avoid maladaptation.

A shared understanding of these climate risks underpins the targeted adaptation pathways below.

- *Pollution and Environmental Degradation:* Municipal and industrial wastewater systems will be upgraded for climate resilience, with nature-based solutions (e.g., constructed wetlands) in smaller settlements, backed by stronger pollution legislation, enforcement, and community monitoring.
- *Biodiversity Loss:* Biodiversity-sensitive coastal planning and habitat restoration (estuaries, wetlands, river mouths) will be prioritized, alongside technical support toward MPA designation - baseline surveys, boundary delineation, draft management frameworks - recognizing that formal legal designation depends on government processes beyond the project's control. Recovery programmes for the Caspian seal and sturgeon will launch, and ecological corridors and climate refugia will be mapped and safeguarded.
- *Water Scarcity and Quality:* Climate-smart irrigation, aquifer recharge, water reuse, and decentralized treatment will be prioritized, especially for rural communities, with community-based quality monitoring. Per Kazhydromet, regional precipitation (~100 - 120 mm/year, below the 300 - 400 mm FAO/UNEP/WOCAT threshold) and high evaporation make rainwater harvesting ineffective here; references to it in adaptation-measure tables should be revised accordingly.
- *Social Inclusion and Community Resilience:* Support targets verified vulnerable groups - women (incl. female-headed households), youth, older persons, persons with disabilities, seasonal workers, and migrants in climate-sensitive sectors - rather than generic ethnic categories, consistent with demographic screening finding no Indigenous Peoples or ethnic-minority safeguards issues. A human rights-based approach mainstreams gender, disability, and safety through inclusive community resilience committees, targeted livelihood/skills programmes, accessibility audits, disability-inclusive and gender-responsive budgeting, participation quotas, and disaggregated monitoring.
- *Strengthening Governance and Institutional Capacity:* Integrated coastal zone management plans aligned with national strategy, stronger interagency coordination (municipalities, ministries, Caspian basin institutions), climate finance mobilization (GCF, GEF in addition to Adaptation Fund), and early warning/responder capacity will underpin sustained impact.
- *Biodiversity and Ecosystem Integrity at the Core:* Protecting critical habitats and restoring degraded landscapes which provide food security, water purification, and coastal protection remains fundamental to long-term resilience and human well-being.

By strengthening the climate resilience of Caspian communities and ecosystems, the project aims to reduce vulnerability, enhance sustainable livelihoods, protect natural resources, and build scalable adaptation models by:

- Strengthening infrastructure and essential services against climate impacts.
- Improving income and employment through green livelihoods.
- Strengthening governance and intersectoral collaboration.
- Safeguarding health and water security.
- Conserving biodiversity and restoring ecosystems as adaptation assets.
- Generating scalable, community-based resilience models for Kazakhstan and the Caspian basin.

Target Areas for Climate Resilience Interventions Along the Caspian Sea Coast in Kazakhstan

The human settlements along Kazakhstan's Caspian Sea coast - most notably the cities of Atyrau (population ~306,548) and Aktau (population ~183,350), together an estimated ~490,000 residents per the 2021 official census - have been identified as strategic priority areas for climate adaptation

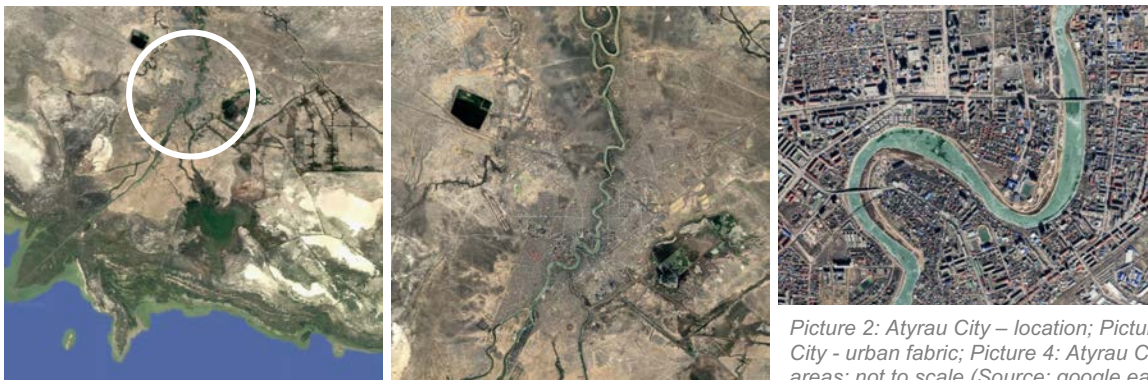
interventions due to their high exposure to climate hazards, critical economic significance, and unique ecological settings. Atyrau Region covers approximately 118,631 km², and Mangystau Region (home to Aktau) approximately 165,600 km²; together they front a substantial share of Kazakhstan's Caspian shoreline, estimated at roughly 1,900 - 2,300 km depending on measurement methodology, the longest of any littoral state. Their geographic location, economic reliance on coastal and marine ecosystems, and infrastructural vulnerabilities make them especially susceptible to the impacts of climate change, including the projected decline in the Caspian Sea level (rather than sea-level rise), coastal erosion, water scarcity, and extreme weather events.

Both cities are located in regions where ecosystems are already under stress from pollution, habitat degradation, and biodiversity loss, and their climate vulnerabilities are further compounded by social and economic inequalities. Low-income communities, migrants, and informal workers face heightened exposure to climate risks, while essential urban services, health infrastructure, and livelihoods remain inadequately prepared for increasing climate pressures.

Given their economic importance, concentrated population, Aktau's urban area spans approximately 77 km², making it a relatively dense, compact coastal settlement, and position within fragile coastal zones, Atyrau and Aktau offer high-impact entry points for piloting and scaling integrated climate resilience measures. Adaptation interventions in these cities will not only protect critical infrastructure, ecosystems, and an estimated ~490,000 residents directly, but will also serve as replicable models of community-based and ecosystem-based adaptation applicable to other vulnerable coastal and urban areas along Kazakhstan's broader Caspian coastline. These interventions will support sustainable urban and regional development while enhancing national capacity to respond to climate change.

Atyrau city and hinterland

Located at the delta of the Ural River on the northern Caspian coast, Atyrau is a strategic industrial and administrative hub, central to Kazakhstan's oil and gas economy, inland fisheries, and transboundary water governance. The city faces acute environmental challenges stemming from its industrial profile and fragile deltaic setting. Fluctuating river levels - exacerbated by climate variability and upstream water management - pose recurrent flood risks, while the ongoing decline in Caspian Sea levels threatens aquatic ecosystems, fish stocks, and traditional rural livelihoods. Industrial pollution, especially from oil extraction and processing, contributes to deteriorating water quality and habitat loss. These intersecting pressures demand coordinated, cross-sectoral action to strengthen urban resilience and ecosystem health.



Picture 2: Atyrau City – location; Picture 3: Atyrau City - urban fabric; Picture 4: Atyrau City – central areas; not to scale (Source: google earth, sited on

Aktau city and hinterland

Situated directly on the Caspian Sea coast, Aktau is a port city that plays a critical role in maritime transportation, trade, tourism, and energy production. The city is particularly vulnerable to sea level decline, which threatens its port infrastructure, shipping routes, and water intake systems. In addition, rising temperatures, drought, and dust storms from inland desertification threaten urban health and livability. These climate risks are further compounded by industrial pollution, water scarcity, and increasing energy demands for cooling, making urban resilience planning in Aktau both urgent and complex. Addressing these challenges requires cross-sectoral approaches and enhanced coordination across local, regional, and national levels.



Picture 5: Aktau City – location; Picture 6: Aktau City – urban fabric; Picture 7: Aktau City – location botanical garden; not to scale (Source: google)

Adapting Urban Areas to Climate Change - A Local Imperative with Regional Relevance

As the impacts of climate change intensify, urban areas must take urgent, coordinated action to adapt to increasingly severe and complex climate hazards. Cities like Aktau and Atyrau along Kazakhstan's Caspian coast face compounded challenges, including rising temperatures, declining sea and river levels, water scarcity, flooding, and pollution from industrial activity. These climate-related pressures threaten vital infrastructure, public health, and key economic sectors such as energy, trade, and fisheries.

Reducing urban vulnerabilities and enhancing resilience in these and similar cities requires integrated, multi-level action that aligns national climate commitments with local development priorities. Adaptation strategies must prioritize the protection of vulnerable populations, including those in informal settlements, low-income communities, and rural areas, while safeguarding fragile coastal and deltaic ecosystems.

While national governments play a critical role in setting policy frameworks and mobilizing resources, local authorities are uniquely positioned to implement effective adaptation on the ground. They possess the proximity, knowledge, and institutional agility to address context-specific risks, engage local stakeholders, and integrate climate considerations into land use, infrastructure, housing, and service delivery. Localized climate adaptation is not only a social and environmental necessity, it is also an economic opportunity. Resilient urban areas are better positioned to attract investment, retain talent, and ensure long-term development outcomes. Interventions such as green infrastructure, sustainable drainage, climate-proofed housing, and public green spaces improve urban livability and competitiveness while reducing exposure to hazards.

Potential intervention priorities in Atyrau and Aktau and the respective hinterlands could include:

Table 4: Proposed climate adaptation measures in Atyrau and Aktau

Climate Adaptation Measures		Atyrau	Aktau
1	Integrated Coastal Zone Management and Adaptive Urban Planning	– Integrate sea-level rise projections and flood risk zones into Atyrau's master plan to guide future growth, zoning, and land-use regulations. – Dynamic setback zones along the Ural River delta to accommodate shoreline retreat and protect assets from inundation and erosion.	– Incorporate Caspian Sea-level decline and fluctuation scenarios into Aktau's general urban development and zoning regulations, guiding land-use and infrastructure placement to account for shoreline retreat, exposed seabed, and shifting port and navigable-depth access — the city's primary long-term coastal hazard, driven by evaporation, reduced Volga River inflow, and upstream water use, rather than sea-level rise. – Designate flexible setback areas along the Caspian shoreline that can adapt as the water line retreats, protecting critical assets from destabilized or newly exposed terrain and enabling nature-based responses such as dune stabilization and wetland restoration on the exposed shoreline.
		– Develop shaded public spaces and urban green corridors using native, salt-tolerant species to reduce heat stress, improve air quality, and enhance community well-being.	
2	Restoration and Protection of Natural Ecosystems	– Restore degraded wetlands in the Ural River delta to strengthen natural flood control, support biodiversity, and filter runoff from urban and industrial sources. – Expand and manage protective reed belts and sand dunes as natural buffers along the Ural River to counteract erosion. – Introduce bioswales, rain gardens, and green roofs in new developments to	– Rehabilitate degraded sand dunes and coastal wetlands to function as natural buffers against storms and flooding. – Establish green corridors and shelter belts using native, salt-tolerant vegetation to combat desertification, dust storms, and urban heat stress. – Promote the establishment of Marine and Coastal Protected Areas (MPAs) to preserve Caspian biodiversity and ecosystem services.

		manage stormwater and reduce urban flooding risks.	
3	Climate-Resilient Infrastructure and Utilities	– Retrofit roads, bridges, energy lines, and key public facilities (e.g., schools and hospitals) to withstand flooding and salinity intrusion. – Pilot constructed wetlands for treating municipal and industrial effluent, especially in peri-urban neighborhoods with limited sewer access, subject to site-specific feasibility and safeguards screening covering land availability and tenure, hydrology, influent water quality and pollution load, operation and maintenance (O&M) arrangements and responsible operator, required permits, and potential biodiversity and public health risks. Sites that do not clear this screening will not proceed to piloting.	– Support the retrofit of the highest-priority vulnerable port infrastructure, transport corridors, and energy supply lines to withstand extreme weather and Caspian Sea-level decline. Given the high capital cost of infrastructure retrofit at scale, AF resources will fund vulnerability assessments, retrofit engineering standards, and pilot/ demonstration-scale retrofits of a limited set of priority assets; full-scale retrofit will require co-financing and leveraged investment beyond the AF grant, with the project developing an investment-ready retrofit pipeline to help mobilize this financing. – Incorporate resilience standards in the construction of public buildings (schools, hospitals, administrative centers). – Integrate climate resilience assessments in future infrastructure investments and regional development plans.
		– Promote solar-powered public lighting and decentralized energy solutions to ensure service continuity during climate disruptions. – Upgrade and climate-proof municipal and industrial wastewater systems, integrating constructed wetlands where feasible. – Introduce community-based pollution monitoring and public awareness programmes to reduce environmental degradation.	
4	Water Security and Climate-Smart Agriculture	– Promote low-flow fixtures, leakage detection technologies, and rainwater harvesting in public buildings and residential areas. – Support community gardens and small-scale urban farms using salinity-resistant varieties and water-saving techniques.	– Promote water-efficient management of green spaces and urban agriculture through leakage reduction, greywater reuse, smart irrigation technologies, and water-efficiency retrofits. Managed aquifer recharge will be pursued where hydrogeologically feasible, and desalination/filtration considered only where brine disposal, energy demand, cost, and operation and maintenance (O&M) requirements have been fully assessed and addressed.
		– Monitor water quality and aquifer health through community-based water governance and early warning systems for contamination. – Introduce managed aquifer recharge and digital groundwater monitoring systems to prevent over-extraction and salinization.	
5	Socially Inclusive Community Resilience	– Conduct campaigns on heatwave safety, waterborne diseases, and preparedness for extreme weather. – Provide training and microgrants for eco-tourism, green construction, aquaculture, and circular economy jobs for at-risk populations.	– Promote green job creation in coastal restoration, and promote circular economy enterprises, with targeted support for small businesses and informal workers to transition into low-carbon, resource-efficient livelihoods through training and access to climate finance. – Encourage sustainable, climate-resilient tourism models that generate local employment while preserving Caspian beach ecosystems and protecting the region's cultural heritage.
		– Conduct participatory vulnerability assessments and establish local climate resilience committees with inclusive representation (including youth, women, elders, and vulnerable groups) to lead adaptation planning, awareness-raising, and community-based action. – Implement integrated programmes that combine skills development, microenterprise support, and social protection for women, youth, older persons, and migrant workers, alongside strengthened mobile health services, climate education outreach, and early warning dissemination to enhance community preparedness and resilience.	
6	Environmental Protection and Biodiversity Conservation	– Map and conserve biodiversity hotspots within and around Atyrau and Aktau (e.g., river islands, wetlands) as part of a climate-resilient ecological network. – Partner with research institutions and CSOs to support conservation of the Caspian seal, sturgeon, and migratory birds. – Develop a designation-ready dossier for candidate Marine and Coastal Protected Areas near Atyrau and Aktau (baseline biodiversity surveys, boundary delineation, draft zoning/management framework, and stakeholder consultation record) for submission to the responsible authority, while delivering site-specific habitat restoration (estuaries, wetlands, river mouths) and biodiversity-sensitive coastal planning that generate conservation and eco-tourism value independent of the designation timeline.	
7	Institutional Capacity and Governance	– Support Atyrau and Aktau municipalities in developing a local adaptation strategy aligned with national ICZM plans and Kazakhstan's climate commitments. – Create a dedicated platform for collaboration among urban planners, environmental agencies, water authorities, and academia. – Build capacity of municipal staff to prepare bankable climate adaptation projects and access funds from the Adaptation Fund, GCF, and others.	

		– Improve interagency coordination across sectors (urban planning, water, environment, emergency services) and levels of government.
8	Monitoring, Early Warning, and Knowledge Sharing	– Install automated river and weather monitoring systems and integrate with mobile alert platforms for communities. – Train local stakeholders in digital mapping tools to track ecosystem change, flooding patterns, and vulnerability.

Cross-Cutting Priorities for Aktau, Atyrau, and Other Coastal Locations

- *Integrated Coastal Zone Management and Ecosystem Conservation:* Develop and implement coastal management plans that incorporate climate projections, ecosystem health, and land-use; ensure coordination across national, regional, and local levels, and participation of civil society and the private sector. Prioritize the restoration of wetlands, dune systems, and estuarine habitats, and implement community-led biodiversity conservation initiatives to maintain ecosystem services and coastal protection.
- *Inclusive Urban Resilience Planning:* Ensure adaptation strategies are socially inclusive, enabling participation of women, youth, older persons, persons with disabilities, informal workers, and migrants, and that investments address specific vulnerabilities and build equitable access to benefits.
- *Regional Cooperation and Climate Data Sharing:* Promote regional partnerships for systematic monitoring of Caspian Sea hydrology, salinity, and temperature shifts, alongside climate modelling and information exchange; enable synchronized and science-based responses to transboundary risks. In this regard, the project will build on RSE Kazhydromet's role within the Coordinating Committee on Hydrometeorology of the Caspian Sea (CASPCOM) and as Kazakhstan's National Oceanographic Data Centre (NODC) under the IOC of UNESCO for collecting and sharing Caspian Sea hydrometeorological and oceanographic data.
- *Empowering Cities to Lead Local Adaptation:* Provide cities with the tools, knowledge, and autonomy needed for climate action by enhancing technical capacities, multi-level governance mechanisms, and access to sustainable financing instruments. Locally led adaptation efforts must be aligned with national development goals and designed for scalability.
- *Climate-Resilient Public Services and Infrastructure:* Prioritize the upgrade and climate-proofing of critical public infrastructure, including water supply, drainage systems, energy networks, and transportation, especially in underserved and high-risk communities.
- *Capacity Building and Participatory Governance:* Strengthen institutional frameworks at the local level through training, peer exchanges, and public awareness campaigns; ensure inclusive decision-making processes and accountability for adaptation planning and implementation.
- *Replication and Scaling of Effective Models:* Support the documentation and dissemination of evidence-based, community-driven adaptation practices that can be replicated in other coastal urban contexts across Kazakhstan and the wider Caspian basin.

B. Project Objectives

The objective of this project is to reduce the climate vulnerability of communities in Atyrau and Aktau to sea-level decline, flooding, heat, and water scarcity by strengthening institutional capacity, piloting climate-resilient infrastructure and ecosystem-based adaptation solutions, and establishing a national framework to scale proven approaches across Kazakhstan's Caspian coast.

As part of this single-country proposal, an assessment of climate-related hazards linked to climate change and urbanization has been conducted. Based on these findings, key interventions will be implemented in selected locations to address rising temperatures, water scarcity, extreme weather events, flooding, and salinization. These efforts will contribute to a strong evidence base for future climate adaptation measures at both the national and local levels.

Key Components

- 1. Component 1 - Strengthened technical and institutional capacities:** Strengthened technical and institutional capacities across government levels to plan, finance, implement, and monitor effective climate adaptation measures.
Outcome 1 (O1): *National and subnational institutions are equipped with the tools, skills, and coordination mechanisms needed to integrate climate risks into decision-making, resource allocation, and long-term development planning.*
- 2. Component 2 - Local adaptation solutions piloted and scaled:** Local adaptation solutions piloted and scaled to build resilience of vulnerable coastal communities. Piloting will take place in Aktau and Atyrau (combined population ~490,000), direct beneficiaries will be determined during PFG, through nature-based coastal defenses (wetland/ dune restoration), climate-resilient water and sanitation infrastructure, and livelihood diversification support; results will be measured against indicators such as number of community adaptation plans implemented, households with improved access to resilient infrastructure, and beneficiaries reporting increased resilience.
Outcome 2 (O2): *Community-driven climate adaptation initiatives are implemented, demonstrating tangible improvements in local resilience through climate-smart infrastructure, ecosystem-based solutions, and inclusive livelihoods support.*
- 3. Component 3 - National framework for scalable adaptation solutions:** Established national framework enabling the replication and scaling of climate adaptation solutions across Kazakhstan.
Outcome 3 (O3): *A flexible, evidence-based framework supports the nationwide application of successful adaptation practices, ensuring that locally informed solutions can be tailored and expanded to other climate-vulnerable regions.*

Across all three components, capacity-building is treated as a cross-cutting priority: local adaptation solutions (O2) are deliberately linked to, and supported by, the subnational and national authorities strengthened under O1 and O3, and dedicated capacity-building for local communities, including the technical, operation and maintenance skills needed to sustain adaptation measures, is embedded throughout. Social inclusion is mainstreamed as a cross-cutting capacity area.

C. Project Components and Financing

Table 5: Project components, Activities, expected outputs and corresponding budget

Project Components	Expected Concrete Outcome	Expected Outputs	Amount (US\$)
Component 1: Strengthened technical and institutional capacities across government levels to plan, finance, implement, and monitor effective climate adaptation measures	National and subnational institutions are equipped with the tools, skills, and coordination mechanisms needed to integrate climate risks into decision-making, resource allocation, and long-term development planning.	Output 1.1 Climate risk assessment and planning tools developed and institutionalized.	2,467,000.00 US\$
		Output 1.2 Institutional capacities enhanced through training and coordination mechanisms.	
		Output 1.3 Financing strategies and mechanisms for adaptation developed.	
Subtotal, Component 1			2,467,000.00 US\$
Component 2: Local adaptation solutions piloted and scaled to build resilience of vulnerable coastal communities	Community-driven climate adaptation initiatives are implemented, demonstrating tangible improvements in local resilience through climate-smart infrastructure, ecosystem-based solutions, and inclusive livelihoods support.	Output 2.1 Community adaptation plans developed and implemented (Aktau + Atyrau Cities).	4,967,000.00 US\$
		Output 2.2 Climate-resilient infrastructure and nature-based solutions implemented (Aktau + Atyrau Cities).	
		Output 2.3 Livelihood diversification and skills development supported (Aktau + Atyrau Cities).	
Subtotal, Component 2			4,967,000.00 US\$
Component 3: Established national framework enabling the replication and scaling of climate adaptation solutions across Kazakhstan	A flexible, evidence-based framework supports the nationwide application of successful adaptation practices, ensuring that locally informed solutions can be tailored and expanded to other climate-vulnerable regions.	Output 3.1 Evidence from local adaptation initiatives consolidated and analyzed.	982,977.04 US\$
		Output 3.2 Policy and regulatory frameworks updated to support scaling.	
		Output 3.3 Partnerships and financing mechanisms for scaling adaptation mobilized.	
Subtotal, Component 3			982,977.04 US\$
Sub-Total Project Activities Cost = A (Component Costs)			8,416,977.04 US\$
Project Execution Cost = B (max. 9.5%)			799,612.82 US\$
Total Project Cost = A + B			9,216,589.86 US\$
Project Cycle Management Fee = C (max. 8.5%)			783,410.14 US\$
Amount of Financing Requested = A + B + C			10,000,000.00 US\$

D. Project Calendar

Table 6: Project Milestones

Milestone	Expected Date
Start of Project Implementation	1 July 2027
Mid-term Review	1 July 2029
Project Closing	30 June 2031
Terminal Evaluation	1 May 2031

PART II: PROJECT JUSTIFICATION

A. Project Components

The project seeks to address the repercussions of the primary environmental hazards identified, addressing their influence on both human settlements and the surrounding natural environment: (i) fluctuations in sea levels and potential decrease; (ii) heightened occurrences of floods; (iii) more intense drought conditions; and (iv) increased heat in the Caspian Sea coasts, with a specific focus on Kazakhstan. Adaptation measures for these primary hazards will be examined in conjunction with ongoing urbanization processes, employing an integrated approach to spatial and coastal planning, innovation, knowledge sharing, access to resources, and management capacity.

This project aims to strengthen Kazakhstan's climate resilience through a multi-scalar approach, spanning national policy, sub-regional cooperation along the Caspian Sea coast, and concrete action at the city level. It focuses on building institutional capacity and generating evidence to support the planning, prioritization, and financing of urban climate adaptation measures, with a particular emphasis on vulnerable coastal regions.

At the local level, targeted interventions will address pressing climate challenges in urban areas, such as water scarcity, flooding, and rising temperatures. Key actions include improving water resource management, establishing early warning and community communication systems, and implementing measures to adapt to urban heat island effects. These efforts will support more climate-resilient infrastructure, service delivery, and urban ecosystems.

At the sub-regional level, the project will promote coordinated action across Kazakhstan's Caspian Sea coastline, ensuring alignment with other ongoing and planned initiatives. Special attention will be given to biodiversity protection and the marine environment, including the development of joint strategies to address pollution, habitat degradation, and ecosystem vulnerability. The project will also contribute to coordinated preparations for regional dialogues and frameworks related to the Caspian Sea's sustainable development. Through close coordination with other projects and institutions active in the Caspian region, and by empowering local authorities with technical tools and planning support, this initiative will lay the groundwork for long-term urban climate resilience while enhancing Kazakhstan's contribution to sub-regional environmental governance.

These efforts will be underpinned by robust data collection, capacity development, and targeted technical studies, particularly on nature-based solutions and sustainable water management. The project will also support the design of financing mechanisms to scale up successful approaches. Activities will be implemented across both local and national levels, with a view to expanding to other relevant urban and coastal areas in Kazakhstan. This scaling will be facilitated through alignment with national policy frameworks and regional mechanisms, including the Tehran Convention (in force since 2006), thereby reinforcing Kazakhstan's long-term commitment to integrated coastal and climate-resilient development.

To operationalize these efforts, the project will apply established UN-Habitat tools and methodologies, including the Planning Law Assessment Framework (PLAF) and the Urban Planning Law for Climate-Smart Cities Toolkit (to translate climate-risk data on hazards such as flooding and drought into planning rules and systems, Output 1.1); the Enabling Public Participation Toolkit (Output 1.2); and the development of a Capital Investment Plan for climate-resilient infrastructure (Output 1.3) to align financing strategies with long-term infrastructure needs and attract investment for adaptation. The project will also contribute to enhancing and updating these tools based on the lessons it generates.

Specific activities for each output are as follows:

Table 7: Outcomes, Outputs and Activities

Output	Activities
Strengthened technical and institutional capacities across government levels to plan, finance, implement, and monitor effective climate adaptation measures (Component 1): Outcome 1: National and subnational institutions are equipped with the tools, skills, and coordination mechanisms needed to integrate climate risks into decision-making, resource allocation, and long-term development planning..	
Output 1.1. Climate risk assessment and planning tools developed and institutionalized.	Activity 1.1.1. Conduct national and subnational climate vulnerability and risk assessments. ³ Undertake a comprehensive Climate Risk Analysis of current and projected climate hazards affecting Kazakhstan's Caspian Sea coast, including sea level decline, flooding, temperature rise, and drought. – Implement a national-level vulnerability assessment to evaluate systemic exposure of sectors such as urban development, energy, water, fisheries, tourism, agriculture, and biodiversity. – Conduct localized vulnerability assessments to identify the most climate-vulnerable regions, municipalities, and communities, with special attention to informal settlements and socio-economically vulnerable groups. – Collect and analyze historical and forecast data on climate variables, including sea level fluctuations, seasonal rainfall patterns, and temperature extremes, with the aim to develop short- and long-term impact scenarios. – Provide sector-specific impact projections on livelihoods, ecosystems, infrastructure, and services to inform targeted adaptation strategies. – Facilitate participatory assessments involving national and subnational stakeholders, civil society, academia, and the private sector to validate findings and build shared ownership of the results.
	Activity 1.1.2. Develop standardized tools and guidelines for climate-informed planning – Conduct an analytical review of global and regional experiences in urban climate adaptation and resilience applicable to the Caspian Sea context. – Undertake a comparative study of legal and regulatory frameworks for human settlements in coastal areas, with a focus on how these frameworks integrate climate change adaptation and mitigation. – Develop standardized guidelines and templates for incorporating climate risks into sectoral, spatial, and development planning, tailored for use by national and subnational institutions. – Apply geospatial tools, including the Urban Vulnerability Mapping Tool, to identify high-risk zones and assess spatial dimensions of vulnerability, biodiversity, and exposure. – Develop digital platforms and interactive maps to visualize climate risks, infrastructure vulnerabilities, and adaptation priorities, supporting evidence-based policymaking. [PFG to confirm whether this is a new platform or an enhancement/integration with existing Kazhydromet and municipal GIS systems; identify host institution, data governance arrangements, long-term maintenance responsibility, and primary user groups.] – Produce a toolkit for local governments on climate-resilient urban and land-use planning, aligned with National Urban Policy and Kazakhstan's national climate commitments.
	Activity 1.1.3. Integrate climate risks into development and spatial planning documents – Integrate climate vulnerability and risk data into national and subnational spatial and land-use planning frameworks. – Align adaptation priorities with Kazakhstan's National Urban Policy, Nationally Determined Contributions (NDCs), and long-term low-emission development strategies. – Support the mainstreaming of climate risk considerations into city-level development plans and investment frameworks, particularly for cities like Aktau and Atyrau and their surrounding hinterlands. – Facilitate coordination with relevant ministries and planning agencies, ensuring harmonization of sectoral policies with updated climate risk information. – Organize capacity-building workshops and technical seminars for planners, policymakers, and municipal authorities to strengthen institutional capabilities for climate-informed decision-making. – Track adoption of climate risk data in city-level development plans and investment frameworks, with targets for the number of Atyrau/ Aktau planning documents formally updated to integrate climate risk information.
Output 1.2. Institutional capacities enhanced through training and coordination mechanisms.	Activity 1.2.1. Deliver capacity-building programmes for relevant ministries, local authorities, and planning bodies – Design and deliver tailored training modules on Integrated Coastal Zone Management (ICZM) and Marine Spatial Planning (MSP), with a specific focus on strengthening urban resilience and climate adaptation in coastal areas. – Develop and implement climate and urban resilience training sessions for national and local authorities, embedded in the process of formulating Kazakhstan's National Urban Policy (NUP). – Deliver training on climate finance access and project development, targeting institutions responsible for national adaptation planning and budgeting, including tools for climate-smart public investment. – Prepare a Compendium of Best Practices and Case Studies on ICZM and MSP implementation across comparable geographies, offering practical guidance for Kazakhstani institutions. – Implement capacity-building workshops and seminars across cities such as Aktau, Atyrau, and surrounding coastal areas, to strengthen understanding of climate risks and adaptation planning. – Develop a Community Engagement Toolkit for Coastal Areas, to guide participatory approaches in the design and implementation of climate adaptation measures.

³ Scope note: limited to assessments not already covered by existing studies (e.g., Wold Bank Kazakhstan CCDD 2023, GFDRR/ Kazhydromet 2022 assessment); PFG will confirm genuinely new analysis versus reuse of existing data, with findings feeding directly into Component 2 site-level design in Atyrau and Aktau.

	Activity 1.2.2. Establish or strengthen inter-agency coordination platforms for climate adaptation – Map existing institutional mandates and identify gaps in coordination between national ministries (e.g. environment, planning, economy, energy, transport) and subnational authorities in the coastal zone. – Facilitate the establishment or enhancement of a national inter-agency task force on climate-resilient coastal and urban planning, ensuring alignment with ICZM, MSP, and NUP frameworks. – Promote cross-sectoral coordination mechanisms, integrating urban development, biodiversity, disaster risk reduction, and climate adaptation within a unified governance approach. – Institutionalize climate coordination mechanisms through formalized terms of reference and agreed protocols for data sharing, joint planning, and reporting. – Support the development of a coordination and monitoring system for tracking the implementation of climate adaptation actions, linked to national reporting under the Paris Agreement.
	Activity 1.2.3. Facilitate exchange workshops and peer learning – Organize national and regional knowledge exchange workshops, bringing together city officials, national experts, and international peers to share experiences in ICZM, MSP, urban resilience, and adaptation finance. – Facilitate South-South cooperation opportunities, particularly with countries bordering the Caspian Sea and those implementing coastal resilience initiatives under the Adaptation Fund. – Conduct peer learning sessions between municipalities (e.g. Aktau, Atyrau, Kuryk) and national agencies to strengthen bottom-up and top-down exchange of knowledge, tools, and good practices. – Engage academic and technical institutions to support continuous learning, localize training content, and anchor capacity-building in local expertise and curricula. – Establish digital platforms and knowledge repositories for continuous learning and dissemination of training materials, toolkits, case studies, and policy guidelines.
Output 1.3. Financing strategies and mechanisms for adaptation developed.	Activity 1.3.1. Support integration of adaptation priorities into public investment plans – Develop an Integrated Coastal Zone Management (ICZM) framework for Kazakhstan that incorporates climate adaptation priorities into national development planning and investment frameworks, with particular attention to coastal urban areas and ecosystems. – Design a national Marine Spatial Planning (MSP) approach, integrating resilience-building and adaptation measures for key sectors such as urban development, fisheries, port infrastructure, and oil and gas. – Prepare sector-specific climate adaptation strategies for coastal and marine areas, focusing on high-impact sectors such as tourism, urban development, fisheries, and offshore industry, in alignment with Kazakhstan's development priorities. – Formulate policy recommendations and investment roadmaps that link ICZM and MSP to the ongoing preparation of the National Urban Policy (NUP), ensuring that urban and coastal resilience are adequately reflected in public investment portfolios. – Align public investment planning tools with climate risk data and adaptation priorities, enabling ministries and subnational authorities to mainstream adaptation into budgeting and infrastructure programming.
	Activity 1.3.2. Design financing models for local adaptation (e.g., subnational climate funds) – Develop financing models and institutional arrangements for local adaptation, including the potential establishment of a subnational climate adaptation fund for coastal regions, drawing from lessons and case studies in the Caspian region and other comparable contexts. – Map existing national and international financial flows relevant to climate adaptation and identify potential entry points for enhanced local access, including climate-resilient infrastructure finance. – Support the design of coastal zone investment strategies aligned with ICZM and MSP objectives, offering a pipeline of bankable adaptation projects for public and blended finance sources. – Compile and disseminate case studies showcasing effective financing mechanisms and successful coastal adaptation investments in Caspian Sea countries and other semi-arid coastal zones.
	Activity 1.3.3. Train public officials in climate finance access (GCF, GEF, etc.) – Design and deliver targeted training sessions for national and subnational government officials on accessing climate finance from sources such as the Green Climate Fund (GCF), Global Environment Facility (GEF), Adaptation Fund, and bilateral climate funds. – Develop a climate finance readiness module within the ICZM/MSP training package to improve project preparation capacity across relevant sectors and institutions. – Conduct workshops and seminars to build the technical capacity of ministries (e.g., planning, environment, economy) and coastal municipalities to prepare, evaluate, and implement climate adaptation projects aligned with international donor requirements. – Facilitate technical dialogues and learning exchanges with institutions from other Caspian littoral states and regional partners with experience in climate finance mobilization.

Local adaptation solutions piloted and scaled to build resilience of vulnerable coastal communities (Component 2):	
Outcome 2: Community-driven climate adaptation initiatives are implemented, demonstrating tangible improvements in local resilience through climate-smart infrastructure, ecosystem-based solutions, and inclusive livelihoods support.	
Output 2.1. Community adaptation plans developed and implemented.	Activity 2.1.1. Conduct participatory climate risk mapping and planning with communities – Undertake localized climate risk and vulnerability assessments with direct engagement of communities in priority coastal areas (e.g., in and around Aktau and Atyrau), focusing on climate hazards such as sea level decline, droughts, floods, and extreme temperatures. – Conduct participatory climate risk mapping exercises using community-based tools, including household surveys, community workshops, and focus groups to capture local perceptions, traditional knowledge, and coping strategies related to climate impacts. – Apply spatial analysis tools such as the Urban Vulnerability Mapping Tool and Community Hazard Exposure Mapping to identify zones at high risk for housing damage, infrastructure failure, and ecosystem degradation. – Establish community climate profiles that highlight key vulnerabilities, exposure patterns, and social, environmental, and economic sensitivities to climate change. – Develop inclusive risk and resilience plans that reflect gender, age, and disability perspectives and that are aligned with local development priorities.
	Activity 2.1.2. Identify and prioritize adaptation actions in collaboration with local stakeholders – Facilitate multi-stakeholder planning workshops in selected communities to co-develop short-, medium-, and long-term adaptation solutions based on the findings of participatory mapping and assessments. – Develop Community Adaptation Action Plans (CAAPs) that identify site-specific priorities, such as nature-based solutions for coastal erosion control and flood prevention (e.g., dune stabilization, wetland restoration); climate-resilient water supply and sanitation systems; heat-resilient urban infrastructure; diversification of livelihoods through climate-smart agriculture, aquaculture, and sustainable tourism; and public awareness campaigns and early warning systems. – Establish local adaptation committees or working groups to ensure ownership, local coordination, and sustainability of adaptation efforts. – Integrate community plans with municipal and national planning processes, including the National Urban Policy, Integrated Coastal Zone Management (ICZM), and Marine Spatial Planning (MSP) frameworks. – Promote pilot adaptation projects as proof-of-concept for scalable interventions, leveraging local materials, labor, and knowledge systems.
Output 2.2. Climate-resilient infrastructure and nature-based solutions implemented.	Activity 2.2.1. Construct or upgrade water systems, flood protection, and resilient housing – Conduct feasibility assessments for resilient infrastructure investments in selected communities, with attention to exposure to droughts, water scarcity, flooding, and heatwaves. – Design and construct/ rehabilitate climate-resilient water supply and sanitation systems, such as groundwater recharge infrastructure; solar-powered desalination or filtration units; managed aquifer recharge and greywater reuse systems; connection of underserved peri-urban settlements to piped sewage/wastewater networks or, where connection is not feasible, upgraded on-site sanitation appropriate to urban conditions [PFG to map specific underserved settlements and confirm network-connection feasibility]. – Build or reinforce flood protection infrastructure, such as small-scale dikes, levees, and embankments; urban drainage and stormwater management systems; permeable pavement and green infrastructure in vulnerable neighborhoods. – Develop resilient housing models adapted to local conditions and hazards, using durable, low-carbon materials and passive design features (e.g. insulation, ventilation). – Promote community labor and skills training in climate-resilient construction practices to support local employment and long-term maintenance of infrastructure. – Support municipal infrastructure planning to align new investments with vulnerability assessments, community adaptation plans, and spatial development strategies.
	Activity 2.2.2. Restore wetlands, dunes, and coastal vegetation to buffer climate impacts – Map and assess degraded coastal ecosystems (e.g. wetlands near Kenderli Bay, dune systems north of Aktau) to prioritize areas for nature-based restoration. – Restore coastal wetlands to enhance flood retention, biodiversity, and deliver co-benefit of carbon sequestration by replanting native wetland vegetation (e.g. reeds, sedges); reconnecting natural hydrological flows; removing or mitigating drainage channels or barriers. – Stabilize and regenerate coastal dune systems, including planting native dune grasses and shrubs to prevent erosion; installing windbreaks and sand fencing; creating buffer zones between human activities and fragile dune areas. – Rehabilitate and protect coastal vegetation belts (e.g. riparian tree corridors, salt-tolerant shrubs) that serve as natural barriers to sea spray, storm surges, and desertification. – Rehabilitate the botanical garden in Aktau to adapt to urban heat island effects, promote the use of native desert-adapted plant species, and create a green recreational space that supports climate resilience in a semi-arid urban environment. [Framed as co-benefit: primary adaptation rationale rests on flood/ stormwater retention, urban cooling, dust reduction, water-quality improvement, and livelihood resilience delivered by the wetland/ dune/ vegetation restoration activities above; this urban-greening pilot demonstrates the same nature-based approach in a dense urban setting.] – Engage local communities in restoration activities, ensuring knowledge transfer and ownership through training and environmental stewardship programs. – Integrate nature-based solutions into local development planning, ensuring connectivity between urban growth, ecosystem health, and coastal resilience goals.

	Activity 2.2.3. Strengthen resilience of fishing communities through early warning and adaptive communication systems – Establish a localized early warning system for sea-level fluctuations, temperature anomalies, and extreme weather events (e.g. storms, coastal flooding) that affect fishing operations and safety at sea. – Deploy community communication platforms (SMS alerts, local radio, mobile apps, and signage at ports) to relay timely, simplified information on sea conditions and climate-related advisories. – Train local fishers and cooperatives on interpreting early warning data and integrating forecasts into seasonal planning, fishing routes, and equipment use. – Document traditional knowledge on weather prediction and fish migration and combine it with scientific data to create culturally relevant adaptation guidance. – Promote diversification of coastal livelihoods, such as aquaculture, ecotourism, or fish processing, to reduce dependency on seasonal wild catch and strengthen adaptive capacity. – Coordinate with national hydro-meteorological agencies and marine research institutions to ensure regular data updates and integration with broader coastal monitoring systems.
Output 2.3. Livelihood diversification and skills development supported.	Activity 2.3.1. Promote climate-resilient practices in peri-urban agriculture and small-scale aquaculture – Conduct baseline assessments of current farming and aquaculture practices in peri-urban and coastal communities to identify key climate vulnerabilities and adaptation needs. – Introduce climate-resilient agricultural techniques, including drought-tolerant crop varieties, efficient irrigation methods (e.g. drip or sprinkler systems), soil moisture retention measures (e.g. mulching, cover crops), and integrated agroforestry systems. – Pilot sustainable aquaculture solutions, such as integrated fish-vegetable production (aquaponics), cage farming using salinity- and heat-tolerant fish species, and environmentally friendly feed and waste management practices. – Establish demonstration plots and learning hubs to showcase innovative practices and facilitate peer learning among farmers and fishers. – Build capacity of local extension services, cooperatives, and producer groups through training on climate-smart techniques, resource management, and risk reduction strategies. – Facilitate access to localized climate information services, including seasonal forecasts, pest and disease alerts, and weather advisories, using digital tools or community-based resilience hubs.
	Activity 2.3.2. Provide training and small grants for alternative income-generating activities (e.g., eco-tourism, green jobs) – Conduct local opportunity mapping to identify feasible green livelihood options tailored to the ecological and socio-economic context (e.g. nature-based tourism, organic farming, solar installation, waste recycling). [Linked to adaptation outcomes: builds local capacity to install and maintain decentralized/solar energy systems that keep water pumping, cooling, and health facilities operating during grid disruptions caused by climate shocks.] – Design and deliver vocational and entrepreneurial training for target groups (especially youth and women) on eco-tourism services and management; renewable energy system installation and maintenance; sustainable fisheries processing and marketing; craftsmanship using recycled or natural materials. – Provide seed funding and small grants to support the launch or scaling-up of green micro-enterprises and cooperatives. – Facilitate market linkages and digital platforms for local products and services, including e-commerce opportunities for eco-tourism and crafts. Partner with private sector and technical institutions to offer apprenticeships and job placements in climate-resilient sectors.
	Activity 2.3.3. Establish community cooperatives and local resilience hubs – Mobilize and organize local stakeholders into multi-purpose community cooperatives to coordinate livelihood development, savings groups, and access to resources. – Establish Local Resilience Hubs in key settlements, serving as training and knowledge-sharing centers; emergency preparedness and resource points; climate information and advisory service outlets; entry points for coordination with government and NGOs. – Equip resilience hubs with digital tools and learning materials to support community-led planning and innovation. – Strengthen the institutional capacities of cooperatives through legal assistance, bookkeeping support, and organizational development. – Encourage inclusion of women, youth, and vulnerable groups in cooperative leadership and hub governance.

Established national framework enabling the replication and scaling of climate adaptation solutions across Kazakhstan (Component 3):	
Outcome 3: A flexible, evidence-based framework supports the nationwide application of successful adaptation practices, ensuring that locally informed solutions can be tailored and expanded to other climate-vulnerable regions.	
Output 3.1. Evidence from local adaptation initiatives consolidated and analyzed.	Activity 3.1.1. Develop a knowledge management system capturing best practices and lessons learned – Design and establish a centralized digital Knowledge Management System (KMS) hosted by a relevant national institution (e.g. Ministry of Ecology and Natural Resources or Ministry of National Economy), ensuring accessibility to both national and subnational stakeholders. – Document case studies from local pilot sites along the Caspian Sea coast, highlighting adaptation approaches, challenges, innovations, and outcomes. – Capture community perspectives and traditional knowledge relevant to coastal climate resilience through interviews, photo stories, and participatory documentation. – Compile a database of tools, methodologies, maps, and training resources developed under the project for national replication. – Ensure multi-language access (Kazakh, Russian, English) and usability for various user groups including policymakers, practitioners, researchers, and local governments. – Facilitate quarterly knowledge-sharing webinars and newsletters featuring thematic deep-dives and updates from field implementation.
	Activity 3.1.2. Conduct impact assessments and economic analyses of pilot projects – Develop an assessment framework to evaluate the social, environmental, and economic impacts of climate adaptation measures at pilot sites. – Carry out cost-benefit analyses of key adaptation interventions (e.g. wetland restoration, resilient infrastructure, nature-based solutions) to quantify returns on investment and co-benefits. – Assess scalability potential of successful measures using criteria such as cost-efficiency, technical feasibility, institutional support, and social acceptance. – Identify barriers and enablers for replication in other coastal and non-coastal vulnerable areas across Kazakhstan. – Produce policy briefs and synthesis reports for decision-makers, presenting evidence in accessible formats with actionable recommendations. – Organize national-level learning events and roundtables to present findings, stimulate dialogue, and build consensus on priority adaptation pathways for scaling.
Output 3.2. National adaptation framework developed and endorsed.	Activity 3.2.1. Develop a policy framework and guidelines for replication and scale-up – Draft a comprehensive Sub-Regional Adaptation Framework along the Caspian Sea shores of Kazakhstan that outlines principles, institutional arrangements, priority sectors, and mechanisms for replication and scaling of climate adaptation measures, drawing from Caspian coast pilot interventions. – Develop implementation guidelines and technical standards for replicating nature-based solutions, resilient infrastructure, and community-led adaptation across different geographic and climatic zones of Kazakhstan. – Integrate elements of Integrated Coastal Zone Management (ICZM) and Marine Spatial Planning (MSP) into the framework as models for cross-sectoral climate-resilient planning. – Prepare toolkits and manuals for regional and local governments to operationalize the framework at their level. – Engage experts, civil society, and academia in the framework drafting process to ensure inclusiveness and technical robustness.
	Activity 3.2.2. Align framework with national development and climate strategies • Map alignment opportunities between the draft adaptation framework and national strategies such as Kazakhstan's Climate Change Adaptation Plan, National Development Strategy 2050, and sectoral strategies (e.g., urban development, agriculture, energy). • Conduct inter-ministerial technical reviews and consultations to ensure policy coherence and avoid duplication across national planning frameworks. • Incorporate the framework into the National Urban Policy (NUP) and link it with Kazakhstan's NDC implementation and adaptation tracking mechanisms under the UNFCCC. • Ensure the framework supports financing access from international climate funds (e.g., GCF, AF) and domestic public investment systems.
	Activity 3.2.3. Facilitate high-level consultations and policy dialogues – Convene national policy roundtables and multi-stakeholder forums involving government, private sector, civil society, and development partners to review, validate, and finalize the adaptation framework. – Organize high-level meetings with line ministries and key agencies (e.g., Ministry of Ecology, Ministry of National Economy, Gosgrad, regional akimats) to secure political support and commitment for framework adoption. – Host a National Climate Adaptation Forum as a capstone event to present the framework, disseminate lessons from the Caspian pilot areas, and outline a roadmap for implementation and scaling. – Facilitate endorsements through national governance structures, ensuring the framework is anchored in policy and budget cycles at national and subnational levels.

Output 3.3. Partnerships and financing mechanisms for scaling adaptation mobilized.	Activity 3.3.1. Engage private sector, IFIs, and donors in co-financing mechanisms – Develop and disseminate case studies showcasing successful co-financing of climate adaptation and coastal resilience interventions in the Caspian region and comparable geographies. – Conduct stakeholder mapping and dialogue sessions to identify and engage potential private sector actors, international financial institutions (IFIs), and bilateral donors interested in climate adaptation in Kazakhstan. – Organize targeted roundtables and bilateral meetings to explore PPP (public-private partnership) models and blended finance structures for scaling adaptation efforts. – Host a high-level side event on climate finance during national and regional investment forums to present co-financing opportunities and successes.
	Activity 3.3.2. Develop investment packages for replication-ready adaptation solutions – Design investment packages for adaptation-ready solutions such as resilient housing, integrated water management, flood protection, and nature-based coastal buffers. – Develop a Climate Adaptation Finance Guide for City Leaders in Kazakhstan, tailored to their planning cycles, infrastructure priorities, and investment needs. – Prepare sectoral investment briefs and pitch decks for key target sectors (e.g., water, urban development, biodiversity protection) to attract public and private investors. – Pilot a pipeline of bankable adaptation projects in Caspian Sea municipalities, with documentation of cost-benefit analyses and risk mitigation strategies. – Ensure all investment packages align with national adaptation priorities, SDG targets, and donor financing frameworks.
	Activity 3.3.3. Organize national climate investment forums and roundtables – Convene a National Climate Adaptation Investment Forum to showcase pilot results, present financing opportunities, and mobilize commitments from government, donors, and the private sector. – Host regional pre-forums and technical roundtables focusing on thematic areas such as nature-based solutions, integrated coastal planning, and climate-resilient urban infrastructure. – Facilitate training workshops on developing and financing local adaptation plans, targeting city officials and planners, with special focus on vulnerable populations. – Deliver specialized training packages on accessing climate finance (GCF, AF, GEF, etc.); nature-based solutions for cities; integrated water management strategies – Conduct field visits and demonstrations of innovative technologies and approaches for urban flood management; coastal erosion control; biodiversity and ecosystem restoration; basic service provision and inclusive public space design. – Document and share success stories and lessons learned from financing adaptation at local and regional levels for replication across relevant regions in Kazakhstan.

B. Economic, Social and Environmental Benefits of the Project

Table 8: Economic, Social and Environmental Benefits of the Project

Type of Benefit	Baseline	With/ after the Programme
Economic	– Increase of extreme weather events resulting in floods, impact on private property and public infrastructure, economic losses and worsen livelihood conditions. – Decreased productivity for seasonal workers and fishing community. – Decreased agricultural productivity and loss of livestock due to salinization and limited water resources decreasing income opportunities. – Risks to tourism industry from lack of water supply and increased extreme events including flooding and dust storms.	– Reduced losses on private property, assets and public infrastructure due EWS and improved spatial planning for flooding. – Increased real-estate value of land adjacent to project sites, with equitable-benefit safeguards (e.g., tenure protection, affordable housing linkages, community land trusts where feasible) to be defined during the PFG to mitigate displacement and gentrification risk for existing lower-income residents – Jobs created – including for women (Gender Gap score of 68,7%) – Climate resilient livelihood pathways identified. – Improved access to water for agricultural productivity and domestic chores. – Reduced losses of tourism generated income due to extreme events and low water supply affecting the tourism industry.
Social	– Extreme weather events such as floods, droughts and heatwaves are considered codrivers of poverty and result in social problems such as sanitation, food security and health issues, aside from significant economic losses at the level of the households and community. – Urban heat waves particularly affect the older persons, children, and people with medical conditions, causing various illnesses, including heat cramps, heat exhaustion, heatstroke, and hyperthermia. – Women and children face greater vulnerability to climate change than men, because of greater sensitivity and lower adaptive capacity	– Reduced impact to human health due to heat stress and increased attractiveness of well-maintained and shaded public open-air space. – Reduced social impacts in low-income communities suffering from overcrowded housing. – Reduced damage to infrastructure resulting in more resilient vulnerable communities. – Reduced public health impacts from heat and water stress, particularly for low-income households and businesses (according to UN Women, girls and women aged 15+ spend 25.4% of their time on unpaid care and domestic work, compared to 8.9% spent by men) and women working outdoors – Reduced mental health problems due to extreme weather events, flooding, displacement and heat stress impact on the population.

	– Water stress has an impact on public health. – Migrants and other groups lacking enabling environment to address on risks. – Low education and awareness of water supply issues and how they relate to climate change.	– Increased ratio of public green spaces per person in urban settings and improved open-air spaces, leisure and sports facilities for all – Increased awareness of climate risks by women, girls, migrants and other less connected members of the community by involving at least 50% of women in consultations workshops and decision-making – More women engaged in decision-making and able to represent other more vulnerable members of society. – Improved knowledge and understanding of water supply issues and how they relate to climate change.
Environmental	– Extreme weather events such as floods an heatwaves and sea level fluctuation have a severe impact on ecosystems and biodiversity. – Urban heat is leading to changes in vegetation cycles affecting flora and dependent fauna that causes loss of biodiversity. Lack of knowledge on appropriate nature-based solutions for salinization and sea level fluctuation. Desertification contributing to land conversion. – Pollution and degradation of water ways.	– Increased biodiversity in rural areas and urban settlements [confirm at PFG stage: hectares of wetland/ dune/ vegetation restored, number and species of native plants established, survival rate targets, water-quality indicators, and biodiversity monitoring plan] – Improved understanding of nature-based solutions for sea level fluctuation and capacity to address environmental challenges. – Sustained and enhanced capacity of ecosystems to provide life-supporting services. Reduced pollution of waterways from salinity, sewage and solid waste. – Improved understanding of river ecosystem health.

C. Cost-Effectiveness of the Project

The different projects were identified following an evaluation of intervention opportunities and their cost effectiveness. The selection scores for identifying target communities are based on six criteria:

1. Type of hazard, prioritized by intensity;
2. Hazard level, determined by occurrence rate;
3. Number of potential beneficiaries, weighed against the largest impact versus cost;
4. Cost-benefit analysis of potential interventions to address vulnerabilities and strengthen community resilience;
5. Necessity of the proposed intervention, evaluated through stakeholder consultations; and
6. Alignment with government priorities.

The cumulative scores from these criteria facilitated the identification of the most vulnerable communities for targeted interventions, each with specific weights and scoring methods. The underlying scoring matrix, criteria weights, raw scores, and the resulting ranked list of candidate sites/ interventions should be annexed to the PFG/ full proposal so the cost-effectiveness claim is independently verifiable.

By focusing on solutions that can be replicated in the target communities, there is an opportunity for efficiency gains and learning that can be shared across the project. Also at the local level, there is a focus on development investment plans and costed water management plans to find funding and cost-effective solutions for further adaptation measures. In addition, having the capacity building and knowledge generation and dissemination at the national level provides an opportunity to utilize the existing coordination and capacity at national level to share information. Considering the envisaged cooperation with the biennial Caspian Economic Forum, the fund holds great potential for innovative, specific, and sustainable climate change adaptation projects. From a strategic point of view, the cost-effectiveness of planning and managing urban and maritime development as well as adaptation to climate change strategies in advance is proven to be more cost effective rather than being responsive to natural hazards or once informal urban sprawl has occurred.

In relation to cost-effectiveness of project management, the presence of UN-Habitat and UNEP as well as IOM at country and regional scales, supported by the Resident Coordinator's offices in addition to the existence of on-going initiatives by various development partners and the United Nations Development System in Kazakhstan and the Central Asian region ensure that human and financial resources will be managed in the most cost-effective manner, building on a solid know-how and networks of professionals to develop project activities.

D. Consistency with National or Sub-national Sustainable Development Strategies

1. Caspian Sea region protocols and agreements

The project objectives are in line with the Framework Convention for Protection of Marine Environment of Caspian Sea - Tehran Convention. Having entered into force in 2006, the Tehran Convention is the first regional legally binding instrument signed by all five Caspian littoral states. It serves as an overarching governance framework which lays down the general requirements and the institutional mechanism for environmental protection and sustainable development in the Caspian Sea region. Under its umbrella the Parties have developed additional Protocols on priority areas of common concern:

- Protocol Concerning Regional Preparedness, Response and Co-operation in Combating Oil Pollution Incidents (Aktau Protocol)
- Protocol for the Protection of the Caspian Sea against Pollution from Land-based Sources and Activities (Moscow Protocol)
- Protocol for the Conservation of Biological Diversity (Ashgabat Protocol); and
- Protocol on Environmental Impact Assessment in a Transboundary Context.

In addition, other regional agreements were considered while developing the project:

- Coordinating Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea (CASPCOM);
- Agreement on the Preservation and Rational Use of Aquatic Biological Resources of the Caspian Sea.

2. Kazakhstan protocols and agreements

Kazakhstan's National Adaptation Plan (NAP) is currently under development rather than yet formally adopted: the Ministry of Ecology and Natural Resources, with UNDP and Green Climate Fund (GCF) Readiness support, began the NAP formulation process in 2019, and GCF approved funding in 2024 for a project (running through 2028) to integrate climate adaptation into national and subnational strategic planning and related policy frameworks address housing and urban development through a multifaceted approach aimed at enhancing resilience to climate change. In the interim, related national policy frameworks already address housing and urban development through a multifaceted approach aimed at enhancing resilience to climate change, and are expected to feed into the NAP once finalized. Key strategies include:

- *Energy Efficiency and Sustainable Housing:* Recognizing the significant energy consumption in the residential sector, Kazakhstan prioritizes energy efficiency improvements in housing. This aligns with the nation's Green Economy concept, aiming to reduce greenhouse gas emissions and promote sustainable living environments. Adaptation relevance: while primarily a mitigation measure, energy-efficient housing also strengthens climate resilience by improving thermal comfort and reducing indoor heat stress during heatwaves, and by lowering peak cooling-season demand on the power grid, helping to maintain service continuity for households and health facilities during climate-driven grid stress.
- *Urban Planning and Infrastructure Resilience:* The NAP emphasizes the integration of climate risk assessments into urban planning processes. This includes developing infrastructure that can withstand extreme weather events, thereby safeguarding urban populations and assets.
- *Disaster Risk Reduction in Urban Areas:* Given the increasing frequency of climate-induced disasters, strategies focus on enhancing the resilience of urban infrastructure and housing to such events. This involves implementing building codes and standards that account for climate risks.
- *Promotion of Green Urban Spaces:* To combat urban heat islands and improve air quality, the NAP advocates for the expansion of green spaces within cities. This not only mitigates climate impacts but also enhances the quality of urban life.
- *Affordable and Inclusive Housing Initiatives:* Programs like "Nurly Zher" aim to provide affordable housing solutions, particularly for vulnerable populations. These initiatives are designed to ensure that all citizens have access to safe and climate-resilient housing.

Kazakhstan's updated Nationally Determined Contribution (NDC), submitted in April 2023, outlines several strategies pertinent to housing and urban development, emphasizing energy efficiency, sustainable infrastructure, and climate resilience. The project's three components align explicitly with these adaptation priorities: water security (Component 2 water-efficiency and aquifer-recharge measures), resilient infrastructure and urban systems (Component 2 climate-resilient infrastructure retrofits and Component 1 planning tools), biodiversity/desertification (Component 2 wetland, dune, and green-belt restoration), disaster risk reduction/early warning systems (Component 2 flood and coastal-hazard early warning), and health (Component 2 water quality and heat-resilience measures).

- *Enhancing Energy Efficiency in Buildings:* The NDC underscores the importance of reducing energy consumption in the residential sector. This involves implementing energy-saving measures and adopting energy-efficient technologies in housing and utilities to lower greenhouse gas emissions.
- *Promoting Sustainable Urban Infrastructure:* Kazakhstan aims to develop urban infrastructure that supports low-carbon and climate-resilient growth. This includes integrating renewable energy sources into urban planning and promoting sustainable transport systems to reduce the carbon footprint of cities.
- *Implementing Green Building Standards:* The NDC highlights the adoption of green building codes and standards to ensure that new constructions are environmentally friendly and energy-efficient. This strategy is part of a broader effort to transition to a green economy.
- *Developing Climate-Resilient Housing:* Recognizing the increasing risks posed by climate change, the NDC emphasizes the need for housing that can withstand extreme weather events. This involves designing and constructing homes that are resilient to climate-related hazards.

In addition, the project is aligned with the United Nations Sustainable Development Cooperation Framework (UNSDCF) 2026 - 2030 for Kazakhstan, contributing to its outcomes on environmental sustainability, climate resilience, and inclusive, people-centered development.

E. Compliance with Relevant National Technical Standards

Table 9: Compliance with Relevant National Technical Standards

Expected Output/ Intervention	Relevant rules, regulations, standards and procedures (to comply with AF principle 1)	Compliance, procedures and authorizing offices
Comprehensive agricultural production management [linked to Activity 2.3.1, peri-urban climate-resilient agriculture and small-scale aquaculture piloting.]	– Law on State Regulation of Agricultural Development (2005) – National Strategy for Sustainable Agriculture – Technical Regulation on Pesticide Use and Soil Fertility	– Ministry of Agriculture – Regional Agriculture Departments – Certification through State Agrochemical Service
Forest area rehabilitation and conservation [applies to native, salt-tolerant green-belt and coastal vegetation restoration under Activity 2.2.2, not upland forestry.]	– Forest Code (2003) – National Biodiversity Conservation Action Plan – Regulation on Reforestation and Afforestation Activities	– Committee of Forestry and Wildlife (Ministry of Ecology and Natural Resources) – Local forestry authorities issue permits and ensure supervision
Integrated sewage system and solid waste management	– Sanitary Rules and Norms (SanPiN) for Wastewater and Solid Waste (approved by Ministry of Health) – Law on Sanitary and Epidemiological Welfare – Environmental Code (2021)	– Local Sanitary-Epidemiological Services – Ministry of Ecology and Natural Resources (waste licensing) – Akimats (municipal approval)
Integrated water resource management	– Water Code (2003) – Basin Management Plans – Drinking Water Standards (GOST)	– Committee on Water Resources (Ministry of Ecology and Natural Resources) – Basin Councils – Sanitary Inspection Units
Biodiversity protection	– Law on Protected Areas (2006) – Environmental Code (2021) – Red List of Kazakhstan Species	– Committee of Forestry and Wildlife – Ministry of Ecology and Natural Resources – Environmental Impact Assessment (EIA) required
Urban planning system	– Urban Planning Code (2001) – National Construction Standards (SN RK) – Law on Architectural, Urban Planning and Construction Activities	– Ministry of Industry and Construction – Local urban planning departments (Akimats) – Approval through General Plans and Land Use Zoning
Clean energy	– Law on Support for Renewable Energy Sources (2009) – Technical Standards for Grid Integration	– Ministry of Energy – KEGOC (Kazakhstan Electricity Grid Operating Company)

	– National Green Economy Concept	– Regional Departments of Energy
Climate-resilient livelihoods and circular economy	– Strategy for Transition to a Green Economy – National Waste Management Programme – SME Support and Innovation Regulations	– Ministry of National Economy – DAMU Entrepreneurship Fund – Ministry of Ecology and Natural Resources
Migration and human mobility	– The Law of the Republic of Kazakhstan “On Population Migration” – National Migration Concept 2023 - 2027	– Ministry of Labour and Social Protection of Population – Migration Committee under the Ministry of Labour and Social Protection of Population
Knowledge exchange and training on mainstreaming climate change adaptation to urbanization	– Law on Education – National Climate Adaptation Plan – Guidelines on Integration of Climate Change into Sectoral Training	– Ministry of Education and Science – National Institute for Advanced Training – Ministry of Ecology and Natural Resources
Construction permits and building codes for climate-resilient public infrastructure	– Urban Planning Code (2001) – National Construction Standards (SN RK) – Building codes for climate-resilient/accessible public infrastructure	– Ministry of Industry and Construction – Local urban planning departments (Akimats) issue construction permits
Land allocation for project sites	– Land Code of the Republic of Kazakhstan – Law on State Property	– Local akimats (land allocation decisions) – Committee for Land Resources Management
Accessibility / universal design	– Law on Social Protection of Persons with Disabilities – National accessibility standards (SN RK) for public buildings and spaces	– Ministry of Labour and Social Protection – Local urban planning departments (Akimats)
Public procurement	– Law on Public Procurement	– Ministry of Finance (procurement oversight) – Executing Entities' procurement units, per UN-Habitat/UNEP/IOM rules
Municipal asset ownership and transfer of completed infrastructure	– Law on State Property – Municipal asset registers (Akimat)	– Local akimats (asset registration and O&M responsibility upon handover)

F. Alignment of Project with Other Funding Sources

The project is carefully designed to avoid duplication and ensure strong complementarity with existing and past initiatives focused on climate change adaptation, disaster risk reduction, environmental protection, and sustainable urban development, particularly those relevant to Kazakhstan and the broader Caspian Sea region. Emphasis will be placed on synergies and value addition, aligning closely with national priorities and regional frameworks.

In particular, synergies have been considered with the EBRD “Green Cities” project and the World Bank “Bluing the Caspian Sea” regional initiative, and these linkages will be further elaborated during full project development. The project will also coordinate with the Kazhydromet RSE project “Modernization of the environmental network for monitoring the state of atmospheric air in the cities of Atyrau and Aktau”, building on its monitoring infrastructure for climate-risk and early-warning purposes.

The project will build on a range of national and regional climate adaptation efforts, drawing on cross-sectoral synergies in areas such as disaster risk reduction, including flood early warning systems and integrated drought management; nature-based solutions, such as forest rehabilitation, ecosystem restoration, and biodiversity conservation; climate-smart livelihoods, especially in sustainable agriculture, fisheries, and circular economy approaches; urban climate adaptation, through climate-resilient infrastructure, spatial planning, and integrated water and waste management systems; and policy and governance, by supporting the integration of climate risk into legal frameworks, development strategies, and sectoral policies.

Table 10: Alignment of Project with other Funding Sources

#	Funding Source	Project	Focus
1	Adaptation Fund Projects	Integrated Drought Management for Central Asia (2025 - ongoing)	A regional Adaptation Fund programme (US\$13.9M) covering Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. Focuses on drought monitoring, early warning systems, and drought-resilient agriculture. Implementing Entity: Regional Environmental Centre for Central Asia (CAREC)
2	UN-Led Initiatives	UNDP Flood Early Warning System Pilot	Community-based disaster preparedness and resilience implemented in the Yessil and Nura-Sarysu Basins; aims to strengthen flood preparedness and water risk resilience.

		UNEP Ecosystem-based Adaptation (EbA) Programme	Regional programme targeting nature-based solutions for climate resilience. Kazakhstan benefits through regional capacity development.
		UNDP/UNEP Marine Litter Initiative (2024)	Addressing marine pollution in the Caspian Sea, linking climate resilience to coastal and marine ecosystem health.
		UNDRR, GIZ and UNDP	Early Warning System (EWS) regional roadmap, developed by CESDRR, guiding early action for 2025 - 2026.
		IOM	Building resilience and empowering local communities through enhanced agricultural cooperation and rural-urban partnership in Kazakhstan.
		IOM	Assessment of Human Mobility in the Context of Climate Change in Mountain Areas of Kazakhstan.
3	GIZ and Bilateral Programmes	CRED/EarthYield: Climate Resilience and Water Risk Assessment (2025)	Funded by GIZ, this report provides evidence-based risk assessments on water-related hazards and adaptation priorities in Kazakhstan. Outputs: Policy guidance on water allocation, adaptation planning
		GIZ and EU	Integrated Water Resource Management (IWRM) and Ecosystem-based Adaptation programmes.
4	Multilateral Development Banks	GFDRR and World Bank Assessment of Kazhydromet (2022)	Review of Kazakhstan's capacity to monitor, forecast, and warn of climate-related hazards.
		Middle Corridor Advisory (2024)	Trade and transport systems through a resilience and environmental lens, including climate adaptation strategies for infrastructure.
		"Blueing the Caspian" (2015) – WB/UNEP	Focused on marine pollution control and biodiversity conservation; informed adaptation frameworks in the Caspian region.
		Asian Development Bank (ADB): Kazakhstan Urban Assessment (2024)	Climate-smart urban development lens; recommends mainstreaming adaptation in urban infrastructure planning.
		Asian Development Bank (ADB): Urban Resilience Support in Central Asia	ADB is implementing broader technical assistance across Central and West Asia (including Kazakhstan) under the GREEN (Growth, Resilience, Energy Efficiency and Nature-based) Solutions for Livable Cities initiative. This supports participatory urban and regional planning, municipal finance strengthening, and integration of climate resilience into infrastructure design. Kazakhstan is one of nine countries benefiting from this program.
		EBRD Green Economy Transition (GET) Framework	Supports cities and utilities in Kazakhstan to implement climate-resilient infrastructure, energy efficiency, and circular economy measures.
		World Bank Advisory on the Middle Trade and Transport Corridor	The World Bank's TRACE project modernizes Kazakhstan's Middle Corridor with climate-resilient road upgrades, flood protection, and snow barriers to withstand extreme weather. It reduces climate-related disruption risks by diversifying trade routes, enhancing supply chain resilience. Investments have boosted jobs, services, and safer transport, indirectly supporting climate adaptation. The project also promotes climate-integrated road design standards and improved transport governance for long-term resilience.
5	Regional Cooperation Platforms	Central Asia Climate Information Platform (CACIP, by CAREC/USAID)	Strengthens regional access to climate data, tools, and knowledge exchange.
		CESDRR/UNDRR Early Warning Systems Regional Roadmap (2025–2026)	Roadmap coordinated by the Centre for Emergency Situations and Disaster Risk Reduction with UNDRR, GIZ, and UNDP support.
		EU-Central Asia Green Deal Initiatives	Emerging support for green transition and climate resilience, including adaptation infrastructure.
6	Regional Initiatives/ Research	Report on "Financing Climate Action in Eastern Europe, the Caucasus and Central Asia (EECCA)", OECD 2016	The EECCA initiative assesses how countries like Kazakhstan mobilize climate finance, highlighting key adaptation areas: disaster risk reduction, nature-based solutions, climate-smart livelihoods, urban adaptation, and governance. It guides access to funding from MDBs, donors, and climate funds, while promoting strong policies, data-driven planning, and innovative financing tools like PPPs and blended finance to scale up adaptation efforts.

This project is complementary to, and avoids duplication with, the Adaptation Fund-financed "Integrated Drought Management for Central Asia" project implemented by CAREC: that regional project focuses on drought monitoring, early warning, and drought-resilient agriculture across five Central Asian countries at national/regional scale, whereas this project delivers site-specific, urban and coastal adaptation investments in Atyrau and Aktau (sea-level decline, coastal flooding, urban water/sanitation, and coastal ecosystem restoration) that fall outside the CAREC project's scope. Coordination arrangements with CAREC will be established during the PFG to ensure data and lessons are shared rather than duplicated.

The project will adopt a dual-track approach, emphasizing both policy development and on-the-ground implementation of climate change adaptation and resilience measures. It is designed to align with

broader United Nations efforts in the Caspian Sea region, leveraging the UN Development System to promote coordinated action, knowledge exchange, and policy harmonization across sectors.

Building on comprehensive climate impact assessments, the project will address interconnected priorities across biodiversity protection, livelihood resilience, and climate-resilient infrastructure. Recognizing the mutual dependencies between healthy ecosystems, sustainable livelihoods, and robust infrastructure, the project will place special emphasis on integrated spatial and maritime planning. This approach will help mitigate persistent challenges such as coastal erosion, salinization, and land degradation, which not only threaten critical infrastructure and economic activities like fishing and agriculture but also degrade the biodiversity that underpins local livelihoods and natural climate buffers.

As International Financing Institutions (IFIs) scale up their support for urban resilience and climate adaptation, this project will ensure alignment with their frameworks and planned outputs. It will build on lessons from past and ongoing initiatives, adding value through a spatially targeted approach that directly addresses the specific vulnerabilities of Kazakhstan's Caspian coastal zones.

Adopting a multisectoral approach, the project will integrate climate adaptation into urban planning and design to address the interconnected challenges of coastal vulnerability, land use pressures, and population dynamics. By embedding climate action within spatial development strategies, the project will foster community-driven solutions that are scalable and replicable at both national and regional levels.

In collaboration with UN partners and technical agencies, the project will implement priority actions including afforestation, ecosystem restoration, sustainable fisheries management, and the promotion of climate-resilient, income-generating activities. Emphasis will be placed on inclusive, participatory processes to ensure that adaptation measures are locally relevant and socially sustainable.

Overall, the initiative will complement and enhance existing efforts by delivering focused, high-impact interventions that strengthen the climate resilience of Kazakhstan's coastal regions, while advancing the country's broader climate policy commitments and sustainable development objectives.

G. Learning and Knowledge Management

The project will systematically draw on lessons learned from comparable UN-Habitat and Adaptation Fund initiatives. These include the Adaptation Fund project in Azerbaijan (process of development and joint implementation with UNEP and IOM), the "Greening the Blue" project in Kenya, and the Adaptation Fund coastal adaptation projects in Ghana and Côte d'Ivoire, which offer relevant experience on coastal adaptation planning from local to national scales. Lessons will be captured and fed back into the enhancement and updating of UN-Habitat's existing planning and climate-adaptation tools.

Table 11: Expected output/ intervention, learning objectives and indicators, and knowledge products

Expected concrete output/intervention	Learning Objectives (LOs) and Indicators (I)	Knowledge Products
Outcome 1. Government institutions at national and subnational levels have the capacity and tools to plan, finance, implement, and monitor effective climate adaptation actions.		
Output 1.1. Climate risk assessment and planning tools developed and institutionalized	LO 1.1.1: Understand and apply climate risk and vulnerability assessment methodologies at national and subnational levels. I: Number of completed assessments integrating sea level, drought, and temperature projections. LO 1.1.2: Develop evidence-based sectoral and spatial planning informed by climate risk data. I: Number of plans revised or created using standardized risk-informed tools.	– National Climate Risk and Vulnerability Assessment (Caspian Sea coast focus) – Localized climate risk maps and geospatial datasets – Urban Vulnerability Mapping Tool and digital visualization platform – Legal review of coastal regulation integration of climate risks – Guidelines for climate-informed spatial and development planning – Toolkit for climate-resilient local planning (linked to NUP)
Output 1.2. Institutional capacities enhanced through training and coordination mechanisms	LO 1.2.1: Strengthen institutional knowledge of ICZM/MSP frameworks and their linkages to climate adaptation. I: Number of ministries/ local authorities trained; ICZM/MSP integrated into official planning. LO 1.2.2: Improve institutional coordination for climate adaptation at national and subnational levels.	– ICZM and MSP-Focused Climate Resilience Training Modules – Case Study Compendium on coastal adaptation and ICZM/MSP – Community Engagement Toolkit for Coastal Areas – National Coastal Coordination Task Force TORs and coordination framework

	I: Coordination mechanisms formally established and operationalized. LO 1.2.3: Enable peer learning and institutional knowledge exchange. I: Number of exchanges conducted and policy/practice changes resulting.	– Repository of exchange workshop reports, good practices, and technical notes
Output 1.3. Financing strategies and mechanisms for adaptation developed	LO 1.3.1: Design investment-ready, climate-adaptive ICZM/MSP frameworks aligned with national policies. I: Number of investment plans or project proposals developed/integrated. LO 1.3.2: Mobilize and manage adaptation finance at subnational level. I: Financing models developed; pipeline of bankable projects formulated. LO 1.3.3: Strengthen climate finance access and readiness. I: Number of officials trained; project proposals submitted to funds (GCF, GEF, etc.).	– Kazakhstan ICZM Framework integrating climate adaptation – Marine Spatial Planning Strategy with sector-specific coastal adaptation measures – Investment Roadmap for Coastal Climate Resilience – Climate Finance Readiness Training Package – Subnational Climate Adaptation Fund Concept and Case Study Brief – Coastal Adaptation Financing Toolkit and South-South knowledge exchange reports
Outcome 2. Vulnerable communities along the Caspian coast adopt climate-resilient practices, infrastructure, and livelihoods through locally led adaptation initiatives.		
Output 2.1. Community adaptation plans developed and implemented	Participatory climate risk mapping and vulnerability assessments completed in 4 coastal towns: LO2.1.1: Understanding local climate risks and vulnerabilities – Number of communities with completed risk profiles and maps	– Community Climate Profiles – Climate Vulnerability Maps – Workshop and survey reports
	Community Adaptation Action Plans (CAAPs) co-developed with local stakeholders: LO2.1.2: Capacity to prioritize and plan locally led adaptation – Number of CAAPs endorsed by local stakeholders	– CAAPs – Planning workshop toolkits and documentation
	Local adaptation committees formed and linked to municipal planning: LO2.1.3: Local governance structures strengthened for resilience – Number of functioning adaptation committees integrated into local governance	– Guidelines for local adaptation governance – Committee TORs and operational plans
	Pilot interventions launched in selected communities: LO2.1.4: Local ownership and proof-of-concept for scalable adaptation – Number of pilot projects implemented and documented	– Case studies of pilot interventions – Lessons learned briefs
Output 2.2. Climate-resilient infrastructure and nature-based solutions implemented	Upgrade water infrastructure (e.g. managed aquifer recharge, sanitation, small-scale desalination/ filtration): LO2.2.1: Enhance access to climate-resilient basic services – % increase in population with improved water supply – Number of operational climate-resilient water systems	– Technical designs for decentralized systems – Implementation reports – Community user manuals
	Construct flood protection in vulnerable neighborhoods: LO2.2.2: Reduce flood risk through infrastructure – Number of households protected by new infrastructure – Reduction in flood-related damages or events reported	– Site assessments – Engineering designs – Risk reduction briefs
	Restore wetlands, dunes, and coastal vegetation: LO2.2.3: Improve knowledge and practice of ecosystem-based adaptation – Area (ha) of ecosystem restored – Number of species planted – Local involvement in restoration efforts	– Restoration guidelines – Monitoring templates – Ecological impact reports

	Rehabilitate botanical garden in Aktau with native species to address urban heat: LO2.2.4: Demonstrate and raise awareness of urban nature-based solutions – Number of local species introduced – Community events and outreach sessions held – Visitor and beneficiary feedback	– Species catalogs – Urban heat mitigation designs – Awareness materials
	Integrate nature-based solutions (NBS) into urban and coastal planning: LO2.2.5: Align spatial planning with climate and ecosystem goals – Number of urban plans integrating NBS – Number of planners trained – Policies developed or updated to support NBS	– Municipal planning briefs – NBS training guides – Policy recommendations
Output 2.3. Livelihood diversification and skills development supported	Establish early warning systems (EWS) and community communication tools for fishing communities: LO2.3.1: Improve preparedness for sea-level and climate variability – Number of functional EWS installed – % of target population receiving and understanding alerts	– EWS guidance notes – Community alert protocols – Training manuals
	Demonstrate water reuse, water-efficiency, or groundwater monitoring solutions: LO2.3.2: Raise awareness on water resource management – Number of demonstration sites established – Number of community members trained or engaged	– Demonstration blueprints – Educational poster – Local maintenance guide
	Provide training and small grants for eco-tourism, green jobs, aquaculture: LO2.3.3: Expand climate-resilient livelihoods – Number of individuals trained – Number of new or strengthened livelihoods or micro-enterprise	– Training curricula – Business development toolkits – Grant impact assessments
	Pilot climate-smart agriculture and aquaculture (e.g. drip irrigation, aquaponics): LO2.3.4: Promote resilient production systems – Number of pilots implemented – % improvement in yields or resource-use efficiency – Number of households adopting new techniques	– Technical manuals – Farm demonstration videos – Extension worker training packages
	Establish cooperatives and local resilience hubs: LO2.3.5: Strengthen local coordination and adaptation capacity – Number of functional hubs/cooperatives – Number of services delivered through hubs – Participant satisfaction or feedback scores	– Operational guideline – Cooperative formation toolkit – Coordination digital platforms
Outcome 3. A national framework enables replication, scaling, and financing of effective climate adaptation measures across Kazakhstan.		
Output 3.1. Evidence from local adaptation initiatives consolidated and analyzed.	LO3.1.1: Understand how to capture, manage, and share adaptation knowledge for national replication. – # of stakeholders trained in using the knowledge management system; % increase in access/downloads. LO3.1.2: Interpret social, environmental, and economic impact data to inform scalable adaptation solutions. – # of completed impact assessments and cost-benefit analyses – use of findings in planning processes.	– Digital Knowledge Management System (multilingual) – Case Studies from Caspian Coast – Community Storytelling Materials – Repository of Adaptation Tools & Maps – Thematic Webinars & Newsletters – Policy Briefs & Synthesis Reports

– Output 3.2. National adaptation framework developed and endorsed.	LO3.2.1: Apply principles of integrated coastal and climate-resilient planning to national framework development. – # of technical staff engaged in framework drafting and validation – # of policies referencing the framework. LO3.2.2: Align sub-national and national policy instruments with climate adaptation priorities. – # of frameworks aligned – # of cross-sectoral policy consultations held. LO3.2.3: Facilitate inclusive policy dialogues for consensus building. – # of roundtables held – % of participants satisfied with process inclusivity and outcome relevance.	– National Sub-Regional Adaptation Framework – Technical Guidelines and Toolkits – Coastal ICZM & MSP Integration Plans – Local Government Manuals – Stakeholder Consultation Reports – National Climate Adaptation Forum Proceedings
Output 3.3. Partnerships and financing mechanisms for scaling adaptation mobilized.	LO3.3.1: Mobilize and structure financing for climate adaptation through public-private and blended finance models. – # of investors engaged – \$ leveraged in co-financing commitments. LO3.3.2: Develop bankable investment packages for adaptation-ready solutions. – # of investment packages and pitch decks prepared – # of projects included in financing pipelines. LO3.3.3: Strengthen national capacities to access and apply climate finance tools. – # of trained officials – # of adaptation projects submitted to climate finance sources.	– Climate Adaptation Finance Guide (for cities) – Case Studies on Adaptation Finance – Sectoral Investment Briefs – Training Modules (accessing climate finance, nature-based solutions, water resilience) – Documentation from Investment Forums and Roundtables – Success Stories for Replication

H. Consultative Process

The project is designed as a continuous, inclusive engagement process with stakeholders, beginning at the earliest stages of project identification and formulation and extending throughout implementation, monitoring, and evaluation. Stakeholder input is not only foundational to designing locally relevant adaptation interventions but is also essential to ensuring ownership, responsiveness, and sustainability of results.

To date, initial/ preliminary consultations have been held with the Ministry of Ecology and Natural Resources and local authorities from the cities of Aktau and Atyrau, held on the sidelines of the Regional Ecological Summit in Astana, Kazakhstan, in April 2026. Building on this, the PFG will carry out full, inclusive, and disaggregated consultations in Atyrau and Aktau, explicitly reaching women, youth, older persons, persons with disabilities, and informal workers, with the findings documented in the full proposal. Moreover, consultations took place over the period of the past year with the UN Resident Coordinator and the UN Country Team in Astana, Kazakhstan as well as the project has been co-created with the regional offices of UNEP and IOM, both expected Executing Entities of the project.

Consultation Objectives and Scope

The consultative process will actively involve a broad spectrum of stakeholders, including community members, local authorities, sectoral experts, government institutions, civil society organisations, academic and technical entities, and representatives of vulnerable groups. These consultations will be structured to:

- Identify local vulnerabilities, needs, and capacities related to climate risks;
- Integrate traditional and scientific knowledge into solution design;
- Ensure that proposed adaptation measures are socially inclusive and environmentally sound;
- Strengthen institutional coordination and support multi-level governance.

Consultation Throughout the Project Lifecycle

- *Project Formulation:* Stakeholders are engaged to co-define challenges, prioritize intervention areas, and validate the theory of change, ensuring the project responds to real needs on the ground.
- *Project Design and Planning:* Input is gathered on proposed activities, implementation modalities, risk mitigation measures, and resource allocation. Technical and local knowledge contributes to refining the intervention logic.
- *Implementation:* Feedback mechanisms will be maintained throughout execution, including community feedback loops, focus groups, and local working groups. These ensure adaptation measures remain relevant, responsive, and effective.
- *Monitoring and Midterm Review:* Stakeholders will be consulted to assess progress, verify results, and adjust strategies where needed. Participatory monitoring tools may be introduced at community level.
- *Evaluation and Knowledge Sharing:* At the end of the project, stakeholders will contribute to final assessments, helping to identify good practices, capture lessons learned, and shape recommendations for replication and scaling.

Duration and Flexibility

Consultations will be conducted over the entire four-year project cycle. Their intensity and format will be adapted to the complexity of each intervention area, local capacity, and thematic focus. Structured to be iterative and adaptive, the process will be guided by principles of inclusiveness, transparency, and mutual accountability.

I. Justification for Funding Requested

The proposed project seeks funding from the Adaptation Fund to address the urgent and growing climate risks affecting Kazakhstan's Caspian Sea coastal zone, particularly sea level fluctuations, increasing temperatures, flooding, droughts, and land degradation. These climate hazards are compounding environmental fragility in the region, which is already burdened by ecosystem degradation, pollution, and uncoordinated land-use change. Without targeted and sustained adaptation measures, vulnerable communities in the region will continue to face worsening impacts on livelihoods, public health, infrastructure, and local economies.

The project is structured around three interdependent components that collectively aim to build systemic resilience at national, subnational, and local levels:

- *Component 1 – Strengthening Technical and Institutional Capacities:* National and subnational institutions lack the integrated data, coordination mechanisms, and planning tools needed to manage climate risks effectively. Component 1 directly addresses these gaps by improving knowledge generation and data management, enabling more robust climate risk analysis, and strengthening institutional coordination for adaptation planning. This component will improve national and regional decision-making capacity, a foundational step to enable action at all levels. Full-cost adaptation logic: without AF funding, national and subnational institutions would continue to lack integrated climate risk data and coordination mechanisms (the baseline), leaving adaptation planning ad hoc and reactive; the AF grant finances the adaptation increment, dedicated climate risk assessments, standardized planning tools, and inter-agency coordination mechanisms, that would not otherwise be funded through existing development budgets, and which is a precondition for the community-level investments piloted under Component 2.
- *Component 2 – Piloting and Scaling Local Adaptation Solutions:* This component translates knowledge into action by delivering concrete, community-driven adaptation solutions. Localized interventions—including climate-smart infrastructure, ecosystem restoration, and diversified livelihoods—will directly benefit vulnerable groups in coastal cities and communities. The approach is based on initial consultations with local authorities and residents in the target areas, which have informed the priorities reflected here; the PFG will complete full, inclusive consultations across Atyrau and Aktau prior to finalizing the full proposal. This component ensures that adaptation measures are context-specific, inclusive, and demonstrably improve resilience at the community level. For example, Component 2 finances household water/ sanitation connections, wetland and dune restoration, and livelihood support to beneficiaries in Atyrau and Aktau (details to be determined during the PFG).
- *Component 3 – Enabling National Scaling of Adaptation:* Currently, there is no national framework in Kazakhstan to guide the scaling and replication of local adaptation successes. Component 3 fills this

gap by establishing an enabling policy, financing, and knowledge-sharing framework. It promotes institutional collaboration, capacity development, and the mainstreaming of climate adaptation into national urban and development strategies. It also prioritizes gender equality and the inclusion of vulnerable groups as central pillars of adaptation planning and implementation.

The project design is based on national and subnational priorities, scientific assessments, and community-level consultations. Its structure ensures that the outputs and activities across all three components are synergistic and mutually reinforcing. Importantly, the initiative directly aligns with the outcomes of the Adaptation Fund and the adaptation priorities outlined in Kazakhstan's national policies and international commitments.

The funding requested will be used to:

- Strengthen institutional capacities and inter-sectoral coordination;
- Generate and disseminate climate risk and vulnerability data;
- Implement concrete, replicable adaptation measures in target areas; and
- Build the enabling environment for long-term, scalable climate resilience across the country.

By filling the current gaps in knowledge, capacity, and coordination, the project is expected to act as a catalyst for sustained adaptation action in Kazakhstan. Moreover, it is designed to mobilize additional resources, support private sector engagement, and reduce future needs for post-disaster response and reconstruction. The project ensures maximum value for investment by prioritizing field-level impact while building systems and structures that ensure long-term sustainability.

Funding from the Adaptation Fund will enable Kazakhstan to take a transformative step toward climate-resilient development, with scalable solutions that protect vulnerable communities and ecosystems while supporting national adaptation planning and implementation.

J. Sustainability of the Project Outcomes

Ensuring the long-term sustainability of outcomes is central to the project's design. The strategy focuses on strengthening institutional and community ownership, enhancing technical and financial capacity, and enabling the replication and scaling of proven interventions.

- *Institutional Sustainability:* The project will strengthen the ability of national and local governments as well as communities to sustain, replicate, and scale up tested climate adaptation solutions. Institutional sustainability will be promoted through the adoption of integrated coastal zone management approaches, spatial and land use planning, and, where needed, adjustments to legal and policy frameworks. Tools such as the "urban lab" approach and investment sheets, developed in close consultation with government partners, will support long-term institutionalization of adaptive practices. Responsible institutions: the Ministry of Ecology and Natural Resources and Ministry of Industry and Construction will hold primary responsibility for institutionalizing the integrated coastal zone management approach and updated planning tools at national level, with Atyrau and Aktau akimats responsible for adopting and maintaining local development/ zoning documents produced under Component 1; formal adoption pathways for each tool/ plan will be confirmed during the PFG.
- *Social Sustainability:* Inclusive community engagement throughout the project (during assessments, planning, implementation, and monitoring) will foster long-term awareness, ownership, and capacity among vulnerable populations, including women, youth, migrants, and people with disabilities. Communities will be equipped to co-implement and maintain adaptation solutions, with targeted training and knowledge sharing extended to other regions. The project will promote gender equality and women's leadership in adaptation, including (1) active involvement of women and vulnerable groups in consultations and local decision-making; (2) tailored awareness campaigns and participation in monitoring activities; (3) advocacy for the inclusion of women, youth with disabilities, and vulnerable groups in adaptation planning; and (4) technical training for young women and girls in the use and maintenance of adaptation tools and equipment. To sustain engagement beyond project closure, community resilience committees and local resilience hubs established under Component 2 will be formally linked to municipal (akimat) structures, with agreed operations-and-maintenance responsibilities and, where feasible, small municipal budget allocations, so that community-level governance and livelihood groups continue to function after AF financing ends.

- *Economic Sustainability:* Investments in coastal adaptation and climate-resilient development will reduce future costs associated with environmental hazards while opening new livelihood opportunities. Integrated land use and spatial plans will prevent maladaptive urban development, such as sprawl in high-risk areas, and direct investments to safe, climate-resilient zones.
- *Environmental Sustainability:* Ecosystem protection and restoration will be sustained through spatial and environmental planning and reinforced by legal and policy mechanisms. Community-level awareness and training will ensure that ecosystem-based interventions are maintained and integrated into local development and income-generating activities.
- *Financial Sustainability:* The project promotes financially sustainable approaches by prioritizing low-cost, nature-based solutions that reduce future infrastructure and recovery costs. Land use and investment planning will help national and local governments, and private sector actors, develop viable business cases for targeted interventions. Institutional frameworks will guide resource allocation and attract additional financing to scale up successful measures.
- *Technical Sustainability:* The project's portfolio of practical, cost-effective, and climate-resilient and nature-based solutions will be accessible to national and local institutions. All interventions will apply "building back better" principles to ensure long-term functionality and resilience. Maintenance responsibilities will be shared between communities, municipalities, and service providers, strengthening sustainability through partnerships.
- *Replicability and Scaling:* Replication will be based on measured results from the Atyrau and Aktau pilots rather than broad assumptions of transferability; once results are validated, the project is designed to serve as a model for similar regions in Kazakhstan and beyond. Lessons learned and tested interventions will inform broader policy and planning approaches. UN-Habitat and partners will actively promote replication through regional knowledge exchange and seek opportunities to scale the approach in other vulnerable cities through partnerships and additional financing.

K. Environmental and Social Impacts and Risks

The proposed project is fully aligned with the Adaptation Fund's Environmental and Social Policy (ESP) and Gender Policy (GP), as well as UN-Habitat's Environmental and Social Safeguards System (ESSS). It promotes inclusive, sustainable, and risk-informed climate adaptation through participatory processes and ecosystem-sensitive interventions.

All components of the project have been screened against the 15 Environmental and Social Principles of the Adaptation Fund. The overall project risk category is assessed as Category B. This rating reflects the environmental and social impacts of Component 2's small-scale physical interventions and infrastructure (detailed in Table 12, Checklist of Environmental and Social Principles), rather than institutional or implementation-arrangement factors; those factors, including non-resident agency status, limited overhead support, Project Management Unit (PMU) management requirements, and government implementation capacity, are addressed separately as project risks in Table 17 (Measures for Financial and Project Risk Management).

Consistent with Table 12, the full set of safeguard principles expected to be triggered is: ESP 1 (Compliance with the Law), ESP 2 (Access and Equity), ESP 3 (Marginalized and Vulnerable Groups), ESP 4 (Human Rights), ESP 5 (Gender Equality and Women's Empowerment), ESP 6 (Core Labour Rights), ESP 7 (Indigenous Peoples, to be confirmed during site selection), ESP 8 (Involuntary Resettlement), ESP 9 (Protection of Natural Habitats), ESP 10 (Conservation of Biological Diversity), ESP 11 (Climate Change), ESP 12 (Pollution Prevention and Resource Efficiency), ESP 13 (Public Health), ESP 14 (Physical and Cultural Heritage), and ESP 15 (Lands and Soil Conservation). Per Adaptation Fund policy, ESP 1 (Compliance with the Law), ESP 4 (Human Rights), and ESP 6 (Core Labour Rights) are always triggered for Adaptation Fund-financed projects, independent of project-specific screening. All identified impacts will be addressed through the Environmental and Social Management Plan (ESMP), which will be developed to cover each of these principles for Component 2 activities.

Component 1: Strengthened technical and institutional capacities across government levels to plan, finance, implement, and monitor effective climate adaptation measures

This component focuses on knowledge generation, training, institutional coordination, and policy development. No physical works are envisaged. It is therefore assessed as Category C, with no significant environmental or social risks. However, the component will integrate principles such as gender equality, protection of vulnerable groups, and social inclusion into all capacity-building materials, planning

guidelines, and coordination mechanisms to ensure that safeguards are promoted throughout adaptation governance processes.

Component 2: Local adaptation solutions piloted and scaled to build resilience of vulnerable coastal communities

This component entails community-driven interventions, including small-scale infrastructure, ecosystem-based solutions, and resilient livelihood initiatives. As these interventions involve physical works, the component is categorized as Category B due to the potential for localized environmental and social risks, including:

- Unequal access to project benefits if targeting is not inclusive,
- Temporary environmental disturbances (e.g., waste generation, habitat disruption),
- Risks of excluding women or vulnerable groups from decision-making and monitoring.

These risks are site-specific, reversible, and manageable with appropriate mitigation measures. A simplified Environmental and Social Management Plan (ESMP) will be developed to ensure compliance with national laws and the Adaptation Fund's ESP. Community consultations will play a key role in risk mitigation and ownership-building.

Component 3: Established national framework enabling the replication and scaling of climate adaptation solutions across Kazakhstan

This component facilitates knowledge management, policy dialogue, and the development of frameworks for scaling up adaptation solutions. As no physical interventions are foreseen, it is assessed as Category C. However, the integration of environmental and social safeguards will be ensured by embedding safeguard principles into policy recommendations, planning tools, and knowledge products.

Table 12: Checklist of environmental and social principles

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance	How Triggered/ Rationale	Mitigation Mechanism
Compliance with the law	Components 1 & 3	Component 2 – Local permits and alignment with environmental regulations required for small-scale works.	Component 2 physical works must comply with national environmental, construction, and land-use regulations.	Obtain required local permits and environmental approvals prior to construction; ESMP will reference applicable national legal requirements per activity.
Access to equity	Components 1 & 3	Component 2 – Risk of unequal access to project benefits if community targeting is not inclusive.	Component 2 benefits (infrastructure, livelihoods) could be captured disproportionately by better-connected residents if targeting is not deliberate.	Inclusive, criteria-based community targeting; transparent beneficiary selection process; grievance mechanism for benefit-access complaints.
Marginalized and vulnerable groups	Component 1	Component 2 – Risk of exclusion from consultations or benefits; targeted engagement strategies required.	Component 2 consultations and benefit distribution risk excluding women, youth, older persons, persons with disabilities, seasonal workers, and migrants if not deliberately targeted.	Targeted engagement strategies, disability- and gender-responsive consultation formats, and disaggregated monitoring of participation and benefits.
Human rights	Components 1 & 3	Component 2 – Need to ensure human rights principles in implementation and grievance mechanisms.	Always triggered for Adaptation Fund-financed projects (ESP 4); relevant to all Component 2 physical works and community engagement.	Human-rights-based approach mainstreamed through the project grievance mechanism and informed-consent consultation procedures; ESMP safeguards ensure no activity restricts access to basic services.
Gender equality and women's empowerment	Component 1	Component 2 – Gender-responsive design and implementation needed to avoid gender bias in benefit distribution.	Component 2 livelihood, infrastructure, and consultation activities risk unequal benefit distribution between men and women if not addressed by design.	Gender-responsive design and implementation, minimum 50% women's participation target in consultations, gender-disaggregated M&E, and dedicated women's leadership measures (see Sustainability, Section 2.7).
Core labor rights	Components 1 & 3	Component 2 – Contractors and community works must	Always triggered for Adaptation Fund-	Contractor compliance clauses with national labour law,

		comply with national labour laws and avoid child labour.	financed projects (ESP 6); Component 2 construction and community works involve contracted and community labour.	prohibition of child and forced labour, and labour-conditions monitoring by the PMU.
Indigenous peoples	Not Applicable / To be confirmed during site selection	To be confirmed – If present, FPIC (Free, Prior and Informed Consent) required for Component 2.	To be confirmed at PFG stage via site-level screening in Atyrau and Aktau.	If present, Free, Prior and Informed Consent (FPIC) procedures will be applied for Component 2 activities per Adaptation Fund and UN-Habitat safeguards requirements.
Involuntary resettlement	Components 1 & 3	Component 2 – Unlikely, but site selection must avoid land disputes or displacement.	Component 2 site selection for infrastructure/nature-based works could, if poorly sited, affect land tenure or occupancy.	Site-selection screening to avoid land disputes or displacement; voluntary land-use agreements where needed; grievance mechanism.
Protection of natural resources	Components 1 & 3	Component 2 – Physical works may affect coastal/marine habitats if not well-sited. Mitigation through design.	Component 2 physical works (water/sanitation infrastructure, coastal defenses) are sited near coastal/marine habitats.	Site-specific environmental screening, design measures to avoid/minimize habitat disturbance, and habitat-sensitive siting criteria.
Conservation of biological diversity	Components 1 & 3	Component 2 – Risk of disturbing biodiversity in vulnerable ecosystems; ESMP to include protection measures.	Component 2 restoration and infrastructure activities occur in/near biodiversity-sensitive coastal and wetland ecosystems (Caspian seal, sturgeon habitat).	Pre-construction biodiversity screening, exclusion of critical habitat areas, native/non-invasive species requirements, and ecological supervision and monitoring (Table 17).
Climate change	All components support adaptation	Component 2 – Activities must ensure no maladaptive practices or greenhouse gas emissions are introduced.	All Component 2 construction and infrastructure activities carry a risk of maladaptation or emissions if not properly designed.	Climate-resilience screening of all designs, preference for low-carbon and nature-based solutions, and GHG-conscious construction practices.
Pollution prevention and resource efficiency	Components 1 & 3	Component 2 – Construction-related waste and materials management needs oversight and mitigation.	Component 2 construction generates waste, wastewater, and material use.	Waste segregation and disposal protocols, efficient materials use, and community-based pollution monitoring.
Public health	Components 1 & 3	Component 2 – Minor risks from construction activities; health and safety protocols needed.	Component 2 construction activities and water/sanitation works carry minor public-health risks (dust, noise, temporary service disruption).	Health and safety protocols for construction, community health and safety communication, and coordination with local health authorities.
Physical and cultural heritage	Components 1 & 3	Component 2 – Low likelihood; site assessments must screen for any cultural or historical assets.	Low likelihood, but Component 2 site works could encounter unrecorded cultural or historical assets.	Site assessments and chance-find procedures screening for cultural or historical assets prior to construction.
Lands and soil conservation	Components 1 & 3	Component 2 – Coastal works could affect soil stability or lead to erosion if poorly designed.	Component 2 coastal works (dune stabilization, drainage, infrastructure) could affect soil stability.	Erosion-control design measures, soil-stability assessment during site-specific ESMP preparation, and construction-phase erosion management.

Each identified risk under Component 2 will be addressed through a site-specific Environmental and Social Management Plan (ESMP). Components 1 and 3 will ensure that safeguard principles are mainstreamed into guidelines, training, and planning tools.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Alignment of Project with the Results Framework of the Adaptation Fund⁴

Table 13: SRF Alignment Table

Project Outcomes	Project Outcome Indicators	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Outcome 1: Strengthened technical and institutional capacities across government levels to plan, finance, implement, and monitor effective climate adaptation measures (Component 1)	- Number of national and local institutions with improved capacity to assess, plan, implement and monitor climate adaptation measures - Number of staff trained across sectors and levels - Number of coordination mechanisms or tools established/strengthened	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	Indicator 2.1: No. of staff trained to respond to, and mitigate impacts of, climate-related events Indicator 2.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	2,467,000.00 US\$
Outcome 2: Local adaptation solutions piloted and scaled to build resilience of vulnerable coastal communities (Component 2) ⁵	- Number of community-led adaptation solutions implemented - Number of beneficiaries (disaggregated by gender and vulnerability) - Percentage of beneficiaries reporting increased resilience	Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors	Indicator 4.1: Development sectors' services responsive to evolving needs from changing climate conditions Indicator 4.2: Physical infrastructure improved to withstand climate change and variability-induced stress	4,967,000.00 US\$
	- Hectares of wetland/dune/coastal ecosystem restored (to be confirmed during PFG) - Number of native species planted (to be confirmed during PFG)	Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	Indicator 5 (Core Indicator 4): Ecosystems and natural resources brought under protection, restoration, or improved management in response to climate variability and change [# of hectares, disaggregated by type of ecosystem/natural resource area and by protection, restoration, and management]	
	Number of beneficiaries supported in climate-resilient livelihoods, disaggregated by gender	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Indicator 6A: People adopting improved and/or new climate-resilient livelihood practices [# of people, disaggregated by sex and by vulnerable groups] Indicator 6B (Core Indicator 5): Households with increased income, or avoided decrease in income [# of households, disaggregated by female-headed households]	
Outcome 3: Established national framework enabling the	National framework developed and endorsed	Outcome 7: Improved policies and regulations that promote and enforce resilience measures	Indicator 7.1: No. of policies introduced or adjusted to address climate change risks Indicator 7.2:	982,977.04 US\$

⁴ Note: During the Concept Note development, the SRF Alignment Table has been prepared. The more detailed project-specific result framework template and illustrative SRF indicator monitoring template tables will be completed during the PFG phase in more detail.

⁵ The Component 2 grant amount (US\$4,967,000.00) is shown against each of the three Fund Outcomes (4, 5, and 6) it contributes to, reflecting that Component 2 delivers infrastructure, ecosystem-based, and livelihood results jointly; it is not additive across rows and should not be summed across Outcomes 4, 5, and 6.

replication and scaling of climate adaptation solutions across Kazakhstan (Component 3)	– Number of local solutions documented and scaled nationally – Number of national policies or budgets integrating climate adaptation based on local learning		No. of targeted institutions with increased capacity to develop plans that respond to climate change risks	
Total Outcome-level grant amount: 8,416,977.04 US\$				
Project Output(s)	Project Output Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Output 1.1. Climate risk assessment and planning tools developed and institutionalized Output 1.2. Institutional capacities enhanced through training and coordination mechanisms	– No. of institutions integrating climate risks into plans and budgets – No. of government officials trained on adaptation tools and financing - No. of coordination mechanisms or tools institutionalized	Output 2.1: Strengthened capacity of institutions to understand and better address climate risks	Indicator 2.1: Institutions supported to strengthen capacity to understand and address climate risks and resilience [# of institutions, disaggregated by scale, sector, and type]	2,467,000.00 US\$ ⁶
Output 1.3. Financing strategies and mechanisms for adaptation developed	– Financing strategy document produced and endorsed by relevant national/subnational institutions	Output 2.2: Increased readiness and capacity of national and sub-national entities to directly access and programme adaptation finance	Indicator 2.2: Local institutions receiving funding or other direct support under the locally led adaptation modality [# of institutions]	
Output 2.1. Community adaptation plans developed and implemented	– Number of community-led adaptation solutions implemented; number of beneficiaries (disaggregated by gender and vulnerability)	Output 4.1: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	Indicator 4.1: Development sector services strengthened to respond to climate variability and change [# of sector services, disaggregated by sector and by scale]	4,967,000.00 US\$ ⁷
Output 2.2. Climate-resilient infrastructure and nature-based	– Hectares of wetland/dune/coastal ecosystem restored [CONFIRM at PFG]	Output 5.1: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	Indicator 5.1: Ecosystems and natural resources targeted by activities to improve protection, restoration, and/or management [# of resources, disaggregated by type and by protection/restoration/management]	

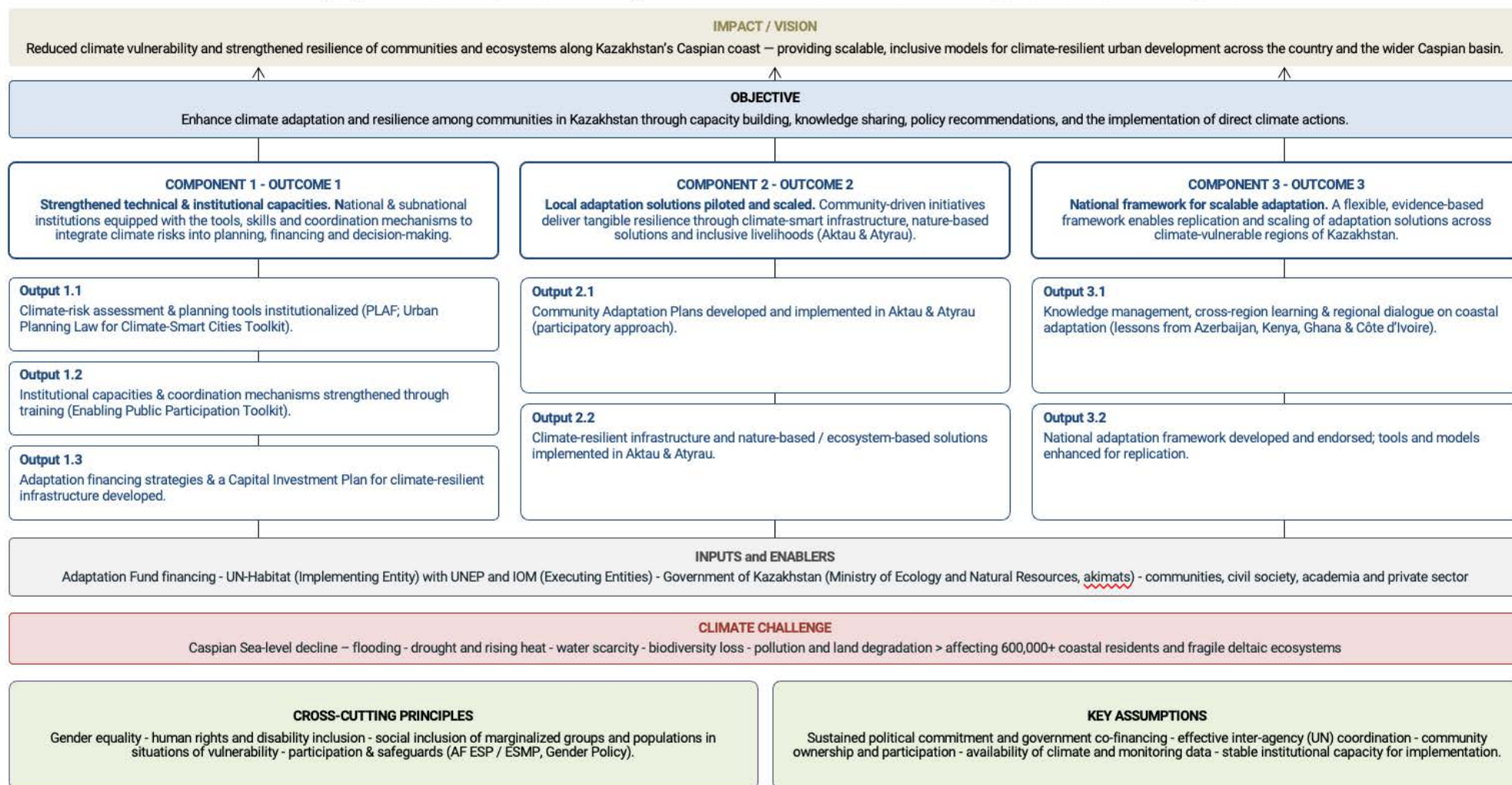
⁶ The Component 1 grant amount (US\$2,467,000.00) is shown against both Output 2.1 and Output 2.2, reflecting that Component 1 delivers institutional-capacity and finance-readiness results jointly; it is not additive across these two rows.

⁷ The Component 2 grant amount (US\$4,967,000.00) is shown against Outputs 4.1, 5.1, and 6.1, reflecting that Component 2 delivers infrastructure, ecosystem-based, and livelihood results jointly; it is not additive across these three rows and should not be summed.

Output 2.3. Livelihood diversification and skills development supported	– Number of beneficiaries supported in climate-resilient livelihoods, disaggregated by gender	Output 6.1: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	Indicator 6.1: People receiving targeted support for new and/or improved livelihoods to manage climate risk [# of people, disaggregated by sex and by vulnerable groups]	
Output 3.1. Evidence from local adaptation initiatives consolidated and analyzed.	– National framework developed and endorsed – No. of lessons and best practices scaled – Amount of public/ private financing mobilized for scaled adaptation	Output 7.1: Improved integration of climate-resilience strategies into country development plans	Indicator 7.1A (Core Indicator 6): Policies, strategies, and/or plans developed or adjusted to integrate climate risk and resilience considerations [#, disaggregated by scale and sector] Indicator 7.1B: Policies, strategies, and/or plans formulated through participation of one or more vulnerable groups	982,977.04 US\$
Output 3.2. National adaptation framework developed and endorsed.				
Output 3.3. Partnerships and financing mechanisms for scaling adaptation mobilized.				
Total Outpuy-level grant amount: 8,416,977.04 US\$				

B. Theory of Change

Adapting Kazakhstan's Caspian Coast: Building Climate-Resilient Cities and Communities | Adaptation Fund | USD 10M | 4 years



Causal pathway reads upward: climate challenge and inputs > outputs > outcomes > objective > impact. Cross-cutting principles and assumptions apply across all pathways.

C. Arrangements for Project Implementation

This section details the institutional arrangements for the implementation of the project across its national, local, and upscaling components. The project adopts a collaborative, multi-agency approach aligned with the “One UN” principle, involving UN-Habitat, UNEP, and IOM as key executing partners.

- **Implementing Entity (IE):** UN-Habitat serves as the Multilateral Implementing Entity (MIE) accredited by the Adaptation Fund. As the signatory to the funding agreement, UN-Habitat is accountable to the Adaptation Fund for project delivery, financial oversight, and compliance with environmental and social safeguards. UN-Habitat will be responsible for consolidating reports from executing partners and submitting them to the Adaptation Fund.
- **Executing Entities (EEs) and Component Responsibilities:** Project execution is led by the three UN organizations, with clear responsibilities. Each executing entity is responsible for managing the activities under its assigned component(s), including technical delivery, financial management, risk mitigation, and monitoring of safeguards. The Ministry of Ecology and Natural Resources will serve as Kazakhstan's Adaptation Fund designated authority and PAC chair (Section 3.3). UN-Habitat as Implementing Entity retains independent oversight and consolidated financial accountability to the Adaptation Fund. To preserve the independence of this oversight and endorsement function, the Ministry of Ecology and Natural Resources does not serve as an Executing Entity under this project; project execution is carried out solely by UN-Habitat, UNEP, and IOM, which avoids a conflict of interest between the Ministry's role as Adaptation Fund designated authority/PAC chair and any direct execution role.

Table 14: Component executing entities scope of work

Components	Executing Entity	
Component 1	UN-Habitat, UNEP, and IOM	Lead national- and subnational-level assessments, training, coordination mechanisms, and integration of climate risks into development planning.
Component 2	UN-Habitat and IOM	Design and implement community-based adaptation interventions, including infrastructure, nature-based solutions, and livelihood diversification.
Component 3	UN-Habitat, UNEP, and IOM	Jointly lead evidence consolidation, framework development, and scaling partnerships.

Funds flow from the Adaptation Fund to UN-Habitat as Implementing Entity, which transfers component-specific allocations to UNEP and IOM as co-Executing Entities via UN-to-UN Transfer Agreements; each Executing Entity procures goods, works, and services under its own financial regulations and safeguards policies (harmonized with the Adaptation Fund ESP/GP), reports quarterly on financial and technical progress to the PMU, and the PMU consolidates these into the Annual Project Performance Reports submitted by UN-Habitat to the Adaptation Fund (Section 3.6). A detailed fund-flow diagram will be included in the PFG/ full proposal.

Table 15: Fund Flow, Procurement, Safeguards Responsibilities, and Reporting Timeline by Executing Entity⁸

Executing Entity	Component(s)	Procurement Responsibility	Safeguards Responsibility
UN-Habitat	Components 1-3 (also IE)	UN-Habitat Financial Rules and Regulations	UN-Habitat ESSS; consolidated Adaptation Fund ESP/GP compliance
UNEP	Components 1 and 3	UNEP Financial Rules and Regulations	UNEP environmental and social safeguards framework
IOM	Components 1, 2 and 3	IOM Financial Rules and Regulations	IOM environmental and social safeguards framework

- **Coordination and Oversight Mechanisms:** A Project Coordination Committee (PCC) will be established, composed of representatives from UN-Habitat, UNEP, IOM, key government partners, and civil society representatives. It will provide strategic guidance and ensure coherence across components. Regular inter-agency coordination meetings will be held to review progress, ensure integration of cross-cutting issues (e.g., gender, human rights, climate resilience), and resolve operational bottlenecks.
- **Engagement with National Stakeholders:** The project will work in close collaboration with national and subnational governments, particularly with the Ministry of Ecology and Natural Resources, Ministry of

⁸ Note: The Ministry of Ecology and Natural Resources is not listed as an Executing Entity in this table. It participates as the Adaptation Fund-designated authority for Kazakhstan and as PAC chair (Section 3.3), a role kept operationally separate from project execution and fund flow to avoid a conflict of interest between endorsement/oversight and implementation functions.

National Economy, and relevant local authorities. Technical Working Groups will be formed to facilitate input into component activities and ensure alignment with national priorities and policies.

- *Collaboration with the UN System:* The project will coordinate closely with the UN Resident Coordinator Office (RCO) and actively engage the UN Country Team (UNCT) in Kazakhstan. Partnerships will be pursued with other UN agencies, particularly for joint technical contributions, field synergies, and co-financing opportunities.
- *Reporting and Accountability:* Each executing entity will be responsible for reporting on its respective component, including technical and financial performance, risk mitigation, and safeguards monitoring. UN-Habitat will consolidate the reports into a unified submission to the Adaptation Fund. Annual and mid-term evaluations will be conducted to assess progress and inform adaptive management.
- The *project office* for this initiative will be based in Astana, Kazakhstan and will closely coordinate with UNEP and IOM as Executing Entities. The project will leverage the existing networks and resources available in Kazakhstan and the resources of the team by hiring further technical staff that would oversee the implementation and monitoring of the national and local components of the project.

1. Project Governance Structure

As a mechanism for guiding the project implementation and for the monitoring of progress, one overall *Project Advisory Committee (PAC)* and one *Project Management Unit (PMU)* for internal coordination and implementation purposes will be established.

Project Advisory Committee (PAC)

The project will be guided by a Project Advisory Committee (PAC) comprising of a representative from the Ministry of Ecology and Natural Resources, UN-Habitat, UNEP, IOM, and other relevant stakeholders (research community, academia, civil society, private sector). Efforts will be made to ensure that the committees offer equal or near equal men and women representation. While the Kazakhstan designated authority (Ministry of Ecology and Natural Resources) to the Adaptation Fund acts as the chair of the PAC, a senior official from the Ministry of Industry and Construction will act as a co-chair. The Project Manager will represent the secretariat function. The chair and co-chair of the PAC will be able to recommend additional participants, based on the suggestions by the PAC. The PAC will provide adaptive management guidance based upon project progress assessments and recommendations from the Project Management Unit (PMU). The PAC will review and approve annual project reviews and workplans as well as technical documents. Moreover, the PAC will provide general strategic and implementation guidance to the PMU. At minimum, it will meet annually, make consensus-based recommendations. The PAC roles are as follows:

- Review of project proposals;
- Provide technical and operational input to the implementation of the project;
- Discuss and propose draft strategies developed within the framework of the project;
- Endorse final reports (deliverables) from experts and consultants;
- Approve (Annual) Project Workplan and any changes thereto, in accordance with UN-Habitat, UNEP, IOM and AF guidelines;
- Review project activities to assess progress, and review Progress Reports;
- Ensures compliance with the Adaptation Fund Gender Policy, and acts as a gender focal point;
- Review deviations and suggest amendments to workplans and contractual arrangements; and
- Any other issues brought before the PAC by one of its members.

The Project Manager will closely coordinate the project with the PAC, in terms of overall project and project coordination, endorsing of national and local level project components, implementation of activities and monitoring of those as well as highlighting lessons learnt from project activities. The PAC members will closely coordinate with national ministries and revert to policy makers for upscaling of lessons learnt from the project components in Kazakhstan. It will identify the relevant national partners for project activities, capacity building measures and peer-to-peer exchanges. Moreover, the PAC will foster potential partnerships of the project with regional institutions and other key stakeholders. Detailed Terms of Reference will be drafted at the commencement of the regional project.

Project Management Unit (PMU)

UN-Habitat, UNEP and IOM will establish a joint Project Management Unit (PMU), comprising of all relevant managerial, technical and administrative personnel, supported by consultants (international,

regional and local). The PMU will support the three agencies equally and be accountable to them. The PMU will manage and coordinate the day-to-day operations of the project activities, including issuing necessary institutional agreements and contracts, arranging necessary travels, organizing meetings and communicating with national and local stakeholders. Furthermore, the PMU will prepare all necessary progress, review and financial reports to be submitted to the PAC, AF as well as national and local governments in Kazakhstan. Further, the PMU will prepare the necessary documents to be submitted to and considered by the PAC such as draft annual workplans and budget expenditure. The PMU will also be responsible for managing non-expendable equipment and expendable resources for the project. The PMU comprises of all managerial, technical, administrative and financial staff relevant to the implementation of the national and local project components implemented in Kazakhstan.

2. Overall Project Management

The overall project management comprises of a Project Manager (P4), a Project Assistant (national), technically supported by a Monitoring & Evaluation and Communication Officer. Moreover, the project will be supported in the overall project management by an 'UN-Habitat headquarters'-based Project Management Officer (P3), supported by an Administrative Assistant (G5). The PMU is supported by Project Management/ Logistic Assistants as well as Community/ Field Officers.

The overall management will be conducted by a full-time Project Manager with a strong technical background in the environment, climate change and urbanization fields and knowledge of country level United Nations operations, supported by a national Project Assistant knowledgeable about the national environment and climate change as well as urbanization dimensions. A Technical and Management Team will provide essential result-based management support. It comprises of national personnel such as a Project Assistant, a Monitoring & Evaluation and Communication Officer as well as a Project Management/ Logistic Assistant. The project will be implemented in close collaboration with the UN Resident Coordinator and the UN Country Team in Kazakhstan.

The Project Manager will closely coordinate the project with the PAC. The main engagement of the PAC will be on project coordination, endorsing national level project components, implementation of local initiatives and monitoring of those as well as highlighting lessons learnt from project activities for upscaling at regional level. The PMU will closely coordinate with the PAC, particularly regarding environment, climate change and urbanization fields as well as with respective national ministries among the various countries and revert to policy makers. It will identify the relevant national partners for regional project activities, capacity building measures and peer-to-peer exchanges. Moreover, the PAC will foster potential partnerships of the project with national institutions and other key stakeholders. Detailed Terms of Reference shall be drafted respectively.

National and local project activities will be supervised and coordinated by UN-Habitat, IOM and UNEP, in close collaboration with the RCO and UNCT in Kazakhstan. All entities will engage their substantive colleagues at headquarters, regional and country level. UN-to-UN Transfer Agreements will be signed at the onset of the project implementation stage.

3. Considerations for gender-responsive Project Committees

In Kazakhstan, assembling a gender-responsive PAC and PMU is crucial. This involves carefully considering the socio-cultural context to achieve equal representation and meaningful participation of all genders. A continuous analysis of socio-cultural norms and barriers to gender equality is needed to adapt programming approaches and address specific challenges effectively. The project will promote Gender Equality Policies by advocating for and implementing gender equality policies and initiatives at the organizational and governmental levels. Ensure that relevant laws and regulations support the inclusion of diverse genders in decision-making bodies like PAC and PMU. In addition, the following approach ensures the promotion of gender equality and inclusive decision-making:

- Conduct awareness campaigns and training sessions to sensitize stakeholders about the importance of gender-responsive committees. This will help challenge stereotypes and biases and encourage more inclusive participation.
- Actively seek to include a diverse group of members in PAC and PMU. Make efforts to include women, men, and individuals from diverse ethnicities, and backgrounds to ensure multiple perspectives and experiences are considered.

- Implement a transparent and fair nomination and selection process that encourages the participation of qualified individuals from all genders. Avoid biases in the selection process and ensure that potential committee members are evaluated based on their expertise and qualifications.
- Provide capacity-building programs to potential committee members, especially women and other underrepresented genders, to enhance their skills and confidence in contributing effectively to the committees.
- Recognize that some gender-related responsibilities and societal expectations may impact women's ability to participate in committee meetings. Offer flexible meeting schedules and virtual participation options to accommodate diverse needs.
- Encourage inclusive decision-making within the committees, ensuring that all members have an equal voice and opportunities to contribute.
- Collaborate with civil society organizations and NGOs working on gender equality and women's empowerment to support the formation and functioning of gender-responsive committees.
- Regularly monitor and evaluate the performance of the committees in terms of gender responsiveness. Use the feedback to make necessary adjustments and improvements.

D. Measures for Financial and Project Risk Management

Under guidance of the Project Manager, supported by the Monitoring and Evaluation Officers will monitor the status of financial and project management risks, including those measures required to avoid, minimize or mitigate these risks, throughout the project. The table below indicates potential risks, likelihood and impact.

Table 17: Measures for financial and project risk management

Potential Issue	Likelihood (1-5)	Impact (1-5)	Mitigation Measures	Indicator to verify
Institutional				
1. Delay of project startup because critical staff is not in place and/ or lengthy contracting process, incl. negotiations with execution entities	3, medium	3, medium	Staffing table and recruitment strategy outlined with concrete timelines to avoid delays in commencing the project	Existence of recruitment strategy (y/n)
2. Loss of Government support for project and activities due to elections and related functions due to lack of prioritization of AF project activities or different pace of execution of activities	1, low	3, medium	Technical staff at execution level in sectoral ministries and local governments to be engaged in all aspects of project development and implementation; utilize role of UNRCO and UNCT in ensuring consistency of project implementation.	Core project Implementation functions and role of PAC outlined (y/n) National Technical Experts engaged in project team (y/n)
3. Lack of coordination between and within national government ministries and departments and local governments	2, low	3, medium	PAC to address coordination of sector ministries towards enhanced collaboration to achieve expected accomplishments.	Terms of Reference for PAC outline coordination mechanisms and indicate mitigation measures (y/n)
4. Capacity constraints of executing entities, local institutions, communities and the private sector may limit the effective implementation of interventions	1, low	3, medium	UN agencies identified as executing entities based on capacity assessment with technical experience in executing similar sized thematic projects	Capacity assessment addresses constraints of executing entities(y/n)
5. Communities may not adopt activities during or after the AF project, including infrastructure maintenance	2, low	4, high	Identify potential threats to adoption challenge in sustainability strategy for climate change adaptation measures to address livelihood dimension and maintenance components. Specific measures: early consultations on O&M expectations before infrastructure design is finalized; signed O&M agreements with akimats/community committees prior to handover; user training for all community-managed infrastructure; documented municipal budget commitments for recurrent maintenance costs; and structured beneficiary feedback loops to surface adoption barriers early.	Sustainability strategy outlines sustainability of livelihood generation and maintenance components for climate change adaptation interventions at community level (y/n)
Financial management and requisite institutional capacity				
6. Complexity of financial management and	2, low	2, low	Challenges to delay of project execution to be assessed at the onset of project	Financial management and procurement

procurement. Administrative processes could delay the project execution or could lack integrity or needed capacity.			implementation and measures adopted in financial management and procurement strategy.	strategy outlines mitigation measures for potential implementation challenges (y/n)
7. Inflation and instability of the national currency leading to budget issues and increased prices for infrastructure delivery.	3, medium	1, low	Monitoring of potential threats to stability of national currency as part of the UN Development System, systemic response to this challenge recommended.	Financial management and procurement strategy
Environmental				
8. Habitat Destruction	3, medium	1, low	Use native plants for landscaping to support local biodiversity. Additional measures: pre-construction biodiversity screening of all Component 2 sites; exclusion of critical/natural habitat areas from physical works; use of native, non-invasive species only; ecological supervision during construction; and post-construction biodiversity monitoring as part of the ESMP.	Terms of Reference of the planned interventions
9. Waste Generation	3, medium	1, low	Properly segregate and dispose of construction waste. Use materials efficiently to minimize waste	Terms of Reference of the planned interventions.
10. Greenhouse gas emissions from construction activities and energy use	2, low	1, low	Incorporate renewable energy sources and use low carbon materials	Terms of Reference of the planned interventions.

E. Measures for Environmental and Social Risk Management

The proposed project seeks to fully align with the Adaptation Fund's Environmental and Social Policy (ESP). For that purpose, environmental and social risks and impacts of the project and related activities need to be identified and addressed (so that the project does not unnecessarily harm the environment, public health or vulnerable communities).

To ensure that remaining risks are well managed the project management and governance (Part III. Section B), Monitoring and Evaluation (Part III. Section E) fully considers the management of environmental and social risks. The Environmental and Social Management Plan (ESMP) will be developed at full proposal stage to ensure full compliance with the Adaptation Fund's Environmental and Social and Gender Policies.

The ESMP for this project identifies measures and actions that reduce potentially adverse environmental and social impacts to acceptable levels. The plan includes compensatory measures, if applicable. Specifically, the ESMP.

- Identifies and summarizes all anticipated adverse environmental and social impacts in line with the Adaptation Fund's ESP principles;
- Describes mitigation measures, both from the perspective of mitigating risks at each activity and from the perspective of upholding all ESP principles;
- Describes a process which supports the screening and assessment of all project activities and the conditions under which screening and mitigation action is required;
- Clearly assigns responsibilities for screening, assessment, mitigation actions and, approval and monitoring;
- Takes into account, and is consistent with, other technical standards required for the project in particular those that relate to national law.

It should also be noted that each investment that forms a part of Component 2 has been designed to provide environmental and social benefits, based on the Environmental and Social Policy of the Adaptation Fund.

For the activities under the three components of the project, the ESP will be upheld by ensuring that:

- All UN-to-UN Transfer Agreements, MoUs and Agreements of Cooperation with the Executing Entity will include detailed reference to the ESMP and the 15 ESP Principles.
- The PAC and PMU ToR, project personnel and focal points will include detailed reference to the ESMP and in particular the 15 ESP Principles.
- The Executing Entity and other relevant government agencies will receive training / capacity development to understand the 15 Principles, the ESMP and their responsibilities.

- A Monitoring and Evaluation Framework will be developed by the PMU and presented for approval to the PAC.

All project monitoring will have the 15 environmental and social principles, and the ESMP Strategy mainstreamed into it. In addition to upholding the ESP of the Adaptation Fund and to familiarize all project stakeholders with the 15 ESP principles, this will also ensure that all stakeholders fully take ownership of the environmental and social safeguards procedures of the project and that any activity that may have been altered or not yet assessed in detail are captured.

A grievance mechanism is also part of the plan. This will allow any affected stakeholder to raise concerns, anonymously if they wish, to the community leaders on the local coordinating committee, and the project team. The primary alternative means for affected beneficiaries and/or community members to raise grievances confidentially via telephone number. In addition to the grievance mechanism, local staff will be trained to have an 'open-door' policy with communities, so that communities can discuss any aspect of the project at any time. This less formal mechanism will also enable project staff to listen to communities' concerns or ideas and promote them in the implementation of the project. More formal consultations and workshops held at local and national levels throughout the project implementation will also serve as a means for stakeholders to raise concerns or make suggestions with regards to the project implementation.

F. Monitoring & Evaluation Arrangements

The Monitoring and Evaluation (M&E) framework for this project will follow the Adaptation Fund M&E Guidelines, including the Environmental and Social Policy (ESP) and Gender Policy (GP). It will also adhere to UN-Habitat's Evaluation Policy (2013) and Evaluation Manual (2018), in alignment with UN system evaluation standards and the OECD/DAC criteria for relevance, efficiency, effectiveness, sustainability, and impact. The framework will be anchored in the project's Theory of Change and Results Framework, with clearly defined indicators, baselines, targets, and milestones. It will combine compliance and performance monitoring, financial oversight, participatory monitoring, and risk management. Key elements of the M&E approach include the establishment of baseline data and measurable targets, milestone-based tracking of progress and outputs, regular monitoring of financial and procurement data, risk assessment and management—including compliance with ESP and GP—systematic monitoring of project indicators, and the documentation of lessons learned throughout implementation.

Participatory monitoring mechanisms will be put in place to engage national, subnational, and community stakeholders, ensuring that the perspectives of local beneficiaries are fully integrated into the monitoring process. Particular attention will be given to the active participation of women and vulnerable groups to support community ownership of adaptation interventions. This inclusive approach will strengthen the relevance and sustainability of the project's outcomes.

The M&E system will include three core evaluation stages. The first consists of Annual Project Performance Reports (PPRs), which will be prepared by the Project Management Unit (PMU) and reviewed by UN-Habitat. These reports will track progress toward outcomes and outputs, document compliance with the ESP and GP, monitor financial performance and risks, and include any corrective actions required. They will also report on the status of Environmental and Social Management Plan (ESMP) implementation. The second stage is the Mid-term Evaluation (MTE), which will be conducted at the end of Year 2 by an independent team of national and international consultants. This evaluation will critically assess progress, initial results, and the quality of implementation, providing recommendations for any necessary adjustments to activities, budgets, or expected results. The final stage is the independent Final Evaluation (FE), to be carried out within three months of project closure. The final evaluation will assess the overall achievement of objectives, the sustainability of outcomes, lessons learned, and the integration of gender and environmental considerations. It will also include a final assessment of environmental and social risks. Both the mid-term and final evaluations will be conducted in coordination with the Adaptation Fund Secretariat and shared with all national partners and stakeholders.

Systematic risk-based monitoring will be an integral part of the M&E plan. This will include the identification of financial, operational, and management risks, such as delays, budget deviations, or environmental and social concerns, and the development of a risk register with mitigation measures, updated on a quarterly basis. Escalation mechanisms will be established for any critical risks, ensuring timely notification to the Project Manager, UN-Habitat, and national authorities. Community consultations,

workshops, and field missions will be conducted quarterly or semi-annually to monitor project performance firsthand. Special attention will be given to gender-sensitive monitoring, including providing separate spaces for women to express feedback freely.

Clear responsibilities and oversight mechanisms will ensure effective M&E implementation. The Project Manager and PMU will lead the M&E process, compile reports, coordinate site visits, and maintain the risk register. UN-Habitat will provide quality assurance, consolidate reports, and ensure full compliance with Adaptation Fund policies. Independent evaluators will conduct the mid-term and final evaluations, while national and local stakeholders will participate in data collection, field monitoring, and validation workshops. UN-Habitat will ensure that all executing partners are fully briefed on M&E requirements and that data collected will also contribute to knowledge management and learning for replication and scaling.

Key M&E deliverables will include the Inception M&E Plan and Project Inception Report, annual Project Performance Reports, mid-term and final evaluation reports, risk management reports with an updated risk register, and knowledge products documenting lessons learned and best practices. The detailed M&E budget, provided in the financial annex, totals USD 75,000 and covers monitoring activities, evaluations, community consultations, and reporting.

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

A. Record of endorsement on behalf of the government

Name: Mansur Oshurbayev, Vice-Minister
Ministry of Ecology and Natural Resources of the Republic of Kazakhstan

Date: 20 July 2026

Telephone, email: T + 7 7172 -74 01 97 / + 7 7172 -74 08 44
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Alternate E k.kense@ecogeo.gov.kz

ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ЭКОЛОГИЯ ЖӘНЕ ТАБИҒИ РЕСУРСТАР МИНИСТЕРЛІГІ		MINISTRY OF ECOLOGY AND NATURAL RESOURCES OF THE REPUBLIC OF KAZAKHSTAN
010000, Astana қ., Мәңгілік Ел даңқы, 8 «Министрліктер үйі», 15-кіреберіс тел.: +7 7172 74 08 44		010000, Astana city, Mangilik El avenue, 8 «The House of Ministries», entrance 15 tel.: +7 7172 74 08 44
 <u>20.07.26 № 04-12/2459-11</u>		
 To: The Adaptation Fund Board c/o Adaptation Fund Board Secretariat Email: Secretariat@Adaptation-Fund.org Fax: 202 522 3240/5		
 <i>Subject: Endorsement for Adapting Kazakhstan's Caspian Coast: Building Climate-Resilient Cities and Communities</i>		
Dear Members of the Adaptation Fund Board, In my capacity as designated authority for the Adaptation Fund in Kazakhstan, I confirm that the above national grant 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 the Caspian Sea coastal region in Kazakhstan. I would like to emphasize that issues related to the Caspian Sea are a priority for Kazakhstan and they were included in the key directions of the Regional Ecological Summit that took place in April 2026 in Astana, Kazakhstan. The Ministry, together with relevant government bodies, has reviewed the Concept Note and emphasized the high relevance of the project considering the climate challenges facing the region. The following priority areas and components have been identified for project implementation: 1. Drought and extreme weather events resulting in loss of biodiversity; and 2. Caspian Sea level fluctuations. Accordingly, I am pleased to endorse the above grant proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan and executed by the United Nations Environment Programme (UNEP) and the International Organization for Migration (IOM), with the United Nations Human Settlements Programme (UN-Habitat) being the Implementing Entity. Sincerely,  Mansur Oshurbayev Vice-Minister, Ministry of Ecology and Natural Resources of the Republic of Kazakhstan 000629		

B. Implementing entity certification

I certify that this proposal entitled “Adapting Kazakhstan’s Caspian Coast: Building Climate-Resilient Cities and Communities” has been prepared in accordance with the guidelines provided by the Adaptation Fund Board and is fully aligned with Kazakhstan’s prevailing national development and adaptation priorities, including the Kazakhstan 2050 Strategy, the National Adaptation Plan (NAP), the Concept on Transition of the Republic of Kazakhstan to a Green Economy, the State Programme for Regional Development, and the Nationally Determined Contribution (NDC) under the Paris Agreement.

Subject to the approval of the Adaptation Fund Board, the Implementing Entity commits to implementing the project in full compliance with the Environmental and Social Policy (ESP) and the Gender Policy (GP) of the Adaptation Fund. The Implementing Entity acknowledges and accepts that it will be fully, legally, and financially responsible for the effective, transparent, and accountable implementation of this project.

Name and Signature (IE Coordinator):

Mr. Rafael Tuts
Director, Global Solutions Division I United Nations
Human Settlements Programme, UN-Habitat



Date:

12 August 2026

Telephone, email:

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Project Contact Person:

Ms. Katja Schaefer, Inter-Regional Advisor Eastern
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20.07.26 № 04-12/3159-U

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Adapting Kazakhstan's Caspian Coast: Building Climate-Resilient Cities and Communities

Dear Members of the Adaptation Fund Board,

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1. Drought and extreme weather events resulting in loss of biodiversity; and
2. Caspian Sea level fluctuations.

Accordingly, I am pleased to endorse the above grant proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Ministry of Ecology and Natural Resources of the Republic of Kazakhstan and executed by the United Nations Environment Programme (UNEP) and the International Organization for Migration (IOM), with the United Nations Human Settlements Programme (UN-Habitat) being the Implementing Entity.

Sincerely,

Mansur Oshurbayev
Vice-Minister, Ministry of Ecology and Natural
Resources of the Republic of Kazakhstan

000629



Project Formulation Grant (PFG)

Submission Date: 13 August 2026

Adaptation Fund Project ID: tbd

Country/ies: Republic of Kazakhstan
Title of Project/Programme: Adapting Kazakhstan's Caspian Coast: Building Climate-Resilient Cities and Communities

Type of IE (NIE/RIE/MIE): Multilateral Implementing Entity

Implementing Entity: United Nations Human Settlements Program (UN-Habitat);
Executing Entity/ies: United Nations Environment Programme (UNEP); and International Organization for Migration (IOM)

A. Project Preparation Timeframe

Start date of PFG	1 October 2026
Completion date of PFG	30 June 2027

B. Proposed Project Preparation Activities (US\$)

List of Proposed		Output of the PFG Activities	US\$ Amount	Budget Note
1	Local consultations and workshops to discuss the specific project and program ideas	Stakeholder engagement report and documented workshop outcomes	20,000.00 US\$	Covers local venue, facilitation, translation, and background material preparation
2	Gender and Environmental and Social risk analyses and formulation of Environmental and Social Management Plan and Gender Action Plan	Completed Gender Action Plan and Environmental and Social Management Plan	15,000.00 US\$	Covers expert analysis and preparation of required plans
3	Travel costs for experts, when required, for consultations and discussions with interested parties and stakeholders, and local participation as needed in project design	Travel reports and stakeholder engagement documentation	15,000.00 US\$	Covers domestic and limited international travel for consultations

4	Free prior and informed consent and related consultations where appropriate to ensure compliance with the Environmental and Social Policy	Free prior and informed consent documentation	5,000.00 USD	Covers consultations and documentation to ensure compliance
5	Country, region, or site-specific risk assessments, including identifying hazards, vulnerabilities, development of scenarios and determining hazard mitigation options	Comprehensive risk assessment report with mitigation scenarios	20,000.00 USD	Includes data collection, hazard mapping, and risk scenario planning
6	Specific analyses in support of the proposed projects (policy analysis, data inventories and analyses, cost effectiveness, etc)	Policy, data, and cost-effectiveness analysis reports	22,750.00 US\$	Covers policy and economic analysis to support project formulation
7	Enabling activities that support devolving the decision making regarding the project design to the lowest appropriate level	Documentation of devolved decision-making processes	10,000.00 US\$	Supports local engagement and participatory design processes
8	Identification of project indicators and development of monitoring and evaluation plan	Monitoring and Evaluation (M&E) plan including indicators	10,000.00 US\$	Includes drafting the M&E framework with indicators
9	Consultancies and contracts to develop project options	Draft project design documents and feasibility options	13,500.00 US\$	Engages consultants for technical project development
10	Costs of translating documents into and out of English	All project documentation available in Kazakh/ Russian language and English	7,000.00 US\$	Covers translation of documents to ensure accessibility
11	Implementing Entity Management Fee (8,5%)		11,750.00 US\$	
12	Total Project Formulation Grant		150,000.00 US\$	

Description and Justification of PFG activities, including amount of funding required:

1. Local consultations and workshops to discuss the specific project and program ideas (20,000 US\$)

This activity will finance stakeholder consultations and workshops in the target country or potential regions for project implementation to ensure participatory project design. Costs include venue rental, workshop materials, logistics, visibility and translation into local languages. Engaging local authorities, community representatives including youth and women-led organizations, and sectoral experts will ensure that project concepts reflect local priorities, secure buy-in, and integrate traditional knowledge. The requested amount covers at least 3 – 4 workshops across different project locations, including report preparation and translation.

2. Gender and Environmental and Social Risk Analyses and formulation of ESMP and Gender Action Plan (15,000 US\$)

Comprehensive gender and environmental/social risk assessments are required to comply with international safeguards and to ensure the project is inclusive and sustainable, as well as to identify and mitigate potential risks early. This includes conducting baseline assessments, stakeholder interviews, and integrating findings into an Environmental and Social Management Plan (ESMP) and Gender Action Plan (GAP). The amount will cover consultancy fees, data collection, and reporting.

3. Travel costs for experts for consultations and discussions with stakeholders (15,000 US\$)

Expert missions are needed to facilitate stakeholder engagement, conduct field visits, and integrate technical inputs into the project design. This allocation covers international and local travel, per diems, and transport for field verification of proposed interventions. It is essential for aligning project scope with community needs and ensuring technical feasibility.

4. Free prior and informed consent and related consultations (5,000 US\$)

Though there is no intention that indigenous or vulnerable communities are affected, however, if required, the due FPIC processes required under international environmental and social policies will be followed. Funds will cover consultation meetings, translation, facilitation, and documentation of consent, ensuring compliance with environmental and social safeguards. This activity mitigates the risk of future project delays due to lack of community approval.

5. Country, region, or site-specific risk assessments (20,000 US\$)

This activity includes hazard and vulnerability assessments, scenario development, and the identification of risk mitigation options for climate, environmental, and social and cultural risks, as well as other potential challenges that could affect project implementation or outcomes in a specific country, region or site (e.g. economic and financial risks, political risks, security and safety risks including health, operational and logistical risks). The requested budget covers specialized consultants, GIS/mapping, and local data acquisition to inform a robust project design.

6. Specific analyses in support of the proposed projects (policy, data, cost-effectiveness) (22,750 US\$)

Detailed analytical work is required to ensure the proposed project is feasible, cost-effective, and aligned with national and regional policies. This includes policy gap analyses, data inventories, capacity assessment and financial or economic assessments to justify project investments. Funding covers expert consultancy fees and preparation of technical reports.

7. Enabling activities to devolve decision-making on project design to the local level (10,000 US\$)

This activity supports community-based decision-making and ensures that project design reflects the priorities of local authorities and beneficiaries. Funds will cover stakeholder mapping and engagement, facilitation of local planning sessions, small focus group discussions, and materials for participatory planning processes.

8. Identification of project/program indicators and development of a monitoring and evaluation (M&E) plan
(10,000 US\$)

Developing a strong results framework and M&E plan is critical for tracking project performance. Funds will support the engagement of an M&E specialist to define indicators, baselines, and targets, as well as the design of data collection tools. This will ensure the project meets donor reporting and learning requirements.

9. Consultancies and contracts to develop project options
(13,500 US\$)

Specialized technical expertise is required to define specific intervention options, including feasibility studies and pre-design work. Funding will be used for consultant contracts to draft technical options and scenarios that feed into the final project document.

10. Costs of translating documents into and out of English
(7,000 US\$)

To ensure accessibility and alignment with national and local stakeholders, all key documents (concept notes, ESMP, GAP, consultation reports) must be translated into local languages and English. This allocation will cover professional translation and proofreading services.

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation.

Implementing Entity Coordinator, IE Name	Signature	Date
Mr. Raf Tuts, Director of Global Solutions Division, UN- Habitat		13 August 2026

Project Contact Person	Telephone	Email Address
Ms. Katja Schaefer, Inter- Regional Advisor, UN-Habitat	+25475706280691 +4917658389656 (whatsapp/ telegram/ signal)	katja.schaefer@un.org

Annex 1 | Stakeholder Consultation Report

Prepared in support of the Adaptation Fund Concept Note submission “Adapting Kazakhstan’s Caspian Coast: Building Climate-Resilient Cities and Communities”

11 August 2026

Note on this document:

This report documents the stakeholder consultation process undertaken as of concept-note stage: dates, locations, stakeholder groups engaged, participant numbers (disaggregated by sex), issues raised, and resulting project design changes. Gender-disaggregated participation figures are reported here as consultation-process data; the accompanying analytical gender assessment (national gender context, differentiated climate vulnerabilities, and gender-responsive design recommendations) is presented separately in Annex 2 (Initial Gender Assessment), and the two documents should be read together. Five consultation events have been confirmed to date (Section 2); further consultations are planned during the Project Formulation Grant (PFG) phase and will be added to this report ahead of full-proposal submission (Section 3).

1. Purpose and Scope

This report documents stakeholder engagement and consultation activities undertaken in preparation of the Concept Note for “Adapting Kazakhstan’s Caspian Coast: Building Climate-Resilient Cities and Communities,” submitted to the Adaptation Fund with UN-Habitat as Implementing Entity and UNEP and IOM as Executing Entities. It is submitted as a supporting document on the Adaptation Fund Portal alongside the Concept Note, in line with the Fund’s requirement that consultation processes be independently documented and traceable to specific project design decisions. Gender-specific analysis of these consultations, and of the broader project context, is provided separately in Annex 2 (Initial Gender Assessment); the two documents are designed to be read together and should remain aligned as both are updated during PFG.

The consultation process to date has engaged national and subnational government counterparts, together with civil society, the private sector, and the urban expert community through Kazakhstan’s First National Urban Forum and World Urban Forum 13 (Section 2). Broader, site-level consultations with community members, women’s groups, Indigenous and vulnerable populations, and additional civil society and private-sector actors are planned during the Project Formulation Grant (PFG) phase, prior to submission of the full proposal (see Section 3).

2. Consultations Held to Date

The table below summarizes the main consultation events confirmed to have taken place during concept-note preparation. Additional consultation events, if held, should be added to this table with the same level of detail before the report is finalized for PFG submission.

Date	Location / Format	Convening Event	Stakeholder Groups	Participants (Total / Women / Men)	Key Issues Raised	Resulting Design Changes
January 2025	Nairobi, Kenya	Bilateral Meeting UN-Habitat Executive Director and Permanent Representative of Kazakhstan to the UN	Executive Director UN-Habitat and technical staff; Permanent Representative of Kazakhstan to the UN	7 4 female 3 male	Climate adaptation and urban/territorial development for climate resilient communities, in Aral Lake and Caspian Sea shore regions.	Follow up discussion with Ministry of Ecology and Natural Resources
July 2025	Astana, Kazakhstan	Bilateral Meeting Ministry of Ecology and	Technical staff of Ministry of Ecology and	9 5 female 4 male	Discussion on climate adaptation priorities of the	Agreement on scope for AF Kazakhstan Concept Note

		Natural Resources	Natural Resources		Government of Kazakhstan	
July 2025	Kyzylorda, Kazakhstan (in-person, on the sidelines of the First National Urban Forum in Kazakhstan)	First National Urban Forum in Kazakhstan	Ministry of Foreign Affairs, representatives of central and local government, international organisations, urban expert community, private sector	190 80 female 110 male	Inclusive and equitable urban planning, climate adaptation and environmental sustainability, digitalization of urban management systems, financing mechanisms for urban transformation, role of small-sized cities as drivers of regional development	Identification of vulnerable locations along the Caspian Sea shores and focus of AF Concept Note submission
April 2026	Astana, Kazakhstan (in-person, on the sidelines of a regional forum)	Regional Ecological Summit	Ministry of Ecology and Natural Resources (national); local authorities from Aktau and Atyrau (subnational)	16 5 female 11 male	Confirmation of the Ministry of Ecology and Natural Resources on their keen interest to communities along the Caspian Sea shores; AF proposal has been included in 2025/2026 workplan and timely delivery is required; further consultations will be held at akimat level during further refinement of the project during PFG stage	Concept Note prepared by UN-Habitat in cooperation with UNEP and IOM has been endorsed; letter will be issued in due course
May 2026	Baku, Azerbaijan	World Urban Forum 13	National and local government representatives and civil society during a dedicated side-event on AF implementation in Azerbaijan	150 55 female 95 male	Presentation on progress of implementation of AF project in Azerbaijan, and discussion on upscaling of initiative to other littoral states, including Kazakhstan and Turkmenistan	Endorsment of Concept Note preparation for Kazakhstan and Turkmenistan by attending parties; UN-Habitat to continue taking the lead
January 2025 – August 2026	online	Online meetings with Executing Entities	United Nations Environment Programme (Regional Office and Teheran Convention Secretariat) + International Organisation for Migration (Regional and Country Office)	7 4 female 3 male	Scope and development of AF Concept Note for Kazakhstan	Development of AF Concept Note for Kazakhstan, including results framework, roles and responsibilities of Executing Entities + governance structure of the project

3. Planned Consultations During PFG / Full-Proposal Stage

The following consultation activities are planned during the PFG phase to broaden and deepen stakeholder and gender engagement ahead of full-proposal submission:

- Community-level consultations in Aktau and Atyrau, including with vulnerable and marginalized groups (informal settlement residents, low-income households, persons with disabilities, and, where present, Indigenous or minority ethnic communities), to validate site-level activities under Component 2;
- Dedicated consultations with women's groups and female community leaders in both target cities;
- Consultations with civil society organizations and environmental NGOs active in the Caspian coastal region;
- Consultations with the private sector on livelihood diversification and financing mechanisms relevant to Component 1 and Component 3;
- A technical consultation with relevant sectoral ministries and Akimats (local government) to confirm regulatory alignment identified in Table 10 of the Concept Note.

Each of these consultations will be documented following the same format as Section 2 of this report (date, location, stakeholder groups, participant numbers disaggregated by sex, issues raised, and resulting design changes), and this report will be updated accordingly and re-submitted with the full proposal.

4. Grievance and Feedback Mechanism

A project-level grievance mechanism, referenced in the Concept Note (Part III, Section D) and consistent with the safeguards summarized in Table 12 (ESP checklist), will provide an ongoing channel for stakeholders to raise concerns throughout implementation, complementing the discrete consultation events documented in this report. The Concept Note already describes a confidential telephone line and a route via community leaders on the local coordinating committee, together with an informal 'open-door' policy for local project staff; the designated focal point(s), a dedicated hotline, and any additional channels (e.g., online submission) will be confirmed and formalized at PFG stage, including the confidential, women-accessible channel recommended in Annex 2 (Initial Gender Assessment).

Annex 2 | Initial Gender Assessment¹

Prepared in support of the Adaptation Fund Concept Note submission “Adapting Kazakhstan’s Caspian Coast: Building Climate-Resilient Cities and Communities”

13 August 2026

Note on this document:

This is a preliminary, concept note stage gender assessment, prepared consistent with the Adaptation Fund’s Gender Policy (GP) requirement that projects identify gender gaps and differentiated climate vulnerabilities from the earliest design stage. It draws on the national gender context, sector-specific data for the Caspian Sea coastal region in Kazakhstan and the consultation record documented in the companion Stakeholder and Gender Consultation Report (Annex 1). A full Gender Assessment and Gender Action Plan (GAP), including sex-disaggregated baseline data collected in Aktau and Atyrau, will be prepared during the Project Formulation Grant (PFG)/full-proposal stage.

1. Purpose and Scope

This Initial Gender Assessment identifies gender gaps, differentiated climate vulnerabilities, and entry points for gender-responsive design relevant to “Adapting Kazakhstan’s Caspian Coast: Building Climate-Resilient Cities and Communities,” submitted to the Adaptation Fund with UN-Habitat as Implementing Entity and UNEP and IOM as Executing Entities.

It complements, and should be read alongside, Annex 1 (Stakeholder Consultation Report), which documents the consultation process itself: dates, locations, participant numbers and issues raised. This document instead provides the analytical gender context and design recommendations that the consultation process, and the fuller PFG-stage assessment, will build on.

2. National Gender Context

Legal and policy framework

Gender equality is enshrined in the Constitution of the Republic of Kazakhstan, which prohibits gender-based discrimination. Kazakhstan ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) in 1998 and has national legislation including the Law “On State Guarantees of Equal Rights and Opportunities for Women and Men” and the Law “On Prevention of Domestic Violence.” The government is currently implementing its “Family and Gender Policy Concept 2030,” which emphasizes support for working parents, women’s economic participation, and the integration of gender equality into legislation.

A residual gap relevant to project safeguards design: national legislation does not yet include a consent-based definition of rape, and marital rape is neither explicitly criminalized nor treated as an aggravating factor, which can affect reporting and accountability. This underscores the importance of a confidential, women-accessible grievance channel under the project (Section 7).

Gender indices and labour market

- *UNDP Gender Inequality Index (GII):* 0.161 (2021), ranking Kazakhstan 41st of 191 countries, comparatively strong regionally.
- *WEF Global Gender Gap Index 2024:* 76th of 146 countries; Kazakhstan is the Central Asian regional leader, scoring highly on education and health, but with limited progress on political empowerment and economic participation and opportunity.

¹ Indicative sources for national-level: UNDP Kazakhstan (Gender Inequality Index, gender pay gap); World Economic Forum, Global Gender Gap Report 2024; World Bank/ ILO modeled estimates, female labour force participation; UNDP Kazakhstan, “Path to Equality: Overcoming Gender Barriers in the Energy Sector of Kazakhstan.” To be verified and updated with primary sources during PFG.

- *Female labour force participation*: 65.99% in 2024 (well above the global average - 51.1%) but with a persistent gender pay gap of 25.2% (2022), driven by caregiving burdens, leadership restrictions, and industry/occupational segregation rather than access to employment per se.

3. Gender Dimensions of the Project's Sectoral and Regional Context

Aktau and Atyrau, the project's target cities, are economically dominated by the oil and gas sector (e.g., the North Caspian Operating Company and KazMunayGas in Atyrau; OzenMunaiGas in Aktau, with roughly 4,200 permanent and 2,100 contractor staff). This sectoral concentration has direct gender implications for Component 2 livelihood-diversification design:

- Women account for roughly a quarter of the energy sector workforce nationally, and are concentrated in low-skilled, non-core roles, only around 16% of management positions and 19% of technical/engineering roles in the sector are held by women.
- In single-industry, oil-and-gas-dominated local economies, women are disproportionately represented in informal or secondary livelihoods, which tend to be more exposed to economic and climate shocks and less protected by formal labour safeguards.
- Survey evidence indicates women in Kazakhstan express greater concern about climate change and decarbonization than men, a potential entry point for women's leadership in community-level adaptation planning and resilience committees under Component 2.

4. Gender-Differentiated Climate Vulnerabilities

The Concept Note identifies that poor and marginalized groups, including women, children, older persons, persons with disabilities, and migrants, will bear the brunt of climate impacts along the Caspian coast, including direct public-health risks (heat stress, flooding) and indirect risks (waterborne and vector-borne disease). Outdated water, sanitation, and health-care infrastructure compounds these risks, and in many household contexts falls disproportionately on women as primary managers of household water use and caregiving.

Disaggregated baseline data on informal employment, female-headed households, and care/time burden in Aktau and Atyrau were not identified in available national statistics at concept-note stage. Closing this data gap is a priority for the PFG-funded vulnerability assessments referenced in the Concept Note.

5. Gender Gaps and Opportunities by Project Component

- *Component 1 (institutional capacity)*: opportunity to set participation targets for women in training and capacity-building activities across national and subnational institutions, and to track female participation as a standard results-framework indicator.
- *Component 2 (community resilience, Aktau/Atyrau)*: highest-risk and highest-opportunity component given the male dominated formal energy sector; livelihood diversification activities should explicitly target women given their limited access to formal, well-protected employment in the dominant regional industry; resilience committees and consultations should carry quantified gender-parity targets.
- *Component 3 (national scaling and policy)*: opportunity to embed gender-responsive budgeting and sex-disaggregated indicators into the national adaptation replication framework being developed.

6. Gender-Disaggregated Consultation Data to Date

The table below summarizes women's participation in the two consultation events confirmed as of concept note stage (full detail in Annex 1, Section 2).

Date	Location	Event	Stakeholder Groups	Participants (Total / W / M)	Gender-Relevant Notes	Women's Share
April 2026	Astana (Regional Ecological Summit)	Regional Ecological Summit	Ministry of Ecology and Natural Resources; local	16 / 5 / 11	Predominantly national/subnational government officials	31%

			authorities (Aktau, Atyrau)			
May 2026	Baku, Azerbaijan	World Urban Forum 13 side-event	National/local government and civil society	150 / 55 / 95	Broader civil-society representation improved women's share vs. Astana event	37%

Observation: women's participation in both events to date (31% and 37%) remained below parity, consistent with the political-empowerment and economic-participation gaps identified in the Global Gender Gap Index (Section 2). This underscores the need for deliberate, targeted outreach (rather than open invitation alone) in the PFG stage consultations planned for Aktau and Atyrau.

7. Preliminary Risks and Barriers

- Underrepresentation of women in formal decision making and technical bodies, consistent with national energy-sector patterns.
- Practical barriers to participation are timing, location, caregiving responsibilities, and cultural norms, which the PFG stage consultation plan (Annex 1, Section 4) is designed to actively address.
- Legal/ normative gaps in the national gender-based-violence framework (Section 2) that could affect women's willingness to raise concerns through standard channels, reinforcing the need for a confidential, women-accessible grievance pathway.
- Absence of sex-disaggregated baseline data (informal employment, female-headed households, time/care burden) at concept-note stage, to be addressed during PFG.

8. Recommendations for Gender-Responsive Project Design

- Set a quantified minimum participation target (e.g., $\geq 40\%$ women) for all PFG stage consultations, the Project Advisory Committee (PAC) and the Project Management Unit (PMU), building on the Concept Note's existing commitment to "equal or near-equal" representation.
- Ensure the project-level grievance mechanism includes a confidential, women-accessible intake channel with a designated female contact point.
- Design Component 2 livelihood diversification activities to specifically target women, given their limited access to formal employment in the dominant regional (oil and gas) industry.
- Integrate sex-disaggregated indicators into the project's Results Framework (Concept Note Tables 13 - 14), including the share of women among training beneficiaries, livelihood-programme participants, and PAC/ PMU members.
- Screen Component 2 construction-related activities for gender-based violence, exploitation and abuse (SEA) risks associated with an influx of external contracted labour, and incorporate corresponding measures into the Environmental and Social Management Plan (ESMP).
- Commission a full Gender Assessment and Gender Action Plan (GAP) during the PFG phase, building directly on this initial assessment, in line with Adaptation Fund Gender Policy requirements for full proposals.

9. Next Steps

The full Gender Assessment and Gender Action Plan to be prepared during PFG will be informed by: (i) sex-disaggregated socioeconomic and vulnerability baseline data collected in Aktau and Atyrau; (ii) dedicated consultations with women's groups and female community leaders (Annex 1, Section 4); and (iii) engagement with UN Women Kazakhstan and relevant national gender-focal institutions.