Inception Report
TACIS/2005/109244

Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern

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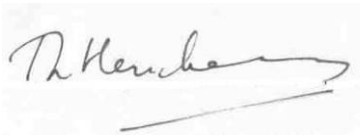
Signatures:	
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ABREVIATIONS AND ACRONYMS

ADB	Asia Development Bank
Alara	As Low As Reasonably Achievable
APC	Area of Pollution Concern
AZ	Azerbaijan
BAT (EA/NEEC)	Best Available Techniques (Economically Available /Not Entailing Excessive Costs)
BIMS	Business Integrity Management System
BREF	BAT Reference documents
BSERP	Black Sea Eutrophication Recovery Project
CASPAS	Integrated Programs on Hydrometeorology and Monitoring of Environment in the Caspian Sea Region
CASPCOM	Coordinating Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea
CEEC	Central and Eastern European Countries
CEP	Caspian Environment Program
CIS	Commonwealth of independent states
CoP	Conference of the Parties
CRTC	Caspian Regional Thematic Centre
DBM	Design, Build en Monitor
DDT	Dichloro Diphenyl Trichloroethane
DPSIR	Driving forces, Pressures, States, Impacts and Responses
DO	Dissolved Oxygen
DoE	Department of the Environment (IR)
DTL	Deputy Team Leader
EASC	Euro-Asian Council for Standardization, Metrology and Certification a regional standards organization operating under the auspices of the CIS
EC	European Commission
E-Coli	Escherichia Coli
EIA	Energy Information Administration
EIPPCB	European Integrated Pollution Prevention and Control Bureau
EOM	Hexane Extractable Organic Matter
EQO	Environmental Quality Objective
EU	European Union
EUWI	European Union Water Initiative
FOCs	Free Oil Contaminants
FMO	Netherlands Financial Facility for Developing Countries
FSU	Former Soviet Union
GEF	Global Environment Facility
GIS	Geographic Information System
GIWA	Global International Waters Assessment
Glo-Ballast	GEF/UNDP/IMO Global Ballast Water Management Program
GPA	Global Plan of Action[1]
GOST	Technical standards maintained by the EASC
IAEA	International Atomic Energy Agency
IFC	International Finance Cooperation (World bank)
IFI	International Financial Institution
IMO	International Maritime Organization
IPPC	Integrated Pollution Prevention and Control
IR	Iran
JICA	Japan International Cooperation Agency
KE	Key Expert
KfW	German Financial Facility for Developing Countries

[1] Global Plan of Action for the Protection of the Marine Environment from Land-based Activities

KZ	Kazakhstan
LFA	Logical Framework Analysis
MENR	Ministry of Ecology and Natural Resources (RU/AZ)
MEL	Marine Environment Laboratories (Monaco)
MEP	Ministry of Environmental Protection (KZ)
MNP	Ministry of Nature Protection (TM)
MSGP	Matched Small Grants Program
NATO	North Atlantic Treaty Organization
NCAP	National Caspian Action Plan
NFP	National Focal Point for the CEP
NGO	Non-governmental organization
NHD	National Hydromet Department (AZ)
NORM	Naturally Occurring Radioactive Material
OECD	Organization for Economic Co-operation and Development
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PCU	Program Coordination Unit
N-PAP	National Pollution Action Plan
PIPP	Priority Investment Project Program
PM	Project Manager
POPs	Persistent Organic Pollutants[2]
PTS	Persistent Toxic Substances
P-RAG	Pollution Regional Advisory Group
QA/QC	Quality Assurance and Quality Control
RAG	Regional Advisory Group
REC	Regional Environmental Centers
RPAP	Regional Pollution Action Plan
RPMP	Regional Pollution Monitoring Program
RS	Remote Sensing
RU	Russia
RV	Research Vessel
RWQMP	Regional Water Quality Monitoring Plan
SAP	Strategic Action Program for the Caspian Sea[3]
SAPIC	Strategic Action Program Implementation Coordinator
SC Meeting	Steering Committee Meeting
SDCC	Sustainable Development of Caspian Coastal Communities
SOI	State Oceanographic Institute
TA	Technical Assistance
TACIS	Technical Assistance Commonwealth of Independent States
TBR	Turkmenbashi Refinery
TDA	Transboundary Diagnostic Analysis
TDS	Total Dissolved Solids
TIC	Total Inorganic Components
TM	Turkmenistan
TOC	Total Organic Carbon
ToR	Terms of Reference
TPH	Total Petroleum Hydrocarbons
TSS	Total Suspended Solids
TL	Team Leader
UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNOPS	United Nations Office for Project Services

[2] Stockholm Convention on persistent organic pollutants

[3] (5 November 2003)

USAID	United States Agency for International Development
US EPA	US Environmental protection Agency
US GS	US Geological Survey
WB	World Bank
WFD	Water Framework Directive
WMO	World Meteorological Organization (UN)

1 PROJECT SYNOPSIS

Table 1-1 Project Synopsis

Project title: Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern **Project number**: Service Contract TACIS/2005/109244 **Country's:** The Caspian littoral states, AZ, KZ, TM, RU, and as guest and fifth littoral country;
Project objectives: The project objectives are: √ The broad **overall objective** is to achieve improved quality of the marine and coastal environment of the Caspian Sea through the Caspian Environment Program (CEP). √ The **project purpose** is to assist in achievement of Target 2.1 (Regional Water Quality Monitoring Program - RWQMP) and Target 3.2 (Regional Pollution Action Plan - RPAP) of Environmental Quality Objective III (Improve Caspian Water Quality) of the Strategic Action Program (SAP) for the Caspian.
Project's outputs: The planned project's outputs are: *1. Developed of an enhanced hotspot-specific Regional Water Quality Monitoring Program (RWQMP) with progress in implementation.* *2. Design, planning and support for implementation of enhanced pilot RWQMP over a two year period with relevant specifically justified tasks, based on main principles agreed by the P-RAGs and resulting in execution of four Hotspot-Specific Surveys.* *3. Successful deployment of a package of equipment and supplies to support the enhanced RWQMP implementation, procured under a separate contract and Introduction of Quality Assurance procedures .in four regional laboratories, resulting in a network of equipped and trained monitoring laboratories.* 4. *Development of agreed Regional Pollution Action Plan (RPAP) and prioritized investment program.*
Project activities: The envisaged project's activities are 1. *Enhanced RWQMP based on regional components of the National Site Specific ("Hot spot").* a) Agreement of key monitoring locations, harmonized methodology, indicators, protocols and administration/management arrangements as well as data reporting and data exchange procedures; (b) Delivery of first two years of enhanced RQWMP. *2. Deployment and survey procurement:* (a) Justification and preparation of deployment of equipment and consumables in response and pending to procurement and delivery under a separate contract; (b) Procurement of services linked to implementation of the enhanced RWQMP surveys, notably in regard of updating the current training and equipment needs, considering previous TACIS and GEF assessments done during 2001-2006. *3. Monitoring laboratories* a) Agreement of key monitoring locations, assistance in procurement; *4. RPAP:* (a) Assessment of available pollution areas of concern information; (b) Updating of pollution assessment; (c) Identification, prioritizing and costing of remediation actions
Target groups: The end-beneficiaries of this project will be the population living around the Caspian, and all concerned with the water quality of the Sea. Other end beneficiaries will include the scientists in the region that are working on aspects of water quality and pollution amelioration. Intermediary beneficiaries will include the national and local government responsible for ambient water quality monitoring and pollution control in the beneficiary countries AZ, RU, KZ, TM and IR.
Project starting date: Date of contract signature: November 27th, 2006; Date of actual start of project activities: December 4th, 2006
Project duration: 2.5 years from November 27th 2006 till May 27th, 2009

2 ANALYSIS OF PROJECT

2.1 Introduction

The Service Contract TACIS/2005/109244 is between European Commission (DG EuropeAid) and the Consortium, consisting of DHV BV (The Netherlands, leading party), COWI A/S (Denmark), ECORYS (The Netherlands) and WL| Delft (The Netherlands), has been signed on 27 November 2006.

For the analysis of the Project reference is made to the following information collected ***during national and regional dialogues*** held at the following occasions between December 2006 and June 2007:

a. The ToR as compiled May 2005; and endorsed by all countries
b. The introduction to the Project by PM Tacis and the findings at the CEP Steering Committee Meeting, 5-6 December 2006 in Moscow.
c. The consultations held with the CEP manager and staff in regard of developments in the CEP-SAP, notably related to APC's, RWQMP and RPAP (as reported in the P-RAGs and N-PAPs).
d. The national dialogues held with beneficiaries and counterparts during fact-finding missions to the Caspian countries from December 2006 to June 2007.
e. The SAPIC consultations during the GloBallast supported Regional Workshop for Caspian Sea Ballast Water Management, 12-13 March, 2007 in Baku.
f. Consultation with Black Sea Marine Pollution Center to discuss Black Sea QA/QC experience on March 23, 2007 in Odessa;
g. The consultation of Caspian stakeholders at the First Workshop of the European Union Water Initiative (EUWI)-EECCA component, 24-25 April 2007, in Almaty.
h. The findings of the Inception Workshop, and SAPIC consultation 17-18 May 2007 in Ashgabat and the feedbacks received from this;
i. The findings of the 4th Regional Meeting of the TDA/NCAP/SAP Revisit Workshop in Tehran, June 6-8, 2007; and the feedback received from this;
j. Consultations with former Tacis TLs for assistance to CEP during event b, g and i.
k. Meeting with SOI Moscow on June 13, 2007 to discuss the Terek River sampling campaign planned for September 2007.
l. The visit to CaspEcoControl in Turkmenbasy on June 26, 2007.
m. The wrap-up and consolidation of the above findings by the Team in Ashgabat, June 11-30, 2007.

In implementing this contract the Consortium will maximize the synergy with two parallel TACIS projects:

- √ "Supplies for the Caspian and Black Sea Environmental Projects", tender EuropeAid /122682/C/SUP/MULTI, which will provide equipment and training for water quality monitoring and
- √ Environmental Collaboration for the Black Sea, Governments of Georgia, Moldova, Russia and Ukraine, Tender EuropeAid/120117/C/SV/Multi, which is executed in parallel with our project.

Also scope for regional cooperation may be provided by IREX, the International Research and Exchange Board for the Black Sea and Caspian Sea Collaborative Research Project, administering programs between the US and countries in the Black Sea and Caspian region. For upgrading the scientific approach, support will be sought from the NATO Science for Peace and Security (SPS) Program for specific pilot studies. These pilot studies will justify the RWQMP.

2.2 Relevant project context

The broad overall objective of this Project, hereinafter called ***Hot-Spot MAP (Hot Spot Monitoring and Action Planning)***, is to improve quality of the marine and coastal environment of the Caspian Sea through the CEP), notably by strengthening EQO III of the region-wide SAP for the Caspian Sea. The SAP is supported and adopted by the NCAPs of the Caspian countries and is based on the TDA. Hot-Spot MAP is embedded in CEP, the regional umbrella program for improving the environment of the Caspian financed by GEF/UNDP.

Since the formulation of the ToR, there has been a reformulation of the achievements to be reached under the project purpose:

SAP CEP as approved at the CEP Steering Committee Meeting of November 5, 2003, was updated October 2006 and endorsed at the CEP Steering Committee Meeting in Moscow, December 2006. It converted above Target 2.1 into Target 3.1 and above Target 3.2 into Target 1.2:

- √ SAP Target 2.1 of November 5, 2003: "Develop and implement a regional monitoring program focused on critical contaminants and Areas of Pollution Concern (Regional Water Quality Monitoring Program - RWQMP)", now has been converted per October 2006 into ***Target 3.1: "Develop and implement a regional water quality-monitoring program focused on critical contaminants and hotspots, (H) 1-5 years";*** and
- √ SAP Target 3.2: "Develop and implement a regional action plan to remedy Areas of Pollution Concern identified in the near Caspian basin (Regional Pollution Action Plan - RPAP)", now has been converted per October 2006 into ***Target 1.2: "Undertake a comprehensive land-based source assessment and develop a regional action plan to remediate areas of pollution concern identified, (H) 1-5 years".***

This conversion prompts the Consultant to put more efforts in identifying and mitigating land based pollution sources that affect the Caspian Sea. Rather than GIWA (Global International Water Assessment), the Consultant therefore suggested applying OECD's DPSIR (Driver, Pressure, State, Impact and Response) approach both to RWQMP and RPAP.

In summary, the specific objectives of the project are:

- √ ***Develop and implement a regional water quality-monitoring program focused on critical contaminants and hotspots (updated Target 3.1);*** and
- √ ***Undertake a comprehensive land-based source assessment and develop a regional action plan to remediate areas of pollution concern identified (updated Target 1.2).***

These two specific objectives will guide the approach and activities, as shown in the revised LFA (Annex A).

2.3 Main problems/deficiencies

During the regional and national dialogs a number of main problems or deficiencies were met. Some of them caused delay in the progress of implementation of the Contract. For RWQMP and RPAP implementation these concerns the following

- √ Political will is not supported by sufficient financial commitments of Member States;
- √ Methods and approaches applied in Caspian countries still adhere to old FSU ecological standards which not comply with present international concepts;
- √ Absence of national legal frameworks and guaranteed financial basis to carry out national and regional monitoring activities, requiring Member States to meet obligations (reporting, compliance and enforcement) as intended by the Tehran Convention;
- √ Absence of clear territorial borders for the Caspian Sea, resulting in lack of assignment of territorial responsibilities;
- √ Consequent lack of national institutional structures and internal organizations for evaluation of monitoring data and action planning and consequent absence of a work program and its implementation, including harmonized QA/QC procedures;
- √ Absence of a regional secretariat with adequate human resources in policy planning, scientifically sound approaches, coordination and administration in case CEP is not continued and other support expires, jeopardizing the sustainability of this technical assistance.

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2.3.1 Management of logistics

At the start of the project in December 2006, Baku was discussed as duty station. Azerbaijan had not timely endorsed the Project, and therefore a temporary solution was sought by appointing Baku interim duty station. By March 16th, 2007 these attempts were stopped, due to the fact that the Statement of Endorsement by Azerbaijan was not received by the European Commission. Then by invitation of the Turkmenistan Minister of Nature Protection, Ashgabat was proposed to host the Inception Workshop and to function as duty station. The choice of Ashgabat as duty station was discussed at the Inception Workshop on 17-18 May and the selection was agreed on by all participating representatives. However, it

was well-known that the choice of Ashgabat inherently had a number of obstacles that needed attention, such as logistics, procedures around visa distribution, office accommodation and internet connections. The minister of Turkmenistan however guaranteed that the project would get strong support in order to overcome the possible obstacles. With the help of the Turkmen authorities these obstacles are being solved. The project office in Ashgabat now is expected to open in August 2007.

The research vessel logistics is under review. Reportedly some countries can make deep water research vessels with winch capacity available. Other countries only have vessels for work in the shallow area of the coastal zone. These vessels are poorly equipped, without sufficient winch capacity, obsolete sampling equipment and absence of on-board analytical equipment. Several options can be suggested based on previous experiences gained by the CEP Cruise (2005) and the IAEA supported Caspian Cruise (2006) with research vessels of Azerbaijan and also using the technical capacities of vessels available in Russia, such as R/V "Tantal" (Astrakhan) and Briz (Dagestan). Due to the changes of scope with emphasis on identifying impact of land based pollution sources, relatively small and even shallow draft inflatable boats with motor also would be required, to be provided in hot spots by boat trailer from land or supplied from deep water vessel.

Figure 2.1 Research Vessels to be potentially used for RWQMP Cruises at the Caspian Sea

Turkmenistan has stationed a small research vessel in Turkmenbasy that needs equipment and overhaul.

2.3.2 Availability, reliability and confidentiality of data

In the recent decade an extensive database has been developed under the umbrella of CEP. The CEP database has accumulated materials and information, supplied to the Baku Caspian Center for Pollution Control. Hot-Spot MAP has received the digital copy of this.

A very accessible and well presented summary of the scientific information on the Caspian has recently been published by Springer, *"The Caspian Sea Environment",* A Kostianov and A. Kosarev, Editors. It presents an amalgamation of all information on the Caspian environment collected in recent decades, including the FSU episode, making reference to all source documents (mostly in Russian). Detailed background information presented in this book also is available at the ESIMO website http://www.oceanography.ru/esimo. *Hence the synthesis of the available data exists, but there is no adequate continuity in monitoring and evaluation.* For this reason Springer sighs it will takes decades before there is need for an update of the book, simply because of the lack of monitoring. This not completely is true. International oil companies make large efforts in baseline monitoring, needed for environmental impact assessment of oil exploration and exploitation activities. However only part of this information will become part of the public domain, if arrives there at all.

Some national databases exist in each of the Caspian countries. Since data-exchange procedures are still not finally agreed there are no harmonized formats and established mechanisms for data exchange. Partnerships and inter linkages between Caspian monitoring authorities therefore need to be established.

The reliability of data acquired under the FSU episode was guaranteed by the FSU wide application of GOST standards. Data collected in campaigns after the transformation of the FSU generally are lacking a harmonized quality assurance and quality control protocol. Recently (2005) a provisional solution has been found by contracting Monaco's Marine Environmental Laboratory (MEL) of IAEA for doing proficiency testing on some of the sediment surveys. Only IR Iran notably has made a wider use of MEL's services. A detailed program for proficiency testing and inter-comparison for all main laboratories in the Caspian

region was provided by MEL in 2005. The laboratories were nominated by the respective NFPs in each country. Only a limited numbers of locally nominated laboratories made adequate performances, for example for certain metals. None of the nominated laboratories satisfactory performed POPs and PTS measurements. The Project is building-up relations with MEL and also with other EU laboratories (for instance LGC PROMOCHEM Aquachek Company, Poland) to further deploy their expertise, in cooperation with the Caspian laboratories and to be in compliance with requirements of ISO/IEC Guide 43-1:1997.

Oil Companies like AGIP recurrently are doing proficiency testing for Kazakh's local laboratories. Some important data on the Caspian have not been disclosed as yet to CEP, or they are stock in scientific institutes of the Caspian countries or in the National and International Oil Companies files. It is hoped that as a result of the continued national and regional dialogues relevant data will be made available for Tacis. An overview of the available documents and data is summarized in Annex B.

2.3.3 Water Quality Monitoring

In the FSU there was a rather well developed monitoring network for the Caspian region and for the Caspian Sea in particular, with a central administration at Hydromet in Moscow. Most of the water quality and sediment samples from all over the Caspian, except from the Iran territory, were analyzed at the Central Laboratories situated mainly in Moscow. Regional laboratories were only operated in Baku (Azerbaijan), and in Astrakhan (Russian Federation). After the split of the FSU, regular surveys of the Caspian Sea have been significantly declined. The present monitoring by the Caspian countries mainly is focused on the coastal water and is not sufficient. At present, 15 years since the split-up of the FSU, all riparian states suffer from a lack of resources, poor technical and analytical capacities and also lack of co-operation and data exchange.

Though the Caspian is world's largest enclosed water body, it has limited natural capacity for pollution assimilation compared to other large water bodies. Pollution entering the Caspian either is biogeochemical altered, or remains in the Sea for years, none escapes and dilution is limited. The circulation pattern is typical for enclosed seas and consists of a number of cyclonic (counter clockwise) gyres, as well as smaller anticyclonic (anti-clock wise) and cyclonic (clock wise) gyres that come and go depending on the winds, water inflows and other factors. There are two different gyre areas: most pollutants brought by the Volga and Ural River remain in the Northern part of the basin. Pollutants brought by the Kura River rarely reach the Northern of the Caspian. The horizontal gyre pattern is complicated by vertical water movements, manifested by zones of upwelling, for example in the South Eastern part of the Caspian.

The seasonal variation in river flows strongly impacts on the thermohaline conditions of the Caspian Sea. Large volumes of fresh water are seasonally released by Volga and Ural rivers in the Northern part of the Caspian and smaller ones in the Western part (Kura River in Azerbaijan and Terek, Sulak and Samur Rivers in the Republic of Dagestan, Russian Federation). The dynamics of mixing fresh and saline water do exert a typical influence on the water quality and thus on the aquatic ecology. In response to the fresh water fluxes, typical gradients in temperature, salinity, and sediment both longitudinal and vertical will seasonally occur. Hence the rivers are responsible for a specific fluctuation in the thermohaline regime, typified by a large abundance of some species, commercially often important, while the biodiversity is low. Water quality processes in this habitat also are typical, as governed by the sediment dynamics that depend on core size, turbulence and salinity (zeta potential, affecting coagulation and flocculation of fines). In the deeper part of the Caspian, the salinity is maintained by mud volcanoes and evaporation at the surface. Though the deep Caspian regime is vertically stratified in temperature, salinity and turbulence, fines generally will sink to the deeper parts and thus be accumulated and immobilized in the deep sea.

The enhanced RWQMP will be based on the main principles discussed and agreed at the 4th meeting of the Pollution Regional Advisory Group (P-RAG-4) in October 2005 aiming to assist in the design, promotion and implementation of a cost effective and affordable regional monitoring methodology/program for key transboundary contaminants.

Specific task of the enhanced RWQMP is to focus on better understanding of the pollutant's pathways and fate originating from land based sources in the regionally identified "hot spots". For instance specific studies need to be to carried out in Kura River's sedimentation area, to identify the origin and age of the POPs (in particular DDT). This implies measurement of DDT in the suspended particles and bottom

sediment deposits. Physical and chemical forms of the some toxic trace metals, PCBs, and other POPs need to be carefully studied with focus on solid-liquid interactions, including physical and chemical transformation between pore water and particulate phases in the bottom sediment. For a full understanding of the pathway and fate of pollutants, sedimentation rates to need be studied over the shallow and deep basin. However, investigating sedimentation in the deep basin will be limited in this Project. Nevertheless investigation of core samples would allow identification of the pollution chronology of the bottom sediment and thus help us understanding contemporary pollution in historical perspective. Annex C describes the recommended monitoring methodology for suspended solids and sediment. .

The enhanced RWQMP will also be designed in compliance with needs to estimate links between the water pollution problem and human health. Here we aim at seeking links with other related studies and activities currently implemented in the region, such as the TACIS financed project “Investigation into Toxic Contaminant Accumulation and Related Pathology in the Caspian Sturgeon, Seal and Bony Fish (ECOTOX).

The present monitoring systems in Caspian states are rather limited in scope and mainly concentrate on hydrometeorology and state of environment, (immission). In our approach more attention will be demanded for a cause-effect analysis. Both the GIWA (Global International Water Assessment) and the DPSIR (Driver, Pressure State, Impact and Response) approach will be used for both aspects of the project, RWQMP and RPAP. DPSIR analysis is a widely applied mechanism to define and priorities strategic responses to the causes and effects of pollution. It has been widely applied in strategic action planning for regional, national and local environmental problems and as such it has been institutionalized in studies performed for the OECD and EU. In doing so, we hope to develop a scientifically sound, replicable tool for action planning, and thus enable relevant, efficient, effective, and sustainable interventions that do have a significant impact on improving Caspian Sea’s water quality.

One of the important and common problems of the most Caspian Countries is the lack of feed-back of the data collection (monitoring) system and decision making process in evaluation of the pollution source functions and remedial measure justification. The legal framework supporting RWQMP has to be considered in regard of our enhanced Hotspot-Specific Regional Water Quality Monitoring Program. Our main challenge here is to accommodate it in a regional framework, supported by harmonized procedures and guidelines.

2.3.4 Action Planning

Different legislation and different national priorities for the utilization of natural resources are not in favor of good environmental management and protection. Autonomous growth in industry, agriculture and fisheries again worsen the problems. At the same time the abilities of Caspian countries to control pollution from land-based and sea-borne sources has declined. There is no uniform environmental legislation, no uniform environmental permitting system, while monitoring is not used as a tool for pollution load assessment and compliance control. An overview of internationally accepted priority parameters for monitoring major water polluting industries is presented in Annex D. This list possibly can help accommodate a joint harmonized approach.

In order to give new impetus to action planning, private sector representatives made suggestions for establishing environmental business platforms. Such gremials would create win-win situations by promoting voluntary agreements and sectoral covenants. Some ideas vented were the following:

- √ Legal mechanisms were suggested for introducing good housekeeping, cleaner production and BATEA (Best Available Technology Economically Achievable).
- √ Industrial restructuring based on establishing industrial estates (phasing out and remediation of obsolete processes and industry, relocating and concentrating industries, closing waste cycles by complementary production processes, joint utilities and facilities) was discussed.
- √ Financial instruments like environmental funding, financial incentive mechanisms like rapid depreciation, grace periods, revolving funding and others were mentioned. Mechanisms like fund matching and alliance building would help this, enabling sectors to find synergy with institutional investors, like IFC, KfW, FMO and others taking equity; equity to be backed by National Bank guarantees.

The idea is to improve the environment by creating of win-win situations between the sectors and the competent authorities.

Some of these mechanisms were further discussed at the Inception Workshop, in particular the applicable BATEA techniques for local industrial polluters. Industrial pollution control techniques are identified in the Industrial Sector Guidelines of the World Bank's "Industrial Pollution and Abatement Handbook", and in the so called 'BREF' documents, produced by European IPPC Bureau (EIPPCB) for facilitation of the implementation of the EU IPPC Directive (96/61/EC). A list of currently available WB and BREF documents is presented in Annex E and F of this report.

2.3.5 Harmonization

During the national and all regional dialogues, the need for a harmonized approach in monitoring and action planning was expressed by all parties. There is a need for harmonized standards in regard of all aspects of monitoring and action planning. Therefore, building on the results achieved under the CEP, the Project will aim at embarking on methods as for example promoted by the EU Water Initiative (EUWI)-EECCA component. Working under the EU's neighborhood policy the EUWI aims at seeking galvanized and harmonized solutions. Here the EU Water Framework Directive (WFD) is an example. The WFD is a water policy instrument aiming at uniform standards, legally binding in a trans-boundary context, binding time frames with agreed infringement procedures, anchored in an economic framework demanding cost-effective measures; and supported by public participation. By doing this due attention will be given to the national initiatives and notably those inspired by FSU's GOST standards or established by IR Iran.

The regionally harmonized guideline needs to be endorsed and adopted by the Caspian countries represented by the P-RAGs. The main actors implementing for this task might be research institutes of the Russian Federation, such as the State Oceanographic Institute (SOI) and SPA "Typhoon" (Obninsk), to be backed by our staff.

2.4 Situation of local operators

The budgets for source oriented pollution monitoring in the Caspian countries are virtually zero. Though equipment and training for water quality monitoring will be provided by the ongoing Tacis tender for "Supplies for the Caspian and Black Sea Environmental Projects", it will not be able to deploy the deliverables of this contract at short notice. In order to bridge this absence of resources for proper positioning of samples sites, sampling and analysis, riparian states have demanded the Consortium to address the European Commission - EuropeAid providing extra incidentals for this purpose.

The European Commission - EuropeAid has rewarded this request, resulting in an enhancement of the incidentals by 220,000 €. This money has been earmarked as follows:

- √ Broad analysis of samples for water column and sediment (particle size, toxic micro organic chemicals and heavy metals) in each of the four countries; requiring a total extra budget of approximately 100,000 €.
- √ General hydro chemical analysis of samples for water on suspended solids, nutrients, and dissolved substances (ammonia, copper, phenol, THC, etc); requiring a total extra budget of approximately 64,000 €.
- √ Verification analysis of samples in MEL IAEA Monaco at an additional budget of 6.500 EURO for each of the four countries, enabling verification analysis of results obtained in local laboratories, requiring a total extra budget of 26,000 €
- √ Financial support to the use of satellite images for positioning monitoring locations towards land-based pollution sources: 30,000 €

The EC also has enlarged the contribution to the parallel equipment contract. Not the original TA of 500,000 €, but an increased TA of 844.544 € has been contracted to the Caspian Sea countries. (Azerbaijan had not signed the Statement of Endorsement regarding the project at the time for the tendering and is therefore not included in the supply contract.) The allocation of this supply is as follows:

- √ Kazakhstan: 246,439 € for equipment and 20,827 € for chemicals and spare parts;
- √ Russia: 247.824 € for equipment and 13,157 € for chemicals and spare parts; and
- √ Turkmenistan: 291,382 € for equipment and 24,915 € for chemicals and spare parts;

We will articulate the synchronized and harmonized use of these parallel resources, in pace with our resources. We also invite the riparian countries to strengthen their financial commitment for spot monitoring.

Possibly also additional funding will be delivered by the NATO Science for Peace Program, notably by supporting scientific pilot projects justifying the recommended RWQMP approach. Applications can be made using the forms in http://152.152.96.1/science/nato_funded_activities/grant_mechanisms.htm.

2.5 Target groups

The end-beneficiaries of this project will be the population living around the Caspian, and all concerned with the water quality of the Sea. Other end beneficiaries will include the scientists in the region that are working on aspects of water quality and pollution amelioration. Intermediary beneficiaries will include the national and local government organizations / agencies responsible for ambient water quality monitoring and pollution control in the beneficiary countries AZ, RU, KZ, TM and I IR (as a guest country). Private sector initiatives become more and more important. In this regard cooperation is sought with the oil and gas industry, whereas discussions with private sector representatives will be stimulated. .

2.6 Commitments of Counterparts

The commitment of counterparts was confirmed by the national and regional dialogues held during the visits to the Caspian countries in the period December 2006 up to and including June 2007. Annex G presents a summary of the major findings. The agreed findings have been used for the Work Plan. PM Tacis introduced IFI's representatives, including delegates of World Bank, UNDP/GEF, UNOPS, UNEP, and NATO Science for Peace, etc, Hot Spot-MAP is keeping-up relations with them to disseminate the options and constraint for establishing a good water quality monitoring and action planning program for areas of pollution concern for the Caspian.

3 PROJECT PLANNING

3.1 Relation with other projects

GEF (UNDP, UNEP and the World Bank) financed projects:
This project has a direct relation with the Caspian Environment Program (CEP). The major donor to the Caspian Environment Program is the Global Environmental Facility (GEF). Its support to the Caspian Environment Program has operated through the *UNDP, UNEP and the World Bank*.

UNDP has provided support for overall Program coordination of the CEP. During the first phase of CEP, UNDP-GEF also supported

1. *The Caspian Centre on Biodiversity (in Atyrau, Kazakhstan),*
2. *The Caspian Centre on Emergency Response (Tehran),*
3. *The Caspian Centre on Integrated Coastal Area Management (Tehran) and*
4. *The Caspian Centre on Human Health & Sustainable Development (Ashgabat, Turkmenistan).*

The first GEF project in support of the CEP ran from 1998 to 2002 and the second GEF project started in 2004. The latter will be finalized by September 2007.

UNEP was responsible for facilitation of negotiations among the five countries during the *development of the Framework Convention.* During CEP Phase I, it also supported the Caspian Centre for Legal, Regulatory and Economic Instruments (based in Moscow).

The World Bank has administered the Matched Small Grants Program (MSGP), and provided financing from trust funds for an ecotoxicological study and for development of a regional agreement on *oil spill preparedness and response* (further implementation of the MSGP is taking place under a CEP PCU executed Matched Small Grants Project). The World Bank has also administered the *Priority Investment Project Program (PIPP).*

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In recent years, a broad body of experience and knowledge of preparing and implementing a Strategic Action Program (SAP) and enhancing regional cooperation on international waters has developed, much of it with GEF support. The CEP (Box 1) is a large success and all littoral countries are participating in this umbrella project.

Box 1. Caspian Environmental Program (CEP)

The Caspian Environment Program (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. [From the SAP]

TACIS

The current Tacis project will build on the experience and findings of the GEF International Waters focal area and other projects, particularly those involved in the preparation of the SAP (in which the central theme of the current project – the subject of this TOR – is defined). In particular, this project will liaise closely with water quality monitoring initiatives including the *Global International Waters Assessment (GIWA)*, *the Global Program for Action, the River Basins Initiative.*

- √ The current project will also strengthen links between CEP and the major GEF water related projects, both on going (e.g. *Lower Volga, Russia)* and planned.
- √ CEP already has strong communication with the *secretariats of the POPs, Arhus and Espoo Conventions,* and during the project these linkages will be strengthened as joint activities are developed.
- √ CEP has excellent collaboration with the *IMO* and this will continue through *Glo-ballast* and implementation of the *Regional Oil Spill Cooperation Plan* and other various *IMO Conventions.*
- √ CEP has experience very good cooperation with the *oil industry* with positive inputs to the Program and *participation in relevant meetings, supply of data and limited funding.*
- √ Bilateral support to the CEP process comes from a number of countries including the USA, the Netherlands, Germany, and Britain.

This project also has a link with the Integrated Programs on Hydrometeorology and Monitoring of Environment in the Caspian Sea Region **(CASPAS).**

TACIS has supported four CEP regional projects, two of which are ongoing. The first TACIS project was operative from January 1998 until May 2000, and the second TACIS project from June 2000 until December 2001 ("Facilitating Thematic Advisory Groups in Azerbaijan, Kazakhstan, Russia, & Turkmenistan"). These two (completed) projects resulted in a number of products of direct relevance to the current project. Other TACIS projects being implemented under CEP are "Sustainable Development of Caspian Coastal Communities" and "Sustainable Management of Caspian fisheries".

The results of these and other projects under the CEP umbrella projects can be downloaded from CEP website: http://www.caspianenvironment.org/newsite/index.htm. Reversibly the CEP PCU server can be used to share information; after scrutiny by CEP PM Information from our project will be put on the CEP website. A During his visit to Tehran, TL acquired a copy of all Major Documents of CEP's E-Library. These are available on external memory for all team members, Box 2.

Box 2 CEP-SAP website delivering all reports produced under CEP

- √ Use of CEP websites: http://www.caspianenvironment.org/newsite/index.htm
  - E-Library
    - Major Documents
      - Library
        - Reports
          - SC Meeting
          - Etc

3.2 Project objectives

Broad overall objective is to improve quality of the marine and coastal environment of the Caspian Sea through the Caspian Environment Program (CEP).

The project purpose, as amended in the updated SAP CEP (October 2006) and endorsed at Steering Committee Meeting in Moscow, December 2006, is:

- √ *Assist in achievement of Target 3.1: "Develop and implement a regional water quality-monitoring Program focused on critical contaminants and hotspots", (Regional Water Quality Monitoring Program - RWQMP) and*
- √ *Assist in achievement of Target 1.2: "Undertake a comprehensive land-based source assessment and develop a regional action plan to remediate areas of pollution concern identified" (Regional Pollution Action Plan - RPAP)*

Both targets aim at achieving Environmental Quality Objective III (Improve Caspian Water Quality) of the Strategic Action Program (SAP) for the Caspian Sea.

3.3 Project Approach

3.3.1 Structure and Scope

In correspondence with the Consortium's proposal the following Tasks represent the structure and scope of the project, Table 3-1. In following paragraphs amendments to the proposal are discussed.

Table 3-1 Tasks representing the structure and scope of the project

Task 1	Project Management
Task 2:	Collection of existing data and identifying main pollution sources (FACILITARY TO 3, 4 and 5)
Task 3	Design and implementation of an enhanced RWQMP
Task 4	Deployment of equipment and procurement of surveys and samples analysis for four RWQMP surveys
Task 5	Production of RPAPs

3.3.2 Project Management (Task 1)

Since the start of activities in December 2006, Project management strongly participated in the regional and national dialogues with riparian Caspian countries. PM Tacis introduced TL to the CEP Steering Committee Meeting and TL presented the Project to the SC (Moscow, December 5-6, 2006). Consultations with all SAPICs and P_RAGs were held in the Caspian Countries, several workshops on the Caspian were attended in the region (GloBallast in Baku, March 12-13, 2007; (EUWI)-EECCA component, 24-25 April 2007, in Almaty and 4th Regional Meeting of the TDA/NCAP/SAP Revisit Workshop in Tehran, June 6-8, 2007).

What seriously has delayed the project was the absence of a duty station. CEP manager, PM Tacis and all stakeholders pointed at Baku to become duty station, but untimely endorsement of the project by the Government of Azerbaijan, prevented this. In consultation with SAPICs and strong support of the Minister of Nature Protection of Turkmenistan, Ashgabat was selected to become duty station. The experiences of the Inception Workshop and the SAPIC consultations 17-18 May 2007 in Ashgabat were a stimulus for this. By August 2007, the Project Office in duty station Ashgabat will become operational. This is five months later than was foreseen. By sharing the local CEP SAP office in Baku, duty station would have been operational by March 2007.

Due to these delays, TL in continuous communication with PM Tacis spent substantially larger amounts of time to process management in the Inception Phase than was foreseen. In total this has resulted in an over run of 45 working days of the 50 days working days budget originally set for the Team Leader.

Considering the complexity of the project, this amount of headwind too much is a risk for proper coordination and implementation of the project. Even periods with tail wind will not take away risks of further delays and urgent needs for de-bottlenecking problems, that definitely will emerge and that do need the intervention of the Team Leader. It is therefore that the Consortium very carefully has analyzed the ToR, revisited the Proposal and has evaluated the lessons learned in the Inception Phase. This prompts the conclusion that relocating working days from international non-key experts to the Team Leader (Key Expert Number 1), would be the best solution.

During the Inception Phase, four positions for international non-key experts were identified:

1. A DBM, RS and GIS expert, familiar with the application of satellite images for identifying impact of pollution on the Caspian and preferably the Black Sea, enabling the proper positioning of sampling locations to assess the impact of land based pollution sources
2. A Pollution load assessment expert, familiar with the identification of the pollution load of land based point and non-point pollution sources affecting the Caspian, via cascaded and freely flowing rivers.
3. A Proficiency testing expert, familiar with the technical and scientific procedures for the proficiency testing for POPs and PST of sediment from the Caspian. This includes the requirements for sample preparation, inter-calibration and the international certification of results of analysis.
4. A Feasibility expert, familiar with the technical, economic, financial, social and environmental formulation and appraisal of projects, plans and programs for pollution control.

In view of the work to do and the incidentals extra awarded, only position 1 and 3 do need the input of International Non-Key Experts. There is limited expertise and capacity in the team that extensively can provide this know-how.

However, the work foreseen under position 2 will be awarded to the Environmental Management Expert (KE3) and Assistant Expert (AE). The work foreseen under position 4 will be awarded to Local Experts and Assistant Expert. In each of the riparian countries sufficiently qualified economists have been identified for drawing up feasibility studies. Hence feasibility studies mainly will be prepared by local experts and Assistant Expert guided by the Industrial Engineer (KE4) and Team Leader.

By the involvement of the Assistant Expert, KE3 and KE4's performance for their standing duties will not be affected. Therefore the Consortium proposes to substitute 50 working days of International Non-Key Experts by 45.5 working days Team Leader. This relocation would not affect the scope and the quality of the project, while the product as demanded and agreed in the Contract will be assured.

3.3.3 Functional support (Task 2)

The functional support (Task 2) as foreseen in the Proposal has been largely transferred to the Assistant Expert enabled by DGIS' Junior Assistance Program. Acting as the one and only resident foreign expert the Assistant Expert is facilitating data base management, pollution load assessments, feasibility studies, logistical, contractual and operational affairs.

The DGIS budget allows him to incidentally assist the Regional Coordinator in managing regional monitoring and action planning events, or liaise with the Black Sea Program. Due to the resign of the approved Regional Coordinator, the Assistant Expert temporarily will assist the Team Leader in performing the regional coordination duties. Once the new Regional Coordinator has been assigned, the Assistant Expert will assist him or her in regional coordination. This is part of Task 4.

The Assistant Expert will assist the Environmental Management Expert (KE3) in pollution load assessments for land based point and non-point pollution sources affecting the Caspian, via cascaded (for example Volga River) and freely flowing rivers (for example Ural River). This is a part of Task 3.

The Assistant Expert will assist the Local Experts in preparing feasibility studies, guided by the Industrial Engineer (KE4) and Team Leader. This is part of Task 5.

The Consortium delivers these additional services free of charge to Tacis and thereby to the CEP partners.

3.3.4 Design and implementation of an enhanced RWQMP (Task 3)

The Water Quality Monitoring Expert (KE2) has analyzed all data available and made a comparison with scientific monitoring approaches applied in the Black Sea. Serious scope was found for enhancing the present Caspian Water monitoring practices, notably in regard of analysis of POPs and PTS in Suspended Solids (SS) as related to grain size. Caspian sediment monitoring practices should be better focused to identifying pollution history as related to land and sea based pollution sources. Core sampling in stead of grab sampling would facilitate this. Some anti-fouling related micro organic pollutants like TBT and MBT will be included in the program.

In consultation with P-RAGs, local laboratories will be selected for participating in proficiency testing. For that purpose they will receive an internationally certified sediment sample for analysis on POPs and PTS. They will be invited making their results of analysis available. The standard reference sample will be based on polluted sediment extracted from Baku Bay. Standard sample preparation is envisaged at the Center for Monitoring Studies and Environmental Technologies (CMST) in Kiev. Certified analysis of the standard sample is envisaged to be entrusted to IAEA's Marine Environmental Laboratory in Monaco (MEL). ***It is suggested an international non-key expert in Proficiency Testing will assist KE2 in this proficiency testing aspect of Task 3.***

Selection of sampling locations will be facilitated by using satellite images, detecting the extent of the zones of impact of land based pollution sources from the temperature (infra red) and sediment (color) prints. Experiences of the Marine Hydro Physical Institute of the Ukrainian Academy of Science in Sebastopol will be mobilized for this. Ground truth data will be collected with CTD probes, based on in situ readings of temperature, salinity, suspended solids, pH, dissolved oxygen, chlorophyll and the like. ***It is suggested an international non-key expert in Remote Sensing and Data Analysis will assist KE2 in this sampling station positioning aspect of Task 3.***

Pollution load assessments for land based pollution sources will be complemented by source oriented monitoring when relevant and achievable. Cooperation from all stakeholders will be required. Particular attention will be paid to pollution loads from rivers, making a distinction between loads originating from the coastal zone (defined as the zone within 100 kilometer range from Caspian shoreline) and inland loads. Inland loads have to be distinguished in loads originating from cascaded rivers like the Volga, or freely flowing rivers like the Ural.

3.3.5 Deployment of equipment and procurement of vessels and samples analysis for four RWQMP surveys (Task 4)

The parallel Tacis Project: "Supplies for the Caspian and Black Sea Environmental Projects", tender EuropeAid /122682/C/SUP/MULTI, will provide equipment and training for water quality monitoring. This equipment will be deployed for enhanced RWQMP. The contract with the supplier has been signed in July 2007 and delivery of the goods is planned to take place during the end of 2007 – early 2008. Synergy is sought with national initiatives for hot spot monitoring, eventually to be supported by extra incidentals demanded from EC for sampling and analysis, including additional proficiency testing and satellite imageries for source identification.

As a result of consultation with national experts, P-RAGs or SAPICs, the four regional surveys have presently been planned as follows:

- √ Azerbaijan (Kura River in 2007/8; Abcheron Island/Baku Bay 2008/9)
- √ Kazakhstan (Aktau; uranium mining tailings in 2007/8; Atyrau; Ural River and oil and gas fields in 2008)
- √ Russia (Mahachkala; Terek, Sulak and Samur Rivers in 2007/8; Astrakhan Volga delta in 2008/9). Samur River preferably to be shared with Azerbaijan.
- √ Turkmenistan (Turkmenbasy in 2007/8; Cheleken in 2008/9)

A vital role in the methodology of sampling, analysis and proficiency testing has been foreseen for Typhoon Laboratory in Obninsk, 100 km SW of Moscow. This laboratory has a world renowned reputation, especially for measuring POPs and PTS in aerosols. For example it supports Western countries in analysis of dioxins originating from waste incineration. Depending findings of MEL, steps will be taken to

further strengthen Typhoon's role in the Caspian RWQMP. ***It is suggested an international non-key expert in Proficiency Testing will assist KE2 in this QA/QC aspect of Task 4***

In regard of the boating local research vessels will be used to the extent needed and possible. Inflatable motor rafts possibly may complete our logistical span, notably for reaching outfalls of land based pollution sources.

A Regional Coordinator, fluent in Russian and English, familiar with the Caspian region will be appointed to coordinate the local teams and manage deployment of equipment and procurement of vessels and samples analysis for four the RWQMP surveys. He will be sparring partner of KE2 in making the round trips to riparian countries to make these programs work. In absence of the Regional Coordinator, the Assistant Expert temporarily will assist the Team Leader in regional coordination.

3.3.6 Production of RPAPs (Task 5)

The Senior Environmental Management Expert (KE3) and the Industrial Engineer (KE4) have analyzed pollution load data available. Relative to the proposal, they suggested one sub-task supplemental to Task 5: "Develop draft guideline for R-PAP", this in response to a widely ventilated request of riparian states to also aim at a harmonized and galvanized R-PAP. The Assistant Expert will assist them in this Task 5, supervised by the Team leader.

During the Inception Phase private sector representatives made suggestions for establishing environmental business platforms. Such gremials would create win-win situations by promoting voluntary agreements and sectoral covenants. Some ideas vented were the following:

- √ Legal mechanisms were suggested for introducing good housekeeping, cleaner production and BATEA (Best Available Techniques Economically Achievable).
- √ Industrial restructuring based on establishing industrial estates (phasing out and remediation of obsolete processes and industry, relocating and concentrating industries, closing waste cycles by complementary production processes, joint utilities and facilities) was discussed.
- √ Financial instruments like environmental funding, financial incentive mechanisms like rapid depreciation, grace periods, revolving funding and others were mentioned as well.
- √ The idea is to improve the environment by creating of win-win situations between the sectors and the competent authorities.
- √ Mechanisms like funds matching and alliance building would help this, enabling sectors to find synergy with institutional investors, like IFC, KfW, FMO and others taking equity; equity to be backed by National Bank guarantees.

At the Inception Workshop it was concluded that political embedding of such activities would be of paramount importance.

3.4 Project Results and Output

Making reference to the LFA, Annex A, the Results and Outputs to be achieved under this Contract are the following:

1. Developed enhanced Regional Water Quality Monitoring Program (RWQMP) with progress on implementation
2. Successful planning, support and execution of four regional surveys as part of enhanced RWQMP
3. A network of equipped and trained monitoring laboratories
4. Development of agreed action plan and prioritized investment Program

The indicators for achievement are:

1. Enhanced RWQMP approved by CEP and littoral states and first two years implemented
2. Deployment and utilization of equipment within lifetime of project
3. RPAP approved by CEP and littoral states within lifetime of project

Sources of Verification are:

1. Ministries of Planning / Environment / Economy & Finance
2. CEP / UNEP / GEF reports
3. Project technical, monitoring and evaluation reports
4. Official agreements of enhanced RWQMP and RPAP

3.5 Constraints, Risks and Assumptions

Additional to the ToR, a number of additional constraints were met during the regional and national dialogues during the Inception Phase. These concerns the following:

- √ Political will is not supported by sufficient financial commitments of Member States;
- √ Methods and approaches applied in Caspian countries still adhere to old FSU ecological standards which not comply with present international concepts;
- √ Absence of national legal frameworks and guaranteed financial basis to carry out national and regional monitoring activities, requiring Member States to meet obligations (reporting, compliance and enforcement) as intended by the Tehran Convention;
- √ Absence of clear territorial borders for the Caspian Sea, resulting in lack of assignment of territorial responsibilities;
- √ Consequent lack of national institutional structures and internal organizations for evaluation of monitoring data and action planning and consequent absence of a work program and its implementation, including harmonized QA/QC procedures;
- √ Temporary absence of a CEP secretariat with adequate human resources in policy planning, scientifically sound approaches, coordination and administration in case CEP is not continued and other support expires, jeopardizing the sustainability of this technical assistance

Additional to assumptions and risks mentioned in the LFA, following risks were identified in the Inception Phase:

- √ Possible lack of political support in the region for EU assistance for developing a Regional Water Quality Monitoring and Regional Pollution Action Plan. The Azerbaijan Government had disappointing experiences with previous TACIS projects. This should be taken into account. Things might go very slow and are surrounded by a lot of sensitivity. Otherwise delays simply may result from absence of time conscious and efficient manners. Opaque mechanisms of decision-making worsen it.
- √ Difficulties in co-ordination between CEP, which is steered by representatives of Ministries of Environment, and other Government Organizations responsible for water quality monitoring and pollution. There can be quite different agenda's, driven by different interests.
- √ Failure on the part of some countries to share relevant scientific data and samples for verification analysis.
- √ Failure of some countries to provide permission for survey vessel to enter into territorial waters.
- √ Failure of some countries to share historical databases regarding the Caspian.
- √ There is a delicate balance between professional judgment and expressing the message to the media. In that regard EUs intentions to make project visible by journalists to be surrounded with utmost care.

The project assumes good cooperation between the Ministries of Environment and other bodies involved in Caspian Sea water quality issues, the network of laboratories, the Caspian Environment Program, including the CEP Pollution Regional Advisory Group, including exchange of observers, especially at Steering Group Meetings. It is expected that the five Caspian countries (AZ, IR, KZ, RU, TM) will continue to co-operate on water quality issues through the CEP Pollution Regional Advisory Group and other relevant bodies.

It is also assumed that:

- √ The five littoral states maintain the momentum and continue towards ratification of the Framework Convention on Protection of the Marine Environment of the Caspian Sea
- √ The international partners cooperate with each other in a timely and efficient manner

- √ The relevant national and local authorities in the Caspian littoral countries remain committed to the aims of the CEP
- √ Scientific information gathered and/or processed using resources provided by this project will be shared freely.

3.6 Overall Plan of Operations

The overall plan of operations has been elaborated at a biannual, quarterly and weekly basis, as presented in Annex H-1/5. The milestones observed for achieving this overall plan of operations are the following:

1. At the end of 2006 the regional and national dialogue on RWQMP and RPAP has started. A draft Inception Report was prepared in the first quarter of 2007 and discussed at an Inception Workshop in Ashgabat the second quarter of 2007. Ashgabat was nominated duty station and the Final version of the Inception report was prepared the second quarter of 2007.
2. In the second part of 2007, the technical approach will be consolidated and the national and regional pilot RWQMP and RPAP will be started. The results will be discussed at the First SC Meeting and Regional Workshop and consolidated in the First Interim Report. Cooperation with the Black Sea Program and the parallel TACIS Equipment Supply will be assured, while extra Tacis Incidentals for supporting hot-spot monitoring will be absorbed. Additional funding opportunities offered by NATO's Science for Peace will be considered, notably in regard of the scientific justification of the recommended monitoring methodology.
3. In the first and second quarter of 2008, a first and second version of the pilot RWQMP and RPAP will be consolidated and presented in the second Interim Report. A Second SC Meeting and Regional Workshop, including a Tacis Mid-Term Review will be held at the start of the third quarter of 2008. A Third Pilot RWQMP and PRPAP will be consolidated and presented at the Third SC Meeting and Regional Workshop at the end of the fourth quarter of 2008, while results will be consolidated in the Third Interim Report.
4. A Fourth and final pilot RWQMP and RPAP will be consolidated in the Final Report, to be presented at the Final Regional Workshop and SC Meeting in the second quarter of 2009.

During the implementation of the field work attention will be paid to the visibility policy of the EU. Tacis has suggested journalists or cineastes from the EU will prepare a documentary on the work. Beneficiaries will be demanded to enable such kind of project promotion, aimed at enlargement of public awareness.

3.7 Overall Output Performance Plan

For an overview of the intended output of the whole project is referred to in Annex H. and Form 1.5 in Chapter 5

3.8 Work Plan for the Next Reporting Period

For an overview of the planned activities for the next reporting period is referred to in Annex H. and Form 1.6 in Chapter 6.

To realize this Work Plan, the following organization and involvement of non-key experts has been foreseen.

3.8.1 Organization

The organization has been foreseen as follows,

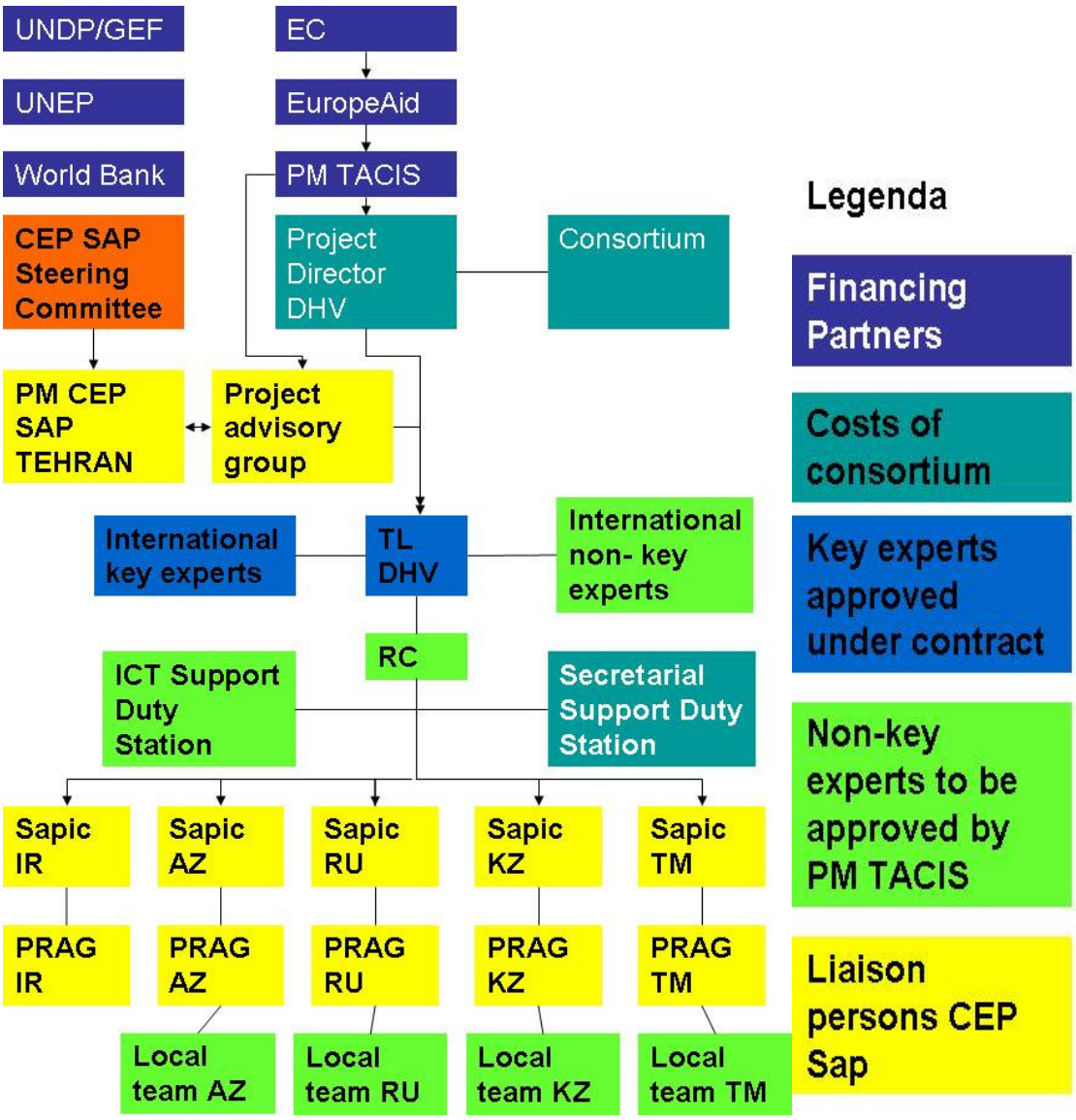


Figure 3.1 Organization of the project

In this framework, the Regional Coordinator is the principle interlocutor between TL and the Local teams. A question to be solved is the CEP SAP Steering Committee. If there is no continuity in CEP, possibly additional provisions do have to be made for assuring continuity in reporting to the political echelons. *This likely will demand financial resources not covered from present incidental budget.*

Each local team, as referred to in Figure 3.2, is organized as follows;

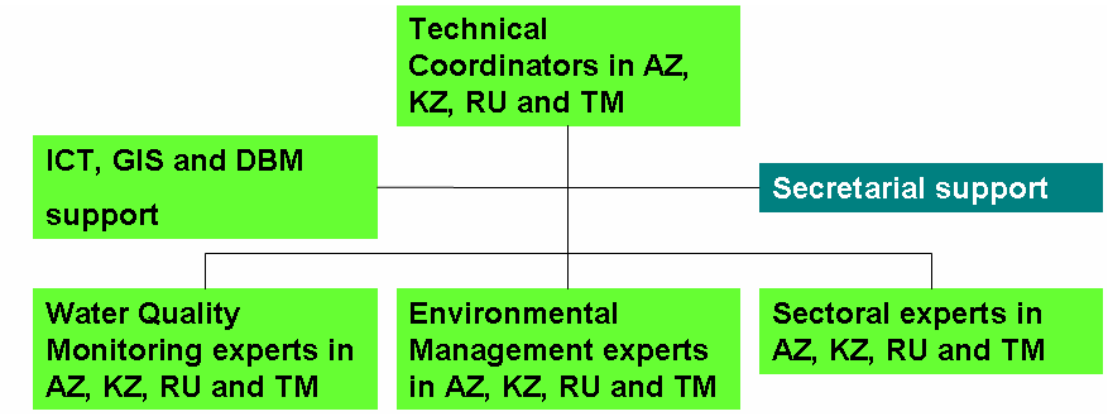


Figure 3.2 organization of a local team

3.8.2 Non-key experts

The consultant will select and hire other experts as required according to the profiles identified in the Organization and Methodology. The following profiles for non-key experts indicate whether they are to be regarded as long-term short-term, international /local and senior / junior so that it is clear which fee rate in the budget breakdown will apply to each profile. The profiles also indicate their base of operations, which PM Tacis can switch by administrative order. For the purposes of this contract, international experts are considered those whose permanent residence is outside the beneficiary country, while local experts are considered those whose permanent residence is in the beneficiary country, see annex I.

Table 3-2 Profile of International Non-key positions

Profile of International Non-key positions	Long or Short term	International or local	Senior or junior	Base of Operations
DBM, RS and GIS expert, familiar with the application of satellite images for identifying impact of pollution on the Caspian and preferably the Black Sea, enabling the proper positioning of sampling locations to assess the impact of land based pollution sources	***Short 20 working days***	***International***	***Senior***	***Turkmenistan and/ or in Az, Kz or Ru***
Pollution load assessment expert, familiar with the identification of the pollution load of land based point and non-point pollution sources affecting the Caspian, via cascaded and freely flowing rivers.	***Task assigned to AE***	***International***	***Senior***	***Turkmenistan and/ or in Az, Kz or Ru***
Proficiency testing expert, familiar with the technical and scientific procedures for the proficiency testing for POPs and PST of sediment from the Caspian, including the requirements for sample preparation and the international certification of results of analysis.	***Short 20 working days***	***International***	***Senior***	***Turkmenistan and/ or in Az, Kz Ru or BS region***
Feasibility expert, familiar with the technical, economic, financial, social and environmental formulation and appraisal of projects, plans and programs for pollution control.	***Task assigned to AE***	***International***	***Senior***	***Turkmenistan and/ or in Az, Kz or Ru***
Unallocated	***Short 10 working days***	***International***	***Senior***	***Turkmenistan and/ or in Az, Kz or Ru***

Profile of International Non-key positions	Long or Short term	International or local	Senior or junior	Base of Operations
Project Director: Chemical Engineer with a longstanding record in the management of projects in the field of government, water and environment in the territories of the CEEC and CIS. Worked for an EU Ministry of Environment and Physical Planning, in charge for environmental inspection and auditing. Acting supervisor of contractual affairs manager within renowned Consultancy Firm. Firm grip on the financial, technical, institutional and personnel aspects, including QA/QC and the adherence to the BIMS (Business Integrity Management System).	*Short*	*International*	*Senior*	*Home Office; at costs of Consortium*

Table 3-3 Profile of Local Expert positions

Profile of Local Expert positions	Long or Short term	International or local	Senior or junior	Base of Operations
Regional Coordinator: Hydrologist, hydraulic or environmental engineer with excellent management skills and experience in pollution monitoring and a proven record of accomplishment in managing donor/IFI driven projects. Excellent communication and delegation skill; ability to working in a multi-cultural environment; English and Russian fluently.	*Long 175 working days*	*National*	*Senior*	*One position, either in Azerbaijan, Kazakhstan, Russia or Turkmenistan*
National Coordinators in Az, Kz, Ru, and TM: Biomarine or marine pollution expert with experience in pollution monitoring and a proven record of accomplishment in managing donor/IFI driven projects. Excellent communication and delegation skill; ability to work in a multi-cultural environment; speaks English and Russian fluently.	*Short*	*National*	*Senior*	*Four positions in each country: Azerbaijan, Kazakhstan Russia and Turkmenistan, forming a mirror team to international key experts*
National Water Quality Monitoring Experts in Az, Kz, Ru, and TM: A chemical or biological expert at PhD level with a proven record in monitoring, sampling, analysis, laboratory training, accreditation and proficiency testing for the marine environment.	*Short*	*National*	*Senior*	
National Environmental Management Experts in Az, Kz, Ru, and TM: A hydrologist, chemical or biological expert with ample experience in hydro-environmental modeling of the marine environment.	*Short*	*National*	*Senior*	
National Sectoral Experts in Az, Kz, Ru, and TM: An engineer, economist, or lawyer familiar with the sector(s) of concern with a profound experience in the financial instruments and mechanisms to be deployed for the sector(s).	*Short*	*National*	*Senior*	
ICT expert: The ICT expert in duty station should have a good grasp of windows, network operations, auxiliary and communication devices. Special duty is data base management and communication through the Internet, making efficient use of the riparian resources.	*Short*	*National*	*Senior*	*Turkmenistan*

4 FORM 1.4: OVERALL PLAN OF OPERATIONS

Project title: Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern	Project number: EuropeAid/122033/C/SV/Multi, TACIS/2005/ 109-244	Country: AZ, KZ, RU, TM	Page: 1
Planning period: November 27th, 2006 - May 27th, 2009	Prepared on: 09.07.07	EC Consultant: Consortium DHV BV (The Netherlands, leading party), COWI A/S (Denmark), ECORYS (The Netherlands) and WL|Delft (The Netherlands)	

Project objectives: To improve quality of the marine and coastal environment of the Caspian Sea through the Caspian Environment Program (CEP)

No	MAIN ACTIVITIES	TIME FRAME												INPUTS			
		2006	2007				2008				2009			PERSONNEL [working days]		EQUIPMENT AND MATERIAL	OTHER
		4	1	2	3	4	1	2	3	4	1	2	3	EC Consultant	Counterpart		
Task 1	Project Management													255,5	200	Office rent, office operation, rent conference equipment	IAT, DSA, Visa out of duty station activities for staff and guests
Task 2	Collection of existing data and identifying main pollution sources (FACILITARY TO 3, 4 and 5)													AE			
Task 3	Design and implementation of an enhanced RWQMP				ru/az	tm/kz								150	300		
Task 4	Deployment of equipment and procurement of vessels and samples analysis for four RWQMP surveys				Terek	Kos-at/Turkm.	Samur/Sam-Dag.	Kura/Cheleken	Absh /Ural /Volga	Turkm				150	300	Rent of boat- and boat trailer Procurement of proficiency testing	
Task 5	Production of RPAPs				Terek		Samur/Sam-Dag.	Kura/Cheleken	Absh /Ural /Volga					80	200		
other activities:	synchronize with Tacis Equipment supply tender, Tacis Black sea project																
	Regional workshops			TM		TM			TM			TM					
										TOTAL				635,5	1.000	EUR 320.000	EURO 150.000

5 FORM 1.5: OVERALL OUTPUT PERFORMANCE PLAN

Project title: Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern	**Project number:** EuropeAid/1220EuropeAid/122033/C/SV/Multi, TACIS/2005/ 109-244	**Country**: AZ, KZ, RU, TM,	Page: 1
Planning period: November 27th, 2006 - May 27th, 2009	Prepared on: 24.06.2007	EC Consultant: Consortium DHV BV (The Netherlands, leading party), COWI A/S (Denmark), ECORYS (The Netherlands) and WL|Delft (The Netherlands)	

Outputs (to be described and target dates indicated	**Agreed Objective Verifiable Indicators**	**Constrains and Assumptions** C/A
1. Developed enhanced Regional Water Quality Monitoring Programme (RWQMP) with progress on implementation	1. Enhanced RWQMP approved by CEP and littoral states and first two years implemented	Continued commitment to CEP at national level
held 5 regional workshops		Scientic information shared freely between littoral states, according to First Convention of the Parties (COP1) of Tehran Convention, May 2007; Statements of Endorsement, Visa and other documents are delivered in a timely and efficient manner
2. Successful planning, support and execution of four regional surveys as part of enhanced RWQMP First quarter of 2008, Survey KZ Second quarter of 2008, Survey RU Third quarter of 2008, Survey TM Fourth quarter of 2008, Survey AZ	2. Fulfillment of four regional surveys	Results complement CEP; no overlaps Continued willingness by national governments to implement SAP Equipment procured and delivered in time (AK) Sufficient technical assistance to address relevant issues No dramatic additional environmental deterioration Political support for water quality monitoring and regional pollution cleanup
3. A network of equipped and trained monitoring laboratories	3. Deployment and utilization of equipment within lifetime of project	All Caspian countries will participate in the project
4. Development of agreed action plan and prioritized investment programme workshop Action planning	4. RPAP approved by CEP and littoral states within lifetime of project	The partner countries will allow procurement to take place on a tax free and hassle free basis

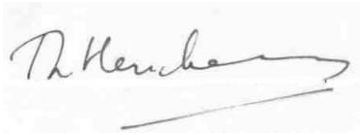
6 FORM 1.6. PLAN OF OPERATIONS FOR THE NEXT PERIOD (WORK PROGRAM)

Project title:	Project number:	Country:	Page: 1
Caspian Water Quality Monitoring and Action Plan for Areas of Pollution Concern (Hot-MAP)	EuropeAid/122033/C/SV TACIS/2005/ 109-244	AZ, KZ, RU, TM	
Planning period: July 1th, 2007 - 1 January, 2008	Prepared on: 30.06.07	EC Consultant: Consortium DHV BV (The Netherlands, leading party), COWI A/S (Denmark), ECORYS (The Netherlands) and WLIDelft (The Netherlands)	

Project objectives: To improve quality of the marine and coastal environment of the Caspian Sea through the Caspian Environment Program (CEP)

		TIME FRAME 2007						INPUTS			
								PERSONNEL (working days)		EQUIPMEN AND MATERIAL	OTHER
No	ACTIVITIES	8 July	9 August	10 September	11 October	12 November	13 December	EC Consultant	Counterpart		
Task 1	Project Management							38	65		IAT, DSA,
Task 2	Collection of existing data and identifying main pollution sources							AE			IAT, DSA, Visa, non-duty station
Task 3	Design and implementation of an enhanced RWQMP			ru/kz az/tm		ru/az kz/tm		35	80		IAT, DSA, Visa, non-duty station
3.1	Agreement of key monitoring locations, protocols and contaminants, and regional administration and management for enhanced RWQMP										
3.2	Agreement on participating national authorities and laboratories										
3.3	Agreement on Quality Assurance support to be provided to participating laboratories and verification analysis by accredited international laboratory										
3.4	Design, planning and support for implementation of enhanced RWQMP monitoring cruises and sample analyses;										
AZ				Baku		Baku					
KZ				Asta		Atyrau					
RU				Mosc		Mosc					
TM				Ash		Ash					
Task 4	Deployment of equipment and procurement of vessels and samples analysis for four RWQMP surveys							25	60		IAT, DSA, Visa, non-duty station experts
4.1	Deployment and training in use of equipment specified and procured funded under a separate contract.										
4.2	Hiring of vessels to undertake RWQMP cruises and subsequent sample analyses, including verification analyses from an internationally accredited laboratory.										
AZ											
KZ						Kos_at					
RU				Terek							Rent of boat , in cooperatio
TM						Turkm					Rent of boat and accessoir
Task 5	RPAP							25	60		IAT, DSA,
5.1	Assessment of available discharge information in Areas of Pollution Concern (to include assessment of pollution database prepared by Tacis first project and work to undertaken by the Global Plan of Action for the Protection of the Marine environment										
5.2	Updating of Areas of Pollution Concern assessment in the Caspian countries, using results from enhanced RWQMP surveys and field verification;										
5.3	Identification, prioritising and costing of remediation actions										
AZ											
KZ											
RU				Terek							Rent of boat and accessoir
TM											
	REGIONAL WORKSHOPs						Ash				
	OTHER ACTIVITIES:										
	Synchronzation with TACIS Equipment Supply Contract										
	Synchronization with TACIS Black Sea Project	Kiev Incep		meet							
	Identification of pilot projects illegible for financing by NATO's										
	REPORTING:						first interim				
	SC Meetings:						SC Meetin				Conference equipment
	GRAND TOTAL:							123	265		

7 COLOPHON

Client	:	European Commission
Project	:	**Inception Report**
File	:	A4270.10.010
Length of report	:	22 pages
Author	:	Gijs Kok
Contributions	:	Oleg Voitsekhovich, Jan Agerholm Hoybye, Ary de Koning, Dirkjan Douma and Antoly Krutov
Project Manager	:	
Project Director	:	Theo Henckens
Date	:	July 31th, 2007
Name/Initials	:	

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