

КОНФЕРЕНЦИЯ СТОРОН

Седьмая сессия

21-23 сентября 2026 года, Тегеран, Исламская Республика Иран

Положение дел в подготовке проектов и другие возможности для сотрудничества

(Записка временного Секретариата¹)

Введение

В ходе Шестой сессии Конференции Сторон (КС-6) Рамочной конвенции по защите морской среды Каспийского моря (Тегеранской конвенции, ТК), которая состоялась 19–21 октября 2022 года в Баку, Азербайджан, Стороны поддержали участие международных организаций и частного сектора, включая нефтегазовую промышленность и компании морского транспорта, и призвали их поддержать реализацию Тегеранской конвенции и её протоколов, а также призвали всех доноров рассмотреть, продолжить, возобновить или увеличить на двусторонней или многосторонней основе свою поддержку реализации положений Тегеранской конвенции и протоколов к ней.

В свете вышеуказанного временного Секретариата Тегеранской конвенции (ВСТК) предпринял ряд усилий для обеспечения поддержки реализации положений Тегеранской конвенции и протоколов к ней. В настоящем документе говорится о следующих проектах и возможностях сотрудничества:

- 1) Сотрудничество с Зелёным климатическим фондом (ЗКФ) по проектному предложению «Устойчивость к изменению климата в рыбном хозяйстве и экосистемный подход к адаптации в регионе Каспийского моря»
- 2) 3-й Доклад о состоянии окружающей среды Каспийского моря
- 3) Научная конференция «Изменение уровня Каспийского моря: причины, моделирование, стратегии адаптации»
- 4) Сотрудничество с Адаптационным фондом по национальным проектным предложениям для Казахстана и Туркменистана
- 5) Инициатива «День каспийского тюленя»

1) «Устойчивость к изменению климата в рыбном хозяйстве и экосистемный подход к адаптации в регионе Каспийского моря»: Зелёный климатический фонд

После конструктивного совещания с директором ЗКФ по Восточной Европе и Центральной Азии в ходе мероприятия под эгидой Председательства КС-29 в Баку «Падение уровня Каспийского моря в условиях изменения климата» 18 ноября 2024 года, ВСТК планирует старт новой инициативы в регионе Каспийского моря, которая потенциально может финансироваться ЗКФ. ВСТК разработал проект концептуальной записки для проекта

¹ До формирования постоянного Секретариата и его размещения в Каспийском регионе функции Секретариата осуществляются на временной основе Программой ООН по окружающей среде (ЮНЕП) через её Европейское отделение

«Устойчивость к изменению климата в рыбном хозяйстве и экосистемный подход к адаптации в регионе Каспийского моря».

Записка посвящена влиянию изменения климата на рыболовство и экосистемы Каспийского моря. В ней подчёркиваются риски для популяций рыб, местной экономики и биоразнообразия, а также излагается стратегия экосистемного подхода к адаптации для смягчения этих последствий и обеспечения устойчивости природных ресурсов региона.

Проект концептуальной записки можно найти в Приложении I.

2) Разработка нового Доклада о состоянии окружающей среды Каспийского моря

В соответствии со статьями 19 (3) и 21 (2) Тегеранской конвенции о мониторинге, обмене и доступе к информации Стороны должны регулярно отслеживать и оценивать состояние морской среды Каспийского моря, включая уровень загрязнения и его последствия. Отчёт разрабатывается на основе экспертных данных из пяти прикаспийских стран. Он также содержит рекомендации по решению экологических проблем и улучшению информирования общественности в прикаспийских государствах. Протоколы также включают ряд положений, которые требуют от Сторон мониторинга и отчётности в соответствующих тематических областях. Кроме того, Стратегическая программа действий Конвенции (СПДК) — долгосрочная программа со среднесрочными перспективами, разработанная и принятая Сторонами для реализации положений Конвенции, также устанавливает чёткие требования касательно отчётности.

Целью Доклада является описание ситуации во всем бассейне Каспийского моря и подведение итогов об экологических тенденциях, анализ соблюдения Конвенции и предоставление рекомендаций в отношении решений экологических проблем. Отчёт призван служить инструментом принятия решений, предоставляемым Сторонами и обобщённым для них. Согласно Конвенции, отчёт охватывает морскую среду Каспийского моря с учётом колебаний уровня воды и загрязнения из наземных источников.

Достижения на сегодняшний день:

На сегодняшний день прикаспийскими государствами было подготовлено два Доклада о состоянии окружающей среды Каспийского моря, в координации с ВСТК.

- Первый Доклад о состоянии окружающей среды Каспийского моря (2011) был представлен на Третьей сессии Конференции Сторон (КС-3) в Актау, Казахстан, 10–12 августа 2011 года.
- Второй Доклад о состоянии окружающей среды Каспийского моря (2019) был подготовлен в соответствии с решением КС-5 в Ашхабаде, Туркменистан, 28–30 мая 2014 года. В нем также подчёркивалась важность регулярных докладов о состоянии окружающей среды Каспийского моря и была предоставлена вся необходимая информация об изменениях и тенденциях в состоянии морской и прибрежной среды Каспийского региона за период 2012–2018 годов на основе регулярной отчётности прикаспийских государств.

Концептуальная записка по разработке Третьего доклада о состоянии окружающей среды Каспийского моря была передана представителям SOCAR и BP Azerbaijan в 2024 году и содержится в Приложении II.

3) Сотрудничество с КАСПКОМ в организации научной конференции «Изменение уровня Каспийского моря: причины, моделирование, стратегии адаптации»

В октябре 2021 года в режиме онлайн под эгидой Координационного комитета по гидрометеорологии Каспийского моря (КАСПКОМ) и ВСТК состоялась Научная конференция по изменению климата в регионе Каспийского моря. Она объединила более 80 ведущих учёных из прикаспийских государств и других стран для оценки и продвижения исследований по изменению климата с целью поддержки принятия необходимых стратегий и мер в области климата в регионе. Участники отметили важность этой конференции, первой в своём роде, способствующей научному сотрудничеству в масштабах всего бассейна. Было рассмотрено более 80 исследований, в результате чего были выработаны рекомендации для политиков и общественности о том, как предотвратить необратимый ущерб морской среде Каспийского моря и его прибрежным районам.

Письмом от 6 августа 2025 года ВСТК проинформировал Договаривающиеся Стороны о начале приёма тезисов докладов для Научной конференции под названием «Изменения уровня Каспийского моря: причины, моделирование, стратегии адаптации», которая должна была состояться в мае 2026 года в смешанном формате. Конференция организована совместно с Координационным комитетом по гидрометеорологии Каспийского моря (КАСПКОМ). Проект концептуальной записки для Конференции, в которой излагаются предварительная структура, предлагаемый состав Организационного комитета и другие ключевые элементы подготовительного процесса, а также требования к подаче тезисов и регистрационная форма участника, приведены в Приложении III. Информация о тезисах, полученных по состоянию на 1 марта 2026 года, представлена в Приложении IV.

Электронным сообщением от 29 апреля 2026 года Стороны были уведомлены, что Научная конференция переносится на более поздний срок. В настоящее время Стороны, совместно с ВСТК и КАСПКОМ изучают возможности для организации и проведения Конференции в возможно короткие сроки.

4) Адаптационный фонд: два национальных проекта в Казахстане и Туркменистане

ВСТК в сотрудничестве с ООН-Хабитат и в тесной координации с соответствующими национальными органами Казахстана и Туркменистана начал предварительные консультации по возможной разработке двух новых национальных проектных предложений для рассмотрения Адаптационным фондом. Предлагаемые инициативы будут направлены на укрепление адаптации к изменению климата и жизнестойкости прибрежных сообществ вдоль казахстанского и туркменского побережий Каспийского моря.

Эти первоначальные инициативы направлены на то, чтобы развивать и использовать опыт, полученный в рамках недавно одобренного для Азербайджана проекта Адаптационного фонда «Создание устойчивых к изменению климата городов и сообществ в Азербайджане», включая его институциональные механизмы, подход к реализации и акцент на адаптационные меры на местном уровне.

Концептуальная записка «Адаптация прибрежных районов Казахстана к изменениям климата: создание климатоустойчивых городов и сообществ» была разработана и должным образом представлена в Адаптационный фонд в августе 2026 года и содержится в приложении V к настоящему документу.

На данном этапе концептуальная записка для Туркменистана остаётся предварительными и ориентировочными и предоставляются исключительно в информационных целях и для содействия дальнейшему обсуждению. Они не определяют национальные приоритеты, механизмы реализации или какие-либо будущие заявки в Адаптационный фонд. Потребуется дальнейшие консультации с соответствующими национальными органами власти для подтверждения заинтересованности, уточнения сферы охвата и целей, согласования ролей и обязанностей и обеспечения полного соответствия национальным рамкам планирования адаптации и соответствующим секторальным стратегиям, прежде чем будут предприняты какие-либо последующие шаги.

Проект концептуальной записки для Туркменистана содержится в Приложении VI.

5) Инициатива «День каспийского тюленя»

6 декабря 2023 года ВСТК получил письмо от экологических и научных организаций стран Каспийского региона, отправленное Экоцентром «Заповедники», относительно учреждения Международного дня каспийского тюленя. Инициатива по учреждению Дня каспийского тюленя была включена в документ после того, как не было высказано никаких возражений относительно электронного письма ВСТК от 11 июля 2024 года. Предложение с подробным описанием мероприятий было предоставлено Фондом «Заповедное посольство».

В предложении об учреждении Международного дня каспийского тюленя описаны мероприятия по повышению осведомлённости и содействию усилиям по сохранению находящегося под угрозой исчезновения каспийского тюленя. Среди основных мероприятий: интерактивные сессии, такие как Игротека по видам, занесённым в Красную книгу, в которой освещаются угрозы морским млекопитающим и важность охраняемых территорий. Образовательные программы, включая уроки о каспийском тюлене, знакомят участников с его уникальной биологией и экологической ролью, а также способствуют более глубокой связи с видом и приверженности его сохранению. В Казахстане совместно с Институтом гидробиологии и экологии предлагается провести семинар для обсуждения Плана действий по каспийскому тюленю, на котором соберутся заинтересованные стороны, такие как местные органы власти, НПО, учёные и частный сектор. В плане подчёркивается важность законодательных инициатив, сохранения среды обитания, научного туризма и разработки единой базы данных по популяциям тюленей. В Астрахани, Российская Федерация, совместно с Экологическим фондом «Чистые моря» предлагается реализовать культурную программу, посвящённую каспийскому тюленю и его среде обитания. Среди мероприятий: торжественная церемония открытия, концерт и творческие занятия, например, совместное раскрашивание под названием «Раскрась Каспийское море», выставки произведений искусства и фотографий, а также экспозиции экспедиции «Душа Каспийского моря». Кроме того, совместно с Дагестанским государственным природным заповедником предложено провести кампании по очистке дагестанского побережья Каспийского моря с вовлечением местных сообществ, что ещё больше усилит целостный и инклюзивный характер мер по сохранению. Предложение прилагается в Приложении VII.

Предлагаемые действия

Конференция Сторон может пожелать:

- Приветствовать возможность реализации новой инициативы в Каспийском море в сотрудничестве с Зелёным климатическим фондом и призвать ВСТК к дальнейшему развитию этой инициативы;
- Обратиться с просьбой к ВСТК инициировать подготовку концептуального плана Третьего Доклада о состоянии окружающей среды Каспийского моря, а также процедуры, сроков и бюджета для его подготовки;
- Приветствовать уже предпринятые шаги по организации Научной конференции в 2026 году в сотрудничестве с КАСПКОМ, принять к сведению продолжающуюся подготовительную работу и административные мероприятия, координируемые ВСТК совместно с КАСПКОМ, и обратиться с просьбой к ВСТК продолжить и активизировать сотрудничество с КАСПКОМ в возможно короткие сроки;
- Приветствовать возможность реализации двух новых национальных проектов, финансируемых Адаптационным фондом в Казахстане и Туркменистане, и призвать ВСТК к дальнейшему развитию этой инициативы в сотрудничестве с Адаптационным фондом;

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- Приветствовать инициативу по учреждению Дня каспийского тюленя и обменяться мнениями о возможности её реализации.

Project Concept Note for the Green Climate Fund

Climate Resilient Fisheries and Ecosystem-Based Adaptation in the Caspian Sea Region

Context and baseline



The Caspian Sea, the world's largest inland water body, spans approximately 390,000 km² and is shared by Azerbaijan, Iran, Kazakhstan, Russia, and Turkmenistan. Situated 27 meters below mean sea level, its delicate hydrological balance is increasingly threatened by climate change. A vital resource for millions, the Caspian Sea supports fisheries, climate regulation, and is a biodiversity hotspot.

Coastal fisheries and aquaculture in the Caspian Sea

The Caspian Sea is home to over 130 fish species, including the famous sturgeon, one of the most valuable fish globally due to its caviar. About 40 species are fished commercially, of which six are species of sturgeon, these are the Beluga (*Huso huso*), Russian Sturgeon (*Acipenser guldensstaedti*), Stellate Sturgeon (*Acipenser stellatus*), Ship

Sturgeon (*Acipenser nudiiventris*), Persian Sturgeon (*Acipenser persicus*) and Sterlet (*Acipenser ruthenus*). Species the most heavily fished to provide caviar are Beluga, Russian Sturgeon and Stellate Sturgeon (Anon, 1995 a; Khodorevskaya et al., in prep.; Vlasenko et al., 1989). In addition, the Caspian has sizeable resources of bony fish and tulka, that mainly spawn and feed in low deltas and in the north of the sea and used for local consumption.

Climate change rationale

Climate change is driving significant hydrological disruptions in the Caspian Sea, with global warming linked to reduced precipitation, sharp increases in sea surface temperatures, and heightened evaporation rates (Court et al., 2024). These climate-induced changes are contributing to declining water levels, which in turn are damaging fish stocks and causing the loss of vital spawning grounds. Water sea level decline, represent some of the most significant climate change impacts, transforming coastal ecosystems and disrupting critical ecological conditions for fish species. Projections suggest that water levels could drop by as much as 21 meters by 2100, threatening biodiversity, infrastructure, and the sustainability of fisheries in the region (Court et al., 2024).

Hydrological changes such as accelerated evaporation, reduced precipitation, and rising temperatures are increasingly becoming a partial result of climate change, with sea evaporation, influenced by warming temperatures and wind patterns, expected to have a larger impact than increased precipitation (UNEP, Caspian Sea Working Paper, 2024). This imbalance is accelerating water level declines, with up to 94% of ecologically significant habitats at risk of being lost (Court et al., 2024). Over the last few decades, air temperatures in the Caspian region have increased by 0.7–0.8°C, and surface water temperatures by 0.4–0.5°C, weakening winter ice cover, reducing vertical water circulation, and intensifying evaporation rates (Tehran Convention, SoE, 2019).

Climate change impacts on fish stocks

Climate change is having an increasingly destructive impact on coastal fisheries and aquaculture in the Caspian Sea, with far-reaching consequences for fish stocks, local livelihoods, and regional economies. The rising temperatures and declining sea levels driven by climate change are intensifying existing pressures such as pollution, invasive species, and human activities, including dam construction and overfishing. These climate-related changes are not just exacerbating existing problems but are fundamentally altering ecosystems that support Caspian fish populations.

Climate change impacts on Caspian fisheries identified to date include loss of breeding areas. The shallow northern basin, a key habitat for many fish, is especially vulnerable to these changes. Declining water levels destroy vital fish spawning grounds, alter salinity levels, and disrupt nutrient cycles that species like sturgeon and kilka (*Clupeonella* spp.) rely on for reproduction and survival. For example, industrial fishing for kilka has already been forced to shift to deeper waters due to reduced access to shallow areas. However, this relocation is likely contributing to a decline in fish numbers, as the species face difficulties adapting to the new habitat, leading to further depletion of fish stocks (Court et al., 2024). Further declines in sea levels could render certain fishing grounds entirely inaccessible, particularly along the boundary between the northern and mid-Caspian basins, creating a long-term threat to the region's fishing industry.

The decline in sea levels is particularly harmful to sturgeon, whose habitats are heavily dependent on the shallow waters of the Caspian. As water levels continue to drop, sturgeons are losing critical seasonal habitats, particularly in summer and autumn, which are essential for their breeding and survival. The resulting loss of suitable habitat during warmer months could have severe consequences on their reproductive success and overall population health. Under any significant sea level decline scenario, sturgeon populations in the Caspian Sea are at serious risk of further depletion, threatening their long-term survival in the region (Court et al., 2024).

Economic Consequences of Climate Change on Fisheries

Declining water levels threaten the economic viability of Caspian fisheries, especially artisanal fisheries in shallow waters. A 5-meter sea level decline in the northern Caspian could wipe out most artisanal fishing, causing economic collapse. While commercial fisheries may shift to deeper waters, they face challenges accessing fish stocks and losing spawning habitats, further endangering the industry (Court et al., 2024). Infrastructure such as ports and processing facilities is also at risk, with coastal settlements in Kazakhstan potentially finding themselves far from the new shoreline.

Adaptation needs

Joint scientific tools, monitoring programmes and research need to be carried out in the region to reveal all environmental and anthropogenic pressures on the fish habitats and spawning grounds and offer scientifically-sound remediation measures with full account of the climate change adaptation measures.

Ecosystem-based Adaptation (EbA)

Ecosystem-Based Adaptation (EbA) is an integrated approach that encourages conservation, improved management and restoration of ecosystems to provide the essential services that people need to adapt to climate variability. In the context of the Caspian Sea region, EbA strategies can help mitigate the negative effects of climate change on fisheries, coastal communities, and the region's economies by focusing on the resilience of natural systems.

EbA in the Caspian Sea could include the following strategies:

- **Adaptive, Dynamic Conservation Planning:**
 - Establishing adaptive protected areas with flexible, shifting boundaries that respond to species range shifts and ecological changes caused by declining sea levels and rising temperatures, to ensure the continued protection of critical habitats as ecosystems move, preserving biodiversity and ecosystem services.

- Proactively identifying and safeguarding areas predicted to become important habitats for fishes in the future, ensuring they are protected before significant degradation occurs.
- **Ecosystem Restoration:**
 - Strengthening restoration capacity and community management of fisheries habitats: implementing restoration projects to rehabilitate degraded habitats, such as coastal wetlands, which are important for fish spawning.
 - Using assisted translocation to help vulnerable species relocate to suitable habitats as their current ranges become uninhabitable, to prevent biodiversity loss.
 - Implementing habitat enhancement techniques, such as fish shelters, to support fish populations in areas where natural habitats have been degraded or lost.
- **Conflict Mitigation Between Conservation and Infrastructure:**
 - EbA-informed planning: ensure that essential human activities coexist with conservation priorities, minimizing harm to ecosystems while supporting sustainable development.
- **Monitoring and Data Collection:**
 - Establishing fish stock monitoring programs to provide real-time data for managing fisheries sustainably.
- **Sustainable Fishery Practices:**
 - Promoting ecosystem-based fisheries management (EBFM) approaches that maintain ecological balance by managing fish stocks in conjunction with the health of the entire ecosystem.

Supporting Climate Resilience of Small-Scale and Artisanal Fisheries

Small-scale and artisanal fisheries play a critical role in the livelihoods of coastal communities and the regional economy but face significant challenges from climate change. The following initiatives are proposed to enhance their resilience and adaptive capacity:

- **Document Local Adaptation Practices:** Conduct comprehensive assessments of how small-scale fishers and local communities are adapting to climate change and declining water levels. This documentation will provide insights into specific vulnerabilities, adaptation strategies and needs, enabling the integration of local knowledge into broader climate resilience frameworks.
- **Strengthen Knowledge Sharing Platforms:** Develop and invest in structured mechanisms, including digital platforms, to facilitate the effective exchange of knowledge and best practices among small-scale and artisanal fishers. These platforms will empower communities by improving access to information and fostering collaboration.
- **Upgrade Technology and Equipment:** Provide investments in modern, climate-resilient fishing equipment and technologies tailored to the needs of small-scale fisheries. These upgrades will enhance operational efficiency, reduce environmental impacts, and contribute to sustainable livelihoods.

References

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Rapid Caspian sea level decline requires dynamic spatio-temporal conservation planning to keep biodiversity protection measures relevant. *bioRxiv*, 2024.11.08.622693. DOI: [10.1101/2024.11.08.622693](https://doi.org/10.1101/2024.11.08.622693).

- Tehran Convention (2019): *State of the Caspian Sea Environment Report (SoE Report 2)*. Secretariat of the Framework Convention for the Protection of the Marine Environment of the Caspian Sea, 2019.
https://tehranconvention.org/system/files/tcis/soecaspian2019_eng_hires.pdf.
- UNEP (2024): *Caspian Sea Fluctuations and Climate Change*. UNEP Working Paper, 2024.
[Caspian Sea Fluctuations and Climate Change: Coordinated research is needed to understand how climate change is impacting Caspian Sea levels - Working paper](#)

Project Document*Preparation of the Third State of the Caspian Environment (SOE) report***1. Project rationale**

The Caspian Sea region, home to diverse ecosystems and a wealth of natural resources, faces numerous environmental challenges that threaten its ecological balance and the livelihoods of millions who depend on it. Rapid industrialization, urbanization, and extensive exploitation of oil and gas reserves have led to significant pollution, habitat destruction, and biodiversity loss. Climate change further exacerbates these issues, causing sea level fluctuations and impacting marine and coastal ecosystems. In this context, an SOE report is crucial to provide a comprehensive and systematic assessment of the region's environmental health. It serves as an essential tool for identifying critical areas of concern, understanding the underlying causes of environmental degradation, and guiding effective policy responses.

Furthermore, the Caspian Sea is bordered by multiple countries, each with its own environmental policies and monitoring practices. This transboundary nature complicates efforts to address environmental issues, necessitating a coordinated and collaborative approach. The new SOE report, developed with input from national networks will facilitate this cooperation by offering a unified and scientifically sound basis for decision-making. It will enable stakeholders to align their efforts, share best practices, and implement harmonized strategies for environmental protection. Ultimately, the report will enhance transparency, accountability, and informed governance, fostering sustainable development in the Caspian Sea region and ensuring the preservation of its natural heritage for future generations.

2. Project objective

The objective of this project is to support the national reporting to the Tehran Convention and the development of the Third State of the Caspian Sea Environment Report.

3. Project duration and budget

The project duration is 18 months with an overall budget of 160,000 USD.

4. Project Description

The one-component project will last around 18 months and will be coordinated by the Tehran Convention Secretariat. Environmental information officers, supported by their national networks and guided by an international expert, will carry out the work. The preparation phase will involve collecting, translating, and organizing environmental information; convening a meeting of experts to agree on the structure; analyzing data and information; and drafting the State of the Environment (SOE) report. An intergovernmental meeting will be held to review the draft, after which the report will be finalized and prepared for approval by the Conference of the Parties (COP) of the Tehran Convention.

Output 1.1. Completion of the ToC and structure of the SOE, approval by the Parties to the TC

Output 1.2. Collection of data

Output 1.3. Development and distribution of the draft text

Output 1.4. Collection and integration of feedback from the Parties to the TC

Output 1.5. Preparation of the final draft of the Third SoE Report, its submission to the Parties to the TC and publication^[1].

5. Budget

<i>Component 1: Preparation of the Third SoE Report of the Tehran Convention</i>	
International consultants and meeting cost	
Project manager	40,000 USD
Editor	15,000 USD
Translator	15,000 USD
Graphic designer	15,000 USD
Regional meeting travel and logistic support	25,000 USD
<i>Subtotal for International consultants and meeting cost</i>	110,000 USD
National consultants	
National consultant AZ	6,000 USD
National consultant IR	6,000 USD
National consultant KZ	6,000 USD
National consultant RF	6,000 USD
National consultant TK	6,000 USD
<i>Subtotal for National consultants</i>	30,000 USD
DIRECT COSTS: TOTAL	140,000 USD
<i>Programme Support costs</i>	20,000 USD
GRAND TOTAL:	160,000 USD

^[1] Hereafter, the publication is understood as an open access publication on the Tehran Convention website tehranconvention.org.

Название мероприятия

Международная научная конференция «Изменения уровня Каспийского моря: причины, моделирование, стратегии адаптации»

Май 2026; доступна опция дистанционного участия

Организаторы:

Координационный комитет по гидрометеорологии Каспийского моря (КАСПКОМ)

Временный Секретариат Рамочной конвенции по защите морской среды Каспийского моря (Тегеранской конвенции) (ВСТК)

Введение: Каспийское море, крупнейший в мире внутренний водоём, подвержено значительным и сложно прогнозируемым межгодовым колебаниям уровня воды. Эти изменения, обусловленные сложным взаимодействием климатических, гидрологических и геологических факторов, оказывают значительное воздействие на экосистемы региона, социально-экономическую деятельность и прибрежные сообщества. По мере усиления последствий глобального изменения климата понимание причин и минимизация последствий этих колебаний стало неотложным научным и политическим приоритетом. Необходим комплексный и междисциплинарный подход для оценки исторических закономерностей колебаний уровня моря, уточнения прогнозных моделей, оценки воздействия на морские системы и биоразнообразие и разработки стратегий по смягчению последствий этих изменений и адаптации к ним. Цель данной конференции - собрать ведущих экспертов, исследователей и лиц, ответственных за принятие решений в области охраны окружающей среды для содействия обмену знаниями, предложения инновационных решений и повышения устойчивости Каспийского региона.

Конференция будет организована по четырём тематическим секциям:

- 1) Колебания уровня Каспийского моря: палеогеографические и климатические исследования;
- 2) Моделирование уровня Каспийского моря: проблемы и решения;
- 3) Влияние колебаний уровня на экосистему Каспийского моря и социально-экономическое развитие прибрежных территорий;
- 4) Стратегии адаптации к колебаниям уровня Каспийского моря.

Организационный комитет конференции будет включать представителей КАСПКОМ, ВСТК, а также по одному представителю (исследователю) из каждой прикаспийской страны, назначенному министерствами, ответственными за защиту окружающей среды:

- Г-н Матеуш Бенько, сотрудник Тегеранской конвенции
- Г-жа Елена Островская, представитель КАСПКОМ

Назначенные представители прикаспийских стран:

- Г-н Расим Саттар-зада (Министерство экологии и природных ресурсов, Азербайджанская Республика)
- Г-н Фаиг Муталлимов (Министерство экологии и природных ресурсов, Азербайджанская Республика)
- Г-н Омид Седдигхи (Департамент окружающей среды, Исламская Республика Иран)
- Г-н Шахрам Фадакар (Департамент окружающей среды, Исламская Республика Иран)
- Г-н Махди Шаалчиан (Департамент окружающей среды, Исламская Республика Иран)
- Г-жа Айзат Галиевна Елтай (Казгидромет, Республика Казахстан)
- Г-н Серик Кابدualiевич Ахметов (Международный центр оценки вод, Республика Казахстан)
- Г-н Иван Александрович Куц (Министерство природных ресурсов и экологии, Российская Федерация)
- Г-н Сергей Леонидович Мартынов (Росгидромет, Российская Федерация)
- Г-н Сердар Эеберенов (Министерство охраны окружающей среды, Туркменистан)
- Г-жа Марина Агалханова (Министерство охраны окружающей среды, Туркменистан)
- Г-н Вепа Сапардурдыев (Министерство охраны окружающей среды, Туркменистан)

Организация работы

Конференция будет проходить в гибридном формате: очно в Баку, Азербайджан, с возможностью дистанционного участия.

Группа рецензентов, в состав которой войдут учёные из разных стран, отберёт до 40 тезисов (до 10 в каждой секции) для представления на конференции. Рецензенты также примут решение о том, какие тезисы будут опубликованы в сборнике материалов конференции.

Итоги конференции будут опубликованы в сборнике материалов на русском и английском языках.

Оргкомитет окажет финансовую поддержку для очного участия в Конференции четырём исследователям из каждого прикаспийского государства, включая основных докладчиков. Окончательное решение о спонсируемых участниках будет принято Оргкомитетом в консультации с прикаспийскими государствами после процесса отбора тезисов.

Отобранные участники, которым Оргкомитет не окажет поддержку, могут лично посетить конференцию за свой счёт или обратиться за финансированием к своим исследовательским институтам. Также у них будет возможность представить свои тезисы дистанционно.

Контакты

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Г-жа Елена Островская, КАСПКОМ, eostrovskaya@mail.ru

Scientific Conference "Changes in the Caspian Sea level: causes, modeling, adaptation strategies"

Distribution of abstracts by country / Распределение тезисов по странам:

Azerbaijan – 15

Iran – 22

Kazakhstan – 8

Russia – 28

Turkmenistan – 20

Iran / UK – 1

Iran / Russia – 4

Kazakhstan / Russia – 1

Kazakhstan / Azerbaijan – 1

Other – 3

TOTAL – 103

№	Name/Имя	Country/Страна	Institution/Учреждение	Abstract Title/Заголовок тезиса (<i>unofficial translation EN/RU</i>)
1.	U. Gashimova Aliya Gaisina H. Safikhanova I. Galandarli	Azerbaijan	Abdulla Karaev Institute of Physiology	Сценарно-ориентированный подход к оценке и управлению медико-экологическими рисками в Бакинской бухте / Scenario-based approach to assessment and management of medical and environmental risks in the Baku Bay
2.	Afat Ragimova Galib Hasayev	Azerbaijan	Scientific Research Institute of Water and Land Reclamation	Колебания уровня вод Каспийского моря и их влияние на биологические ресурсы Азербайджанской Республики / Caspian Sea water level fluctuations and their impact on the biological

				resources of the Republic of Azerbaijan
3.	Subkhana Shakhmaliyeva	Azerbaijan	Scientific Research Institute of Water and Land Reclamation	Использование вод Каспийского моря в условиях дефицита пресной воды и их влияние на мелиоративное состояние почв / Use of the Caspian Sea waters in conditions of freshwater scarcity and their impact on the reclamation state of soils
4.	Maya Gurbanova	Azerbaijan	Academy of the Ministry of Emergency Situations	Analysis of the causes of sea-level fluctuations and emergency risk factors in the Caspian Sea / Анализ причин колебаний уровня моря и факторов риска чрезвычайных ситуаций на Каспии
5.	Fatima Hajiyeva	Azerbaijan	Ministry of Emergency Situations of the Republic of Azerbaijan	Comprehensive Modeling of the Hydrodynamic, Ecosystem, and Climate Processes of the Caspian Sea / Комплексное моделирование гидродинамических, экосистемных и климатических процессов Каспийского моря
6.	Elchin Mamedov	Azerbaijan	Ministry of Agriculture and Institute of Geography of the Ministry of Science and Education	Ecological impacts of Caspian Sea level decline on coastal bioresources and ecosystems in Azerbaijan / Экологические последствия снижения уровня Каспийского моря для прибрежных биоресурсов и экосистем Азербайджана
7.	Turkan Mamishova	Azerbaijan	Baku State University	Spatio-temporal Dynamics and Environmental Implications of Caspian

				Sea Level Fluctuations: A Case Study of Ghizil-Agaj Bay (2000–2024) / Пространственно-временная динамика и экологические последствия колебаний уровня Каспийского моря: на примере залива Гызыл-Агадж (2000-2024 годы)
8.	Turkan Mammadova	Azerbaijan	Azerbaijan State Pedagogical University	Impact of Global climate change on the Caspian Sea level and the ecological problems it creates / Влияние глобального изменения климата на уровень Каспийского моря и экологические проблемы, которые оно создаёт
9.	Aygun Aziz Karimova	Azerbaijan	Azerbaijan State Pedagogical University	Oil waste pollution in the Caspian Sea / Загрязнение Каспийского моря нефтяными отходами
10.	Rafiq Verdiyev, Sama Baghirova	Azerbaijan	State Control Service for Water Use and Protection under the Azerbaijan State Water Resources Agency	Impact of climate change on the level of the Caspian Sea / Влияние изменения климата на уровень Каспийского моря
11.	Aida Aghayeva, Vusala Aghamirova	Azerbaijan	Water and Amelioration Scientific Research Institute	Analysis of Caspian Sea level changes and impact on coastal areas / Анализ изменений уровня Каспийского моря и их воздействия на прибрежные районы
12.	Nurlan Khalilov, Fuad Veliyev, Alesker Aga-zade, Khudayar Hasanov, Matanat Alsafarova	Azerbaijan	SOCAR	Неионогенные поверхностно-активные вещества на основе фракций монокислотных и циклоалифатических кислот и исследование их нефтесобирающих и нефтесодержащих свойств на поверхности

				воды / Nonionic surfactants based on fractions of monocarboxylic and cycloaliphatic acids and the study of their oil-collecting and oil-dispersing properties on the water surface
13.	Sabir Bakhman Asadov	Azerbaijan	SOCAR, Oil Gas Scientific Research Project Institute (OGSRPI)	Long-term level fluctuations in the oil and gas production water areas of the Caspian Sea / Долгосрочные колебания уровня в нефте- и газодобывающих акваториях Каспийского моря
14.	Chingiz Ismayilov	Azerbaijan	Baku State University	Колебание уровня Каспийского моря и разработка программ управления приморских районов / Caspian Sea level fluctuations and the development of coastal management programmes
15.	Emin Alimusayev	Azerbaijan	Baku State University	Legal challenges of adaptation to Caspian sea water level decline from the Azerbaijan perspective / Правовые проблемы адаптации к понижению уровня Каспийского моря с точки зрения Азербайджана
16.	Zhanar Naurozbayeva, Nazrin Bagirova	Azerbaijan / Kazakhstan	Institute of Geography and Water Security / ADA University	Климатогенная трансформация правового режима Каспийского моря: междисциплинарный анализ / Climate-driven transformation of the legal regime of the Caspian Sea: interdisciplinary analysis

17.	Hossein Farjami, Ali Ghadiri	Iran	National Institute of Oceanography and Atmospheric Science	Spatio-temporal analysis of surface area variations in Kuibyshev reservoir using Sentinel-1 remote sensing data / Пространственно- временной анализ изменений площади поверхности Куйбышевского водохранилища с использованием данных дистанционного зондирования земли Sentinel-1
18.	Hossein Farjami, Jafar Azizpour	Iran	National Institute of Oceanography and Atmospheric Science	Cloud water flux over the Caspian Sea / Облачный поток воды над Каспийским морем
19.	Hossein Farjami, Jafar Azizpour	Iran	National Institute of Oceanography and Atmospheric Science	Climate-forced evaporation and its role in the Caspian Sea level fluctuations / Испарение вызванное изменением климата, и его роль в колебаниях уровня Каспийского моря
20.	Kazem Bastami, Mehrshad Taheri, Ahmad Radmanesh Ali Mehdinia	Iran	National Institute of Oceanography and Atmospheric Science	Distribution of marine debris in coastal sediment of South Caspian Sea / Распределение морского мусора в прибрежных отложениях Южного Каспия
21.	Kazem Bastami, Mehrshad Taheri, Ahmad Radmanesh Ali Mehdinia, Hosein Bagheri, Reza Rahn timer, Ali Hamzpour, Mohammad Ali Hamzeh, Maryam Yazdani Foshtomi	Iran	National Institute of Oceanography and Atmospheric Science, Tarbiat Modares University	Impacts of Climate Change and Caspian Sea Level Decline on Coastal Nematode Communities: A Study of Extreme Environmental Gradients along the Southern Coast / Воздействие изменения климата и снижения уровня Каспийского моря на сообщества прибрежных нематод: исследование

				экстремальных экологических градиентов вдоль Южного побережья
22.	Leila Rashidian, Behzad Laeghi	Iran	Center for Atmospheric and Oceanic Sciences	Assessment of Climate Change Trends on Caspian Sea Water Level Fluctuations and Their Impacts on Residential Areas (Study Area: Iranian Coastal Regions) / Оценка тенденций изменения климата, связанных с колебаниями уровня воды в Каспийском море, и их воздействия на жилые районы (область исследования: прибрежные районы Ирана)
23.	Leila Rashidian, Safieh Farrokhi, Morid Abbas Hasanvand	Iran	Center for Atmospheric and Oceanic Sciences, Sharif University of Technology	Climate-Driven Changes in Caspian Sea Level: Causes, Conceptual Modeling, and Adaptation Implications / Климатические изменения уровня Каспийского моря: причины, концептуальное моделирование и последствия для адаптации
24.	Habibollah Namdari, Mohammad Hadi Moeini, Khadijeh Monir Vaghefi	Iran	Pouya Tarh Pars Cons. Eng. Company	Investigation of Caspian Sea Water Level Variations during Rising and Declining Phases Using Water Balance Components / Исследование колебаний уровня Каспийского моря в периоды подъёма и спада с использованием компонентов водного баланса
25.	Habibollah Namdari, Mohammad Hadi	Iran	Pouya Tarh Pars Cons. Eng. Company	Investigation of the Possible Impacts of Sea Level Decline on Southern

	Moeini, Majid Jandaghi Alaee			Ports of Caspian Sea / Исследование возможных последствий снижения уровня моря для южных портов Каспийского моря
26.	Mohammad Hadi Moeini, Khadije Monir Vaghefi, Gita B. Ebrahimi	Iran	Pouya Tarh Pars Cons. Eng. Company Ports and maritime organization of Iran	Caspian Sea water level fluctuations: available data, causes of variations and predictions of future trends / Колебания уровня Каспийского моря: имеющиеся данные, причины колебаний и прогнозы будущих тенденций
27.	Ayda Bozorgchenani, Mohammad Javad Vesaghi	Iran	Inland Water Aquaculture Research Center, Iranian Fisheries Science Research Institute, Agricultural Research, Education and Extension Organization (AREEO)	Effects of Changes in the Caspian Sea (Southern Caspian Sea) Water Level on the Diversity and Abundance of Macrobenthos / Влияние изменений уровня Каспийского моря (Южный Каспий) на разнообразие и обилие макробентоса
28.	Javad Daghigh Roohi, Alireza Mirzajani	Iran	Inland Water Aquaculture Research Center, Iranian Fisheries Science Research Institute, Agricultural Research, Education and Extension Organization (AREEO)	The impact of decreasing water levels in Anzali Wetland on the amount of catch / Влияние снижения уровня воды в водно-болотных угодьях Анзали на объём вылова
29.	Mahla Gholami, Abbasali Dadashi- Roudbari, and Azar Zarrin	Iran	Ferdowsi University of Mashhad	Decadal Warming, Drying, and Water Level Decline in the Caspian Sea Basin (1991–2020) / Многолетнее потепление, высыхание и снижение уровня воды в бассейне Каспийского моря (1991-2020)
30.	Homa Assarzadeh,	Iran	University of Tehran	Unravelling Caspian Sea Level Fluctuations Using a Meta-Analysis Approach / Решение

	Fatemeh Zarei KordShouli, Neda Amani			проблемы колебаний уровня Каспийского моря с использованием метода мета-анализа
31.	Roghayeh Shoja Miyadan, Mohammad Reza Mobini	Iran	Cultural Heritage and Tourism Research Institute Tehran Municipality	Climate Change, Caspian Sea Water Level Fluctuations and Coastal Zone Engineering: A Case Study of the Port of Neka / Изменение климата, колебания уровня Каспийского моря и устройство прибрежной зоны: на примере порта Нека
32.	Mohamadmehdi Moayeri, Mohamad Javad Alizadeh, Seyede Masoume Banihashemi	Iran	Caspian Sea National Research Center, Water Research Institute	Multi-Model Ensemble Assessment of Climate Change Impacts on Caspian Sea Water Balance Components Under CMIP6 Scenarios / Многомодельная комплексная оценка воздействия изменения климата на компоненты водного баланса Каспийского моря по сценариям CMIP6
33.	Elham Davari Touchahi	Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Marine climatic variability of the Caspian sea: sea surface temperature changes and atmosphere-sea interactions / Изменчивость морского климата Каспийского моря: изменения температуры поверхности моря и взаимодействие атмосферы и моря
34.	Yousefali Abedini, Morteza Taghilo, Mohammad Hassan Ekradi	Iran	Islamic Republic of Iran Meteorological Organization (IRIMO), Department of Physics, University of Zanzan	Study of climate change effects on Caspian sea surface variations / Изучение влияния изменения климата на

				вариации поверхности Каспийского моря
35.	Mehrdad Boroon	Iran	Independent researcher	Caspian Sea Level Fluctuations: Causes, Trends, and Implications / Колебания уровня Каспийского моря: причины, тенденции и последствия
36.	Younes Ashtarabeh, Amirhossein Kamali,	Iran	Independent researchers	Detection of Hydrological Changes in the `Volga River Basin and Their Relationship with Caspian Sea Shoreline Retreat Using Remote Sensing Technologies (1986–2023) / Выявление гидрологических изменений в бассейне реки Волги и их взаимосвязи с отступлением береговой линии Каспийского моря с использованием технологий дистанционного зондирования (1986-2023)
37.	Maryam Aghajani, Arezoo Ashrafizadeh, Mahboobeh Mohammadkhan, Siavash Shamsipour	Iran	Ab Khak Tehran Consulting engineering Company, Department of Environment (DoE)	Proposed strategies for mitigating the ecological and socio-economic impacts of Caspian sea water level decline in the southeastern coastal wetlands (case study: Miankaleh–Gorgan bay and Gomishan international wetlands) / Предлагаемые стратегии смягчения экологических и социально-экономических последствий понижения уровня Каспийского моря для юго–восточных прибрежных водно-болотных угодий (на примере залива

				Мианкале-Горган и международных водно-болотных угодий Гомишан)
38.	Maryam Aghajani, Ziba Beyranvand, Mohsen Soltanpour Saeid Mahmoudi	Iran	K. N. Toosi University of Technology, Ab-Khak Tehran Consulting Engineers Co., Department of Environment (DoE)	Spatial zoning framework for strategic planning and action programmes along the southern Caspian coast / Структура пространственного зонирования для стратегического планирования и программ действий вдоль южного побережья Каспийского моря
39.	Mohsen Soltanpour Mohadeseh Talebi, S. Mahya Hoseini, Omid Seddighi, S. Hadi Mirabolghasemi	Iran / UK	K. N. Toosi University of Technology, Ab-Khak Tehran Consulting Engineers Co., Department of Environment (DoE), Alliance Manchester Business School, University of Manchester	Projecting Caspian sea level fluctuations: the combined effects of climate change and anthropogenic water extraction / Прогнозирование колебаний уровня Каспийского моря: совокупные последствия изменения климата и антропогенного отбора воды
40.	Mehdi Gholamalifard, Andrey G. Kostianoy, Anna I. Ginzburg, Nickolay A. Sheremet	Iran / Russia	Tarbiat Modares University, Shirshov Institute of Oceanology	Caspian Sea level decline and regional climate change / Понижение уровня Каспийского моря и изменение климата в регионе
41.	Mehrshad Taheri, Ahmad Radmanesh Ali Mehdiinia, Maryam Yazdani Foshtomi, Julia Gorbunova, Boris Chubarenko	Iran / Russia	Iranian National Institute for Oceanography and Atmospheric Science Tarbiat Modares University, Shirshov Institute of Oceanology	Caspian Sea-Level Regression Drives Rocky Habitat Loss and a Benthic Ecological Crisis / Понижение уровня Каспийского моря приводит к потере скалистых местообитаний и экологическому кризису на дне море

42.	Maryam Yazdani Foshtomi, Ahmad Radmanesh, Mehrshad Taheri, Reza Rahnama, Ali Mehdinia, Dmitriy Domnin, Boris Chubarenko	Iran / Russia	Iranian National Institute for Oceanography and Atmospheric Science Tarbiat Modares University, Shirshov Institute of Oceanology	Spatial Patterns and Bioaccumulation of Microplastics in <i>Mytilaster lineatus</i> : A Caspian Sea Coastal Assessment / Пространственная структура и биоаккумуляция микропластика в <i>Mytilaster lineatus</i> : оценка прибрежной зоны Каспийского моря
43.	Maryam Yazdani Foshtomi, Ahmad Radmanesh, Mehrshad Taheri, Reza Rahnama, Ali Mehdinia, Dmitriy Domnin, Boris Chubarenko	Iran / Russia	Iranian National Institute for Oceanography and Atmospheric Science Tarbiat Modares University, Shirshov Institute of Oceanology	Contrasting Microplastic Distribution in Caspian Coastal Habitats and Ingestion by the Rockpool Shrimp <i>Palaemon elegans</i> / Контрастное распределение микропластика в прибрежных местообитаниях Каспийского моря и употребление его в пищу каменной креветкой <i>Palaemon elegans</i>
44.	Akhmetkal Medeu, Zhanar Naurozbayeva, Stepan Maznev	Kazakhstan	Institute of Geography and Water Security	Caspian sea level fluctuations: in the past, present, and future / Колебания уровня Каспийского моря: в прошлом, настоящем и будущем
45.	A. Yeltay, L. Bazarbay, N. Zhagparova, A. Kurmangalieva, G. Shishkina	Kazakhstan	Kazhydromet	К вопросу применения гидродинамического модуля MIKE 21 для прогнозирования уровня Каспийского моря / On the application of the MIKE 21 hydrodynamic module for forecasting the Caspian Sea level
46.	A. Yeltay, L. Bazarbay, N. Zhagparova,	Kazakhstan	Kazhydromet Kazakh Scientific Research Institute of Water Economy	Долгосрочный прогноз уровня Каспийского моря на период до 2050 года / Long-term forecast of the Caspian

	A. Kurmangalieva S. Sairov			Sea level for the period up to 2050
47.	Maya Ye. Uruzgaliyeva, Venera A. Zheksembekova, Raziya Ye. Asylgozhina	Kazakhstan	Institute of State History	Система обеспечения экологической безопасности Каспийского региона: вызовы, риски и механизмы координации / Environmental safety system of the Caspian region: challenges, risks and coordination mechanisms
48.	R. Zh. Abdildina	Kazakhstan	Kazakh branch of the Moscow State University	Человек и Каспий: философский взгляд на современные вызовы / Man and the Caspian Sea: a philosophical view on modern challenges
49.	M. T. Baymukanov, M. K. Sirazhitdinova A. M. Baymukanova	Kazakhstan	Institute of Hydrobiology and Ecology, Al-Farabi Kazakh National University	Сохранение лежбищ каспийского тюленя в условиях регрессии Каспийского моря / Conservation of Caspian seal rookeries in the conditions of the Caspian Sea regression
50.	Serik K. Akhmetov, Balzhan B. Yelbasiyeva	Kazakhstan	Kazakh Scientific Research Institute of the Caspian Sea	Колебания уровня Каспийского моря в условиях изменения климатических факторов (казахстанский сектор) / Fluctuations of the Caspian Sea level in the context of climate change (Kazakhstan sector)
51.	Ardak Zhaksyngaliyeva	Kazakhstan	L.N. Gumilyov Eurasian National University	Spatial analysis of the dynamics of Caspian Sea level changes / Пространственный анализ динамики изменения уровня Каспийского моря
52.	Symbat E. Koibakova,	Kazakhstan / Russia	Yessenov University,	Исследование экологического состояния и динамики

	Lyailim S. Tayzhanova, Samal Syrlybekkyzy Andrey G. Kostianoy, Philipp V. Sapozhnikov, Peter O. Zavialov		Shirshov Institute of Oceanology	вод Казахстанского сектора Северного Каспия / Study of the ecological status and water dynamics of the Kazakh sector of the Northern Caspian Sea
53.	E. V. Vilkov	Russia	Caspian Institute of Biological Resources, Dagestan	Влияние разнонаправленной ритмики уровня Каспийского моря на гидроэкологическую обстановку и авифауну западного побережья среднего Каспия (Республика Дагестан) / The influence of the multidirectional rhythms of the Caspian Sea level on the hydroecological situation and avifauna of the western coast of the Middle Caspian Sea (Republic of Dagestan)
54.	Guy Petherbridge, Abdulgamid A. Teymurov, Alimurad Gadzhiev	Russia	Dagestan State University, Caspian Centre for Nature Conservation, Association of Universities and Research Centers of Caspian Region States	Гис-моделирование уровня режима Каспийского моря: критические пороги, экологические риски и научные основы стратегий адаптации / GIS modeling of the Caspian Sea level regime: critical thresholds, environmental risks, and scientific foundations of adaptation strategies
55.	Guy Petherbridge, Abdulgamid A. Teymurov, Alimurad Gadzhiev	Russia	Dagestan State University, Caspian Centre for Nature Conservation, Association of Universities and Research Centers of Caspian Region States	Striving for Accuracy: Correlating Modern Estimations of Past Caspian Sea Levels with Historical Cartography and Eye-Witness Imagery / Стремление к точности: Сопоставление современных оценок уровня Каспийского

				моря в прошлом с исторической картографией и изображениями очевидцев
56.	Zagir V. Ataev	Russia	Dagestan Federal Research Center, Dagestan State University	Гидротермический режим прикаспийского трансграничного региона (Северо-Восточный Кавказ, Азербайджан, Северный Иран) в условиях изменения климата и антропогенной нагрузки / Hydrothermal regime of the Caspian transboundary region (Northeast Caucasus, Azerbaijan, Northern Iran) under conditions of climate change and anthropogenic pressure
57.	Zagir V. Ataev, Abdulgamid A. Teymurov, V. V. Bratkov	Russia	Dagestan Federal Research Center, Dagestan State University, Moscow State University of Geodesy and Cartography	Перерессия Каспийского моря и её влияние на ландшафты Кавказского экорегиона: современные тенденции, последствия и адаптационные стратегии / Regression of the Caspian Sea and its impact on the landscapes of the Caucasian ecoregion: current trends, consequences and adaptation strategies
58.	P. V. Lyushvin A. L. Lobov M.O. Buyanova N.S. Chelidze	Russia	MSU, HSE, Infomarus	Современные тектонические колебания уровня Каспийского моря / Modern tectonic fluctuations of the Caspian Sea level
59.	P. V. Lyushvin M.O. Buyanova	Russia	MSU, HSE	Использование биологического ресурса для восстановления уровня Каспийского

	N.S. Chelidze			моря / Use of biological resource for the restoration of the Caspian Sea level
60.	T. A. Yanina, A. V. Kislova, D.M. Lobacheva, E. I. Lysenko, R. R. Makshaev, E. Y. Matlakhova, V. M. Sorokin, N.S. Bolikhovskaya, A. A. Tkatch, N. T. Tkatch	Russia	MSU	Колебания уровня Каспия в динамике природной среды голоцена / Fluctuations of the Caspian Sea level in the dynamics of the Holocene natural environment
61.	T. A. Yanina, E. I. Lysenko, R. R. Makshaev, A. A. Tkatch, M. A. Zenina	Russia	MSU, Shirshov Institute of Oceanology	Палеореконструкции регрессивных эпизодов Северного Каспия как возможные сценарии изменения обстановок осадконакопления при снижении уровня моря / Paleoreconstructions of regressive episodes in the Northern Caspian Sea as possible scenarios for changes in sedimentation conditions with a decrease in sea level
62.	S. A. Kovachev, V. A. Putans, N. V. Libina, A. A. Krylov, S. G. Mironyuk A. V. Egorov	Russia	Shirshov Institute of Oceanology	О возможной связи вариаций уровня Каспийского моря с сильнейшими землетрясениями / Possible connection of variations in the Caspian Sea level with the strongest earthquakes
63.	V. B. Buber A. L. Buber	Russia	A.N. Kostyakov Federal Scientific Center for Hydraulic Engineering and Land Reclamation	Исследование зависимости уровня Каспийского моря от стока рек, впадающих в Каспий / Study of the dependence of the

				Caspian Sea level on the flow of rivers flowing into the Caspian Sea
64.	Alexander V. Bocharov, Andrey G Kostianoy, Sergey A. Lebedev, Ludmila I. Kolomeets, Pavel N. Kravchenko	Russia	Shirshov Institute of Oceanology, Geophysical Center of the Russian Academy of Sciences, Tver State University, SPBU, Maykop State Technological University, Witte Moscow University, Russian State Hydrometeorological University, Institute of Radar Meteorology, Saint Petersburg (Voeikovo), Voeikov Main Geophysical Observatory, National Research University Moscow Institute of Electronic Technology	What SSP global climate change scenario is the Caspian sea region following / Какому SSP сценарию глобального изменения климата следует регион Каспийского моря
65.	S. I. Shaporenko, A. M. Abdurashidov	Russia	Institute of Geography of the Russian Academy of Science, Bar Association of the Republic of Dagestan	Стратегия адаптации как ключевая идеология в решении проблем, связанных с колебанием уровня Каспийского моря / Adaptation strategy as a key ideologeme in solving problems related to fluctuations in the Caspian Sea level
66.	A. F. Sokolskiy	Russia	Astrakhan State University of Architecture and Civil Engineering	Экологические изменения биоразнообразия в период снижения уровня Каспийского моря / Ecological changes in biodiversity during the decline of the Caspian Sea level

67.	I. V. Gontovaya, E. V. Gavrilova	Russia	Caspian Marine Scientific Research Center, Astrakhan	Анализ режима осадков на территории российского сектора Каспийского моря / Analysis of the precipitation regime in the Russian sector of the Caspian Sea
68.	E. V. Gavrilova, V. O. Tatarnikov	Russia	Caspian Marine Scientific Research Center, Astrakhan	Тенденции изменений гидрологических параметров в российском секторе Каспийского моря за период 1941–2024 годов / Trends of changes in hydrological parameters in the Russian sector of the Caspian Sea in the period 1941-2024
69.	V. O. Tatarnikov, E. V. Gavrilova	Russia	Caspian Marine Scientific Research Center, Astrakhan	Величина равновесного уровня Каспийского моря при различных значениях составляющих водного баланса / Value of the equilibrium level of the Caspian Sea at different values of the components of the water balance
70.	V. O. Tatarnikov, D. Kh. Azmukhambetova	Russia	Caspian Marine Scientific Research Center, Astrakhan	Использование возможностей искусственного интеллекта в прогнозировании хода уровня Каспийского моря / Using the capabilities of artificial intelligence in predicting the course of the Caspian Sea level
71.	D. R. Svetasheva	Russia	Caspian Marine Scientific Research Center, Astrakhan	Состояние и уровень загрязнения акватории российского сектора недропользования Каспийского моря в 2024 году / The state and level of pollution of the Russian subsurface use

				sector of the Caspian Sea in 2024
72.	P. I. Bukharitsin	Russia	Institute of Water Problems, Astrakhan branch	Неожиданная находка в Северном Каспии / Unexpected find in the Northern Caspian Sea
73.	S. K. Popov A. V. Frolov	Russia	Hydrometeorological Centre of Russia, Institute of Water Problems	Инженерные аспекты проблемы прогноза уровневого режима Каспийского моря / Engineering aspects of the problem of forecasting the level regime of the Caspian Sea
74.	E. S. Nesterov	Russia	Hydrometeorological Centre of Russia	Долгосрочный прогноз составляющих водного баланса и уровня Каспийского моря / Long-term forecast of the components of the water balance and the level of the Caspian Sea
75.	E. V. Ostrovskaya, A. V. Pavlova	Russia	Hydrometeorological Centre of Russia	Изменения уровня и составляющих водного баланса Каспийского моря в 1950–2023 годах / Changes in the level and components of the water balance of the Caspian Sea in 1950-2023
76.	E. V. Ostrovskaya, A. V. Pavlova	Russia	Hydrometeorological Centre of Russia	Роль региональных климатических изменений в динамике сгонно-нагонных колебаний уровня Каспийского моря / The role of regional climatic changes in the dynamics of surge fluctuations in the Caspian Sea level
77.	E. V. Ostrovskaya, A. N. Korshenko	Russia	Hydrometeorological Centre of Russia, N. N. Zubov's State Oceanographic Institute	Изменения гидрохимического режима Северного Каспия в 1978–2020 годах / Changes in the hydrochemical regime of the Northern Caspian Sea in 1978-2020

78.	R. E. Nikonova	Russia	N. N. Zubov's State Oceanographic Institute	Современный уровень Каспийского моря в условиях глобального потепления климата / Current level of the Caspian Sea in the context of global climate warming
79.	E. F. Ilyashenko	Russia	N. N. Zubov's State Oceanographic Institute	Актуальные расчёты водного баланса Каспийского моря: традиционные технологии и современные источники данных / Current calculations of the Caspian Sea water balance: traditional technologies and modern data sources
80.	O. V. Gorelits, G. S. Ermakova, A. A. Sapozhnikova, D. S. Migunov	Russia	N. N. Zubov's State Oceanographic Institute	Дельты рек в условиях падения уровня Каспийского моря / River deltas in conditions of declining Caspian Sea level
81.	A. B. Mashrykov	Turkmenistan	Turkmen Agricultural Institute	Основы зелёной экономики / Fundamentals of the green economy
82.	A. Kerimova	Turkmenistan	Turkmen Agricultural Institute	Растительный мир Каспийского моря / Flora of the Caspian Sea
83.	B. Yusupova, B. Berdiyeva, J. Mirabova	Turkmenistan	Turkmen Agricultural Institute	Энтомофауна прибрежных территорий Каспийского моря / Entomofauna of the coastal territories of the Caspian Sea
84.	Khekim T. Yusupov	Turkmenistan	Turkmen Agricultural Institute	Рыболовство в Каспийском море / Fisheries in the Caspian Sea
85.	Ya. Z. Palyazova, R. B. Karriyeva	Turkmenistan	Turkmen Agricultural Institute	Причины и следствия изменения уровня Каспийского моря: текущее состояние и перспективы / Causes

				and consequences of changes in the Caspian Sea level: current state and prospects
86.	Musa A. Khanov	Turkmenistan	Turkmen Agricultural Institute	Развитие логистики Туркменистана / Development of logistics in Turkmenistan
87.	A. Ya. Amaniyazov	Turkmenistan	Turkmen Agricultural Institute	Развитие транспортной системы как фактор экономического роста страны / Development of the transport system as a factor of the country's economic growth
88.	A. A. Ataeva G. N. Gurbanlyyev	Turkmenistan	S. A. Niyazov Turkmen Agricultural University	Экологические проблемы Каспия и экономическое развитие прибрежных территорий / Environmental problems of the Caspian Sea and economic development of coastal territories
89.	M. T. Mammetgulyyeva, G. S. Karaeva	Turkmenistan	S. A. Niyazov Turkmen Agricultural University	Прогнозируемые колебания уровня Каспийского моря до 2050 года с учётом влияния климатических изменений / Projected fluctuations in the Caspian Sea level until 2050 considering the impact of climate change
90.	Sh. G. Ashirmuradova, Sh. K. Durdyeva	Turkmenistan	Magtymguly Turkmen State University	Укрепление научной базы для мониторинга прибрежных экосистем Каспийского моря в Туркменистане в условиях изменения уровня воды / Strengthening the scientific base for monitoring coastal ecosystems of the Caspian Sea in Turkmenistan in the context of changing water levels

91.	Ogulnabat Ya. Rakhmanova	Turkmenistan	Magtymguly Turkmen State University	Флора прикаспийской пустыни в условиях изменения климата / Flora of the Caspian desert in the context of climate change
92.	Ch. J. Kulieva	Turkmenistan	Magtymguly Turkmen State University	Редкие и эндемичные виды туркменского побережья Каспийского моря / Rare and endemic species of the Turkmen coast of the Caspian Sea
93.	G. O. Khamraev, N. V. Nikolaev	Turkmenistan	Magtymguly Turkmen State University, International Scientific-Technological Park of the Academy of Science of Turkmenistan	Динамика берегов и прибрежной части туркменского Прикаспия / Dynamics of the shores and the coastal part of the Turkmen Caspian Sea
94.	Eldar A. Rustamov	Turkmenistan	National Institute of Deserts, Flora and Fauna of Turkmenistan	Действия по сохранению биоразнообразия в туркменском секторе Каспия в среднесрочный и долгосрочный периоды на фоне падения уровня моря / Actions to preserve biodiversity in the Turkmen sector of the Caspian Sea in the medium and long term against the background of sea level decline
95.	Amanberdy N. Beglanov	Turkmenistan	National Institute of Deserts, Flora and Fauna of Turkmenistan	Прогнозы по понижению уровня Каспийского моря графическим методом / Caspian Sea level decline forecasting using the graphical method
96.	Pirli A. Kepbanov Sakhetmyrat B. Mammedov	Turkmenistan	National Institute of Deserts, Flora and Fauna of Turkmenistan, Khazar State Nature Reserve	Первичные фитоценозы на высохших территориях Туркменбашинского (Красноводского) залива Каспийского моря / Primary phytocenoses in dried-up territories of the

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98.	Marina Sh. Agalkhanova	Turkmenistan	Hydrometeorological Service, Ministry of Environmental Protection of Turkmenistan	Моделирование уровня Каспийского моря: проблемы и решения в контексте изменения климата / Modeling of the Caspian Sea level: problems and solutions in the context of climate change
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			Institute of Technology (KIT)	Региональное моделирование климата Каспийского моря с высоким разрешением при различных уровнях моря во время последнего ледникового максимума
102	Matteo Lattuada, Könül Ahmadova	Germany / Azerbaijan	Institute of Ecology, Technische Universität Berlin / Department of Applied and Natural Sciences, Western Caspian University	Seagrass Occurrence and Rapid Habitat Loss along the Azerbaijani coasts of the Caspian Sea / Появление морских водорослей и быстрая утрата среды обитания на азербайджанском побережье Каспийского моря
	Simon J. Goodman	UK	University of Leeds	Developing dynamic approaches to spatial conservation planning to keep biodiversity protection measures relevant in the face of rapid Caspian Sea level decline / Разработка динамических подходов к пространственному природоохранному планированию для сохранения актуальности мер по защите биоразнообразия в условиях стремительного понижения уровня Каспийского моря

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Section 1: Fluctuations in the Caspian Sea level: paleogeographic and climatic studies				
1.	Rafig Verdiyev, Sama Baghirova	Azerbaijan	State Control Service for Water Use and Protection under the Azerbaijan State Water Resources Agency	Impact of climate change on the level of the Caspian Sea / Влияние изменения климата на уровень Каспийского моря
2.	Turkan Mammadova	Azerbaijan	Azerbaijan State Pedagogical University	Impact of Global climate change on the Caspian Sea level and the ecological problems it creates / Влияние глобального изменения климата на уровень Каспийского моря и экологические проблемы, которые оно создаёт
3.	Hossein Farjami, Jafar Azizpour	Iran	National Institute of Oceanography and Atmospheric Science	Cloud water flux over the Caspian Sea / Облачный поток воды над Каспийским морем
4.	Hossein Farjami, Jafar Azizpour	Iran	National Institute of Oceanography and Atmospheric Science	Climate-forced evaporation and its role in the Caspian Sea level fluctuations / Испарение вызванное изменением климата, и его роль в колебаниях уровня Каспийского моря
5.	Habibollah Namdari Mohammad Hadi Moeini, Khadijeh Vaghefi	Iran	Pouya Tarh Pars Cons. Eng. Company	Investigation of Caspian Sea Water Level Variations during Rising and Declining Phases Using Water Balance Components / Исследование колебаний уровня Каспийского моря в периоды подъёма и спада с использованием

				компонентов водного баланса
6.	Mohammad Hadi Moeini, Khadije Monir Vaghefi, Gita B. Ebrahimi	Iran	Pouya Tarh Pars Cons. Eng. Company	Caspian Sea water level fluctuations: available data, causes of variations and predictions of future trends / Колебания уровня Каспийского моря: имеющиеся данные, причины колебаний и прогнозы будущих тенденций
7.	Mahla Gholami, Abbasali Dadashi-Roudbari, and Azar Zarrin	Iran	Ferdowsi University of Mashhad	Decadal Warming, Drying, and Water Level Decline in the Caspian Sea Basin (1991–2020) / Многолетнее потепление, высыхание и снижение уровня воды в бассейне Каспийского моря (1991-2020)
8.	Elham Davari Touchahi	Iran	Islamic Republic of Iran Meteorological Organization (IRIMO)	Marine climatic variability of the Caspian sea: sea surface temperature changes and atmosphere–sea interactions / Изменчивость морского климата Каспийского моря: изменения температуры поверхности моря и взаимодействие атмосферы и моря
9.	Maryam Aghajani, Ziba Beyranvand, Mohsen Soltanpour, Saeid Mahmoudi	Iran	K. N. Toosi University of Technology, Ab-Khak Tehran Consulting Engineers Co., Department of Environment (DoE)	Spatial zoning framework for strategic planning and action programmes along the southern Caspian coast / Структура пространственного зонирования для стратегического планирования и программ действий вдоль южного побережья Каспийского моря
10.	Mehrdad Boroon	Iran	Independent researcher	Caspian Sea Level Fluctuations: Causes,

				Trends, and Implications Колебания уровня Каспийского моря: причины, тенденции и последствия
11.	Younes Ashtarabeh, Amirhossein Kamal	Iran	Independent researchers	Detection of Hydrological Changes in the `Volga River Basin and Their Relationship with Caspian Sea Shoreline Retreat Using Remote Sensing Technologies (1986– 2023) / Выявление гидрологических изменений в бассейне реки Волги и их взаимосвязи с отступлением береговой линии Каспийского моря с использованием технологий дистанционного зондирования (1986- 2023)
12.	Mehdi Gholamalifard, Andrey G. Kostianoy, Anna I. Ginzburg, Nickolay A. Sheremet	Iran / Russia	Tarbiat Modares University, Shirshov Institute of Oceanology	Caspian Sea level decline and regional climate change / Понижение уровня Каспийского моря и изменение климата в регионе
13.	Akhmetkal Medeu, Zhanar Naurozbayeva, Stepan Maznev	Kazakhstan	Institute of Geography and Water Security	Caspian sea level fluctuations: in the past, present, and future / Колебания уровня Каспийского моря: в прошлом, настоящем и будущем
14.	Serik K. Akhmetov, Balzhan B. Yelbasiyeva	Kazakhstan	Kazakh Scientific Research Institute of the Caspian Sea	Колебания уровня Каспийского моря в условиях изменения климатических факторов (казахстанский сектор) / Fluctuations of the Caspian Sea level in the

				context of climate change (Kazakhstan sector)
15.	Ardak Zhaksygalieva	Kazakhstan	L.N. Gumilyov Eurasian National University	Spatial analysis of the dynamics of Caspian Sea level changes / Пространственный анализ динамики изменения уровня Каспийского моря
16.	Symbat E. Koibakova, Lyailim S. Tayzhanova, Samal Syrlybekkyzy Andrey G. Kostianoy, Philipp V. Sapozhnikov, Peter O. Zavialov	Kazakhstan / Russia	Yessenov University, Shirshov Institute of Oceanology	Исследование экологического состояния и динамики вод Казахстанского сектора Северного Каспия / Study of the ecological status and water dynamics of the Kazakh sector of the Northern Caspian Sea
17.	Zagir V. Ataev	Russia	Dagestan Federal Research Center, Dagestan State University	Гидротермический режим прикаспийского трансграничного региона (Северо-Восточный Кавказ, Азербайджан, Северный Иран) в условиях изменения климата и антропогенной нагрузки / Hydrothermal regime of the Caspian transboundary region (Northeast Caucasus, Azerbaijan, Northern Iran) under conditions of climate change and anthropogenic pressure
18.	P. V. Lyushvin A. L. Lobov M.O. Buyanova N.S. Chelidze	Russia	MSU, HSE, Infmarus	Современные тектонические колебания уровня Каспийского моря / Modern tectonic fluctuations of the Caspian Sea level
19.	T. A. Yanina, A. V. Kislova,	Russia	MSU	Колебания уровня Каспия в динамике природной среды голоцена / Fluctuations

	D.M. Lobacheva, E. I. Lysenko, R. R. Makshaev, E. Y. Matlakhova, V. M. Sorokin, N.S. Bolikhovskaya, A. A. Tkatch, N. T. Tkatch			of the Caspian Sea level in the dynamics of the Holocene natural environment
20.	T. A. Yanina, E. I. Lysenko, R. R. Makshaev, A. A. Tkatch, M. A. Zenina	Russia	MSU, Shirshov Institute of Oceanology	Палеореко́нструкции регрессивных эпизодов Северного Каспия как возможные сценарии изменения обстановок осадконакопления при снижении уровня моря / Paleoreconstructions of regressive episodes in the Northern Caspian Sea as possible scenarios for changes in sedimentation conditions with a decrease in sea level
21.	S. A. Kovachev, V. A. Putans, N. V. Libina, A. A. Krylov, S. G. Mironyuk A. V. Egorov	Russia	Shirshov Institute of Oceanology	О возможной связи вариаций уровня Каспийского моря с сильнейшими землетрясениями / Possible connection of variations in the Caspian Sea level with the strongest earthquakes
22.	V. B. Buber A. L. Buber	Russia	A.N. Kostyakov Federal Scientific Center for Hydraulic Engineering and Land Reclamation	Исследование зависимости уровня Каспийского моря от стока рек, впадающих в Каспий / Study of the dependence of the Caspian Sea level on the flow of rivers flowing into the Caspian Sea
23.	I. V. Gontovaya, E. V. Gavrilova	Russia	Caspian Marine Scientific Research Center, Astrakhan	Анализ режима осадков на территории российского сектора Каспийского моря / Analysis of the

				precipitation regime in the Russian sector of the Caspian Sea
24.	E. V. Gavrilova, V. O. Tatarnikov	Russia	Caspian Marine Scientific Research Center, Astrakhan	Тенденции изменений гидрологических параметров в российском секторе Каспийского моря за период 1941–2024 годов / Trends of changes in hydrological parameters in the Russian sector of the Caspian Sea in the period 1941-2024
25.	E. S. Nesterov	Russia	Hydrometeorological Centre of Russia	Долгосрочный прогноз составляющих водного баланса и уровня Каспийского моря / Long-term forecast of the components of the water balance and the level of the Caspian Sea
26.	E. V. Ostrovskaya, A. V. Pavlova	Russia	Hydrometeorological Centre of Russia	Изменения уровня и составляющих водного баланса Каспийского моря в 1950–2023 годах / Changes in the level and components of the water balance of the Caspian Sea in 1950-2023
27.	E. V. Ostrovskaya, A. V. Pavlova	Russia	Hydrometeorological Centre of Russia	Роль региональных климатических изменений в динамике сгонно-нагонных колебаний уровня Каспийского моря / The role of regional climatic changes in the dynamics of surge fluctuations in the Caspian Sea level
28.	E. V. Ostrovskaya, A. N. Korshenko	Russia	Hydrometeorological Centre of Russia, N. N. Zubov's State Oceanographic Institute	Изменения гидрохимического режима Северного Каспия в 1978–2020 годах / Changes in the hydrochemical regime of the Northern Caspian Sea in 1978-2020

29.	R. E. Nikonova	Russia	N. N. Zubov's State Oceanographic Institute	Современный уровень Каспийского моря в условиях глобального потепления климата / Current level of the Caspian Sea in the context of global climate warming
30.	E. F. Ilyashenko	Russia	N. N. Zubov's State Oceanographic Institute	Актуальные расчёты водного баланса Каспийского моря: традиционные технологии и современные источники данных / Current calculations of the Caspian Sea water balance: traditional technologies and modern data sources
31.	O. V. Gorelits, G. S. Ermakova, A. A. Sapozhnikova, A. A. Timoshenko	Russia	N. N. Zubov's State Oceanographic Institute	Дельты рек в условиях падения уровня Каспийского моря / River deltas in conditions of declining Caspian Sea level
32.	P. I. Bukharitsin	Russia	Institute of Water Problems, Astrakhan branch	Неожиданная находка в Северном Каспии / Unexpected find in the Northern Caspian Sea
33.	Ya. Z. Palyazova, R. B. Karriyeva	Turkmenistan	Turkmen Agricultural Institute	Причины и следствия изменения уровня Каспийского моря: текущее состояние и перспективы / Causes and consequences of changes in the Caspian Sea level: current state and prospects
34.	M. T. Mammetyulyyeva, G. S. Karaeva	Turkmenistan	S. A. Niyazov Turkmen Agricultural University	Прогнозируемые колебания уровня Каспийского моря до 2050 года с учётом влияния климатических изменений / Projected fluctuations in the Caspian Sea level until 2050 considering the impact of climate change

Section 2: Modeling of the Caspian Sea level: problems and solutions				
1.	Fatima Hajiyeve	Azerbaijan	Ministry of Emergency Situations of the Republic of Azerbaijan	Comprehensive Modeling of the Hydrodynamic, Ecosystem, and Climate Processes of the Caspian Sea / Комплексное моделирование гидродинамических, экосистемных и климатических процессов Каспийского моря
2.	Turkan Mamishova	Azerbaijan	Baku State University	Spatio-temporal Dynamics and Environmental Implications of Caspian Sea Level Fluctuations: A Case Study of Ghizil-Agaj Bay (2000–2024) / Пространственно-временная динамика и экологические последствия колебаний уровня Каспийского моря: на примере залива Гызыл-Агадж (2000-2024 годы)
3.	Hossein Farjami, Ali Ghadiri	Iran	National Institute of Oceanography and Atmospheric Science	Spatio-temporal analysis of surface area variations in Kuibyshev reservoir using Sentinel-1 remote sensing data / Пространственно-временной анализ изменений площади поверхности Куйбышевского водохранилища с использованием данных дистанционного зондирования земли Sentinel-1
4.	Homa Assarzadeh, Fatemeh Zarei KordShouli, Neda Amani	Iran	University of Tehran	Unravelling Caspian Sea Level Fluctuations Using a Meta-Analysis Approach / Решение проблемы колебаний уровня Каспийского моря с использованием метода мета-анализа

5.	Yousefali Abedini, Morteza Taghilo, Mohammad Hassar Ekradi	Iran	Islamic Republic of Iran Meteorological Organization (IRIMO), Department of Physics, University of Zanjan	Study of climate change effects on Caspian sea surface variations / Изучение влияния изменения климата на вариации поверхности Каспийского моря
6.	Mohamadmehdi Moayeri, Mohamad Javad Alizadeh, Seyede Masoume Banihashemi	Iran	Caspian Sea National Research Center, Water Research Institute	Multi-Model Ensemble Assessment of Climate Change Impacts on Caspian Sea Water Balance Components Under CMIP6 Scenarios / Многомодельная комплексная оценка воздействия изменения климата на компоненты водного баланса Каспийского моря по сценариям CMIP6
7.	Mohsen Soltanpour, Mohadeseh Talebi, S. Mahya Hoseini, Omid Seddighi, S. Hadi Mirabolghasemi	Iran / UK	K. N. Toosi University of Technology, Ab-Khak Tehran Consulting Engineers Co., Department of Environment (DoE), Alliance Manchester Business School, University of Manchester	Projecting Caspian sea level fluctuations: the combined effects of climate change and anthropogenic water extraction / Прогнозирование колебаний уровня Каспийского моря: совокупные последствия изменения климата и антропогенного отбора воды
8.	A. Yeltay, L. Bazarbay, N. Zhagparova, A. Kurmangalieva, G. Shishkina	Kazakhstan	Kazhydromet	К вопросу применения гидродинамического модуля MIKE 21 для прогнозирования уровня Каспийского моря / On the application of the MIKE 21 hydrodynamic module for forecasting the Caspian Sea level
9.	A. Yeltay, L. Bazarbay, N. Zhagparova,	Kazakhstan	Kazhydromet Kazakh Scientific Research Institute of Water Economy	Долгосрочный прогноз уровня Каспийского моря на период до 2050 года / Long-term forecast

	A. Kurmangalieva S. Sairov			of the Caspian Sea level for the period up to 2050
10.	Guy Petherbridge, Abdulgamid A. Teymurov, Alimurad Gadzhiev	Russia	Dagestan State University, Caspian Centre for Nature Conservation, Association of Universities and Research Centers of Caspian Region States	Гис-моделирование уровенного режима Каспийского моря: критические пороги, экологические риски и научные основы стратегий адаптации / GIS modeling of the Caspian Sea level regime: critical thresholds, environmental risks, and scientific foundations of adaptation strategies
11.	Guy Petherbridge, Abdulgamid A. Teymurov, Alimurad Gadzhiev	Russia	Dagestan State University, Caspian Centre for Nature Conservation, Association of Universities and Research Centers of Caspian Region States	Striving for Accuracy: Correlating Modern Estimations of Past Caspian Sea Levels with Historical Cartography and Eye-Witness Imagery / Стремление к точности: Сопоставление современных оценок уровня Каспийского моря в прошлом с исторической картографией и изображениями очевидцев
12.	Alexander V. Bocharov, Andrey G Kostianoy, Sergey A Lebedev, Ludmila I. Kolomeets, Pavel N. Kravchenko	Russia	Shirshov Institute of Oceanology, Geophysical Center of the Russian Academy of Sciences, Tver State University, SPBU, Maykop State Technological University, Witte Moscow University, Russian State Hydrometeorological University,	What SSP global climate change scenario is the Caspian sea region following / Какому SSP сценарию глобального изменения климата следует регион Каспийского моря

			Institute of Radar Meteorology, Saint Petersburg (Voeikovo), Voeikov Main Geophysical Observatory, National Research University Moscow Institute of Electronic Technology	
13.	S. K. Popov A. V. Frolov	Russia	Hydrometeorological Centre of Russia, Institute of Water Problems	Инженерные аспекты проблемы прогноза уровня Каспийского моря / Engineering aspects of the problem of forecasting the level regime of the Caspian Sea
14.	V. O. Tatarnikov, E. V. Gavrilova	Russia	Caspian Marine Scientific Research Center, Astrakhan	Величина равновесного уровня Каспийского моря при различных значениях составляющих водного баланса / Value of the equilibrium level of the Caspian Sea at different values of the components of the water balance
15.	V. O. Tatarnikov, D. Kh. Azmukhambetova	Russia	Caspian Marine Scientific Research Center, Astrakhan	Использование возможностей искусственного интеллекта в прогнозировании хода уровня Каспийского моря / Using the capabilities of artificial intelligence in predicting the course of the Caspian Sea level
16.	Amanberdy N. Beglanov	Turkmenistan	National Institute of Deserts, Flora and Fauna of Turkmenistan	Прогнозы по понижению уровня Каспийского моря графическим методом / Caspian Sea level decline forecasting using the graphical method
17.	Marina Sh. Agalkhanova	Turkmenistan	Hydrometeorological Service, Ministry of	Моделирование уровня Каспийского моря: проблемы и решения в

			Environmental Protection of Turkmenistan	контексте изменения климата / Modeling of the Caspian Sea level: problems and solutions in the context of climate change
18.	Kim H. Stadelmaier, Patrick Ludwig, Joaquim G. Pinto	Germany	Institute of Meteorology and Climate Research, Troposphere Research (IMKTRO), Karlsruhe Institute of Technology (KIT)	High-resolution regional climate simulations of the Caspian Sea at different water levels during the Last Glacial Maximum / Региональное моделирование климата Каспийского моря с высоким разрешением при различных уровнях моря во время последнего ледникового максимума
Section 3: The effect of water level fluctuations on the Caspian ecosystem and coastal socio-economic development				
1.	Afat Ragimova	Azerbaijan	Scientific Research Institute of Water and Land Reclamation	Колебания уровня вод Каспийского моря и их влияние на биологические ресурсы Азербайджанской Республики / Caspian Sea water level fluctuations and their impact on the biological resources of the Republic of Azerbaijan
2.	Elchin Mamedov	Azerbaijan	Ministry of Agriculture and Institute of Geography of the Ministry of Science and Education	Ecological impacts of Caspian Sea level decline on coastal bioresources and ecosystems in Azerbaijan / Экологические последствия снижения уровня Каспийского моря для прибрежных биоресурсов и экосистем Азербайджана
3.	Aida Aghayeva, Vusala Aghamirova	Azerbaijan	Water and Amelioration Scientific Research Institute	Analysis of Caspian Sea level changes and impact on coastal areas / Анализ изменений

				уровня Каспийского моря и их воздействия на прибрежные районы
4.	Aygun Aziz Karimova	Azerbaijan	Azerbaijan State Pedagogical University	Oil waste pollution in the Caspian Sea / Загрязнение Каспийского моря нефтяными отходами
5.	Sabir Bakhman Asadov	Azerbaijan	SOCAR, Oil Gas Scientific Research Project Institute (OGSRPI)	Long-term level fluctuations in the oil and gas production water areas of the Caspian Sea / Долгосрочные колебания уровня в нефте- и газодобывающих акваториях Каспийского моря
6.	Nurlan Khalilov, Fuad Veliyev, Alesker Aga-zade, Khudayar Hasanov, Matanat Alsafarova	Azerbaijan	SOCAR	Неионогенные поверхностно-активные вещества на основе фракций монокарбоновых и циклоалифатических кислот и исследование их нефтесобирающих и нефтедиспергирующих свойств на поверхности воды / Nonionic surfactants based on fractions of monocarboxylic and cycloaliphatic acids and the study of their oil-collecting and oil-dispersing properties on the water surface
7.	Kazem Bastami, Mehrshad Taheri Ahmad Radmanesh Ali Mehdiinia,	Iran	National Institute of Oceanography and Atmospheric Science	Distribution of marine debris in coastal sediment of South Caspian Sea / Распределение морского мусора в прибрежных отложениях Южного Каспия
8.	Kazem Bastami, Mehrshad Taheri, Ahmad Radmanesh	Iran	National Institute of Oceanography and Atmospheric Science,	Impacts of Climate Change and Caspian Sea Level Decline on Coastal Nematode Communities:

	Ali Mehdinia, Hosein Bagheri, Reza Rahnama, Ali Hamzepour, Mohammad Ali Hamzeh, Maryam Yazdani Foshtomi		Tarbiat Modares University	A Study of Extreme Environmental Gradients along the Southern Coast / Воздействие изменения климата и снижения уровня Каспийского моря на сообщества прибрежных нематод: исследование экстремальных экологических градиентов вдоль Южного побережья
9.	Leila Rashidian, Behzad Laeghi	Iran	Center for Atmospheric and Oceanic Sciences	Assessment of Climate Change Trends on Caspian Sea Water Level Fluctuations and Their Impacts on Residential Areas (Study Area: Iranian Coastal Regions) / Оценка тенденций изменения климата, связанных с колебаниями уровня воды в Каспийском море, и их воздействия на жилые районы (область исследования: прибрежные районы Ирана)
10.	Habibollah Namdarian, Mohammad Hadi Moeini, Majid Jandaghi Alaei	Iran	Pouya Tarh Pars Cons. Eng. Company	Investigation of the Possible Impacts of Sea Level Decline on Southern Ports of Caspian Sea / Исследование возможных последствий снижения уровня моря для южных портов Каспийского моря
11.	Ayda Bozorgchenani, Mohammad Javad Vesaghi	Iran	Inland Water Aquaculture Research Center, Iranian Fisheries Science Research Institute, Agricultural Research, Education and Extension Organization (AREEO)	Effects of Changes in the Caspian Sea (Southern Caspian Sea) Water Level on the Diversity and Abundance of Macro-benthos / Влияние изменений уровня Каспийского моря (Южный Каспий) на

				разнообразие и обилие макробентоса
12.	Javad Daghigh Roohi, Alireza Mirzajani	Iran	Inland Water Aquaculture Research Center, Iranian Fisheries Science Research Institute, Agricultural Research, Education and Extension Organization (AREEO)	The impact of decreasing water levels in Anzali Wetland on the amount of catch / Влияние снижения уровня воды в водно-болотных угодьях Анзали на объём вылова
13.	Mehrshad Taheri, Ahmad Radmanesh, Ali Mehдинia, Maryam Yazdani Foshtomi, Julia Gorbunova, Boris Chubarenko	Iran / Russia	Iranian National Institute for Oceanography and Atmospheric Science Tarbiat Modares University, Shirshov Institute of Oceanology	Caspian Sea-Level Regression Drives Rocky Habitat Loss and a Benthic Ecological Crisis / Понижение уровня Каспийского моря приводит к потере скалистых местообитаний и экологическому кризису на дне море
14.	Maryam Yazdani Foshtomi, Ahmad Radmanesh, Mehrshad Taheri, Reza Rahnama, Ali Mehдинia, Dmitriy Domnin, Boris Chubarenko	Iran / Russia	Iranian National Institute for Oceanography and Atmospheric Science Tarbiat Modares University, Shirshov Institute of Oceanology	Spatial Patterns and Bioaccumulation of Microplastics in <i>Mytilaster lineatus</i> : A Caspian Sea Coastal Assessment / Пространственная структура и биоаккумуляция микропластика в <i>Mytilaster lineatus</i> : оценка прибрежной зоны Каспийского моря
15.	Maryam Yazdani Foshtomi, Ahmad Radmanesh, Mehrshad Taheri, Reza Rahnama, Ali Mehдинia, Dmitriy Domnin, Boris Chubarenko	Iran / Russia	Iranian National Institute for Oceanography and Atmospheric Science Tarbiat Modares University, Shirshov Institute of Oceanology	Contrasting Microplastic Distribution in Caspian Coastal Habitats and Ingestion by the Rockpool Shrimp <i>Palaemon elegans</i> / Контрастное распределение микропластика в прибрежных местообитаниях Каспийского моря и употребление его в пищу каменной креветкой <i>Palaemon elegans</i>

16.	R. Zh. Abdildina	Kazakhstan	Kazakh branch of the Moscow State University	Человек и Каспий: философский взгляд на современные вызовы / Man and the Caspian Sea: a philosophical view on modern challenges
17.	M. T. Baymukanov, M. K. Sirazhitdinova A. M. Baymukanova	Kazakhstan	Institute of Hydrobiology and Ecology, Al-Farabi Kazakh National University	Сохранение лежбищ каспийского тюленя в условиях регрессии Каспийского моря / Conservation of Caspian seal rookeries in the conditions of the Caspian Sea regression
18.	E. V. Vilkov	Russia	Caspian Institute of Biological Resources, Dagestan	Влияние разнонаправленной ритмики уровня Каспийского моря на гидроэкологическую обстановку и авифауну западного побережья среднего Каспия (Республика Дагестан) / The influence of the multidirectional rhythms of the Caspian Sea level on the hydroecological situation and avifauna of the western coast of the Middle Caspian Sea (Republic of Dagestan)
19.	A. F. Sokolskiy	Russia	Astrakhan State University of Architecture and Civil Engineering	Экологические изменения биоразнообразия в период снижения уровня Каспийского моря / Ecological changes in biodiversity during the decline of the Caspian Sea level
20.	D. R. Svetasheva	Russia	Caspian Marine Scientific Research Center, Astrakhan	Состояние и уровень загрязнения акватории российского сектора недропользования Каспийского моря в 2024 году / The state and level of pollution of the Russian subsurface use sector of the Caspian Sea in 2024

21.	A. Kerimova	Turkmenistan	Turkmen Agricultural Institute	Растительный мир Каспийского моря / Flora of the Caspian Sea
22.	B. Yusupova, B. Berdiyeva, J. Mirabova	Turkmenistan	Turkmen Agricultural Institute	Энтомофауна прибрежных территорий Каспийского моря / Entomofauna of the coastal territories of the Caspian Sea
23.	Khekim T. Yusupov	Turkmenistan	Turkmen Agricultural Institute	Рыболовство в Каспийском море / Fisheries in the Caspian Sea
24.	Ogulnabat Ya. Rakhmonova	Turkmenistan	Magtymguly Turkmen State University	Флора прикаспийской пустыни в условиях изменения климата / Flora of the Caspian desert in the context of climate change
25.	Ch. J. Kulieva	Turkmenistan	Magtymguly Turkmen State University	Редкие и эндемичные виды туркменского побережья Каспийского моря / Rare and endemic species of the Turkmen coast of the Caspian Sea
26.	G. O. Khamraev, N. V. Nikolaev	Turkmenistan	Magtymguly Turkmen State University, International Scientific-Technological Park of the Academy of Science of Turkmenistan	Динамика берегов и прибрежной части туркменского Прикаспия / Dynamics of the shores and the coastal part of the Turkmen Caspian Sea
27.	Eldar A. Rustamov	Turkmenistan	National Institute of Deserts, Flora and Fauna of Turkmenistan	Действия по сохранению биоразнообразия в туркменском секторе Каспия в среднесрочный и долгосрочный периоды на фоне падения уровня моря / Actions to preserve biodiversity in the Turkmen sector of the Caspian Sea in the medium and long term against the background of sea level decline

28.	Pirli A. Kepbanov Sakhetmyrat B. Mammedov	Turkmenistan	National Institute of Deserts, Flora and Fauna of Turkmenistan, Khazar State Nature Reserve	Первичные фитоценозы на высохших территориях Туркменбашинского (Красноводского) залива Каспийского моря / Primary phytocenoses in dried-up territories of the Turkmenbashi (Krasnovodsk) Bay of the Caspian Sea
29.	A. A. Shcherbina, Sakhetmyrat B. Mammedov	Turkmenistan	Khazar State Nature Reserve	Влияние колебаний уровня моря на состояние водноболотных угодий и биоразнообразие туркменского сектора Каспия / Impact of sea level fluctuations on the state of wetlands and biodiversity of the Turkmen sector of the Caspian Sea
30.	Jemal Bashimova	Turkmenistan	Turkmen State Institute of Economics and Management	Impacts of Caspian sea level fluctuations on ecosystems and coastal socio-economic development / Воздействие колебаний уровня Каспийского моря на экосистемы и социально-экономическое развитие прибрежных районов
31.	Matteo Lattuada, Könül Ahmadova	Germany / Azerbaijan	Institute of Ecology, Technische Universität Berlin / Department of Applied and Natural Sciences, Western Caspian University	Seagrass Occurrence and Rapid Habitat Loss along the Azerbaijani coasts of the Caspian Sea / Появление морских водорослей и быстрая утрата среды обитания на азербайджанском побережье Каспийского моря
32.	Simon J. Goodman	UK	University of Leeds	Developing dynamic approaches to spatial conservation planning to keep biodiversity protection measures

				relevant in the face of rapid Caspian Sea level decline / Разработка динамических подходов к пространственному природоохранному планированию для сохранения актуальности мер по защите биоразнообразия в условиях стремительного понижения уровня Каспийского моря
Section 4: Adaptation strategies to the Caspian Sea level fluctuations				
1.	U. Gashimova Aliya Gaisina H. Safikhanova I. Galandarli	Azerbaijan	Abdulla Karaev Institute of Physiology	Сценарно-ориентированный подход к оценке и управлению медико-экологическими рисками в Бакинской бухте / Scenario-based approach to assessment and management of medical and environmental risks in the Baku Bay
2.	Subkhana Shakhmaliyeva	Azerbaijan	Scientific Research Institute of Water and Land Reclamation	Использование вод Каспийского моря в условиях дефицита пресной воды и их влияние на мелиоративное состояние почв / Use of the Caspian Sea waters in conditions of freshwater scarcity and their impact on the reclamation state of soils
3.	Maya Gurbanova	Azerbaijan	Academy of the Ministry of Emergency Situations	Analysis of the causes of sea-level fluctuations and emergency risk factors in the Caspian Sea / Анализ причин колебаний уровня моря и факторов риска чрезвычайных ситуаций на Каспии

4.	Chingiz Ismayilov	Azerbaijan	Baku State University	Колебание уровня Каспийского моря и разработка программ управления приморских районов / Caspian Sea level fluctuations and the development of coastal management programmes
5.	Emin Alimusayev	Azerbaijan	Baku State University	Legal challenges of adaptation to Caspian sea water level decline from the Azerbaijan perspective / Правовые проблемы адаптации к понижению уровня Каспийского моря с точки зрения Азербайджана
6.	Zhanar Naurozbayeva, Nazrin Bagirova	Azerbaijan / Kazakhstan	Institute of Geography and Water Security / ADA University	Климатогенная трансформация правового режима Каспийского моря: междисциплинарный анализ / Climate-driven transformation of the legal regime of the Caspian Sea: interdisciplinary analysis
7.	Leila Rashidian, Safieh Farrokhi, Morid Abbas Hasanvand	Iran	Center for Atmospheric and Oceanic Sciences, Sharif University of Technology	Climate-Driven Changes in Caspian Sea Level: Causes, Conceptual Modeling, and Adaptation Implications / Климатические изменения уровня Каспийского моря: причины, концептуальное моделирование и последствия для адаптации
8.	Roghayeh Shoja Miyadan, Mohammad Reza Mobini	Iran	Cultural Heritage and Tourism Research Institute Tehran Municipality	Climate Change, Caspian Sea Water Level Fluctuations and Coastal Zone Engineering: A Case Study of the Port of Neka / Изменение климата, колебания уровня

				Каспийского моря и устройство прибрежной зоны: на примере порта Нека
9.	Maryam Aghajani, Arezoo Ashrafizadeh, Mahboobeh Mohammadkhan, Siavash Shamsipou	Iran	Ab Khak Tehran Consulting engineering Company, Department of Environment (DoE)	Proposed strategies for mitigating the ecological and socio-economic impacts of Caspian sea water level decline in the southeastern coastal wetlands (case study: Miankaleh–Gorgan bay and Gomishan international wetlands) / Предлагаемые стратегии смягчения экологических и социально-экономических последствий понижения уровня Каспийского моря для юго-восточных прибрежных водно-болотных угодий (на примере залива Мианкале-Горган и международных водно-болотных угодий Гомишан)
10.	Maya Ye. Uruzgaliyeva, Venera A. Zheksembekova, Raziya Ye. Asylgozhina	Kazakhstan	Institute of State History	Система обеспечения экологической безопасности Каспийского региона: вызовы, риски и механизмы координации / Environmental safety system of the Caspian region: challenges, risks and coordination mechanisms
11.	Zagir V. Ataev, Abdulgamid A. Teymurov, V. V. Bratkov	Russia	Dagestan Federal Research Center, Dagestan State University, Moscow State University of Geodesy and Cartography	Регрессия Каспийского моря и её влияние на ландшафты Кавказского экорегиона: современные тенденции, последствия и адаптационные стратегии / Regression

				of the Caspian Sea and its impact on the landscapes of the Caucasian ecoregion: current trends, consequences and adaptation strategies
12.	P. V. Lyushvin M.O. Buyanova N.S. Chelidze	Russia	MSU, HSE	Использование биологического ресурса для восстановления уровня Каспийского моря / Use of biological resource for the restoration of the Caspian Sea level
13.	S. I. Shaporenko, A. M. Abdurashidov	Russia	Institute of Geography of the Russian Academy of Science, Bar Association of the Republic of Dagestan	Стратегия адаптации как ключевая идеология в решении проблем, связанных с колебанием уровня Каспийского моря / Adaptation strategy as a key ideologeme in solving problems related to fluctuations in the Caspian Sea level
14.	A. B. Mashrykov	Turkmenistan	Turkmen Agricultural Institute	Основы зелёной экономики / Fundamentals of the green economy
15.	Musa A. Khanov	Turkmenistan	Turkmen Agricultural Institute	Развитие логистики Туркменистана / Development of logistics in Turkmenistan
16.	A. Ya. Amaniyazov	Turkmenistan	Turkmen Agricultural Institute	Развитие транспортной системы как фактор экономического роста страны / Development of the transport system as a factor of the country's economic growth
17.	A. A. Ataeva G. N. Gurbanlyyev	Turkmenistan	S. A. Niyazov Turkmen Agricultural University	Экологические проблемы Каспия и экономическое развитие прибрежных территорий / Environmental problems of the Caspian Sea and economic development of coastal territories

18.	Sh. G. Ashirmuradova, Sh. K. Durdyeva	Turkmenistan	Magtymguly Turkmen State University	Укрепление научной базы для мониторинга прибрежных экосистем Каспийского моря в Туркменистане в условиях изменения уровня воды / Strengthening the scientific base for monitoring coastal ecosystems of the Caspian Sea in Turkmenistan in the context of changing water levels
19.	Aymyrat Halnazarov	Turkmenistan	Oguz Han Engineering and Technology University of Turkmenistan	Youth environmental education and its role in the protection of the Caspian sea / Экологическое просвещение молодежи и его роль в защите Каспийского моря

Registered as audience (without abstracts) / Зарегистрировались в качестве слушателей (без доклада):

№	Name/Имя	Country/Страна	Institution/Учреждение
1.	Magomed Abduyev	Azerbaijan	Institute of Geography, Ministry of Science and Education
2.	Morid Abbas Hasanvand	Iran	Toos Darya Industries Company
3.	Mohammad Reza Mobini	Iran	Civil Engineer
4.	Shabnam Hadinejad	Iran	IRIMO
5.	Yerakhmed Mukhanbetov	Kazakhstan	North Caspian Operating Company (NCOC)
6.	Larisa Balakay	Kazakhstan	Товарищество с ограниченной ответственностью «Институт ионосферы»
7.	Talgat Taukenov	Kazakhstan	UNDP Kazakhstan
8.	Natalia Shumeyko	Russian Federation	Kaspika Seal Rescue Agency
9.	Alexander Levintas	Russian Federation	ООО «Каспийская нефтяная компания»

10.	Maria Duvanova	Russian Federation	ООО «Каспийская нефтяная компания»
11.	Ilya Alexeev	Russian Federation	ООО «Каспийская нефтяная компания»
12.	Natalia Popova	Russian Federation	ООО «Каспийская нефтяная компания»
13.	Guljamal Nurmuhammedova	Turkmenistan	Regional Coordinator of Global Water Partnership for Central Asia and Caucasus (GWP CACENA)
14.	Linas Svolkinas	UK	Leeds University

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11.	Natalia Popova	Russian Federation	ООО «Каспийская нефтяная компания»
12.	Linas Svolkinas	UK	Leeds University

Fully Developed Proposal for Single Country

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme: Building Climate Resilient Cities and Communities in Turkmenistan

Country: Turkmenistan

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)
United Nations Environment Programme (UNEP)

Executing Entities: International Migration Organization (IMO)

Type of Implementing Entity: Multilateral implementing entity

Amount of Financing Requested 9,000,000.00

Letter of Endorsement (LOE) signed: Yes No

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

Stage of Submission:

This proposal has been submitted before including at a different stage (concept, fully-developed proposal)
This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date:

Please note that fully-developed proposal documents should not exceed 100 pages for the main document and 100 pages for the annex

A. Project/Programme Background and Context

Background

The Caspian Sea region is one of the most geopolitically active and environmentally unique regions in the world. The Caspian Sea covers an area of 371,000 square kilometers. Its shore runs 7,000 kilometers and is part of five country borders: Russia, Kazakhstan, Turkmenistan, Iran, and Azerbaijan. Its topography, which includes both deep and shallow zones, and chemistry results in ideal conditions for distinct ecology. It is home to a number of endemic and endangered species and is an important area for critical migratory species.

Several human settlements exist along the sea's shore, including the largest, Azerbaijan's capital of Baku, which is home to more than 2.6 million inhabitants. Cities and towns exist along its shore in all five countries it borders. Many of the inhabitants of those cities and towns depend upon the sea financially. While tourism and fishing are key industries in the region, the most important are the petroleum and natural gas sectors.

The combined rapid urbanization on the sea's shore, its increasing changes, and its projected economic exploitation put pressure on the region's natural resources and its cities. These factors present serious challenges to the region's inhabitants. Between increased demand for services, increased waste production, increased pressure on natural resources, increasing weather extremes, and developing economies, the region is particularly vulnerable. These compounding vulnerabilities could lead to decreasing agricultural yields, worsening economies, mass migration, and other humanitarian disasters.

Turkmenistan

Turkmenistan is a country that is particularly prone to the negative impacts of climate change, rapid urbanization, and internal migration. Home to more than 7 million people and covering an area of 488,000 square kilometers, the country has a subtropical desert climate and heavily relies on its agricultural and natural gas sectors. Hundreds of animal species exist within the country, many of which can be found in its nature reserves. Dozens of those animal species are endangered. A large number of Turkmen residents live in the country's capital, Ashgabat. 47.1% of the country lived in urban settings in 2022.

Environmental Threats

According to the Fifth Assessment Report by the IPCC, the countries of North and Central Asia bordering the Caspian Sea are experiencing warming trends, particularly in the central regions during summer, accompanied by reduced precipitation. The warming in these areas surpasses the global average, and models predict an increased likelihood of extreme precipitation. It is anticipated that heatwave duration, intensity, and frequency will rise, contributing to continued temperature increases in the Caspian Sea region throughout the century (IPCC, 2013).

Turkmenistan in particular is increasingly faced with the impacts of climate change. The average air temperature in Turkmenistan has increased by at least 1.4°C over the past 55 years. Warming is projected to continue in the country. Precipitation is expected to decrease. Hydrometeorological events are expected to increase in frequency and intensity. Aridity, a condition in which land becomes more arid due to prolonged high temperature, low precipitation and limited water availability, is expected throughout Central Asia. This phenomenon is expected to be particularly pronounced in western Turkmenistan (Lioubimtseva, Kariyeva, Henebry, 2012). These changes will have significant and substantial downstream effects, particularly on agriculture and in western Turkmenistan. Droughts are likely to negatively impact the production of cotton, cereals and forage foods. The changes will increase water demand in an already-water scarce environment. Desertification caused by humans could follow in large swaths of western Turkmenistan.

Socioeconomic threats

Given the fluctuations in sea level of the Caspian Sea, individuals and communities residing in low-lying areas are particularly prone to flooding. Hazards are greater when the inhabited communities are unplanned or informal. The value of assets along the coast and the number of inhabitants in vulnerable areas are increasing. The magnitude of losses when acute weather extremes such as flooding occur is also increasing. The most vulnerable groups include the elderly, persons with disabilities, women in charge of households, children, seasonally employed peoples and those who work in affected sectors

including migrants.

An estimated 80 to 100 million people living in the Caspian Sea region could be impacted by climate change related hazards. In Turkmenistan, there are several human settlements along the Caspian Sea Coast. Those include Hazar with a population of 14,671, Turkmenbashi with a population of 91,745 (2022 census), and Garabogaz with a population of 7,877. These communities will likely experience climate change impacts that many areas around the Caspian Sea will experience given their proximity to it. While the Caspian Sea can modulate temperature, climate change effects will still be felt, particularly those having to do with the fluctuating sea level and potential drought.

Historically, the rapid decline of the Caspian Sea water level in 1930-1978 and 1995-2019 led to degradation of natural habitats, extinction of coastal wetlands and impacted economic activity in coastal areas (Khoshnavan et al, 2019). The economic consequences of a 250 cm increase in the Caspian Sea water level during the period 1978-1995 are estimated at more than \$ 17 billion (Kroonenberg et al, 2000).

Shifting coastlines due to sea level fluctuation has a direct impact on infrastructure vital to the economy such as commercial ports, fishing docks, thermal power plants and coastal tourism facilities. The Caspian Sea coast is no exception to this rule and has undergone serious changes and extensive environmental challenges due to fluctuations in sea level. Increased frequency of extreme precipitation events will likely cause floods and soil erosion resulting in damage to urban infrastructure and water resources, as well as impacts on transportation and safety (Zarrin et al, 2022).

The impact on human health is also a concern as climate change can directly impact health due to heat or extreme events or indirectly because of diseases spreading. Public health is further linked to the state of environment and environmental pollution which is a significant problem in the Caspian region (State of the Caspian Sea Environment Report, 2019).

Economic, social and environmental advantages

The project will result in an improvement to the country's economy, social structure, and environment. Through reducing the associated costs of climate, urbanization, and migration impacts while at the same time promoting sustainable economic and infrastructure development, the country can grow while withstanding the ongoing and worsening impacts it currently faces. A key focus within the economic dimension of this project will be on transportation networks, energy efficient buildings, and more sustainable water systems. The project will strengthen the cooperation between local, national, and regional governments to streamline and more efficiently execute effective economic projects at different scales.

The project will improve livelihoods and reduce vulnerabilities among community members. The project will include a focus on the poorest community members, youth, women, the elderly, the disabled, and the displaced or migrant populations. A risk and vulnerability assessment will be undertaken for each target area to understand where resources should be focused and to which populations. Knowledge sharing and capacity building among local and national practitioners and managers will ensure the long-term success of the social improvement outcomes of the project. Policy recommendations will be enumerated and programmes will be scalable. Early warning systems will help community members make informed decisions as weather extremes approach.

A focus on the conservation of biodiversity and the protection of natural areas and ecosystems will be centered throughout the project. Preserving these species and habitats will benefit not only the environment but also the natural resources upon which human settlements rely. Strengthening protections for these areas and ensuring these areas' integrity will help them bounce back if weather extremes, climate impacts, or other effects impact them.

Target Areas

- Turkmenbashi
- Hazar
- Garabogaz

In Hazar, the economy is largely based on the petroleum industry. The city also has a large iodine plant. Near Hazar, there is natural area called the Hazar Nature Reserve. The reserve has been protected

because of its importance to migrating animals.

Garabogaz, which sits not far from Turkmenistan's border with Kazakhstan, has natural deposits of minerals that are particularly important to certain sectors. Those include sodium sulfate and urea. There is a urea processing plant in Garabogaz which is an important part of the city's economy.

Turkmenbashi, the country's largest human settlement along the Caspian Sea, plays an important role in the country's economy. Its economy is largely based on petroleum, natural gas, and shipping. It contains the country's largest oil refinery. It is also home to the country's international sea port and the terminus of the trans-Caspian railway, making the city a critical part of shipping in the region. The sea's projected sea level decrease could cause harbors to become obsolete and in need of relocation. Shipping lanes or ports may need deepening.

The human settlements along the Caspian Sea in Turkmenistan, as demonstrated above, have economies that are inextricably linked to the sea. As the Caspian Sea will be greatly affected by climate change, these towns and cities are facing and will continue to face serious threats. Those threats include not only primary climate impacts but also secondary and tertiary impacts. Sea level rise could affect the transportation and shipping sectors in these areas. Extreme weather may impact production within primary economic sectors. Other extreme events such as rainfall, flooding and drought could force internal migration which may cause additional strain on these human habitation centers as urbanization demands increase.

Tourism, which plays an important role in these areas' economies, will likely be negatively affected by climate change. Recreational activities will be impacted by changes in precipitation and temperature. These phenomena may impact the thermohaline circulation of the Caspian Sea, resulting in colder water to migrate to the surface, discouraging beach recreation.

Research has shown that the marine environment of the southern basin is under serious threat due to the entry of pollutants (industrial and municipal sewage, marine and coastal litter and agricultural pesticides) as well as the effects of climate change and drought (Jamshidi & Jafari, 2021) which impacts on livelihoods of those dependent on fishing and aquaculture for their livelihoods. If the Caspian Sea level drops between 9-18 m, this can result in rapid and strong incision of major rivers flowing into the Caspian Sea (e.g. Volga, Ural, Kura) resulting in lowering of groundwater levels in the river basins directly affecting agriculture and water use in a region that is already experiencing severe water stress (Prange et al, 2020).

Effective Steps

Recognizing the importance of climate change adaptation in urban areas, cities must adjust to current or anticipated climate hazards to mitigate negative impacts and capitalize on potential opportunities. Building resilience and reducing vulnerabilities, particularly among the most vulnerable populations and fragile ecosystems, are crucial for effective adaptation aligned with national and local priorities. Urgent action is essential for cities to prevent or minimize weather-related fatalities and economic losses resulting from climate-related extremes.

While national governments play a role, local authorities are best positioned to address climate adaptation, especially in areas housing low-income and vulnerable populations. Localized adaptation efforts not only make economic and social sense but also enhance the attractiveness of cities to investments and skilled workforce by providing safe environments and amenities like public green spaces.

Within the framework of this single country, various climate-related hazards associated with climate change and urbanization processes have been assessed. Key interventions will be implemented in selected locations to address issues including temperature increase, water scarcity, extreme weather events, flooding, and salinization, contributing to an evidence base for subsequent actions at the national and local levels.

The objective of this project is to increase climate adaptation and resilience among communities in Turkmenistan through capacity building, knowledge sharing, policy recommendations, and direct climate actions.

Partners: Adaptation Fund (AF), United Nations Environment Programme (UNEP), United Nations Human Settlements Program (UN-Habitat).

Key Components:

1. Technical and institutional capacity at multiple governmental levels for stronger mechanisms to plan, finance, and implement climate actions (Component 1).
2. Implement and support climate change adaptation initiatives (Component 2).
3. Framework for responsive and scalable adaptation solutions to be implemented throughout Turkmenistan (Component 3).

Partners: Adaptation Fund (AF), United Nations Environment Programme (UNEP), United Nations Human Settlements Program (UN-Habitat).

B. Project/Programme Objectives

The objective of this project is to increase climate adaptation and resilience among communities in Turkmenistan through capacity building, policy recommendations, and direct climate actions.

C. Project/Programme Components and Financing

1. Technical and institutional capacity at multiple governmental levels for stronger mechanisms to plan, finance, and implement climate actions (Component 1).
2. Implement and support climate change adaptation initiatives (Component 2).
3. Framework for responsive and scalable adaptation solutions to be implemented throughout Turkmenistan (Component 3).

Table

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
Component 1 Technical and institutional capacity at multiple governmental levels for stronger mechanisms to plan, finance, and implement climate actions	Strengthened technical and institutional capacity at national and local levels for long-term planning responding and financing climate actions to address sea level fluctuation droughts, floods, and heat waves taking into consideration sustainable urban development.	Output 1.1 Data and knowledge on climate change risks and vulnerability for the Caspian Sea coast of Turkmenistan collected	
		Output 1.2 Strategies and recommendations developed for climate change adaptation coordination, planning and management	
		Output 1.3 National and local level capacities in Turkmenistan strengthened to develop and finance plans and measures to address climate change and disaster related risks and impacts for greater local community resilience, especially to sea-level fluctuation, droughts, heat waves, and floods	
		Subtotal, component 1	
Component 2 Implement and support climate change adaptation initiatives	Increased adaptive capacity of the built environment and ecosystems resilience	Output 2.1 Reduced heat risk through a demonstration greening corridor/zone and development of investment	

	through the implementation of climate adaptation initiatives. Local government and communities acquire the capacity to manage and maintain priority interventions for upscaling.	planning for further projects in Balkan Region	
		Output 2.2 Enhanced Early Warning System for sea level fluctuation, drought, flooding and salinization based on Advanced hydrometeorological data and urban development plans.	
		Output 2.3 Improved water security and management to reduce drought risk through demonstrated rainwater harvesting technology and advancing cost integrated water management plans in Balkan Region	
		Subtotal, Component 2	
Component Framework for responsive and scalable adaptation solutions to be implemented throughout Turkmenistan	3 Applied innovative climate change adaptation solutions upscaled to communities throughout Turkmenistan to reduce their vulnerability to climate change (capacity partnerships, institutional legal, research cooperation and knowledge exchange)	Output 3.1 Public Awareness and Engagement Campaigns; Launch of campaigns to raise public awareness about the impacts of climate change and the importance of adaptation measures	
		Output 3.2 Financial Strategy for Climate Adaptation: creation of a comprehensive financial strategy to support climate change adaptation measures	
		Subtotal, Component 3	
		Project/Programme execution cost	
Total Project/Programme Cost			
Project/Programme Cycle Management Fee Charged by the IE			
Amount of Financing Requested			

For the case of a programme, individual components are likely to refer to specific subsets of stakeholders, regions, and/or sectors that can be addressed through a set of well-defined interventions/projects

D. Project Calendar

Table

Milestone	Expected Date
Start of Project/Programme Implementation	
Mid-term Review	
Project/Programme closing	
Terminal evaluation	

PART II: PROJECT/PROGRAMME JUSTIFICATION

A. Programme Components

The project seeks to address the repercussions of the primary environmental hazards identified, mitigating 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 Turkmenistan. 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. The project aims to advance climate initiatives on both national and local scales in Turkmenistan. This entails strengthening capacity and establishing an evidence base for planning, prioritizing, and financing essential urban resilience and climate change adaptation measures. Specific actions will be implemented at the local level, including initiatives like water management, early warning systems, and addressing urban heat island effects. These actions will be supported by data collection for evidence-based decision-making, capacity development, studies to enhance understanding of nature-based solutions and water management, as well as financial initiatives. These efforts will unfold at both local and national levels, with the goal of up-scaling to other locations in Turkmenistan. This expansion will be achieved by leveraging the institutions and mechanisms established by national frameworks and under the Tehran Convention, which came into effect in 2006. Hence, the overall project objectives are summarized as follows:

1. Strengthened technical and institutional capacity at national and local levels for long-term planning, responding and financing climate actions to address sea level fluctuation, droughts, floods, and heat waves taking into consideration sustainable urban development.
2. Increased adaptive capacity of the built environment and ecosystem resilience through the implementation of climate adaptation initiatives. Local government and communities have acquired the capacity to manage and maintain priority interventions for upscaling.
3. Innovative climate change adaptation solutions upscaled to communities throughout Turkmenistan to reduce its vulnerability to climate change (capacity, partnerships, institutional, legal, research cooperation and knowledge exchange).

Specific activities for each output are as follows:

Table

Output	Activities
1.1 Data and knowledge on climate change risks and vulnerability for the Caspian Sea coast of Turkmenistan Collected.	• Conduct analytical review of information from other regions applicable to the Caspian Sea region in the field of urban resilience and adaptation to climate change • Conduct comparative study on measures in which rules and regulations governing human settlements in coastal zone take climate change mitigation and adaptation needs into account • Provide inventories of land-based sources of pollution; assess pollutants list • Collect and analyze data and information on sea level fluctuations, increased temperature and floods, and droughts • Establish scenarios and short- and long-term perspectives on major elements of climate change • Conduct Climate Risk Analysis of the current and programme climate risks specific to the Caspian Sea coast in Turkmenistan (national level) • Implement Vulnerability Assessment: identify and assess regions and communities most vulnerable to climate change along the Caspian Sea coast in Turkmenistan (local level) • Provide projections on the potential impacts of identified climate risks on various sectors such as agriculture, fisheries, urban development, and ecosystems • Apply spatial planning tools such as the Urban Vulnerability

	Mapping tool to understand areas of critical stress for urban development, biodiversity and climate risk for inclusion into the National Urban Policy • Produce digital tools and maps • Conduct workshops and seminars
1.2 Strategies and recommendations developed for climate change.	• Develop ICZM for Turkmenistan • Develop MSP for Turkmenistan • Compile case studies that showcase successful climate adaptation and coastal management practices specifically in the Caspian Sea region • Prepare Sector-Specific Strategies for Coastal and Marine Areas in Turkmenistan: Create strategies that focus specifically on sectors relevant to Turkmenistan's part of the Caspian Sea, such as urbanization, fisheries, tourism, and oil and gas extraction • Prepare recommendations for linking ICZM and MSP to the National Urban Policy preparation • Conduct workshops and seminars
1.3 National and local-level capacities in Turkmenistan strengthened to develop and finance plans and measures to address climate change and disaster related risks and impacts for greater local community resilience.	• Prepare ICZM and MSP-Focused Climate and Urban Resilience Training Modules • Prepare ICZM and MSP Best Practices and Case Study Compendium • Prepare Community Engagement Toolkit for Coastal Areas • Implement capacity building workshops for ICZM within the context of the preparation of a National Urban Policy for Turkmenistan • Implement capacity building workshops for MSP within the context of the preparation of a National Urban Policy for Turkmenistan • Conduct workshops and seminars
2.1 Reduced heat risk through a demonstration greening corridor/zone and development of investment planning for further projects.	• Rehabilitation, construction and planting of initial green and public space site in the Hybrid Corridor • Rainwater Harvesting System and equipment for four locations (including catchments, coarse mesh, gutters, conduits, filters storage, etc.) • Rainwater recycling system for plants and greenspace • Feasibility study with concrete design plans, remediation needs and native and drought resistant plant options (including climate adaptation expertise on urban adaptation measures and blended finance) • Capacity development on urban climate adaptation and finance • Environmental Impact Assessment Report (ESIA) and gender expertise and monitoring • Community consultations • Draft investment plan to develop the remainder of the hybrid green corridor • Recommendations for the design of gender sensitive green and public space based on a study • Private sector engagement on adaptation finance and commercial development along the green corridor
2.2 Enhanced Early Warning System for sea level fluctuation, drought flooding, and salinization based on advanced hydro meteorological data and urban development plans.	• Early Warning System equipment (i.e., 2 water level sensors, 2 wind sensors, information dashboard, etc.) • Early Warning System – communication • Capacity development on Early Warning System • Environmental Impact Assessment Report (ESIA) and gender expertise and monitoring • Community consultations • Scoping study on the role of nature-based solutions in managing

	- salinization - Awareness raising campaign - Climate adaptation expertise on urban adaptation measures and Early Warning Systems
2.3 Improved water security and management to reduce drought risk through demonstrated rainwater harvesting technologies and advancing cost-integrated water management plans.	- Rainwater Harvesting System and equipment for four locations (including catchments, coarse mesh, gutters, conduits, filters storage, etc.) - Feasibility study on rainwater harvesting covering several locations. - Public education on water-use and conservation - Capacity development urban climate adaptation and water - Development of costed plan for adaptation solutions and integrated water management including gender-disaggregated water-use - Environmental Impact Assessment Report (ESIA) and gender expertise and monitoring - Climate Adaptation expertise on urban adaptation measures and integrated water management - Community Consultations
3.1 Public awareness and engagement campaigns launch of campaigns to raise public awareness about the impacts of climate change and the importance of adaptation measures.	- Development of communication products in Turkmen language to increase awareness with general public on water security risks due to climate change - Develop Climate Change Adaptation Awareness Toolkits - Establish Climate Resilience Storytelling Collection - Multi-media dissemination/ campaign in Turkmen language of key messages to key ministries and target groups, including women, migrants and other target groups - Conduct a study on financing for nature-based solutions salinization, and/or spatial planning to address sea level fluctuation in urban areas along the Turkmenistan Caspian Sea coast - Conduct a study on establishing climate resilient livelihoods building on how access to Early Warning Systems can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, especially for families left behind by migrants.
3.2 Financial strategy for climate adaptation creation of a comprehensive financial strategy to support climate change adaptation measures.	- Prepare Case Studies on successful climate adaptation financing - Develop Climate Adaptation Finance Guide for City Leaders in Turkmenistan - Training package on developing and financing plans to address climate change impacts in urban areas and focusing on key target populations - Training on developing and financing plans to address climate change impacts in urban areas and focusing on key target populations - Side Event at forum on climate finance, alongside capacity building workshops aimed at enabling access for finance for climate adaptation - Training package on nature-based solutions and/or integrated water management to address climate change impacts in urban areas and focusing on key target populations - Training on nature-based solutions and/or integrated water management to address climate change impacts in urban areas and focusing on key target populations - Conduct workshops, seminars and field visits on innovative and successful technologies and approaches used to address floods erosion, planned city extensions and urban densification as well

	as on innovative and successful technologies and approaches used to address floods, erosion, biodiversity and ecosystem protection, drainage networks, basic urban service and public space provision.
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B. Economic, Social and Environmental Benefits of the Programme

Table

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 projects sites • 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 elderly, 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 • Water stress has an impact on public health. • Migrants and other groups lacking information on risks. • Low education and awareness of water supply issues and how they relate to climate change.	• 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. • 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 and 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 waterways.	- Increased biodiversity in rural areas and urban settlements - 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 Programme

The different projects were identified following an evaluation of intervention opportunities and their cost effectiveness. The selection scores for identifying target communities were 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
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 that are detailed in Annex 5.

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 programme. 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 programme 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 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 programme 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 programme:

- 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. Turkmenistan protocols and agreements

E. Compliance with Relevant National Technical Standards

Table

Expected Output/Intervention	Relevant rules, regulations, standards and procedures (to comply with AF principle 1)	Compliance, procedures and authorizing offices
<i>Comprehensive agricultural production management</i>		
<i>Forest area rehabilitation and conservation</i>		
<i>Integrated sewage system and solid waste management</i>		
<i>Integrated water resource management</i>		
<i>Biodiversity protection</i>		
<i>Urban planning system</i>		
<i>Clean energy</i>		
<i>Climate-resilient livelihoods and circular economy</i>		
<i>Knowledge exchange and training on mainstreaming</i>		

climate change adaptation to urbanization		
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F. Alignment of Programme with Other Funding Sources

The programme will avoid overlapping with projects that have been conducted or are ongoing and seek complementarity in the climate change adaptation and disaster risk reduction field as well as addressing environmental and urban challenges; among others, these include:

- International Climate Finance for Eastern Europe, the Caucasus, and Central Asia (EECCA 2016);
- Ecosystem-based Adaptation Programme (UNEP);
- Addressing Marine litter in the Caspian Sea region (UNDP/ENEP) (2024);
- Blueing the Caspian Sea Region; Strengthening the capacity of the participating countries to address pollution and improve biodiversity conservation in the Caspian Sea (2015) (WB/UNEP);
- Middle Trade and Transport Corridor: Opportunities and Challenges Advisory (WB);
- New Urban Assessment 2024 (Asian Development Bank).

The programme will place particular emphasis on components addressing both policy and implementation dimensions related to climate change adaptation and resilience planning. This effort will build on comprehensive climate change impact assessments, focusing on biodiversity and livelihoods, especially in the solid waste, water, and sewage sectors. In collaboration with the entire United Nations Development System in the Caspian Sea region, the initiative aims to enhance knowledge and awareness of climate change adaptation, along with conducting a harmonization of climate change adaptation with sector policies. It is crucial to promote active community participation in decision-making processes and facilitate the development of climate-resilient income-generating activities. To achieve this, FAO has highlighted key sectors, including biodiversity protection, forest restoration, support for fishery communities, afforestation, and activities addressing land salination and erosion. As International Financing Institutions (IFI) have initiated engagement in climate adaptation and urbanization, the programme will ensure alignment with planned outputs.

The program has drawn valuable lessons learnt from prior and ongoing initiatives in relevant sectors, intending to complement them by addressing the persistent challenge of coastal erosion along the Caspian Sea shores. Nevertheless, the proposed components in the programme offer a more specific and unique approach to action, grounded in spatial and maritime planning, coupled with the implementation of concrete adaptation initiatives. The initiative advocates for an integrative and multisectoral approach to climate change adaptation and resilience, with a distinct focus on urban planning and design as a pivotal tool to confront the outlined challenges at both regional and local levels. Given that challenges in coastal areas are intrinsically tied to land use, population growth, and spatial development, this approach becomes imperative.

G. Learning and Knowledge Management

Table

Expected concrete output/intervention	Learning Objectives (LOs) and Indicators (I)	Knowledge Products
Outcome 1: Strengthened technical and institutional capacity at national and local level for long-term planning responding and financing climate action to address sea level fluctuation, droughts, floods, and heat waves taking into consideration sustainable urban development.		
• Analytical review or information from other regions applicable to the Caspian Sea region in the field of urban resilience and adaptation to climate change. • Climate Risk Analysis	• Analytical review or information from other regions applicable to the Caspian Sea region in the field of urban resilience and adaptation to climate change. • Climate Risk Analysis: Detailed analysis of the current and	• Analytical review or information from other regions applicable to the Caspian Sea region in the field of urban resilience and adaptation to climate change. • Climate Risk Analysis: Detailed analysis of the

Detailed analysis of the current and projected climate risks specific to the Caspian Sea coast. This would include data on sea level changes, extreme weather events, and other relevant climate phenomena. • Vulnerability Assessment: Identification and assessment of the regions and communities most vulnerable to climate change along the Caspian Sea coast of Turkmenistan. This part would consider socioeconomic factors, geographical features, and existing infrastructural resilience. • Impact Projections: Projections of the potential impacts of identified climate risks on various sectors such as agriculture, fisheries, urban areas, and natural ecosystems. • Geospatial Data and Maps: Integration of geospatial data and maps to visually represent the areas of risk and vulnerability along the Caspian Sea coast. • Report on the existing climatic data for the Caspian Sea region. Comparative study on measures in which rules and regulations governing settlements in Turkmen coastal zone take climate change mitigation and adaptation needs into account. • Inventories of land-based sources of pollution (point sources; diffuse sources; pollution from other activities) along Annex 1 categories in line with the Moscow Protocol and development of the list(s) of hotspots (Art. 7)	projected climate risks specific to the Caspian Sea coast. This would include data on sea level changes, extreme weather events, and other relevant climate phenomena. • Vulnerability Assessment: Identification and assessment of the regions and communities most vulnerable to climate change along the Caspian Sea coast of Turkmenistan. This part would consider socioeconomic factors, geographical features and existing infrastructural resilience. • Impact Projections: Projections of the potential impacts of identified climate risks on various sectors such as agriculture, fisheries, urban areas, and natural ecosystems. • Geospatial Data and Maps: Integration of geospatial data and maps to visually represent the areas of risk and vulnerability along the Caspian Sea coast. • Report on the existing climatic data for the Caspian Sea region. Comparative study on measures in which rules and regulations governing settlements in Turkmen coastal zone take climate change mitigation and adaptation needs into account. • Inventories of land-based sources of pollution (point sources; diffuse sources; pollution from other activities) along Annex 1 categories in line with the Moscow Protocol and development of the list(s) of hotspots (Art. 7) in line with the Moscow Protocol. • Pollutants list based on Annex 1 of the Moscow Protocol, list B (Categories of Substances) incoming through rivers and watercourses.	current and projected climate risks specific to the Caspian Sea coast. This would include data on sea level changes, extreme weather events, and other relevant climate phenomena. • Vulnerability Assessment: Identification and assessment of the regions and communities most vulnerable to climate change along the Caspian Sea coast of Turkmenistan. This part would consider socioeconomic factors, geographical features, and existing infrastructural resilience. • Impact Projections: Projections of the potential impacts of identified climate risks on various sectors such as agriculture, fisheries, urban areas, and natural ecosystems. • Geospatial Data and Maps: Integration of geospatial data and maps to visually represent the areas of risk and vulnerability along the Caspian Sea coast. • Report on the existing climatic data for the Caspian Sea region. Comparative study on measures in which rules and regulations governing settlements in Turkmen coastal zone take climate change mitigation and adaptation needs into account. • Inventories of land-based sources of pollution (point sources; diffuse sources; pollution from other activities) along Annex 1 categories in line with the Moscow Protocol and development of the list(s) of hotspots (Art. 7) in line with the Moscow Protocol. • Pollutants list based on Annex 1 of the Moscow Protocol, list B (Categories of Substances) incoming through rivers and watercourses.
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in line with the Moscow Protocol. • Pollutants list based on Annex 1 of the Moscow Protocol, list B (Categories of Substances) incoming through rivers and watercourses.		
• Turkmenistan Caspian Sea Coast Adaptation Guidelines with ICZM and MSP Integration. • Policy Recommendation Document for Turkmenistan's Coastal Management: A document offering policy recommendations tailored to the coastal management of Turkmenistan's section of the Caspian Sea. • Sector-Specific Strategies for Coastal and Marine Areas in Turkmenistan: Create strategies that focus specifically on sectors relevant to Turkmenistan's part of the Caspian Sea, such as fisheries, tourism, and oil and gas exploitation. • Case Studies Compilation with Focus on the Caspian Sea: A collection of case studies that showcase successful climate adaptation and coastal management practices specifically in the Caspian Sea region, highlighting lessons learned that can be applied in Turkmenistan.	• Turkmenistan Caspian Sea Coast Adaptation Guidelines with ICZM and MSP Integration. • Policy Recommendation Document for Turkmenistan's Coastal Management: A document offering policy recommendations tailored to the coastal management of Turkmenistan's section of the Caspian Sea. • Sector-Specific Strategies for Coastal and Marine Areas in Turkmenistan: Create strategies that focus specifically on sectors relevant to Turkmenistan's part of the Caspian Sea, such as fisheries, tourism, and oil and gas exploitation. • Case Studies Compilation with Focus on the Caspian Sea: A collection of case studies that showcase successful climate adaptation and coastal management practices specifically in the Caspian Sea region, highlighting lessons learned that can be applied in Turkmenistan.	• Turkmenistan Caspian Sea Coast Adaptation Guidelines with ICZM and MSP Integration. • Policy Recommendation Document for Turkmenistan's Coastal Management: A document offering policy recommendations tailored to the coastal management of Turkmenistan's section of the Caspian Sea. • Sector-Specific Strategies for Coastal and Marine Areas in Turkmenistan: Create strategies that focus specifically on sectors relevant to Turkmenistan's part of the Caspian Sea, such as fisheries, tourism, and oil and gas exploitation. • Case Studies Compilation with Focus on the Caspian Sea: A collection of case studies that showcase successful climate adaptation and coastal management practices specifically in the Caspian Sea region, highlighting lessons learned that can be applied in Turkmenistan.
• ICZM and MSP Focused Climate Resilience Training Modules: These training modules would be specifically designed to include elements of ICZM and MSP. They would cover topics like coastal zone management, marine ecosystem preservation, sustainable coastal	• ICZM and MSP Focused Climate Resilience Training Modules: These training modules would be specifically designed to include elements of ICZM and MSP. They would cover topics like coastal zone management, marine ecosystem preservation, sustainable coastal development, and MSP principles alongside climate	• ICZM and MSP Focused Climate Resilience Training Modules: These training modules would be specifically designed to include elements of ICZM and MSP. They would cover topics like coastal zone management, marine ecosystem preservation, sustainable coastal development, and MSP principles alongside climate

development, and MSP principles alongside climate risk assessment and adaptation planning (including link to Turkmenistan National Urban Policy) • ICZM and MSP Best Practices and Case Study Compendium: A collection focused on case studies and best practices in ICZM and MSP, particularly as they relate to climate change adaptation and disaster risk management. This would include successful examples from both Turkmenistan's Caspian Sea coast and other relevant global contexts. • Community Engagement Toolkit for Coastal Areas: This toolkit would be tailored to engage communities in coastal zones, focusing on ICZM and MSP-related issues. It would include resources for conducting community consultations, workshops, and participatory planning in coastal and marine areas.	risk assessment and adaptation planning (including link to Turkmenistan National Urban Policy) • ICZM and MSP Best Practices and Case Study Compendium: A collection focused on case studies and best practices in ICZM and MSP, particularly as they relate to climate change adaptation and disaster risk management. This would include successful examples from both Turkmenistan's Caspian Sea coast and other relevant global contexts. • Community Engagement Toolkit for Coastal Areas: This toolkit would be tailored to engage communities in coastal zones, focusing on ICZM and MSP-related issues. It would include resources for conducting community consultations, workshops, and participatory planning in coastal and marine areas.	risk assessment and adaptation planning (including link to Turkmenistan National Urban Policy) • ICZM and MSP Best Practices and Case Study Compendium: A collection focused on case studies and best practices in ICZM and MSP, particularly as they relate to climate change adaptation and disaster risk management. This would include successful examples from both Turkmenistan's Caspian Sea coast and other relevant global contexts. • Community Engagement Toolkit for Coastal Areas: This toolkit would be tailored to engage communities in coastal zones, focusing on ICZM and MSP-related issues. It would include resources for conducting community consultations, workshops, and participatory planning in coastal and marine areas.
OUTCOME 2: Increased adaptive capacity of the built environment and ecosystems resilience through the implementation of climate adaptation initiatives. Local government and communities have acquired the capacity to manage and maintain priority interventions for upscaling.		
• Study on nature-based solutions, salinization and/or spatial planning to address sea level fluctuation in urban areas along the Caspian Sea coast • Feasibility study for public space and greening design options including optimal plant species to combat urban heat. • Community consultation reports about design and options. • Training materials on adaptation investment planning and adaptation	• Study on nature-based solutions, salinization, and/or spatial planning to address sea level fluctuation in urban areas along the Caspian Sea coast • Feasibility study for public space and greening design options including optimal plant species to combat urban heat. • Community consultation reports about design and options. • Training materials on adaptation investment planning and adaptation finance options. • Draft investment plan for remaining hybrid green	• Study on nature-based solutions, salinization, and/or spatial planning to address sea level fluctuation in urban areas along the Caspian Sea coast • Feasibility study for public space and greening design options including optimal plant species to combat urban heat. • Community consultation reports about design and options. • Training materials on adaptation investment planning and adaptation finance options.

finance options. Draft investment plan for remaining hybrid green corridor.	corridor.	• Draft investment plan for remaining hybrid green corridor.
• A study on building climate resilient livelihoods building on how access to Early Warning Systems can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, especially for families left behind by migrants. • Early warning dashboard system at the Ex-Com Office (local government). • Communications measures, products and protocols. • Training on EWS and data synthesis. • Study on NBS to reduce salinization. • Training materials on nature-based solutions, salinization and/or spatial planning and/or integrated water management to address climate change impacts in urban areas and focusing on key target populations.	• A study on building climate resilient livelihoods building on how access to Early Warning Systems can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, especially for families left behind by migrants. • Early warning dashboard system at the Ex-Com Office (local government). • Communications measures, products and protocols. • Training on EWS and data synthesis. • Study on NBS to reduce salinization. • Training materials on nature-based solutions, salinization and/or spatial planning and/or integrated water management to address climate change impacts in urban areas and focusing on key target populations.	• A study on building climate resilient livelihoods building on how access to Early Warning Systems can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, especially for families left behind by migrants. • Early warning dashboard system at the Ex-Com Office (local government). • Communications measures, products and protocols. • Training on EWS and data synthesis. • Study on NBS to reduce salinization. • Training materials on nature-based solutions, salinization and/or spatial planning and/or integrated water management to address climate change impacts in urban areas and focusing on key target populations.
• A study on building climate resilient livelihoods building on how access to NBS and rainwater harvesting can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, especially for families left behind by migrants. • Rainwater harvesting demonstration sites for education and awareness accessible to local officials, school children and community members. • Public education campaign on water resource management locally. • Training materials on water	• A study on building climate resilient livelihoods building on how access to NBS and rainwater harvesting can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, especially for families left behind by migrants. • Rainwater harvesting demonstration sites for education and awareness accessible to local officials, school children and community members. • Public education campaign on water resource management locally. • Training materials on water	• A study on building climate resilient livelihoods building on how access to NBS and rainwater harvesting can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, especially for families left behind by migrants. • Rainwater harvesting demonstration sites for education and awareness accessible to local officials, school children and community members. • Public education campaign on water resource management locally. • Training materials on water

campaign on water resource management locally. • Training materials on water resource management and developing costed adaptation plans. • Costed adaptation solutions for integrated water. • resource management based on future projections for water demand (based on urbanization and tourism) and water supply (based on climate change).	resource management and developing costed adaptation plans. • Costed adaptation solutions for integrated water. • resource management based on future projections for water demand (based on urbanization and tourism) and water supply (based on climate change).	resource management and developing costed adaptation plans. • Costed adaptation solutions for integrated water. • resource management based on future projections for water demand (based on urbanization and tourism) and water supply (based on climate change).
OUTCOME 3: Applied innovative climate change adaptation solutions upscaled to communities throughout Turkmenistan to reduce their vulnerability to climate change (capacity, partnerships, institutional, legal research cooperation and knowledge exchange).		
• Climate Change Awareness Toolkits: Comprehensive packages containing informational brochures, interactive materials, and educational tools. These would be designed to raise awareness of the general public about climate change impacts and the importance of adaptation measures. They could be tailored to different target groups for different age groups and social segments. • Climate Resilience Storytelling Collection: A compilation of stories and case studies highlighting the real-world impacts of climate change on individuals and communities, as well as examples of successful adaptation measures. Storytelling can be a powerful tool to connect emotionally with audiences and drive home the importance of resilience efforts.	• Climate Change Awareness Toolkits: Comprehensive packages containing informational brochures, interactive materials, and educational tools. These would be designed to raise awareness of the general public about climate change impacts and the importance of adaptation measures. They could be tailored to different target groups, for different age groups and social segments. • Climate Resilience Storytelling Collection: A compilation of stories and case studies highlighting the real-world impacts of climate change on individuals and communities as well as examples of successful adaptation measures. Storytelling can be a powerful tool to connect emotionally with audiences and drive home the importance of resilience efforts.	• Climate Change Awareness Toolkits: Comprehensive packages containing informational brochures, interactive materials, and educational tools. These would be designed to raise awareness of the general public about climate change impacts and the importance of adaptation measures. They could be tailored to different target groups, for different age groups and social segments. • Climate Resilience Storytelling Collection: A compilation of stories and case studies highlighting the real-world impacts of climate change on individuals and communities as well as examples of successful adaptation measures. Storytelling can be a powerful tool to connect emotionally with audiences and drive home the importance of resilience efforts.
• Climate Adaptation Finance Guide: A detailed	• Climate Adaptation Finance Guide: A detailed guidebook	• Climate Adaptation Finance Guide: A detailed guidebook

guidebook outlining various financial mechanisms and strategies to support climate adaptation projects. This guide would cover topics such as accessing public and private funding leveraging international climate finance, and innovative financing models like green bonds and climate funds. • Case Studies on Successful Climate Adaptation Financing: A compilation of case studies showcasing successful examples of financed climate adaptation projects. These would provide practical insights into various funding models, challenges faced, and lessons learned in financing climate adaptation. • Training materials on developing and financing plans to address climate change impacts in urban areas and focusing on key target populations in Turkmen language. • Materials on peer-to-peer city learning and exchange workshops between locations within Turkmenistan. • Workshops, seminars and field visits materials on innovative and successful technologies and approaches used to build capacity on climate resilient livelihoods, or how access to Early Warning Systems, Water Harvesting and Nature Based Solutions can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, and public space provision.	outlining various financial mechanisms and strategies to support climate adaptation projects. This guide would cover topics such as accessing public and private funding leveraging international climate finance, and innovative financing models like green bonds and climate funds. • Case Studies on Successful Climate Adaptation Financing: A compilation of case studies showcasing successful examples of financed climate adaptation projects. These would provide practical insights into various funding models, challenges faced, and lessons learned in financing climate adaptation. • Training materials on developing and financing plans to address climate change impacts in urban areas and focusing on key target populations in Turkmen language. • Materials on peer-to-peer city learning and exchange workshops between locations within Turkmenistan. • Workshops, seminars and field visits materials on innovative and successful technologies and approaches used to build capacity on climate resilient livelihoods, on how access to Early Warning Systems, Water Harvesting and Nature Based Solutions can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, and public space provision.	outlining various financial mechanisms and strategies to support climate adaptation projects. This guide would cover topics such as accessing public and private funding, leveraging international climate finance and innovative financing models like green bonds and climate funds. • Case Studies on Successful Climate Adaptation Financing: A compilation of case studies showcasing successful examples of financed climate adaptation projects. These would provide practical insights into various funding models, challenges faced, and lessons learned in financing climate adaptation. • Training materials on developing and financing plans to address climate change impacts in urban areas and focusing on key target populations in Turkmen language. • Materials on peer-to-peer city learning and exchange workshops between locations within Turkmenistan. Workshops, seminars and field visits materials on innovative and successful technologies and approaches used to build capacity on climate resilient livelihoods, or how access to Early Warning Systems, Water Harvesting and Nature Based Solutions can build resilience in sectors such as agriculture, tourism and aquaculture as well as access to services, and public space provision.
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H. Consultative Process

The programme has been envisioned as a continuous engagement with stakeholders, starting from the initial stages of project formulation. This approach is intended to be consistently applied throughout the execution, including the monitoring and evaluation of diverse project initiatives. As a result, the ongoing consultations are expected to enhance the programme's methodology, thereby fostering a positive impact on the intended adaptation interventions.

- **Scope of Consultations:** The consultations aim to engage a wide range of stakeholders, including community members, local leaders, experts, government agencies, NGOs, and marginalized groups. These consultations will gather insights, perspectives, and local knowledge to comprehensively assess the vulnerabilities, needs, and capacities related to climate adaptation in urban area as well as potential impact of interventions.
- **Duration of Consultations:** The duration of consultations varies based on the complexity of the specific urban context, the number of target areas, and the depth of analysis required. The process will span over the entire period of the programme implementation, monitoring, and evaluation phase (4 years).

I. Justification for Funding Requested

The programme components, outcomes and outputs fully align with 1) national and local government/institutional priorities and gaps identified, with 2) identified community and vulnerable groups needs and 3) with the Adaptation Fund outcomes. This alignment has resulted in the design of a comprehensive approach in which the different components strengthen each other and in which outputs and activities are expected to fill identified regional and national gaps and target cities' current climate change response and corresponding institutional capacities. In fact, the selected interventions/activities are directly confirmed and/or proposed by the national, sub-regional and local governments and inhabitants of target communities through consultations.

Sea level fluctuations, increased temperature, floods and droughts are adding pressure on the Caspian environment. Also, land use conversion and ecosystem degradation combined with the pollution of land, water and air further compound the fragility of the Caspian Sea ecosystem. Funds requested from the Adaptation Fund will be used to address climate change impacts by strengthening the capacity of decision makers in Turkmenistan to define enhanced climate change adaptation strategies at national level as well as the implementation of transformative and catalytic projects at city and community levels in the selected target areas.

Without the implementation of actions promoted by the programme, it is expected that vulnerable communities will continue to suffer from the negative impacts of identified climate change hazards such as sea level fluctuations, increased temperature, floods and droughts. It is expected that the programme will serve as a catalyst to leverage other climate change adaptation actions and additional resources to scale up some of the proposed programme activities.

Component 1 improves the adaptive capacity at national level by collecting and sharing data and knowledge on climate change risks and vulnerability for the Caspian Sea and improving climate change adaptation coordination, planning and management and strategies in Turkmenistan. Currently, the data and knowledge on climate change risks and vulnerability is limited and fragmented. Similarly, the region will benefit from coordinated adaptation planning and management.

Component 2 is fully aligned with national and local government/institutional priorities and gaps identified with a clear and direct response to sea level fluctuation, droughts, heat waves, and floods as main climate hazards. The outcomes and outputs also align with needs of identified community and vulnerable groups and with the Adaptation Fund outcomes. Component 2 provides the enabling capacity and information needed for national decision makers to plan for, respond to and finance climate change adaptation measures to address sea level fluctuation, droughts, heat waves, and floods, considering urban development in Turkmenistan. Apart from providing promising business opportunities and economic growth, investments under Component 3 can substantially contribute to the current Turkmenistan context to reduce the need for continued development assistance and reconstruction and rehabilitation efforts after climate impacts.

Component 3 strengthens urban resilience, climate change adaptation – partnerships, institutional, legal, research cooperation and knowledge: The expected outcome is that coordination and knowledge sharing of data, information and capacity through national and local exchange for cross-fertilization and scaling up direct, local climate action in Turkmenistan is facilitated. Scaling up, and issues related to gender and to vulnerable groups will be deeply considered.

The programme is designed to enable and ensure strengthening of various workstreams under each component to fill identified gaps in Turkmenistan's current climate change response. The programme aims at maximizing the funding amount for the concrete adaptation component directly benefiting local communities. Funding allocation to the other (softer) components is required to support the effective execution and sustainability of those components and to share knowledge and lessons learned.

J. Sustainability of the Programme Outcomes

Sustainability is paramount for the long-term impacts and benefits of the programme beyond its implementation time frame. Hence, this programme will work on increasing institutional and communities' capacities and ownership, facilitating economic opportunities and financial mechanisms, and strengthening technical expertise.

1. Institutional sustainability:

The programme will pave the way for national and local government, but also vulnerable communities, in Turkmenistan to replicate, up-scale and sustain 'tested' concrete interventions and develop strategic spatial and land use plans, by using the 'portfolio' of effective low-cost interventions, the 'urban lab' approach and by adjusting the institutional and legal framework, where necessary, to sustain an integrated coastal management approach. It is to be noted that investment sheets have been developed in close consultation with relevant government entities.

2. Social sustainability:

By fully engaging communities, women, youth, and other vulnerable population groups in local-level project activities, including assessments (during the programme implementation phase), the development of plans/strategies, and monitoring, the programme is to achieve long-lasting awareness and capacities of these communities. Besides that, target communities and households will be trained to construct and self-maintain the proposed interventions and to enhance their livelihood options in a sustainable and resilient way. Moreover, lessons and approaches will be shared and replicated among communities, also beyond the target areas and in other countries of the region.

It will be essential to support and increase women's participatory and leadership roles in the implementation of adaptation measures in their communities. Women consultants can be engaged to maximize women's active participation if considered necessary. The programme will pursue and support gender equity and women's involvement in all activities through its adherence to direct stakeholder involvement in adaptation. The abundance of women-headed households also testifies in favor of a social request for the development of female leadership. The programme proposes the engagement of women and vulnerable groups as follows:

- Involvement of women and vulnerable population groups in community consultations on adaptation and community solutions – including migrants and seasonal workers residing in the area;
- Engagement of women and vulnerable population groups directly through awareness-raising campaigns (such as water resources and climate effects, etc.) and their inclusion in monitoring activities;
- Advocacy on the inclusion of women and youth with disabilities and other vulnerable population groups in target regions and for the activities related to adaptation; and
- Involvement of young girls and vulnerable population groups in target regions in technical training (on use of equipment and other instruments to be used by the programme).

3. Economic sustainability:

Investing in increasing adaptation in coastal areas, vulnerable assets and ecosystems is a sustainable economic approach. It will not only avoid future costs related to climate change and environmental hazard impacts, but it will also enhance and widen livelihood options. Besides that, spatial and land use plans that will embrace adaptation strategies will also help to avoid future costs related unsustainable urbanization trends (in particular, urban sprawl and leap frogging) and to climate change hazards by identifying the high-risk areas and sustain or open up investment options in the 'suitable' areas.

4. Environmental Sustainability:

The protection and or enhancement of ecosystems will be sustained through spatial and land use (as well as environmental protection) plans and other institutional and legal adjustments where needed. At the community level, awareness raising campaigns and training related to ecosystem protection and revenue-generating activities will support the sustainability of ecosystem-related interventions.

5. Financial sustainability:

This programme is designed to identify and replicate low-cost solutions with nature coastal protection and livelihood enhancement interventions. Through the spatial and land use plans (with identified high and low-risk areas) governments and the private sector will be able to develop business cases for focused protection and development of priority areas. Besides that, the institutional and legal framework will allow for and promote interventions where they are most needed. Identified investments aim to either develop a portion of a wider plan, enhance existing infrastructure, or improve the rational use of water.

6. Technical sustainability:

The 'portfolio' of interventions will be attractive for national and local governments and communities because solutions will be low-cost and nature-based dimensions for coastal protection. Besides that, interventions will consider building back better principles. This will enhance durability and sustainability significantly. Besides that, the proposed interventions will be maintained in partnership with local governments, public utilities, and communities.

7. Replicability and going to scale:

The realization of these types of initiatives aims to influence current planning approaches and to be replicated by local authorities and/or the private sector in other locations of need. Furthermore, UN-Habitat and its partners intend to leverage the results and lessons learned from this programme to explore opportunities to go to scale in other cities.

K. Environmental and Social Impacts and Risks

The proposed programme and its components seek to fully align with the Adaptation Fund's Environmental and Social Policy (ESP) as well as its Gender Policy (GP). For the programme development, programme components and activities have been screened to identify potential environmental and social risks and impacts using the 15 Adaptation Fund Principles as well as UN-Habitat's 9 Environmental and Social Principles, and two cross-cutting themes, which make up the UN-Habitat Environmental and Social Safeguards Systems (ESSS). The overall programme risk category is assessed as Category C. More details on the risk categories per the components are provided below. For the potential risks and impacts identified, mitigation measures have been proposed. Compliance will be ensured throughout the implementation of the project and monitoring of safeguards, especially for the concrete interventions under Component 2. Components 1 and 3 are categorized as Category C given that the focus on data, knowledge, capacity and coordination and does not require physical interventions in the communities. However, the environmental and social principles, which the safeguards promote – especially for gender equality and women's empowerment, protection of natural habitats, biodiversity conservation, access and equity, marginalized and vulnerable groups, and climate change – will be considered in any guidelines, recommendations, studies, planning or capacity building

efforts to ensure these principles are consistently espoused and applied.

All physical works activities in the project will be undertaken under Component 2. These activities carry the risk of causing environmental and social impacts. As the activities implemented under the project will be local and small scale, it is deemed that they are not 'Category A' risks. All activities implemented under Component 2 are, therefore, Category B. The table below shows which outputs have risks aligned with the Adaptation Fund's Environmental and Social Principles as well as the summary of the assessment and screening for the impact should the intervention violate the environmental and social principles and the likelihood of this happening. Based on this screening on a scale of 1-5, with 5 being the highest, the combined score is then used to assess the significance with 8-10 assessed as high, 5-7 as medium and 2-4 as low.

Table

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the law</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Access to equity</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Marginalized and vulnerable groups</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Human rights</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Gender equality and women's empowerment</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Core labor rights</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Indigenous peoples</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Involuntary resettlement</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Protection of natural resources</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Conservation of biological diversity</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Climate change</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Pollution prevention and resource efficiency</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Public health</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Physical and cultural heritage</i>	<i>[To be completed]</i>	<i>[To be completed]</i>
<i>Lands and soil conservation</i>	<i>[To be completed]</i>	<i>[To be completed]</i>

PART III: IMPLEMENTATION ARRANGEMENTS

A. Arrangements for Programme Implementation

This section elaborates on the implementation arrangements of national and local components of the programme as well as its upscaling. In the spirit of One UN, the three organizations, UN-Habitat, UNEP, and IOM, lead the execution of the programme which includes designated responsibility for the assigned components, ensuring programme impacts, delivery of products, and take accountability for the programme expenditures.

Accountability to the donor will be ensured by UN-Habitat as the accredited Multilateral Implementing Entity and signatory of the contract. UN-Habitat is the Implementing Entity of the programme. The Executing Entity for Component 1 is UNEP. In Turkmenistan, UN-Habitat and IOM are the Executing Entities for Component 2. Component 3 is implemented jointly by UN-Habitat, UNEP and IOM. The oversight of UN-Habitat, UNEP and IOM will work closely to ensure that all gathered programme impacts, products and data are transited to the AF on a regular basis. The programme will closely collaborate with the United Nations Resident Coordinator Office (RCO). Moreover, the programme will closely coordinate with the Turkmenistan United Nations Country Team (UNCT) and collaborate with specific relevant UN agencies, such as the United Nations Development Programme (UNDP) and the Food and Agriculture Organization of the United Nations (FAO).

Table

Executing Entity	Component 1: National Level	Component 2: Local Level	Component 3: Upscaling
Turkmenistan	UN-Habitat, IOM (UN-to-UN Transfer Agreement*)	IOM (UN-to-UN Transfer Agreement*)	UN-Habitat, UNEP, IOM (UN-to-UN Transfer Agreement*)

*Reference: <https://unsdg.un.org/resources/un-un-transfer-agreement>

For the management of the programme and the respective components, the following office arrangements will be established:

- Overall programme management:
- Component 1 – national level:
- Component 2 – local level:
- Component 3 - upscaling:

The programme office for this initiative will be based in (TBD) and will closely coordinate with UNEP and IOM as Executing Entities. The programme will leverage the existing networks and resources available in Turkmenistan 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 programme.

1. Programme Governance Structure:

As a mechanism for guiding the programme implementation and for the monitoring of progress, one overall Programme Advisory Committee (PAC) and one Technical Advisory Committee (TAC) for internal coordination and implementation purposes will be established.

2. Programme and Technical Advisory Committees:

The programme will be guided by a Programme Advisory Committee (PAC) comprising of a representative from the Ministry of (TBD), 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 Turkmenistan designated authority to the Adaptation Fund acts as the chair of the PAC, a senior official from (Foreign Ministry TBD) will act as a co-chair. The Programme 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 programme

progress assessments and recommendations from the Programme Management Unit (PMU). The PAC will review and approve annual programme 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 programme;
- Discuss and propose draft strategies developed within the framework of the programme;
- Endorse final reports (deliverables) from experts and consultants;
- Approve (Annual) Programme Workplan and any changes thereto, in accordance with UN-Habitat, UNEP, IOM and AF guidelines;
- Review programme 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 Programme Manager will closely coordinate the programme with the PAC, in terms of overall programme and programme coordination, endorsing of national and local level programme components, implementation of activities and monitoring of those as well as highlighting lessons learnt from programme activities. The PAC members will closely coordinate with national ministries and revert to policy makers for upscaling of lessons learnt from the programme components in Turkmenistan. It will identify the relevant national partners for programme activities, capacity building measures and peer-to-peer exchanges. Moreover, the PAC will foster potential partnerships of the programme with regional institutions and other key stakeholders. Detailed Terms of Reference will be drafted at the commencement of the regional programme.

3. Programme Management Unit (PMU):

UN-Habitat, UNEP and IOM will establish a joint Programme 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 programme 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 PAC and Technical Advisory Committee (TAC), AF as well as national and local governments in Turkmenistan. 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 programme. The PMU comprises of all managerial, technical, administrative and financial staff relevant to the implementation of the national and local project components implemented in Turkmenistan.

4. Overall Programme Management

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

The overall management will be conducted by a full-time Programme 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 Programme 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 Programme Assistant, a Monitoring & Evaluation and Communication Officer as well as a Programme Management/ Logistic Assistant. The programme will be implemented in close collaboration with the UN Resident Coordinator and the UN Country Team in Turkmenistan.

The Programme Manager will closely coordinate the programme with the TAC. The main engagement of the TAC will be on programme coordination, endorsing national level programme components, implementation of local initiatives and monitoring of those as well as highlighting lessons learnt from project activities for upscaling at regional level. The TAC 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 TAC will foster potential partnerships of the programme with national institutions and other key stakeholders. Detailed Terms of Reference shall be drafted respectively.

National and local programme activities will be supervised and coordinated by UN-Habitat, IOM and UNEP, in close collaboration with the RCO and UNCT in Turkmenistan. 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 programme implementation stage.

5. Considerations for gender-responsive Programme Committees

In Turkmenistan, assembling a gender-responsive PAC and TAC 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 programme 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 TAC. 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 TAC. 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.

B. Measures for Financial and Programme Risk Management

Under guidance of the Programme Manager, supported by the Monitoring and Evaluation Officers will

monitor the status of financial and programme management risks, including those measures required to avoid, minimize or mitigate these risks, throughout the programme. The table below indicates potential risks, likelihood and impact.

Table

Potential Issue	Likelihood (1-5)	Impact (1-5)	Mitigation Measures	Indicator to verify
<i>Institutional</i>				
1. Delay of programme 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 programme	Existence of recruitment strategy (y/n)
2. Loss of Government support for programme 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 sector ministries and local governments to be engaged in all aspects of programme development and implementation; utilize role of UNRCO and UNCT in ensuring consistency of programme implementation.	Core programme Implementation functions and role of PAC outlined (y/n) National Technical Experts engaged in programme team (y/n)
3. Lack of coordination between and within national government ministries and departments and local governments	2, low	3, medium	TAC to address coordination of sector ministries towards enhanced collaboration to achieve expected accomplishments.	Terms of Reference for TAC 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 programme 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.	Sustainability strategy outlines sustainability of livelihood generation and maintenance components for climate change adaptation interventions at community level (y/n)
<i>Financial management and requisite institutional capacity</i>				
6. Complexity of financial management and procurement. Administrative processes could delay the programme execution of	2, low	2, low	Challenges to delay of programme execution to be assessed at the onset of programme implementation and measures adopted in	Financial management and procurement strategy outlines mitigation measures for potential implementation

could lack integrity or needed capacity.			financial management and procurement strategy.	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
<i>Environmental</i>				
8. Habitat Destruction	3, medium	1, low	Use native plants for landscaping to support local biodiversity.	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.

C. Measures for Environmental & Social Risk Management

The proposed programme 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 programme and related activities need to be identified and addressed (so that the programme does not unnecessarily harm the environment, public health or vulnerable communities).

To ensure that remaining risks are well managed the programme management and governance (Part III. Section A), Monitoring and Evaluation (Part III. Section D) fully considers the management of environmental and social risks. The Environmental and Social Management Plan (ESMP) has been developed to ensure full compliance with the Adaptation Fund's Environmental and Social and Gender Policies.

The ESMP for this programme 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 programme 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 programme 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 programme, 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 TAC ToR, programme 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 programme 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 programme 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 programme 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 programme team. The primary alternative means for affected beneficiaries and/or community members to raise grievances confidential 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 programme at any time. This less formal mechanism will also enable programme staff to listen to communities' concerns or ideas and promote them in the implementation of the programme. More formal consultations and workshops held at local and national levels throughout the programme implementation will also serve as a means for stakeholders to raise concerns or make suggestions with regards to the programme implementation.

D. Monitoring & Evaluation Arrangements

The Monitoring and Evaluation (M&E) arrangements for this programme will be following the Adaptation Fund M&E Guidelines as well as the Environmental and Social Policy (ESP) and Gender Policy (GP). Moreover, it will follow the principles for M&E as outlined in UN-Habitat's Evaluation Policy (2013) and Evaluation Manual (2018). They adhere to the UN system standards and norms for evaluation, which are in line with the OECD/DAC (Organization for Economic Co-operation and Development/Development Assistance Committee) criteria for evaluation. Based on the Adaptation Fund Results Framework and Theory of Change, the programme will establish a M&E Framework and Plan, with M&E programme components, including the following key considerations:

- Baseline data and targets;
- Programme and milestones;
- Financial data;
- Procurement data;
- Risk assessment;
- ESP compliance;
- GP compliance;
- Programme and project indicators; and
- Lessons Learnt.

The M&E of progress in achieving programme results will be based on targets and indicators. The M&E Framework takes into account the early stages of implementation of the programme and respective national and local components. There are three levels of evaluation recommended:

- Annual Programme and Project Performance Reports (PPRs) will include a section on the status of implementation of any Environmental and Social Management Plan, including those measures required

to avoid, minimize or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary.

- **Mid-term Evaluation:** As the programme is envisaged to be implemented over the period of 4 years, a Mid-term Evaluation will be conducted after the completion of the second year. It will be conducted by an independent team of consultants (composed of international and national experts) who will critically assess the initial outputs and results of the programme and respective components. This will enable an assessment of the quality of programme implementation and fine-tuning of on-going and remaining activities if needed. Any major changes to the objectives and expected outcomes of the programme or required budget revisions will be communicated to the AF Secretariat.
- **Final Evaluation:** The programme will conduct a Final Evaluation after the end of its implementation. The evaluations will be undertaken independent of programme management. It will assess at a minimum, the following: (1) achievements of programme outcomes; (2) evaluation of risks to sustainability; and (3) processes influencing achievement of results, including financial management. Moreover, the Final Evaluation will include an evaluation of the programme's performance with respect to environmental and social risks. The cost of Mid-term and Final Evaluations will be covered by the programs M&E Framework. UN-Habitat will ensure timely and high-quality M&E by keeping oversight of the process and providing guidance to the programme Execution Entities and national government partners through full briefings of M&E requirements. Where possible, the M&E process will be participatory, involving key stakeholders at national, local and community levels – including women at all levels, including in leadership positions. M&E missions will interview women from the affected communities and other stakeholder groups to ensure that their opinions and feedback are heard and incorporated in the reporting. Where necessary, women will be given a separate space where to express themselves more freely. Programme activities will be monitored and endorsed by the PMU and comply with the AF ESP and GP. Audits of the programme financial management will follow AF regulations and rules and applicable audit policies. The M&E Plan will be implemented as proposed in the table below.

Table

Type of M&E Activities	Responsible Parties	Time Frame	Budget
Inception Meeting and PAC/TAC Meetings	Programme Manager Programme Team, UN Habitat	Inception meeting within first 3 months, annual PAC and biannual TACs	
Direct Programme Monitoring and Quality Assurance, including progress and financial reporting, and risk management	Programme Manager Programme Team, UN Habitat	Quarterly, half-yearly and annually as needed	
Compliance with ESP and GP	Programme Manager Programme Team, UN Habitat	Annually	
Audits	Programme Manager Programme Team, UN Habitat	Annually at year end	
Mid-term and Final evaluations	Programme Manager Programme Team, UN Habitat, External consultants	At midpoint and then no later than 3 months upon termination of the programme	
Community consultations/ workshops/ trainings	Programme Manager Programme Team UNEP/ IOM/ UN-Habitat	Quarterly, half-yearly and annually as needed	
Visit to field sites	Programme Manager Programme Team UNEP/ IOM/ UN-Habitat	Quarterly, half-yearly and annually as needed	

For the M&E budget and a breakdown of how implementing entity fees will be utilized in the supervision of the M&E function, please see the detailed Budget (Part III). For related data, targets and indicators,

please see the programme proposal Results Framework (Part III).

Participatory monitoring mechanisms (involving different levels of government and communes) will be put in place for the collection and recording of data to support the M&E of indicators. The programme formulation has gathered demographic data (some of which is in this public domain) and generated maps through Google Maps and Google Earth, which will be handed over to the PAC for use in the programme, including in monitoring.

The communities will be involved in further data collection and in community consultations in data analysis. This will allow beneficiary communities to work directly with the programme's M&E mechanism, to highlight issues in programme delivery and to strengthen adaptation benefits, including in replication and sustaining the programme's gains. Data collected will include marginalized groups (e.g., women) aggregated (if possible). Programme site visits will be jointly conducted based on an agreed schedule to assess programme progress firsthand.

The Programme Manager will develop an M&E Plan during the programme's inception phase, which will be distributed and presented to all stakeholders during the initial workshop. The emphasis of the M&E plan will be on (participatory) outcome/result monitoring, programme risks (financial & programme management risks and environmental social safeguard risks) and learning and sustainability of the programme. Periodic monitoring will be conducted through visits to the intervention sites. UN-Habitat will ensure that all executing partners are fully briefed on the M&E requirements to ensure that baseline and progress data is fully collected and that a connection between the knowledge management component and M&E is established. The Agreement of Cooperation will also reflect these.

An Annual Programme Performance Review (PPR) will be prepared to monitor progress made since the programme's start and for the previous reporting period. The PPR includes, but is not limited to, reporting on the following: progress on the programme's objective and outcomes – each with indicators, baseline data and end of programme targets (cumulative); programme outputs delivered per programme outcome (annual); lessons learned/ good practice; Annual Work Plan and expenditure; annual management; environmental and social risks (i.e. status of implementation of ESMP, including those measures required to avoid, minimize, or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary; and programme financial and management risks (same as per above). The reports that will be prepared specifically in the context of the M&E plan are: (i) M&E plan; (ii) programme inception report; (iii) the annual-, and terminal programme performance reports, and (iv) the technical reports. For the M&E budget and a breakdown of how implementing entity fees will be utilized in the supervision of the M&E function, please see the detailed budget (Part III. Section G). For related data, targets and indicators, please see the programme proposal Results Framework (Part III, Section E).

To monitor the status of financial and programme management risks, it is important to have a systematic and ongoing process in place. The following steps are suggested:

- Identification of financial and programme management risks, including the potential financial and programme management risks associated with a programme (i.e., budget and/ or cost overruns, delays, and unanticipated expenses).
- Development of risk management plan, including assessment of likelihood and impact of each identified risk, as well as strategies for mitigating or managing each risk.
- Establishment of monitoring and escalation procedures, including regular reporting and monitoring processes to track status of each risk, and defining escalation procedures for when a risk exceeds predetermined threshold. Monitoring of risks on a monthly and/ or quarterly basis, reviewing status of each risk and recommend necessary adjustments to risk management if required.
- Escalation of risks when a risk exceeds predetermined threshold, escalation procedure to be triggered, and appropriate parties notified. This may involve updating key stakeholders, modifying programme plan, or seeking additional resources to address risks.
- Documentation of risk management activities, including monitoring and escalation procedures to ensure accountability and transparency.

The programme's dedicated Monitoring and Evaluation Officers will be based both within the implementing entity overseeing the overall programme implementation at country and local level. Not

only will they monitor the progress of programme implementation and financial expenditure, but they will also monitor the status of financial and programme management risks (with relevant colleagues from field operations, regional and headquarter levels). The latter is conducted in close coordination with the overall Programme Manager and respective component leads.

- M&E Officers work closely with the PMU and relevant stakeholders to identify and assess financial and programme management risks. This involves conducting risk assessments, analyzing historical data, and using risk management tools to understand the potential impact of various risks.
- The frequency of risk monitoring varies based on the nature and complexity of the programme implementation. However, regular reviews are conducted and updates to keep track of risk status. maintained. Quarterly reviews are prepared for reference and monitoring purposes (more frequent or less frequent intervals may be appropriate depending on the particular risk profile).
- M&E Officers use risk registers or risk tracking systems to log and monitor identified risks. A risk register captures details about each risk, including its description, potential impact, likelihood of occurrence, mitigation measures, and responsible parties. In close coordination with the Programme Manager and programme component leads, M&E Officers establish escalation channels to report significant risks or issues that require immediate attention. The escalation process involves reporting to higher levels of management. The escalation channels are well-defined and communicated to all relevant stakeholders to ensure a prompt response to critical risks. M&E Officers work closely with the Programme Manager throughout the programme lifecycle. They collaborate to integrate risk monitoring and evaluation into the overall programme management process. This ensures that risks are continuously assessed, addressed, and that necessary adjustments are made as the programme progresses.
- Since financial risks are a critical aspect of overall programme risks, M&E Officers work closely with the finance and accounting departments. They share information about financial risks, budget status, and financial performance to gain a comprehensive understanding of the programme's financial health. M&E Officers prepare regular reports for programme stakeholders, management, and donors. These reports include updates on the status of identified risks, any changes to risk assessments, and actions taken to mitigate or address risks.

E. Results Framework

Table

Programme Component 1: Technical and institutional capacity at national and local level for long-term planning, responding and financing climate action (national level).				
Expected Results	OUTCOME 1 Strengthened technical and institutional capacity at national and local level for long-term planning, responding and financing climate action to address sea level fluctuation, droughts, floods and heat waves taking into consideration sustainable urban development.	Output 1.1: Data and knowledge on climate change risks and vulnerability for the Caspian Sea coast of Turkmenistan collected	Output 1.2: Strategies and recommendations developed for climate change adaptation, planning and management	Output 1.3: National and local level capacities strengthened to develop and finance plans and measures to address climate change and disaster related risks and impacts for greater local community resilience especially to sea-level fluctuation, droughts, heat waves, and floods.
Indicators	Decision makers in Turkmenistan are able to plan climate action (y/n) Innovative climate	Number of digital tools and models developed to support assessments or	At least 4 guidelines and recommendations for climate change adaptation	Capacity of national and local decision makers to respond to climate change adaptation measures

	finance mechanisms for local action are applied in Turkmenistan (y/n)	climate change risks and vulnerabilities for the Turkmenistan coast of the Caspian Sea	coordination, planning and management developed (including national and local levels)	in urban areas increased
Baseline Data	Turkmenistan does not have a wide experience in climate action and financing.	Turkmenistan does not have an established mechanism nor digital tools enhanced vulnerability assessments, neither a unified database. Existing climate adaptation and urbanization policies require adjustment	There are currently no cohesive guidelines for climate change adaptation, coordination, planning and management and strategies	National decision makers have some awareness of climate risks but limited knowledge or preferred, cost effective strategies for addressing climate change especially in urban areas and at the local level
Targets	At least 3 local programmes are implemented applying innovative climate action. At least 3 Innovative climate action financing mechanisms are applied in Turkmenistan	At least 5 new digital maps (or other tools) of the current trends short- and long-term perspectives on major elements of climate change including changes in temperature precipitation and climate events and hazards characteristics and timing and their implications for coastal settlements developments	Development and application of ICZM and MSP guidelines, recommendation	National decision makers in Turkmenistan are aware of climate change impacts potential adaptation measures to build urban resilience and financing options for such measures
Means Verification	meetings, informal discussions, existing reports	meetings, informal discussions, existing reports	Strategies, guidelines, reports with recommendations	Awareness and common understanding scorecards to be developed in Year 1. Knowledge, Attitude and Practice (KAP) surveys to be carried out with staff in national ministries in year 1, immediately prior to mid-term review and immediately prior to final review
Risks Assumptions	R. Changes in political dynamics	R. Changes in political dynamics	R. Decision makers will not apply the	R. Changing national priorities decrease

	or institutional personnel often result in lack of follow up and non implementation of plans and policies A. Continued political support and cooperation	or institutional personnel often result in lack of follow up and non implementation of plans and policies A. Continued political support and cooperation	new ICZM and MSP guidelines/ recommendations A. Decision makers knowledge on ICZM and MSP is increased, and they apply them on national level	focus on building capacity on climate change A. Sustained engagement and interest by key ministries on climate change
Frequency	Baseline, midterm and end	Baseline, midterm and end	Baseline and end	Baseline and end
Responsibility	UN-Habitat, UNEP IOM	UNEP, UN-Habitat	UNEP, UN-Habitat	UNEP, UN-Habitat

Table

Programme Component 2: Implementation and maintenance of climate adaptation initiatives (local level).				
Expected Results	OUTCOME 2 Increased adaptive capacity of the built environment and ecosystems resilience through the implementation of climate adaptation initiatives. Local government and communities have acquired the capacity to manage and maintain priority interventions for upscaling.	Output 2.1 Reduced heat risk through a demonstration greening corridor and development of investment planning for further projects in (TBD)	Output 2.2 Enhanced Early Warning System for sea level fluctuation drought, flooding and salinization based on advanced hydrometeorological data and urban development plans in (TBD)	Output 2.3: Improved water security and management to reduce drought risk through demonstrated rainwater harvesting technology and advancing costed integrated water management plans in (TBD)
Indicators	Number of innovative adaptation practices benefiting women and men, ecosystems and infrastructure assets in target communities AF Core Impact indicator: Number of beneficiaries including estimations for direct and	Number of hectares of land rehabilitated with native and climate appropriate plant species in line with the urban development plan of (TBD) AF Core Impact indicator: Natural assets protected or rehabilitated, including biological	Number of people who receive information on drought and salinization and early warning or flooding AF Core Impact indicator: Early Warning Systems, including (1) risk knowledge (2) monitoring and warning service, (3) dissemination and communication, and (4) response capability.	Number of rain-water harvesting demonstration sites established

	indirect beneficiaries	assets (produced or wild), land, and water areas with their ecosystems, subsoil assets and air.		
Baseline Data	[NEED INFORMATION]	[NEED INFORMATION]	[NEED INFORMATION]	[NEED INFORMATION]
Targets	Three innovative adaptation practices (one for each target community) implemented that increase resilience of women and men, ecosystems and infrastructure assets	25 of hectares of former rail line rehabilitated as green space for use by residents with native and climate appropriate plant species	Over 20,000 women and men receive information about drought, salinization and flooding in a timely manner from an EWS	Three rainwater harvesting systems established to demonstrate renewable and sustainable water resource options
Means Verification	Field site inspections photo documentation and local level monitoring reports	Field site inspections photo documentation and local level monitoring reports	Field site inspections photo documentation and local level monitoring reports	Field site inspections photo documentation and local level monitoring reports
Risks Assumptions	R. Delay in implementing infrastructure A Agreement of Cooperation will stipulate timeframe for implementing infrastructure	(R) Delays in final approval of master plan (A) Support of the national and city government for implementation of demonstration site	R. Difficulties in coordinating data dissemination between national and local level A Capacity at local level to convert hydrometeorological data into early warning communications	R. Delays in obtaining materials for rainwater harvesting systems A Sustained interest by local authorities in the programme
Frequency	Baseline, mid-term and end	Annually	Annually	Annually
Responsibility	IOM, UN-Habitat	IOM, UN-Habitat	IOM	IOM

Table

Programme Component 3: Climate change adaptation solutions upscaled to communities throughout Turkmenistan (upscaling).				
Expected Results	OUTCOME 3: Increased adaptive capacity of the built environment and ecosystems resilience through the implementation of climate adaptation initiatives. Local government and	Output 3.1: Public Awareness and Engagement Campaigns Launch of campaigns to raise public awareness about the impacts of climate change and the importance of adaptation	Output 3.2: Financial Strategy for Climate Adaptation: Creation of a comprehensive financial strategy to support climate change adaptation measures.	

	communities have acquired the capacity to manage and maintain priority interventions for upscaling.	measures.	
Indicators	Capacity of national decision makers to respond to and finance climate change adaptation measures in urban areas increased	Number of communication products about climate risks and solutions based on programme implementation and estimated number of people reached Number of public awareness activities Number of trainings/ workshops Number of knowledge products produced and estimated number of people reached	Number of staff trained to develop and finance plans to address climate change impacts in urban areas (gender disaggregated) Number of stakeholders enabled to access financing for the climate change adaptation measures
Baseline Data	National decision makers have some awareness of climate risks but limited knowledge on preferred cost-effective strategies for addressing climate change, especially in urban areas and at the local level	The general population lacks awareness about the impacts of climate change, particularly regarding water security. Additionally, there is limited knowledge on how to mitigate the effects of sea level fluctuation. Furthermore, there is a lack of capacity to effectively implement local climate action initiatives.	Turkmenistan currently lacks a financial strategy for climate change adaptation. National and local government officials, as well as staff in various institutions, have undergone training on climate change adaptation at the national level.
Targets	National decision makers in at least five ministries (in each country) are aware of climate change impacts potential adaptation measures to build urban resilience and financing options for such measures	At least one communication product in Turkmen language aimed at the general public produced focusing on educating about water security risks stemming from climate change. The dissemination of these materials will prioritize reaching women migrants, and other specified target groups in both urban and rural areas. Additionally, each country will conduct at least one study on nature-based solutions salinization, and/or spatial planning to tackle sea level fluctuations in urban regions along the	By programme completion, a minimum of 100 national and local staff, with at least 30% representation of women, will be trained in developing and financing plans to tackle climate change effects in urban settings, with a focus on key target populations. Additionally, another 100 national and local staff, with similar gender representation, will receive training on nature-based solutions and/or integrated water management to address climate change impacts in urban areas, also focusing on key target populations. This initiative aims to foster women's active participation

		Caspian Sea coast.	including leadership roles, in combating climate change.
Means Verification	o Awareness and common understanding scorecards to be developed in year 1. Knowledge, Attitude and Practice (KAP) surveys to be carried out with staff in national ministries in year 1, immediately prior to mid-term review and immediately prior to final review	Communication documents, reports dissemination estimates for number of people reached, especially from target groups	Records of meetings and trainings including participant surveys
Risks Assumptions	8 R. Changing national priorities decrease focus on building capacity on climate change. A. Sustained engagement and interest by key ministries on climate change	R. Lack of public interest in learning about behaviour change to reduce water consumption. Personnel turnover may lead to loss of trained staff and subsequent capacity. A. Interest by general public to learn more about climate change risks to water security and apply behavioural changes. Staff will remain in place to be able to implement the training	R. Changing priorities in the planning system result in adaptation getting lower priority. A. Continued willingness exists to plan for and implement climate change adaptation
Frequency	Baseline, mid-term and end	Annually, Baseline, midterm, and end; public awareness events awareness materials produced, trainings	Annually, Baseline, midterm and end; Regional meetings presentation at major events
Responsibility	UN-Habitat, UNEP, IOM	UN-Habitat, UNEP, IOM	UN-Habitat, UNEP, IOM

F. Programme Alignment to AF Results Framework

Table

Project Objective(s)	Project Objective Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
OUTCOME 1: Strengthened technical and institutional capacity at national and local level for long-term planning responding and financing climate action to address sea level fluctuation, droughts, floods, and heat waves taking into consideration sustainable urban development.	The guidelines for existing policies have been revised and database for information exchange has been developed for decision makers	Outcome 7: Improved policies and regulations that promote and enforce resilience measures	7. Climate change priorities are integrated into national development strategy	USD
OUTCOME 2: Increased adaptive capacity of the built environment and	Number of innovative adaptation	Outcome 8: Support the development and	8. Innovative adaptation practices are	USD

ecosystems resilience through the implementation of climate adaptation initiatives. Local government and communities have acquired the capacity to manage and maintain priority interventions for upscaling.	practices benefiting women and men ecosystems and infrastructure assets in target communities	diffusion of innovative adaptation practices, tools and technologies	rolled out, scaled up, encouraged and/or accelerated at regional, national and/or subnational level.	
OUTCOME 3: Applied innovative climate change adaptation solutions upscaled to communities throughout Turkmenistan to reduce their vulnerability to climate change (capacity partnerships, institutional legal, research cooperation and knowledge exchange).	Knowledge of decision makers improved through workshops reports and trainings at the regional level through capacity building and new mechanism for collection, disseminating and exchange of information	Outcome 2 Strengthened institutional capacity to reduce risks associated with climate induced socioeconomic and environmental losses	2.1. Capacity of staff to respond to, and mitigate impacts of climate related events from targeted institutions increased	USD
	Capacity of national decision makers to respond to and finance climate change adaptation measures in urban areas increased	Outcome 4 Increased adaptive capacity within relevant development and natural resource sectors	4.1. Responsiveness of development sector services to evolving needs from changing and variable climate	USD

Table

Project Outcome(s)	Project outcome Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Component 1				
Output 1.1: Data and knowledge on climate change risks and vulnerability for the Caspian Sea coast of Turkmenistan collected	Number of digital tools and models developed or climate change risks and vulnerability for the Caspian Sea	Output 3.2 Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.2 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	USD

Output 1.2: Strategies and recommendations developed for climate change adaptation coordination, planning and management	Number of trainings and workshops for national and local government staff to address land-based pollution and urbanization	Output 2.1: Strengthened capacity of national and subnational centers and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of climate-related events (by gender)	USD
Output 1.3: National and local level capacities in Turkmenistan strengthened to develop and finance plans and measures to address climate change and disaster related risks and impacts for greater local community resilience especially to sea-level fluctuation, droughts, heat waves, and floods.	Number of guidelines and recommendations developed	Output 7: Improved integration of climate-resilience strategies into country development plans	7.1. No. of policies introduced or adjusted to address climate change risks (by sector)	USD
Component 2				
Output 2.1 Reduced heat risk through a demonstration greening corridor and development of investment planning for further projects in (TBD)	Number of hectares of land rehabilitated with native and climate appropriate plant species	Output 5: Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	USD
Output 2.2 Enhanced Early Warning System for sea level fluctuation, drought, flooding and salinization based on advanced hydrometeorological data and urban development plans in (TBD)	Number of people who have improved access to hydrometeorological data on drought and salinization and early warning on flooding	Output 1.1: Risk and vulnerability assessments conducted and updated	1.2 No. of early warning systems (by scale) and no. of beneficiaries covered	USD
Output 2.3 Improved water security and management to reduce drought risk through demonstrated rainwater harvesting	Number of rain water harvesting demonstration sites established	Output 4: Vulnerable development sector services and infrastructure assets strengthened in	4.1.1. No. and type of development sector services modified to respond to new conditions resulting from	USD

technology and advancing costed integrated water management plans in (TBD)		response to climate change and impacts, including variability	climate variability and change (by sector and scale)	
Component 3				
Output 3.1: Public Awareness and Engagement Campaigns; Launch of campaigns to raise public awareness about the impacts of climate change and the importance of adaptation measures	Number of communication products about climate risks and solutions based on programme implementation and estimated number of people reached	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change and of appropriate responses	USD
	Number of public awareness activities; Number of trainings / workshops	Output 8: Viable innovations are rolled out, scaled up, encouraged and/or accelerated	8.1. Number of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	USD
Output 3.2: Financial Strategy for Climate Adaptation: Creation of a comprehensive financial strategy to support climate change adaptation measures	Number of staff trained to develop and finance plans to address climate change impacts (gender disaggregated)	Outcome 2: Strengthened Institutional capacity to reduce risks associated with climate induced socioeconomic and environmental losses	2.1. Capacity of staff to respond to and mitigate impacts of, climate related events from targeted institutions increased	USD

G. Detailed Budget, IE Management Fee Budget & Executive Costs

H. Disbursement Schedule and Timebound Milestones

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY**A. Record of endorsement on behalf of the government****B. Implementing entity certification**

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (.....list here.....) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Name & Signature (IE coordinator):

Date (Month, Day, Year):

Telephone, email:

Project Contact Person:

Telephone, email:

МЕЖДУНАРОДНЫЙ ДЕНЬ КАСПИЙСКОГО ТЮЛЕНЯ

ПРЕДЛОЖЕНИЯ ПО МЕРОПРИЯТИЯМ ДЛЯ ПРОВЕДЕНИЯ
МЕЖДУНАРОДНОГО ДНЯ КАСПИЙСКОГО ТЮЛЕНЯ



Экологический фонд
«Чистые моря»





НА ЛЮБОМ ЯЗЫКЕ

Эксперты Фонда и Экоцентра проведут игротеку: сеанс параллельной игры в настольные игры, посвященные сохранению разнообразия. Прежде всего это будет игра «Голоса глубин», посвященная морским млекопитающим, находящимся под защитой, одним из которых является каспийский тюлень. В игре поднимаются вопросы факторов риска для морских млекопитающих и упоминаются ООПТ, как наиболее эффективный инструмент сохранения мест обитания млекопитающих и их самих. Один сеанс игры длится от 10 до 15 минут, количество участников от 2 до 6. Несколько ведущих с несколькими экземплярами игры смогут параллельно проводить её в течение всей игротеки.



Урок посвященный каспийскому тюленю позволит широкой аудитории познакомиться с особенностями биологии и экологии этого вида, вызовет интерес к виду и желание узнать больше, и, как следствие поддержать усилия по сохранению каспийского тюленя. Из одного из краснокнижных видов каспийский тюлень станет для участников чем-то значимым и знакомым, о чем хочется говорить и что хочется сохранить. Интерактивные приемы позволят сделать из слушателей активных участников, которые усваивают информацию лучше за счет вовлечения их в разные виды деятельности, упражнения, игровые приёмы. По ссылке заповедныйурок.рф примеры уроков, разработанные экспертами Фонда «Заповедное посольство».



Государственный природный биосферный заповедник «Дагестанский»

ДАГЕСТАНСКИЙ

Проведение волонтерского мероприятия по сбору мусора вдоль Дагестанского побережья Каспийского моря. В акции принимают участие школьники и студенты.

Проведение урока, посвященного каспийскому тюленю, разработанного совместно со специалистами Фонда «Заповедное посольство», в образовательных организациях населенных пунктов, расположенных на Дагестанском побережье Каспийского моря.





Институт гидробиологии и экологии. Казахстан, г. Алматы.



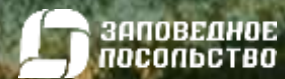
СЕМИНАР ПО ОБСУЖДЕНИЮ ПЛАНА ДЕЙСТВИЙ ПО СОХРАНЕНИЮ КАСПИЙСКОГО ТЮЛЕНЯ

Целевая аудитория:

- местные уполномоченные органы власти, сотрудники будущего Государственного природного резервата «Каспийский тюлень»;
- рыболовы;
- представители научных организаций;
- НПО;
- бизнес;
- и другие заинтересованные стороны.

Место проведения:

Казахстан, г. Акта



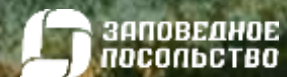


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План действий по сохранению каспийского тюленя

- Законодательные инициативы
- Сохранение местообитаний и повышение численности тюленей
- Борьба с морским мусором
- Развитие научного и познавательного туризма как формы экологического туризма
- Исследования и создание Единой базы данных о состоянии каспийского тюленя
- Образование и подготовка кадров
- Работа с местным населением



Экологический фонд «Чистые моря»

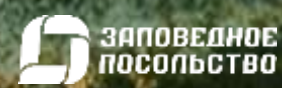


КУЛЬТУРНАЯ ПРОГРАММА

- Торжественное открытие (почетные гости, приветствие и т.д.)
- Концерт
- Панно «Раскрась Каспий» (коллективная гигантская раскраска)
- Выставка победителей творческих конкурсов (рисунки, фотографии, поделки)
- Открытие выставки «Каспий с воздуха и не только» (по результатам экспедиции «Душа Каспия»)

Место проведения:

г. Астрахань. Открытые и крытые площадки





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**ЗАПОВЕДНОЕ
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