

STRATEGIC ACTION PROGRAMME (SAP)

FOR

THE CASPIAN SEA

**Caspian Environment Programme
As approved at the Tehran Steering Committee Meeting
of November 5, 2003**

Disclaimer:

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The findings and the conclusions of the document however are those of the adopting parties and do not necessarily reflect the policies or opinions of the International Partners including the European Commission, The Global Environment Facility, The World Bank, UNEP, UNDP and UNOPS.

List of Abbreviations

Aarhus:	UN/ECF Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters (Aarhus)
BSAP:	Biodiversity Strategic Action Plan
CCA:	Causal Chain Analysis
CEP:	Caspian Environment Programme
CHM:	Clearing House Mechanism
CIS:	Commonwealth of Independent States
CITES:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CLC:	Civil Liability Convention
CMS:	Convention on the Conservation of Migratory Species of Wild Animals
CRTC:	Caspian Regional Thematic Centre
EIA:	Environment Impact Assessment
EQO:	Environmental Quality Objective
EQS:	Environment Quality Standard
ESI:	Environment Status Indicator
Espoo:	Convention on Environmental Impact Assessment in a Transboundary Context (Espoo)
EU/Tacis:	European Union/Technical Assistance for CIS
GEF:	Global Environment Facility
GIS:	Geographical Information System
HDI:	Human Development Index
IA:	Institutional Arrangement
I.R. Iran:	Islamic Republic of Iran
ML:	Mnemiopsis Leidyi
MPPI:	Major Perceived Problem and Issue
NEAP:	National Environmental Action Plan
NCAP:	National Caspian Action Plan
NCS:	National Coordination Structure
NGO:	Non Governmental Organization
NFP:	National Focal Point
PCU:	Programme Coordination Unit
PI:	Process Indicator
PIP:	Priority Investment Project
POPs:	Persistent Organic Pollutants
SAP:	Strategic Action Programme
SRI:	Stress Reduction Indicator
TDA:	Transboundary Diagnostic Analysis
UNDP:	United Nations Development Programme
UNEP:	United Nations Environment Programme

Strategic Action Programme for the Caspian Sea

Section 1: Introduction

The Caspian Environment Programme (CEP) represents a partnership between the five littoral states namely Azerbaijan, Islamic Republic of Iran, Kazakhstan, Russian Federation and Turkmenistan and the International Partners namely the EU, UNDP, UNEP, and the World Bank. The overall goal of the CEP is environmentally sustainable development and management of the Caspian environment, including living resources and water quality, so as to obtain the utmost long term benefits for the human population of the region, while protecting human health, ecological integrity and the region's economic and environmental sustainability for future generations.

The goals of CEP during its first phase included 1) development of a regional coordination mechanism to achieve sustainable development and management of the Caspian environment 2) completion of a Transboundary Diagnostic Analysis (TDA) of priority environmental issues to guide the prioritization of environmental actions and 3) formulation and endorsement of a Strategic Action Programme (SAP) and adoption of National Caspian Action Plans (NCAPs).

The SAP identifies the national and regional interventions needed to address four priority regional environmental concern areas:

- **unsustainable use of bioresources;**
- **threats to biodiversity, including those from invasive species;**
- **pollution; and**
- **unsustainable coastal area development.**

The SAP lays down the principles of environmental management and cooperation; notes the challenges to the sustainable integrated management of the Caspian Sea environment; sets the regionally agreed Environmental Quality Objectives (EQOs) for the four areas of environmental concern in a transboundary context and proceeds to define a set of targets and interventions to meet these objectives. The SAP also highlights the financial resource and the institutional structure required for the implementation of the priority actions for the next 5+5 years.

The SAP is a regional policy framework document. The Programme is designed for voluntary adherence by the Caspian States and its contents are supported by and in accordance with the NCAPs, with appropriate support from the International Partners. Such voluntary adherence will promote and ensure the cooperative and coherent action for safeguarding the fragile environment of the Caspian Sea and for advancing the sustainable and equitable use of the Caspian bioresources.

The SAP is the final output of a regional consultation process, which has involved the littoral countries and the International Partners. The NCAPs and the TDA, which are the major pillars of the SAP have been thoroughly studied and reviewed at a number of regional meetings leading to the draft, review and finalized SAP. This process has included a causal chain analysis, stakeholders analysis and gap analysis to help to sharpen and prioritize the SAP interventions. The consultation process has also benefited from the regional dialogue concerning the Framework Convention for the Caspian Marine Environment. The consultation process is further detailed in the attached SAP Chronology in Annex I.

Implementation of the SAP is the responsibility of the Caspian States independently as component of their NCAP, and collectively as part of the Caspian Environment Programme. The Steering Committee of the Caspian Environment Programme with the assistance of the Programme Coordination Unit has the responsibility of monitoring and reporting on SAP implementation progress.

1.1 The need for and purpose of the SAP

The SAP sets the agenda for enhanced regional environmental cooperation among the littoral states over the next ten years, in two distinct five-year periods. To improve environmental stewardship and protect the ecosystems of the Caspian, the SAP outlines five regional Environmental Quality Objectives (EQOs) to be addressed, and identifies environmental interventions to be taken in order to meet those EQOs at the national and regional level (See Section 3). The SAP builds upon and complements the NCAPs and creates clear objectives and targets for priority investment action considerations for the international community.

1.2 The geographic scope of the SAP

The immediate geographic scope of the SAP is the Caspian Sea and the coastal areas up to 100 km inland. This delimitation however does not exclude identification and prioritization of interventions that address environmental stressors and challenges beyond this 100 km zone. In a number of the SAP interventions reference is made to the concept of the near Caspian basin, which incorporates the lower Volga basin below Volgograd, the coastal rivers of Kalmykia, Dagestan, and northern part of the Azerbaijan Republic, the Kura basin in the territory of Azerbaijan below Mingachaur reservoir, the basins of the coastal rivers in Iran, and the rivers in the territory of Turkmenistan and Kazakhstan.

1.3 Principles of environmental management and cooperation

The five littoral states share a common desire for the sustainable management of the natural resources and biodiversity of the Caspian for the benefit of present and future generations, and recognize their role and responsibility in conserving the global value of the biodiversity resources. The littoral states have considered and taken into account, where appropriate, the following principles and values when developing this document.

1.3.1 The principle of **sustainable development** shall be applied such that there is a prudent and rational utilization of living resources and the preservation of the rights of future generations to a viable environment.

1.3.2 The **precautionary principle** shall be applied, such that measures shall be taken when there are reasonable grounds for concern that any activity may increase the potential hazards to human health, harm living resources or marine ecosystems, damage amenities, or interfere with other legitimate uses of the Caspian Sea, even when there is no conclusive evidence of a causal relationship between the activity and the effects; and by virtue of which, greater caution is required when information, including scientific information, is uncertain, unreliable or inadequate.

1.3.3 The **polluter pays principle** shall be applied, such that the cost of preventing and eliminating pollution, including clean-up costs, shall be paid by the polluter.

1.3.4 The principle of **anticipatory action** shall be applied, such that contingency planning, environmental impact assessment and strategic impact assessment (involving the assessment of the environmental and social consequences of governmental policies, programmes and plans) shall be undertaken in the future development in the region.

1.3.5 The principle of **preventative action** shall be applied, such that timely action shall be taken to alert the responsible and relevant authorities of likely impacts and to address the actual or potential causes of adverse impacts on the environment, before they occur. Many adverse impacts are irreversible or, if they can be reversed, the cost of remedial action is higher than the costs associated with prevention.

1.3.6 **Environmental and health considerations** shall be included into all relevant policies and sectoral plans and programmes, including, *inter alia*, urban planning, industrial development, oil and gas exploitation, fisheries, aquaculture and tourism.

1.3.7 Use of **clean technology** shall be promoted when replacing or phasing-out high waste and waste-generating technologies.

1.3.8 Development planning and environmental planning processes should be integrated to the maximum extent. The use of **economic instruments** that foster sustainable development shall be promoted through, *inter alia*, the implementation of economic incentives for introducing environmentally friendly technologies, activities and practices; the phasing-out of subsidies which encourage the continuation of non-environmentally friendly technologies, activities and practices; and the introduction of user fees.

1.3.9 The principle of **accessibility of information** shall be applied, such that information on the pollution of the marine environment of the Caspian Sea held by a littoral state shall be provided by that state to all littoral states, where relevant and in the maximum possible amount.

1.3.10 The principle of **public participation and transparency** shall be applied, such that all stakeholders, including communities, individuals and concerned organizations shall be given the opportunity to participate, at the appropriate level, in decision-making and management processes that affect the Caspian Sea. This includes providing access to information concerning the environment that is held by public authorities and effective access to judicial and administrative proceedings to enable all stakeholders to exercise their rights effectively. Public authorities shall widely disseminate information on the work proposed and undertaken to protect and rehabilitate the Caspian Sea.

Section 2: The challenge: Sustainable integrated management of the Caspian environment

The extensive work carried under the first phase of the CEP has led to the identification of four priority regional environmental concern areas, namely: unsustainable use of bioresources; threats to biodiversity, including those from invasive species; pollution; and unsustainable coastal area development. The observed impacts are degrading the environment, draining already strained state resources and, moreover, in the longer term reducing the range of economic and development options available to the states. Common regional root causes of these areas of concern include poor law enforcement and compliance, inadequate development planning, undeveloped civil society and public awareness and inadequate pricing policies.

2.1 Priority Regional Environmental Concern Areas

2.1.1 Unsustainable use of bioresources

Catches of sturgeons, herring, salmon, sprat, and other commercial fish have declined in recent years. Official data from Caspian states (excluding Iran) indicate that the sturgeons catch has dropped from an average of 13.8 thousand tons a year in the period from 1910-1930, to 1.8 thousand tons a year in the period from 1996-1998, peaking in the 1970s at about 22 thousand tons a year; poaching, the impact of dams, loss of habitats, and perhaps pollution have all contributed to the decline of these key fisheries. A major recent factor impacting both fisheries and biodiversity has been the invasion by the ctenophore *Mnemiopsis leidyi* (ML), a jellyfish that devastated the Black Sea a decade ago and now threatens the Caspian Sea. The commercial fishing industry fears for the loss of kilka and other valuable fisheries, with consequent effects on human livelihoods, food for the local population, and food sources for the Caspian seal and the sturgeon populations. Observations showing that the growth of *Mnemiopsis* biomass in the Caspian Sea is even faster than in the Black Sea support the need for rapid action.

2.1.2 Threats to biodiversity, including those from invasive species

The Caspian biodiversity is low across all phyla compared to other seas, but, due to its historic isolation, endemism is high. Approximately 40% of the species found in the Caspian are endemic and the potential loss of global biodiversity is high. Quantifiable data on the status of the biodiversity of the Caspian Sea is scarce. In recent years no systematic monitoring of biodiversity, except in connection with fisheries productivity has been undertaken by the Caspian states; even population numbers of flagship species such as the Beluga sturgeon and Caspian seal are in dispute. This lack knowledge is in itself a major threat. Other threats include habitat erosion and degradation - again observed but not measured - habitat fragmentation, unsustainable use of key species, pollution and invasive species. Of these invasive species is potentially the most damaging and most acute threat, as witnessed by the invasion of *Mnemiopsis*, which may have already irrevocably changed the composition of the zooplankton of the Caspian. The presence of persistent organic pollutants, in particular DDT, in the food-chain is also a major source of concern.

2.1.3 Pollution

Data on the overall environmental quality of the Caspian are generally not systematic or comprehensive. In the former USSR water and sediment quality measurements were taken on a regular basis and with good coverage, however, since its break up monitoring has increasingly become more fragmented and irregular. Over the same period the flux of pollutants into the Caspian has changed with a drastic reduction in industrial and agricultural activity in the four CIS states. A review of those reliable data that do exist, including data from sediment and ecotoxicological surveys undertaken as part of CEP, do not indicate a highly stressed environment, but of course there are hot-spots. These data do not support the generally held view that nutrient loading is a regional problem, although on the Iranian coast

eutrophication is observed. Some heavy metals (Aluminum, Cadmium, Chromium, Nickel, Copper and Arsenic) are found at comparatively high levels throughout the Caspian sediments, but the distribution suggests the source is due to the regional geology rather than pollution. Elevated levels of mercury, lead and chromium indicate local pollution sources superimposed over the regional signature. Levels of agrochemicals, in particular DDT and endosulfans, are a major cause for concern in the Caspian. Although a banned substance, DDT and its breakdown products have been detected at high levels in CEP sediment analyses indicating continued use of the chemical. DDT was also detected at relatively high levels in the tissues of seal and fish in autopsies undertaken by CEP. Hydrocarbons are also an area of concern where there has been oil and gas production. Pollution threats include contaminants sequestered in the major impoundments; continued and increased use of banned agrochemicals; potential widespread hydrocarbon pollution, with the anticipated expansion of oil and gas development; and, acute damage from oil and hazardous substance spillage.

2.1.4 Unsustainable coastal area development

The coastal landscapes, habitats, amenities and infrastructures are being damaged by a variety of natural and man-made factors. Natural factors include water level fluctuations, wind induced or storm-induced surges, earthquakes, and climate change. Man-made causes, which are also likely to exacerbate impacts of the above-mentioned natural factors, include desertification/deforestation, regulation of rivers, urbanization/ industrial development, inadequate agricultural/aquaculture planning and development, inadequate recreational development, and land-based and sea-based pollution. Close to 40 percent of the Caspian coastal area is arid and it is estimated that of this area, about 69 percent has undergone desertification in various ways. Understanding of the concepts of integrated coastal zone and coastal land use planning are critical to addressing these issues.

2.2 Environmental Management Challenges

2.2.1 Legal and regulatory

All the littoral states have comprehensive laws on environmental protection and on the use of natural resources, supported by provisions in their constitutions, although none have specific laws on environmental protection of the Caspian Sea. A desk study undertaken as part of the transboundary diagnostic analysis has identified a number of deficiencies, gaps and inconsistencies in national laws and regulations relating to priority regional environmental concern areas. While the Soviet-Iranian (Persian) agreements of 1921 and 1940 might not fully correspond with the new realities of region after the collapse of the USSR, the problem of the new legal status of the Caspian Sea remains undetermined. The littoral states, however, recognize the need to take joint and separate actions to protect the Caspian Sea environment and to protect, preserve, restore and use its resources in a sustainable and rational manner. At present time littoral states prepare for signing Framework Convention on the Protection of the Marine Environment of the Caspian Sea and also negotiate to create the necessary legal base to solve the major transboundary problems of the region. A number of the multilateral agreements, such as: “On the protection of the environment of the Caspian Sea”, “On the preservation and management of biological resources of the Caspian Sea”, “On the cooperation of the Caspian states in the field of hydrometeorology and monitoring of pollution of the Caspian Sea” are under preparation. I.R. Iran, Kazakhstan and Russia have signed the Stockholm Convention on persistent organic pollutants. Littoral states are participating in many other major international environmental conventions. The issues of necessity of improvement of legal base also will be covered in NCAPs preparing in all littoral states.

2.2.2 Institutional

Over the past few years, the political, legal and economic regimes of the Caspian states have undergone radical transformations and this transition continues to create enormous challenges. In most states, the necessary monitoring and enforcement activities are not carried out. Some of the responsible institutions are lacking adequate capacity, resources, mandate or expertise. At times, the responsibilities are shared across a range of organizations, with likely consequences of inconsistent or conflicting policies and measures. Institutional deficiencies bring about ineffective spatial planning, environmentally aggressive subsidies, insufficient control procedures, inadequate EIA practices, and/or aggressive agricultural and development policies, all of which have been identified as root causes in the concern areas. The littoral states are engaged in programmes to streamline policies, build capacity in the institutions and reform the relevant sectors, but the impacts of these reforms are slow to materialize and are still to be felt.

2.2.3 Economic and financial

The Caspian Sea is believed to contain considerable oil and gas deposits and is rich in bioresources; for the time being however the Caspian region as a whole is not a major economic center. Unemployment rates are generally high, and considerably higher among the women and the internally displaced population and, consequently, for many years to

come the littoral governments will need to give higher priority to job creation, health, and education than to environment protection. Individuals too will be less concerned with safeguarding the environment when they are unemployed and faced with finding adequate food, shelter, education and healthcare for their families. For most part governmental accountability is weak, and coupled with weak and undeveloped civil society. Environmental and natural resources are overseen by a host of ministries and local governments. In most countries government agencies often do not have the resources to conduct the necessary monitoring and enforcement activities to protect the regional environment. Integration of the development planning process and environmental development still remains a distant objective. The countries are not using economic incentives as much as possible in the region in order to promote environmental protection. Limited donor based financial contributions to the region is also a major constraint.

2.2.4 Information

The region suffers from severe limitations in the data and information that is available, both to decision makers and to informed members of the society. Considerable research and monitoring has been carried out in the past, but the data is often not comparable across the region, it is often insufficient, inaccurate or non-harmonized and not freely exchanged and shared among the responsible institutions. The lack of data often promotes regulatory capture and self interest. Further, if when national legislation requires open access to information, it is often constrained by poor dissemination, non-user friendly formats and insufficient media attention to the environmental issues or lack of information technology for information exchange. This sub-optimal availability of information can result in uncoordinated and unsubstantiated policies and measures at regional level.

Section 3: SAP development and prioritization

The TDA identified eight Major Perceived Problems and Issues. These were later refined through further regional consultation into four priority environmental regional concern areas, described above, requiring coordinated efforts by all littoral states. It was determined that these areas of concern, and their root causes, could be most effectively and appropriately addressed through the aims of the five Environmental Quality Objectives (EQOs). Four of these EQOs correlate to the four concern areas, plus one EQO addressing the cross-sectoral issue of strengthening the involvement of all stakeholders. The five EQOs are:

- Conservation and sustainable use of bioresources
- Conservation of Caspian biodiversity
- Improved water quality of the Caspian
- Sustainable development of the coastal zones
- Strengthened stakeholder participation in Caspian environment stewardship

Each EQO consists of a number of targets that are comprised of inter-related interventions that address the root causes of the concern areas. For the regional level interventions, the littoral states and the international partners shall work collectively to take the required steps to fulfill the intervention. The national level supporting interventions will be the responsibility of the littoral countries. The EQOs, their targets and interventions are listed below. The timings of the interventions in order to meet their targets are also listed, whether within the time span of five or ten years. Interventions have only been included in the first five year period if they are supported by a majority of the NCAPs, that is if the national level supporting are included within the NCAP, and they have been identified as priority interventions. The countries have classified each intervention as having either high (H) or medium (M) priority. In addition, in Annex 2 of this document are listed the interventions and their corresponding indicators.

EQO I:	Conservation and sustainable use of bioresources
EQO Indicator:	Commercial fish stocks are maintained at sustainable levels with reference to the base year (1998)

Target 1: Sustainable use of commercial fisheries resources

1.1 Promote the signature and implementation at the governmental level of a regional agreement on the preservation and management of Bioresources of the Caspian Sea. (H) 1-5 years.

- 1.2 Further strengthen the regional cooperation for fisheries management, including the development of regional standards of fisheries harvest practices for commercial species, and the setting of scientifically based quota system. (H) 1-5 years.
- 1.3 Develop compliance, enforcement and monitoring mechanisms for sturgeon fisheries in accordance with CITES Paris declaration. (H) 1-5 years.
- 1.4 In coordination with national and regional organizations, develop enforcement mechanisms and economic instruments to reduce illegal trade in Caspian commercial fish resources in accordance with CITES Paris declaration. (H) 1-5 years.

Target 2: Rehabilitate stocks of migratory (sturgeon, inconnu, herring) commercially valuable fish species

- 2.1 Carry out national activities to identify, protect, restore and manage natural spawning grounds for sturgeon and other commercially valuable anadromous species, within the framework of regional agreements, including development of a financing strategy. (M) 1-5 years.
- 2.2 Increase sturgeon hatchery efficiency and capacity through improvement in bio-techniques and fry growth technology as well as enhancing production scales. (H) 1-5 years.
- 2.3 Strengthen regional cooperation including scientific exchanges on improving hatchery efficiency and the creation of a gene bank for anadromous fish stocks. (H) 1-5 years.

Target 3: Improve livelihoods in coastal communities to reduce dependency on unsustainable fishing practices via pilot projects

- 3.1 Promote more selective fishing methods and small-scale aquaculture. (M) 5-10 years.
- 3.2 Promote alternative income sources for fishing communities and adoption sustainable livelihoods, and improve access to social/community services. (H) 5-10 years.

EQO II: Conservation of Biodiversity

[EQO II was extracted from the CEP Caspian Sea Biodiversity Strategy and Action Plan, developed with support of Flora and Fauna International]

EQO Indicator: Arrest biodiversity erosion due to anthropogenic impacts

Target 1: Increased regional collaboration to achieve maximum regional benefit for biodiversity

- 1.1 Draft and adopt a Biodiversity Protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea. (H) 1-5 years.
- 1.2 Establish a regional biodiversity monitoring system. (M) 1-5 years.
- 1.3 Create a regional ‘clearing house mechanism’ on biodiversity. (M) 1-5 years.
- 1.4 Develop a framework for international research on Caspian biodiversity related issues. (H) 1-5 years.
- 1.5 Develop and implement an awareness campaign to highlight the biological uniqueness of the Caspian. (H) 1-5 years.
- 1.6 Ensure biodiversity issues and impacts are taken into account in all EIA applications. (H) 1-5 years.

Target 2: Ensure all key species are maintained or restored to viable levels

- 2.1 Identify and assess key threatened and endangered species status and publish results. (M) 1-5 years.
- 2.2 Ensure adequate legal protection for key threatened and endangered species. (H) 1-5 years.
- 2.3 Provide in-situ and ex-situ protection for key threatened and endangered species. (H) 1-5 years.
- 2.4 Create a gene bank for key threatened and endangered species. (M) 5-10 years.

Target 3: Control of introduction and invasion of non-native (alien) species and manage impact of existing introduced/invasive species

- 3.1 Develop and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea on introduction and invasion of non-native species. (H) 1-5 years.
- 3.2 Develop regional control procedures to manage the introduction, both purposeful and accidental and spread of alien species in the Caspian, in particular along the key transport routes. (H) 1-5 years.
- 3.3 Investigate potential biological control measures to reduce the impact of *Mnemiopsis* on the ecosystem of the Caspian. (H) 1-5 years.
- 3.4 Study on the possibilities of development of a Ballast Water Reception facilities at all shipping exits and entrances to the Caspian Sea. (M) 1-5 years.

Target 4: Ensure all key coastal and marine habitats are represented in a regional system of protected areas

- 4.1 Improve effectiveness of management of Caspian protected coastal areas, including compliance with existing legislation. (H) 1-5 years.
- 4.2 Create new and expand existing protected coastal areas, where necessary transboundary areas, to encompass priority sensitive coastal and marine habitats. (H) 1-5 years.
- 4.3 Create a regional information network between Caspian protected coastal areas. (M) 5-10 years.
- 4.4 Develop management plans for the hydrological regimes of the major impounded rivers in the Caspian basin, the Volga, Kura and Sefidrud. (H) 1-5 years.

Target 5: Identify and restore priority sensitive coastal habitats

- 5.1 Develop and apply a standardized methodology for assessment of priority coastal habitat health. (M) 5-10 years.
- 5.2 Design, implement and monitor a minimum of five priority coastal habitat restoration projects. (M) 5-10 years.

Target 6: Identify and restore priority marine habitats

- 6.1 Develop and apply a standardized methodology for assessment of priority marine habitat health. (M) 5-10 years.
- 6.2 Design, implement and monitor a minimum of five priority marine habitat restoration projects. (M) 5-10 years.

EQO III: Improve the water quality of the Caspian

EQO Indicator: A measurable decline in levels of the main contaminant groups in the water, sediment and biota.

Target 1: Strengthen environmental enforcement and management in the littoral states

- 1.1 Develop regional proposals for strengthening discharge licensing, compliance monitoring and enforcement of pollution control in the near Caspian basin. (H) 1-5 years.
- 1.2 Increase resources to regulatory bodies responsible for pollution control and improve capacity through targeted training programmes. (H) 1-5 years.
- 1.3 Develop recommendations for harmonization of pollution discharge and emission standards, and water quality standards. (H) 1-5 years.
- 1.4 Introduce economic instruments to encourage reduced pollution loads. (M) 5-10 years.

Target 2 : Implement a regionally coordinated water quality monitoring programme

- 2.1 Develop and implement regional monitoring programme focused on critical contaminants and hotspots. (H) 1-5 years.
- 2.2 Develop and implement a rapid assessment programme for contaminant levels in all Caspian waters. (H) 1-5 years.
- 2.3 Provide report on contaminant levels in Caspian every three years, and make proposals for remedial actions. (H) 1-5 years.

Target 3: Development of regional strategies for pollution reduction

- 3.1 Develop and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea for land-based sources of pollution and undertake a comprehensive assessment of land-based sources of pollution in the near Caspian basin. (H) 1-5 years.
- 3.2 Develop and implement a regional action plan to remedy hotspots identified in the near Caspian basin. (H) 5-10 years.
- 3.3 Develop and adopt a Protocol on Hazardous Substances to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea and encourage all littoral states to sign and ratify the Stockholm Convention on Persistent Organic Pollutants. (H) 1-5 years.
- 3.4 Develop and implement a programme to dispose stores of banned agrochemical products in the region in accord with Stockholm Convention on Persistent Organic Pollutants provisions. (H) 1-5 years.
- 3.5 Through the use of demonstration pilot projects, investigate cost effective means of treating municipal wastewaters and produce regional recommendations. (M) 5-10 years.
- 3.6 Reduce pollution from existing and decommissioned coastal and offshore oil and gas facilities, including the re-sealing of well heads. (M) 5-10 years.
- 3.7 Develop and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea on dumping at sea. (H) 1-5 years.

3.8 Establish waste reception facilities in all major ports. (M) 5-10 years.

Target 4: Develop and initiate implementation of a regional action plan for contaminated land

4.1 Undertake a survey of coastal zone to identify and characterize major contaminated land sites and develop a hot spot strategy to be coordinated with POPs enabling activities in signatory states. (H) 1-5 years.

4.2 Implement pilot projects to demonstrate the most cost effective reclamation technologies for a range of contaminants. (H) 5-10 years.

Target 5: Promote environmentally sound agricultural practices in the Caspian region

5.1 Establish and promote recommendations for the use of agro chemicals, including application times and rates, handling, storage and disposal. (M) 1-5 years.

5.2 Promote through pilot projects environmentally sound agricultural practices such as soil conservation, creation of river protection zones, use of natural fertilizers, and use of pest resistant crop strains. (M) 5-10 years.

5.3 Combat eutrophication in sensitive coastal zones by controlling soil and water contamination from agriculture and other nutrient sources. (M) 5-10 years.

Target 6: Disaster prevention and response

6.1 Finalize and approve national oil spill contingency plans and harmonize mutual aid plans. (H) 1-5 years.

6.2 Sign Memorandum of Understanding on Oil Spill Preparedness and implement a Regional Cooperation Plan. (H) 1-5 years.

6.3 Finalize and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea on Emergency Response. (H) 1-5 years.

6.4 Update sensitive area mapping of the Caspian. (H) 1-5 years.

6.5 Undertake risk assessment for oil and hazardous substances spillage from shipping, pipelines, offshore and onshore production and storage facilities. (H) 1-5 years.

6.6 Promote development of regional intergovernmental agreements for liability and compensation in the event of oil spills. (H) 1-5 years.

6.7 Develop regional agreement on minimum standards of maintenance of existing Caspian tanker fleet. (M) 5-10 years.

EQO IV: <u>Sustainable development of the coastal zones</u>
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EQO IV Indicator: Measurable and sustained increase in human development indices in the Caspian coastal areas
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Target 1: Sustainable use and management of coastal areas through integrated coastal area management

1.1 Review and revise, as needed, national regulation on coastal area planning and management. (M) 1-5 years.

1.2 Strengthen technical capacity at local and municipal government level for coastal planning and introduce economic instruments to promote rational land use. (M) 1-5 years.

- 1.3 Develop regional and national data centers and GIS databases for coastal planning and management. (M) 1-5 years.
- 1.4 Undertake pilot integrated coastal area management planning project in each Caspian state with a view to replicate and develop national guidelines. (M) 1-5 years.

Target 2: Combat the desertification and deforestation process

- 2.1 Where necessary, strengthen national legislation to combat desertification and deforestation and encourage signing of the Convention to Combat Desertification by the Caspian states. (H) 1-5 years.
- 2.2 Apply remote sensing and GIS techniques to monitor trends in desertification and deforestation in the Caspian coastal region. (H) 1-5 years.
- 2.3 In critical desertification and deforestation areas, develop and implement pilot restoration projects designed to address both immediate and root causes. (M) 5-10 years.
- 2.4 In threatened forest areas introduce renewable energy alternatives to fuel wood. (H) 5-10 years.
- 2.5 In threatened desert areas conduct targeted awareness campaign on sustainable grazing practices. (H) 5-10 years.

<p>EQO V: <u>Strengthen stakeholder participation in Caspian environmental stewardship</u></p> <p>EQO Indicator: Enhanced involvement of civil society representatives in the NCAPs and SAP implementation, including NGO representation on the CEP Steering Committee.</p>

Target 1: Increased coastal community involvement in managing the Caspian environment

- 1.1 Create a Caspian Environment Center in each littoral state to provide information to public on Caspian environmental issues. (M) 5-10 years.
- 1.2 Create press bureau for CEP to improve country, regional and international awareness of status of Caspian environmental issues and encourage the media to participate in the dissemination of information. (H) 1-5 years.
- 1.3 Promote broader public access to Caspian relevant environmental information held by public authorities, in accordance, where applicable, with the Aarhus Convention. (H) 1-5 years.
- 1.4 Development of academic curriculum materials focusing on Caspian environmental issues and promote academic partnerships at school and university levels. (H) 1-5 years.
- 1.5 Set up a fund for micro-grants addressing coastal community development schemes and local environmental problems, in partnership with the private sector and international donor community. (M) 1-5 years.

Target 2: Increase local and regional authorities understanding of importance of environmental issues

- 2.1 Establish environmental issues awareness training for local authorities, and national ministries that affect the Caspian environment, emphasizing the need to take into account environmental costs/benefits of proposed projects. (H) 1-5 years.
- 2.2 Implement national EIA procedures for all appropriate project developments, including provision for public participation, and encourage all littoral countries to sign and apply the ESPOO convention. (H) 1-5 years.
- 2.3 Hold biennial CEP mayoral conferences sponsored by national and international partners to foster networking

among coastal local authorities and enhance their participation in implementing Caspian environmental policies. (H) 1-5 years.

2.4 Promote the positive aspects of eco-tourism and develop one pilot project in each Caspian littoral state. (H) 1-5 years.

Target 3: Develop active partnerships between CEP and local and multinational enterprises

3.1 Promote NGO/ government/ private sector environmental partnerships to improve monitoring, public relations and educational activities related to specific Caspian issues. (H) 1-5 years.

3.2 Develop a programme to encourage adoption of cleaner technologies by local industries. (M) 1-5 years.

3.3 Set up “Friends of CEP” programme with annual competition for local, national and international company or facility that has achieved the most concrete gains in protection of the Caspian environment in the previous year. (M) 1-5 years.

Section 4: SAP implementation

4.1 National Caspian Action Plans (NCAPs)

The NCAPs are the main foundation of the SAP. Preparation of the NCAPs by the littoral states was started prior to the SAP preparation, based on an assessment of the priority national concern areas, which included, where they were in concordance, regional concerns identified in the TDA. Each country developed objectives, targets, proposed interventions, and drew up a resource mobilization strategy to address their objectives. They entered into a thorough inter-sectoral dialogue as an integral part of a national endorsement process. The NCAPs represent an awareness of and commitment to enhanced environmental stewardship by the littoral states. It is critical that all states continue to make further steps towards improved environmental stewardship at the national levels, with the confidence that even the smallest action can lead to large improvements when taken collectively.

In preparing the SAP, the CEP assembled the NCAP teams of experts from all five states with the purpose of defining the priority regional environmental concern areas to be addressed and agreeing the corresponding Environmental Quality Objectives. Through the following series of regional meetings the targets and interventions needed to meet these EQOs were articulated and this intense national involvement has resulted in a SAP, which contains regional interventions which are supported to a great extent by national interventions contained in the NCAPs. Without this commitment to implement the national supporting interventions the SAP’s regional interventions have no foundations and their implementation is undermined.

Whilst the NCAPs feed into the SAP, they are also cohesive, independent documents which detail national objectives, targets and interventions to be achieved. They have been prepared along common guidelines and like the SAP will be implemented in two separate 5-year periods and will be reviewed every four years. Once full government endorsement has been granted the NCAP and will move forward independently of the SAP process.

4.2 Policy Coordination

The littoral states have ensured and will continue to ensure that the NCAP and SAP content, policy and measures, are coordinated and consistent with those developed across the sectoral ministries. The NCAP consultation process leading to endorsement was designed to ensure all key government stakeholders were consulted as early as possible to ensure integration. In preparing the NCAPs the littoral states were required to refer to existing development and environment plans, including the National Environmental Action Plan (NEAP) and National Biodiversity Strategic Action Plan and it has been stressed that each littoral state should ensure that its body of laws and regulations is fully coordinated and supportive of environmental policies developed through the SAP.

4.3 Resource mobilization

It has been calculated by the Caspian states that implementation of SAP in its first five year period will require a total of approximately \$170 million. The present total national budgetary earmarking in the five littoral states for Caspian related NCAP initiatives in the corresponding period however only amounts to \$120 million. Potential assistance from the international donor community and the private sector over this period is estimated at \$20 million. International grant sources could be further tapped; however, any success will undoubtedly be tied to the Caspian states demonstrating the commitment and implementation of their NCAPs. International financial institutions should be approached for loans with the full involvement of both technical environmental institutions and financial, economic and planning authorities to ensure that the requests meet the strict financial criteria and are nationally guaranteed. A Donor Conference could be planned for the second half of 2003 upon definition of priority funding needs and clarification of national commitments.

Even given the above initiatives there will remain however a significant funding gap, which will principally need to be filled by the littoral states. This may be done through further integration of development and environment planning processes; assigning higher value to environmental consideration in the region and allocation of substantially enhanced national financial resources to environmental issues in general and to the Caspian in particular. The most doable, cost effective and upstream measures dealing with fisheries development, biodiversity protection, pollution monitoring and control, and sustainable development of coastal areas should be given higher implementation priority. Regional and supporting national policy measures and initiatives, including regional agreements and Memoranda of Understanding that would contribute to the creation of an environment conducive to implementation of other measures, such as investment activities and environmental sensitization initiatives, should be assigned highest priority. Environmentally oriented economic measures, environmentally oriented budgets, and private sector partnership for environmental protection should be promoted throughout the region.

4.4 Institutional Arrangements

Once agreed at Ministerial level, implementation of the SAP will become the responsibility of the governments of the littoral states. At the national level the CEP National Coordination Structures (NCSs) will be responsible for coordination of NCAP and SAP implementation activities under the leadership of the CEP National Focal Points. At the regional level SAP implementation will be coordinated by the CEP Programme Coordination Unit (PCU) assisted by Advisory Boards for Biodiversity, Fisheries, Pollution, Emergency Response and Sustainable Coastal Development. The PCU will also be responsible for coordination of the International Partner CEP umbrella projects and work to attract further SAP implementation support from the both public and private sectors at the regional and national levels. The PCU will maintain close communication with the NCSs to ensure concordance between the SAP and the five NCAPs and shall report annually to the Steering Committee on the implementation status of the SAP and the NCAPs. Every four years the littoral states, facilitated by the PCU, shall review and recast the SAP for the next 5+5 year period and, if necessary, resetting the regional environmental priorities. The full Terms of Reference of the Steering Committee, PCU and NCU, and Advisory Boards and Advisory Groups are contained in the CEP Institutional Arrangements document (updated March 2003).

Section 5: The Future of the Strategic Action Programme

The SAP is officially launched with its adoption by the CEP Steering Committee and verification by the CEP National Focal Points of the littoral states. Active promotion of the SAP by the littoral states and the PCU at national, regional and international fora is critical in gaining the broad support it needs for successful implementation. Key stakeholders are to be targeted through public meetings, media campaigns and briefings and consultations. Ultimately, the littoral states responsibility is to create and maintain the necessary momentum for SAP implementation. The littoral states and the CEP International Partners will maintain their close dialogue on how best to support implementation of the SAP and strenuous efforts will be made to attract new international donors to CEP. Private sector will be approached with the aim of obtaining coincidental, parallel funding. At the end of its first year a detailed SAP financial gap analysis will be undertaken at regional and national levels, and a donor conference convened.

Annex 1: Caspian Strategic Action Programme Development: A Chronology

November 1997- May 1998. The Concept Paper for the first phase of the CEP was prepared and approved at the CEP Steering Committee Meeting at Ramsar, I.R. Iran. It was based on the Preliminary TDA formulated in 1997/1998; the joint missions by the UNDP, UNEP, the World Bank to the five countries in 1995 and 1997 and the significant input from the EU/Tacis after their mission in 1996. The Concept paper proposed the overall goal of the CEP to be the promotion of 'the sustainable development and management of the Caspian environment over the long term'. The document identified three Environmental Challenges namely a) sea level rise b) pollution threat including oil products from oilfields and transportation, and c) biodiversity and depletion of bio-resources. It therefore aimed at i) understanding and learning to live with the water level fluctuations; ii) abatement of existing and prevention of new types of pollution and deterioration of the Caspian environment and its bio-resources, iii) recovery and rehabilitation of the degraded elements of environment including biological diversity and iv) long term sustainability of environmental quality and bioresources. These challenges and goals laid the basic principles for future work on the SAP. The CEP Project Brief and Project Documents subsequently developed in 1998/1999 incorporated these as major elements and issues.

July 2000. The First Regional TDA/NCAPs/SAP Meeting was held in Baku. The meeting identified eight Caspian Major Perceived Problems and Issues (MPPIs). These were i) decline in certain fisheries stocks including Sturgeon, ii) threats to biodiversity iii) overall decline in environmental quality, iv) damage to coastal infrastructure and amenities, v) degradation of coastal landscapes and damage to coastal habitats, vi) and decline in human health, vii) introduced species and viii) contamination from offshore oil and gas activities. The last two MPPIs were at the time considered as 'emerging' MPPIs. The meeting continued to identify the list of threats to the Caspian environment. The PCU and the CRTCs were requested by the meeting to collect needed information on the MPPIs to ascertain their relevance and significance.

December 2000. The Second Regional TDA/NCAPs/SAP Meeting was held in Baku. It initiated the preliminary Causal Chain Analysis (CCA) of the MPPIs to identify Primary, Secondary and Root Causes of the MPPIs, and began the dialogue on the identification of Prioritized Interventions (PIs) to deal with the Root Causes. The meeting outlined the NCAP Terms of Reference for the countries and tasked them to initiate the NCAP development process. It requested each country to have its own National TDA Forum to review the relevance and significance of MPPIs, CCA and PIs for the country in question. The meeting also identified additional supporting studies and activities to gather and analyze data and information required to verify the links between the MPPIs and the Root Causes. These were undertaken over 2000 and 2001 and included, *inter alia*, over 30 national and regional studies and a number of cruises and marine expeditions.

April-May 2001. Five National TDA Meetings were held, one in each of the five countries. These provided the preliminary inputs to the NCAPs and also inputted to the TDA. These were seen as the main vehicle to reflect the national concerns into the TDA.

July 2001. The Third Regional TDA/NCAPs/SAP Meeting was held in Baku. The meeting reviewed the TDA progress including the National TDAs and the TDA supporting studies and activities findings. An Outline for the TDA structure was discussed and approved. The dialogue on CCA and PIs continued. The concept of a Stakeholders Analysis was introduced and the countries were requested to input into it. The meeting was presented, discussed and approved five Environmental Quality Objectives (EQOs) for the TDA. These closely reflected the initial Concept Paper and Project Document. They were i) sustainable economic uses of the Caspian and its hinterland, ii) balanced Caspian environment including biodiversity conservation, iii) high quality Caspian Sea surface and groundwater, iv) sustainable mixed use of the Caspian coastal environment and v) enhancing the quality of human life. For each EQO a set of Targets and Indicators was identified and the Prioritized Interventions were reviewed and listed against EQOs.

July 2001-November 2001. The first TDA draft was produced under stewardship of PCU by an international consulting firm in September 2001. The draft was revised following a technical review at PCU. The second draft was shared with the region for review and comments.

September 2001. The first regional meeting of the Biodiversity Strategy Action Plan (BSAP) was held in Atyrau. The meeting outlined the BSAP structure and identified the roadmap for its production and integration into the SAP. FFI was recruited to produce BSAP draft in consultation with regional stakeholders.

November 2001. The Fourth TDA/NCAPs/SAP meeting was held in Baku. In addition to the regional technical experts and representatives of the governments and international partners, a number of internationally renowned experts participated. The TDA draft was thoroughly reviewed and revised. MPPIs, EQOs, Targets, Indicators and Prioritized Interventions were reviewed, revised, changed and reworded for purposes of additional clarity and analytical value. A rough costing of the Interventions was attempted. Preliminary SAP Interventions were extracted from the list of Prioritized Interventions.

December 2001. EU/Tacis completed and published its input to the CEP TDA.

December 2001-May 2002. Five draft National NCAPs produced. In each country a national team of experts was recruited to produce the draft under the leadership of a national planner/strategist with necessary support from PCU. NCAPs provided the national MPPIs, the Prioritized Interventions and the interlinking analytical structure. They also identified the challenges to the implementation of the NCAPs and the suggested resource mobilization strategies.

January - April 2002. The Concept Paper for CEP II developed. Concurrently EU/Tacis initiated a process to develop a framework for its partnership with CEP II. A consensus emerged to focus on a number of environmental transboundary concern areas including fisheries and bioresources development, biodiversity protection, pollution control and sustainable development of degraded coastal areas.

February 2002. A regional BSAP/NCAPs meeting was held in Baku. The first BSAP draft was presented, discussed and reviewed. The major findings of the NCAPs were also presented and discussed. At same time a structural linkage was established between the NCAP process on one hand, the Priority Investment Projects (PIP) identification process on the other hand. The NCAP teams and the World Bank Local Consultants were requested to fully cooperate to ensure that the NCAPs included a listing of PIPs.

May 2002. A meeting of the regional technical experts was held in Baku to once again review the TDA draft in particular the SAP Preliminary List of Interventions. Final TDA was released in July 2002.

June 2002. Under the stewardship of PCU two international experts were recruited to produce the first SAP draft on the basis of the TDA and the NCAPs. The draft was shared with the region and the CEP International Partners for review and comments. Concurrently the NCAPs were subjected to national review through National Forums in all the five countries.

July 2002. A BSAP/SAP Meeting was held in Baku. The SAP first draft including the MPPIs, EQOs, Targets Indicators, Interventions were thoroughly reviewed, changed and improved. BSAP was discussed as an integral component of the SAP. Following the meeting the SAP and BSAP were redrafted and shared with the region for comments.

July 2002. A meeting of the CEP Institutional Structure for CEP II was held in Tehran. The meeting was immediately followed by the 7th Meeting of the Framework Convention for the Protection of Marine Environment of the Caspian. These meetings resulted in a regional agreement of the general institutional arrangements for the CEP II and the final text of the draft Convention.

August 2002. The second SAP meeting was held. The SAP draft including the text, the institutional arrangements and the EQOs were reviewed. A Gap Analysis was performed to ensure that the root causes identified in the CCA were addressed in the listing of the Prioritized Interventions. EQOs, Targets, Indicators and Interventions were once again reviewed and revised. BSAP related EQO(s) were also revisited. In line with the TDA and the Concept Paper four areas of concerns that were need to be addressed were identified as fisheries and bioresources development, biodiversity protection, pollution control and sustainable development of degraded coastal areas.

October 2002. Review of SAP draft by Steering Committee.

December 2002. Written comments received by SC members on SAP draft.

February 2003. National SAP consultation meetings held in each Caspian state to determine whether the SAP 1-5 year activities are supported by the pre-requisite baseline activities in the National Caspian Action Plans; if the countries allocate high or medium priorities to these 1-5 year activities; and a cost estimate of SAP implementation in the first five years at the national and regional levels and what level of funding has been earmarked in the NCAPs.

March 2003. Presentation of the final draft of the SAP and final comments from the Steering Committee.

November 2003. Adopted at Tehran Steering Committee Meeting.

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO I: CONSERVATION AND SUSTAINABLE USE OF BIORESOURCES

EQI INDICATOR: COMMERCIAL FISH STOCKS ARE MAINTAINED AT SUSTAINABLE LEVELS WITH REFERENCE TO THE BASE YEAR (1998)

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
1. Sustainable use of commercial fisheries resources.	1.1 Promote the signature and implementation at the governmental level of a regional agreement on the preservation and management of Bioresources of the Caspian Sea.	a) Signed and implemented agreement.	PI	1-5 years
	1.2 Further strengthen the regional cooperation for fisheries management, including the development of regional standards of fisheries harvest practices for commercial species, and the setting of scientifically based quota system.	a) Relevant regional standards of fisheries harvest practices developed and adopted by the national governments.	PI	1-5 years
		b) An effective regional fisheries body made operational.	PI	1-5 years
		c) Regular joint stock assessments undertaken and annual quotas set based on results.	PI	1-5 years
	1.3 Develop compliance, enforcement and monitoring mechanisms for sturgeon fisheries in accordance with CITES Paris declaration.	a) Reduced level of illegal trade measured and verified by CITES.	SRI	1-5 years
		b) A system of regional fisheries inspection established.	PI	1-5 years
	1.4 In coordination with national and regional organizations, develop enforcement mechanisms and economic instruments to reduce illegal trade in Caspian commercial fish resources in accordance with CITES Paris Declaration.	a) Development of required national legislation of enforcement.	PI	1-5 years
		b) Legal instruments in place to mitigate illegal trade/strengthen mechanisms to reduce illegal trade.	PI	1-5 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO I: CONSERVATION AND SUSTAINABLE USE OF BIORESOURCES

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
2. Rehabilitate stocks of migratory (sturgeon, inconnu, herring) commercially valuable fish species.	2.1 Carry out national activities to identify, protect, restore and manage natural spawning grounds for sturgeon and other commercially valuable anadromous species, within the framework of regional agreements, including development of a financial strategy for their protection.	a) Caspian-wide inventory of spawning grounds.	PI	1-5 years
		b) Key spawning grounds restored, protected and maintained at productive levels including Kura, Sefidrud, Anzali Wetlands, Ural and Volga.	SRI	1-5 years
		c) Increase in numbers of fish using spawning grounds.	SRI	1-5 years
		d) Financial strategies developed and approved.	PI	1-5 years
	2.2 Increase sturgeon hatchery efficiency and capacity through improvement of bio-techniques and fry growth technology as well as enhancing scales of their production.	a) Double amount of fingerlings released from hatcheries from baseline 120 millions per year.	SRI	1-5 years
		b) Double survival rate of released fingerlings from 2002 rate of 2.5%.	SRI	1-5 years
		c) Brood stocks are maintained alive in hatcheries.	SRI	1-5 years
	2.3 Strengthen regional cooperation including scientific exchanges on improving hatchery efficiency and the creation of a gene bank for anadromous fish.	a) Gene bank established.	SRI	5-10 years
		b) Hatcheries management network established.	PI	1-5 years
	3. Improve livelihoods in coastal communities to reduce dependency on	3.1 Promote more selective fishing methods and small-scale aquaculture.	a) Detailed regulations requiring selective fishing methods in place and enforced in all Caspian countries.	PI

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO 1: CONSERVATION AND SUSTAINABLE USE OF BIORESOURCES

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
unsustainable fishing practices via pilot projects.		b) 25% of fishermen use more selective fishing methods in first five years and 100% use selective methods in ten years.	SRI	5-10 years
		c) At least one functioning coastal community small-scale aquaculture scheme in each of the Caspian states.	SRI	5-10 years
	3.2 Promote alternative income sources for fishing communities and adoption sustainable livelihoods, and improve access to social /community services.	a) Extension programmes in each Caspian country to promote alternative livelihoods in all coastal communities. Revenue of fishing in communities to fall less than 50% of total.	SRI	5-10 years
		b) Improved health and education status in coastal communities as measured by life expectancy and years at school.	SRI	5-10 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO II: CONSERVATION OF BIODIVERSITY

EQO INDICATOR: ARREST BIODIVERSITY EROSION DUE TO ANTHROPOGENIC IMPACTS

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
1 Increased regional collaboration to achieve maximum regional benefit for biodiversity.	1.1 Draft and adopt a Biodiversity Protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea.	a) Regionally endorsed Biodiversity Protocol.	PI	1-5 years
	1.2 Establish a regional biodiversity monitoring system.	a) Regional report on status of biodiversity of the Caspian.	PI	1-5 years
	1.3 Create a regional 'clearing house mechanism' (CHM) on biodiversity.	a) Established mechanism for communication between national and international scientists working on the Caspian.	PI	1-5 years
		b) A continually updated review of the status of the Caspian biodiversity.	ESI	1-5 years
	1.4 Develop a framework for international research on Caspian biodiversity related issues.	a) Coordinated and accelerated research into Caspian biodiversity, leading to deeper understanding of threats and better amelioration actions.	ESI	1-5 years
	1.5 Develop and implement an awareness campaign to highlight the biological uniqueness of the Caspian.	a) An informed and more active public and more environmentally conscious decision making bodies.	PI	1-5 years
	1.6 Ensure biodiversity issues and impacts are taken into account in all EIA applications.	a) Increased reference to biodiversity as a key issue in coastal planning /land use decision making documents.	PI	1-5 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO II: CONSERVATION OF BIODIVERSITY

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>	
2 Ensure all key species are maintained or restored to viable levels.	2.1 Identify and assess key threatened and endangered species status and publish results.	a) A list of threatened key species whose predicament embodies the overall threats to biodiversity.	ESI	1- 5 years	
	2.2 Ensure adequate legal protection for key threatened and endangered species.	a) New or strengthened national legislation for the protection of key threatened species.	PI	1-5 years	
	2.3 Provide in-situ and ex-situ protection for key threatened and endangered species.		a) Increased or slowed down rate of decrease in population numbers of key threatened species.	PI	5-10 years
			b) Expansion of the ranges of key threatened species.	SRI	5-10 years
			c) Increased level of effective re-introduction of species /restoration of habitats.	SRI	5-10 years
2.4 Create a gene bank for threatened and endangered species.	a) DNA of known threatened and endangered species deposited in gene bank species.	ESI	5-10 years		
3 Control of introduction and invasion of non-native (alien) species and manage impact of existing introduced/invasive species.	3.1 Develop and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea on invasive species.	a) Endorsed Protocol on Control of Invasive Species.	PI	1-5 years	
	3.2 Develop regional control procedures to manage the introduction and spread of alien species in the Caspian, in particular along the key transport routes.	a) Agreement and implementation of regional guidelines.	PI	1-5 years	
		b) Management plan for the control of invasive species via the Volga-Don and Volga-Baltic navigation routes.	PI	1-5 years	

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO II: CONSERVATION OF BIODIVERSITY

Target	Intervention	Indicator	Indicator type	Time-frame
	3.3 Investigate potential biological control measures to reduce the impact of <i>Mnemiopsis</i> on the ecosystem of the Caspian.	a) <i>Mnemiopsis</i> levels decreased to a harmless level.	SRI	1-5 years
	3.4 Study on the possibilities of development of ballast water reception facilities at all shipping exits and entrances to the Caspian Sea.	a) Documents based the decision on the construction of one ballast water reception facility.	SRI	5-10 years
4 Ensure all key coastal and marine habitats are represented in a regional system of protected areas.	4.1 Improve effectiveness of management of Caspian protected coastal areas including compliance with existing legislation.	a) Increased number of better trained protected area wardens.	PI	1-5 years
		b) Evidence of use of modern protected area management.	PI	1-5 years
		c) Increased local community involvement in protected area management decision making.	PI	1-5 years
	4.2 Create new and expand existing protected areas (including where necessary transboundary areas) to cover all key threatened and endangered Caspian coastal and marine habitats.	a) Increased area (30%) of key threatened habitats under protection.	SRI	5-10 years
	4.3 Create a regional information network between Caspian protected coastal areas.	a) Regional integration of protected area management as evidenced by regional meetings/conferences, newsletters, annual reports etc.	PI	1-5 years
	4.4 Develop management plans for the hydrological regimes of the major impounded rivers in the Caspian basin, the Volga, Kura and Sefidrud.	a) New management plans agreed which include increased allocations for environmental needs.	SRI	1-5 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO II: CONSERVATION OF BIODIVERSITY

Target	Intervention	Indicator	Indicator type	Time-frame
5 Identify and restore priority coastal habitats.	5.1 Develop and apply a standardized methodology for assessment of the environmental health of coastal habitats.	a) A health map of the region's coastal habitats based on standardized assessment methodology.	PI	5-10 years
	5.2 Design, implement and monitor a minimum of five coastal habitat restoration projects.	a) Agreed and financed prioritized action plan for restoration of coastal habitats.	PI	5-10 years
		b) Restored and protected priority coastal habitats in all five littoral states.	SRI	5-10 years
6 Identify and restore priority marine habitats.	6.1 Develop and apply a standardized methodology for assessing the health of marine habitats.	a) A health map of the Caspian's marine habitats based on standardized assessment methodology.	PI	5-10 years
	6.2 Design, implement and monitor a minimum of five priority marine habitat restoration projects.	a) Agreed and financed prioritized action plan for restoration of marine habitats.	PI	5-10years
		b) Restored and protected marine habitats in all five littoral states.	SRI	5-10 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO III: IMPROVE THE WATER QUALITY OF THE CASPIAN

EQO INDICATOR: A MEASURABLE DECLINE IN LEVELS OF MAIN CONTAMINANT GROUPS IN THE WATER, SEDIMENT AND BIOTA

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
1. Strengthen environmental enforcement and management in the littoral states.	1.1 Develop regional proposals for strengthening discharge licensing, compliance monitoring and enforcement of pollution control in the near Caspian basin.	a) Completed, acceptable regional proposals which address the need for enhanced management capacity of licensing, compliance monitoring and enforcement of pollution discharges in the Caspian.	PI	1-5 years
	1.2 Increase resources to regulatory bodies responsible for enforcement and improve capacity through targeted training programmes.	a) Increased number of training days of staff in regulatory institutions.	PI	1-5 years
	1.3 Develop recommendations for harmonization of pollution discharge and emission, and water quality standards.	a) Developed recommendations for harmonized regional pollution discharge standards and Caspian EQOs/ EQSs.	PI	1-5 years
	1.4 Introduce economic instruments to encourage reduced pollution loads.	a) Introduced economic instruments, which can be shown to encourage pollution reduction in public and private sectors at local, national and regional levels.	SRI	5-10 years
2. Implement a regionally coordinated water quality monitoring programme.	2.1 Develop and implement regional water quality monitoring programme focused on critical contaminants and hotspots.	a) Implemented regional monitoring programme to focus on certain contaminants and hotspots, with information exchange among relevant bodies, standardized monitoring protocols, including baseline contaminant levels.	ESI	1- 5 years
	2.2 Develop and implement a rapid assessment programme for contaminant levels in all Caspian waters.	a) Implemented rapid assessment programme for contaminant levels throughout all Caspian waters, including synchronized assessment standards, and region-wide information sharing mechanisms.	ESI	1- 5 years
	2.3 Provide report on contaminant levels in Caspian every three years, and make proposals for remedial actions.	a) Production of standardized reports on regional contaminant levels with concrete, realistic and cost effective proposals for remedial action to reduce impacts where needed, based on baseline contaminant levels.	PI	1-5 years initially, 5-10 on going
3. Development of regional strategies for pollution reduction.	3.1 Develop and adopt a protocol to the Framework Convention for the Protection of	a) Developed and adopted protocol on land-based sources of pollution.	PI	1-5 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO III: IMPROVE THE WATER QUALITY OF THE CASPIAN

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
	the Marine Environment of the Caspian Sea for land-based sources of pollution and undertake a comprehensive land-based source assessment of the near Caspian basin.	b) Implemented land source assessment (point and diffuse sources) in the Caspian water basin leading to prioritized listing of hotspots.	PI	1-5 years
	3.2 Develop a regional action plan to remediate pollution hotspots identified in the near Caspian basin.	a) An agreed action plan and development of a prioritized investment programme.	PI	1-10 years
		b) Reduction in the number of hotspots by 20%.	SRI	1-10 years
	3.3 Develop and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea on Hazardous Substances and encourage all littoral states to sign and ratify the Stockholm Convention on Persistent Organic Pollutants.	a) Developed and agreed protocol on hazardous substances.	PI	1-5 years
		b) Signed and ratified Convention on Persistent Organic Pollutants by all five littoral countries.	PI	1-5 years
	3.4 Develop and implement a programme to dispose stores of banned agrochemical products in the region in accord with the Stockholm Convention on Persistent Organic Pollutants provisions.	a) Removal of all stocks of banned agrochemicals near Caspian basin.	PI	1-5 years
	3.5 Through the use of demonstration pilot projects investigate cost effective means of treating municipal wastewater and produce regional recommendations.	a) Three demonstration pilot projects established in the coastal zone.	PI	5-10 years
		b) Recommendations developed for cost effective means of environmentally sensitive treatment of municipal wastewater in the littoral states and available resources.	PI	5-10 years
	3.6 Reduce pollution from existing and decommissioned coastal and offshore oil and gas facilities, including the re-sealing of well heads.	a) Decreased hydrocarbon pollution from existing and decommissioned facilities by 50%.	SRI	5-10 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO III: IMPROVE THE WATER QUALITY OF THE CASPIAN

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
	3.7 Develop and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea on dumping at sea.	a) Adopted protocol on dumping at sea.	PI	1-5 years
	3.8 Establish waste reception facilities in all major ports.	a) Functional waste reception facilities installed in all major ports with standardized management practices and enforcement.	SRI	5-10 years
4. Develop and initiate implementation of a regional action plan for contaminated land.	4.1 Undertake a survey of coastal zone to identify and characterize major contaminated land sites and develop a hot spot strategy to be coordinated with POPs enabling activities in signatory states.	a) Coastal survey completed, with major contaminants listed and hot spot management strategy devised.	PI	1-5 years
	4.2 Implement pilot projects to demonstrate the most cost effective reclamation technologies for a range of contaminants.	a) Functioning contaminants reclamation pilot projects in all five littoral countries.	SRI	5-10 years
5. Promote environmentally sound agricultural practices in the Caspian region.	5.1 Establish and promote recommendations for the use of agro chemicals, including application times and rates, handling, storage and disposal.	a) Recommendations developed and disseminated throughout region to relevant stakeholders.	PI	1-5 years
	5.2 Promote through pilot projects environmentally sound agricultural practices such as soil conservation, creation of river protection zones, use of natural fertilizers and use of pest resistant crop strains.	a) Functioning environmental conservation promotional pilot projects in all five littoral countries.	SRI	5-10 years
	5.3 Combat eutrophication in sensitive coastal zones by controlling soil and water contamination from agriculture and other nutrient sources.	a) Reduction in nutrient loading by 30% in critical areas.	SRI	5-10 years
6. Disaster prevention and response.	6.1 Finalize and approve national oil spill contingency plans and harmonize mutual aid plans.	a) Operational national oil spill contingency plans, harmonized with the industry mutual aid plans.	PI	1-5 years
	6.2 Sign Memorandum of Understanding on Oil Spill Preparedness and implement Regional Cooperation Plan.	a) First regional exercises to test Regional Cooperation Plan.	PI	1-5 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO III: IMPROVE THE WATER QUALITY OF THE CASPIAN

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
	6.3 Finalize and adopt a protocol to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea on Emergency Response.	a) Adopted protocol.	PI	1-5 years
	6.4 Update sensitive areas mapping of the Caspian.	a) Sensitive areas mapped and information made available on Internet to relevant local, national, regional and international bodies.	ESI	1-5 years
	6.5 Undertake risk assessment for oil and hazardous substances spillage from shipping, pipelines, offshore and onshore production and storage facilities.	a) Risk assessment completed and made available to relevant bodies for consideration.	PI	1-5 years
	6.6 Promote development of regional intergovernmental agreements for liability and compensation in the event of oil spills.	a) Draft agreements developed with input from oil industry, relevant ministries, and international organizations and adopted by the littoral states.	PI	1-5 years
	6.7 Develop regional agreement on minimum standards of maintenance of existing tanker fleet.	a) Reduction in ship borne pollution incidents by 50%.	SRI	5 -10 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO IV: SUSTAINABLE DEVELOPMENT OF COASTAL ZONES

EQO INDICATOR: MEASURABLE AND SUSTAINED INCREASE IN HUMAN DEVELOPMENT INDICIES IN THE CASPIAN COASTAL AREAS

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
1. Sustainable use and management of coastal areas through integrated coastal area management.	1.1 Review and revise, as needed, national regulation on coastal area planning and management.	a) Put in place improved, cost effective and environmental conscious national regulations on coastal area planning and management.	PI	1-5 years
	1.2 Strengthen technical capacity at local and municipal government level for coastal planning and introduce economic instruments to promote rational land use.	a) Increased number of trained and skilled local and municipal staff.	PI	1-5 years
		b) Develop and implement economic instruments aiming at efficient and wise land use in coastal areas.	PI	1-5 years
	1.3 Develop regional and national data centers and GIS databases for coastal planning and management.	a) Functioning national and regional data centers and access to GIS database for use by coastal planning authorities.	PI	1-5 years
1.4 Undertake a pilot integrated coastal area management planning project in each Caspian state with a view to develop and replicate national guidelines.	a) Functioning pilot projects and publication of national guidelines on integrated coastal area management planning for the Caspian.	SRI & PI	1-5 years	
2. Combat the desertification and deforestation process.	2.1 Where necessary, strengthen national legislation to combat desertification and deforestation and encourage the signing of the Convention to Combat Desertification (CCD) by the Caspian states.	a) Improved deforestation and desertification control legislation in place in all five littoral countries and all five countries signatories to the CCD.	PI	1-5 years
	2.2 Apply remote sensing and GIS techniques to monitor trends in desertification and deforestation in the Caspian region.	a) GIS Database established and regional reports and reviews produced on a regular basis.	ESI	1-5 years
	2.3 In critical desertification and deforestation areas develop and implement pilot projects designed to address both immediate and root causes.	a) Functioning pilot projects in all five littoral states and guidelines for protection of coastal forest and desert areas.	SRI & PI	5-10 years
	2.4 In threatened forest areas introduce alternatives to fuel wood.	a) Measurable reduction in wood fuel consumption in coastal forest areas.	SRI	5-10 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO IV: SUSTAINABLE DEVELOPMENT OF COASTAL ZONES

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
	2.5 In threatened desert areas conduct targeted awareness campaigns on sustainable grazing practices.	a) Measurable reduced in animal population grazing in coastal areas.	SRI	5-10 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO V: STRENGTHEN STAKEHOLDER PARTICIPATION IN CASPIAN ENVIRONMENTAL STEWARDSHIP

EQI INDICATOR: ENHANCED INVOLVEMENT OF CIVIL SOCIETY REPRESENTATIVES IN THE NCAPS AND SAP IMPLEMENTATION INCLUDING NGO REPRESENTATION ON THE CEP STEERING COMMITTEE

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
1. Increased coastal community involvement in managing the Caspian environment.	1.1 Create a Caspian Environment Center in each littoral state to provide information to public on Caspian environmental issues.	a) Functioning Caspian Environment Centers in each littoral state.	PI	5-10 years
	1.2 Create a CEP press bureau to improve country, regional and international awareness of the status of Caspian environmental issues and encourage the media to participate in the dissemination of information.	a) Functioning press bureau and an increased number of articles at all levels published on the Caspian environment.	PI	1-5 years
	1.3 Promote broader public access to Caspian relevant environmental information held by public authorities in accordance with, where applicable, the Aarhus Convention.	a) The establishment of easy accessing mechanisms to Caspian environmental information held by public authorities in all five littoral states.	PI	1-5 years
	1.4 Development of academic curriculum materials focusing on Caspian environmental issues and promotion of academic partnerships at school and university levels.	a) New curriculum included in primary, secondary and tertiary schools in coastal communities in the region and a 100% increase in the number of academic partnerships recorded by CEP.	PI	1-5 years
	1.5 Set up a fund for micro-grants addressing coastal community development schemes and local environmental problems, in partnership with the private sector and international donor community.	a) Established fund and number of micro-grants disbursed.	SRI	1-5 years
2. Increase local and regional authorities understanding of importance of environmental issues.	2.1 Establish environmental issues awareness training programmes for local authorities, and national ministries, emphasizing cost/benefit analysis of proposed projects.	a) Development and execution of environmental awareness training programmes for local authorities, and national ministries.	PI	1-5 years

Indicator Types:

PI Process Indicator
 SRI Stress Reduction Indicator
 ESI Environmental Status Indicator

ANNEX 2: INTERVENTIONS AND THE CORRESPONDING INDICATORS

EQO V: STRENGTHEN STAKEHOLDER PARTICIPATION IN CASPIAN ENVIRONMENTAL STEWARDSHIP

<i>Target</i>	<i>Intervention</i>	<i>Indicator</i>	<i>Indicator type</i>	<i>Time-frame</i>
	2.2 Implement national EIA procedures for all appropriate project developments, including provisions for public participation, and encourage all littoral countries to sign ESPOO Convention.	a) Mandatory application of EIA in development project decisions making process and increased number of public meetings.	PI	1-5 years
	2.3 Hold biennial mayoral conferences sponsored by national and international partners to foster networking among coastal local authorities and enhance their participation in implementing Caspian environmental policies.	a) Regular mayoral conferences held with environmentally focused networking linkages developed.	PI	1-5 years
	2.4 Promote the positive aspects of eco-tourism and develop one pilot project in each Caspian littoral state.	a) Functioning pilot project and guidelines for development of eco-tourism in the Caspian coastal zone.	PI	1-5 years
3. Develop active partnerships between CEP, local and multinational enterprises.	3.1 Promote NGO/ government/ private sector environmental partnerships to improve monitoring, public relations and educational activities related to specific Caspian issues.	a) Number of enhanced multiple stakeholder group partnerships to address Caspian environmental issues increased by 100%.	PI	1-5 years
	3.2 Develop a programme to encourage adoption of cleaner technologies by local industries.	a) Increased number of coastal industries installing new, cleaner technologies (to be measured in conjunction with EQO III intervention 1.4).	SRI	1-5 years
	3.3 Set up “Friends of CEP” programme with annual competition for local, national and international company or facility that has achieved the most concrete gains in protection of the Caspian environment in the previous year.	a) Number of applicants for “Friends of CEP” over the first five years of operation.	SRI	1-5 years

Indicator Types:

PI Process Indicator
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