1. Basic Information

1.1 CRIS Number: 2004/016-926.02.01

1.2 Title: Development of Integrated Water Monitoring Programmes and Tools for cost – effective monitoring and assessment to support sustainability of water resources and the implementation of Water Framework Directive 2000/60/EC in Cyprus

1.3 Sector:
Environment

1.4 Location:
Water Development Department of the Ministry of Agriculture, Natural Resources and Environment, Nicosia - Republic of Cyprus

2. Objectives

2.1 Overall Objective(s):

Effective implementation of the Water Framework Directive 2000/60/EC (WFD) and all related EU Acquis and policy.

2.2 Project purpose:

To establish water monitoring programmes, databases, information systems and to develop environmental criteria for target chemicals for the implementation of Article 8 of the Water Framework Directive, 2000/60/EC (WFD) and all related Acquis. The project’s outcome will significantly contribute to the implementation of Articles 11 and 13 of WFD.

2.3 Justification

- According to Article 34 of the Accession Treaty, Environment is included in the priority sectors for assistance under the Transition Facility.

- In the Comprehensive Monitoring Report (November 2003), under the chapter for Environment, it is stated that “In the area of water quality the recent framework acquis on water (Water Framework Directive2000/60/EC) needs to be adopted by accession.”

3. Description

3.1 Background and justification:

Historically, water resources monitoring targeted mainly quantitative and chemical (ionic) characteristics. Monitoring and studies for biological elements were, and still are, limited. In addition, water monitoring in Cyprus is fragmented into small scale monitoring schemes executed by different departments with almost no co-ordination among them. The main inter-departmental coordinated program is the “Monitoring and Research Program for Water supply system and its Resources” designed in 1988 and being implemented since then as a joint activity between the State General Laboratory (SGL) of the Ministry of Health, the Water Development Department (WDD) of
the Ministry of Agriculture, Natural Resources and Environment (MANRE) and Medical and Public Health Services (MPHS) of the Ministry of Health.

Cyprus also lacks adequate and integrated information systems and databases for an efficient and sustainable water resources management and ecosystem protection. At present, data are collected and kept by several different offices of the 3 Agencies. This piecemeal system of data keeping makes data accessibility to water resources professionals, policy makers and the public practically impossible.

European Union water policy as expressed by relevant acquis and in particular by the Water Framework Directive 2000/60/EC (WFD) aims to achieve ‘good water status for all waters by 2015. Furthermore, it requires that programmes monitoring the status of surface water, groundwater and protected areas (article 8 of WFD) in the country are established in accordance with the Directive and are operational by 22 December 2006. This can only be achieved through efficient and effective water monitoring programmes as specified by WFD as well as by effective and sustainable water management. WFD also requires public information and public participation in all water resources development. Effective and sustainable water management is only possible with the aid of information systems, integrated databases and associated tools supported by Geographical Information System (GIS) technology. Easily accessible databases and GIS also facilitates public information and hence the required public participation in water resources development.

Cyprus Law N.13 (I)/2004 transposing the WFD was approved by the House of Representatives on 5 February 2004 and published in the Official Gazette on 20 February 2004.

The implementation of the WFD and specifically article 8 and all relevant acquis is a high level priority for Cyprus. The proposed project will enhance Cyprus capacity in establishing effective and efficient water monitoring programmes, assist in the development of essential databases and information systems presently not existing, as well as assist in integrating its highly fragmented databases. It will thus help Cyprus in its efforts to harmonise with EU policies and in particular EU water policies. The proposed project will also encourage and formally establish inter-departmental cooperation essential for the effective implementation of the Water Acquis beyond and after completion of this project.

The issue is not addressed as a priority in the CMR because by accession, the only commitment for Cyprus arising from the WFD was the transposition of the Directive into national law. Furthermore different aspects related to monitoring, like the list of priority substances, the relevant requirements of analysis in terms of specificity, sensitivity and accuracy, the development of environmental criteria, biomonitoring etc are areas which are evolving and fast developing.

3.2 Linked activities:

A number of European Union (EU), non-EU and National Projects/Activities, which are related or partly related to the proposed project have been successfully implemented or are currently ongoing. Through these projects, state-of-the-art equipment and methodologies were introduced, while a large number of valuable data was gathered, which will serve as an essential aid to the formulation of cost-effective monitoring programs.

Projects/activities closely related to the proposed project are given below. Non-EU projects as well as projects indirectly related to the proposed project appear in Annex 5.

A. EU projects

1) Life project “Development of Integrated Monitoring and Early Warning System, to sustain Quality and Multifunctionality of Surface Water in Cyprus” ref .95/CY/B2/CY/868 MED, (1996-2000) (implemented by the SGL and the WDD.) amounting to 550 000 Euro. The expertise and infrastructure on integrated chemical and biological monitoring, developed through this pilot
project on surface water, will be essential for further development of the capacities needed, for the full implementation of chemical and biological aspects of the WFD on a country wide basis.

2) RTD (FP5) Project: “Effects of nutrient release from Mediterranean fish farms on benthic vegetation in coastal ecosystems”- Medveg, QLRT-2000-02456. On-going by the Department of Fisheries and Marine Research (DFMR) of MANRE and other partners. The acquired knowledge on coastal nutrients dynamics in relation to aquaculture will be used in the proposed project.

B. National Activities

1. A contract for Specialised Consultancy Services for the implementation of articles 5 and 6 of the WFD has been awarded in May 2004. The outcome of these services will be available to the proposed project.

2. Regarding surface water WDD presently maintains around 55 gauging stations which monitor flows on the major streams of Cyprus, it monitors flows of several major springs in the country and inflows to all major dams. Regarding ground water WDD monitors water levels in the major aquifers as well as water quality in terms of ionic analysis. Most of these monitoring programmes go back to the early 1960’s. Unfortunately groundwater monitoring deteriorated in the last 15 years. The results for each hydrological year are published in a series of hydrological books the first one of which dates back to 1965 (hard copies only).

3. A monitoring program on the coastal water quality, which includes the study of nutrient and chlorophyll-α dynamics is carried out by the Department of Fisheries and Marine Research (DFMR). Moreover, research on the ecological relationships among marine macrobenthic (phytobenthic and zoobenthic) assemblages and the ambient environment and particularly, research on the effects of environmental disturbances caused by any coastal developmental activity such as aquaculture, desalination plants, etc. on macrobenthos is undertaken.

4. Monitoring and research on the quality of drinking water supply system and its resources. On-going activities since 1988 (WDD, SGL & MPHS)

3.3 Results:

- Efficient and reliable groundwater and surface water monitoring networks in accordance with WFD established
- Standardisation of data collection and data recording procedures achieved.
- Environmental quality criteria for target chemicals developed.
- Integrated databases and Information Systems linked to appropriate tools and supported by Geographical Information System (GIS) technology established - Information based on sound data transformation provided.
- Greatly improved data accessibility
- Development of smooth coordinated activities and effective interaction among the 3 participating Departments achieved.
- Personnel of the 3 co-operating agencies trained, in order to meet the requirements of the system.
- Efficient and effective management of the project and objective evaluation of the project progress achieved.

3.4 Activities:

Explicit linkage between Results and Activities is reflected in the Logframe Planning Matrix (Annex I)

Evaluation of existing situation
• Identification of deficiencies of monitoring networks in terms of both the number of monitoring sites and the type of data collected.
• Identification of deficiencies in existing information systems and databases
• Review of existing technical capacities, expertise and manpower.
• Development of a road map for the project activities
• Identification of activities, if any, to be completed after the project

This will be achieved through the rendering of consultancy services (Contract C) (see paragraph 6.4).

Development and implementation of the monitoring Programme, review and fine tuning of monitoring networks and procedures as specified by the Water Framework Directive (WFD)-Article 8

This will be achieved through the rendering of consultancy services (Contract C) (see paragraph 6.4) and the purchase of specialized equipment (Annex 4) - Contract A.

Monitoring programmes for the quality of waters in EU Member-States, dictated by the WFD, require the use of specialized equipment such as the High Resolution Gas Chromatography – Mass Spectrometer (HRGC – MS) for the determination of priority pollutants with emphasis to endocrine disruptors and Ion Chromatography System compatible with other more advanced detectors for the determination of ions. This specialized equipment was not provided by previous EU funded projects and is not available in any of the 3 co-operating Agencies.

Improvement and/or development of database(s) and decision supporting tools supported by Geographical Information System (GIS) technology as required by the Water Framework Directive which will improve data accessibility and support decision making processes thus assisting Cyprus in achieving the 3 main objectives and requirements of the EU water acquis, namely

• effective monitoring of the status of waters on the island for their efficient and sustainable management and their protection against pollution,
• reporting to the EU on the status of waters,
• public information on the status of waters

This will be achieved through the rendering of consultancy services (Contract C (see paragraph 6.4)) and the purchase of specialized equipment (Annex 4) - Contract A.

The Water Framework Directive (WFD) (Annex I (ii)) requires that all information should be available for introduction into a Geographical Information System of the Commission (GISCO) that is all information should be in a GIS format.

WFD also requires that Member States submit to the Commission all maps in a GIS format (Annex II 1.1(vi)). Specialized software ie Geographical Information Systems as well as Servers (computers) of capacity large enough to support the WFD require databases and maps in GIS format.

None of the above equipment and software was provided by previous EU funded projects. GIS technology has yet to be introduced to the co-operating Agencies

Development of environmental criteria for target chemicals identified under Activity 2

This will be achieved through the rendering of consultancy services (Contract C (see paragraph 6.4))

Review present co-operation between the 3 Departments and suggest ways to improve it

• Writing up of co-operation protocols
This will be achieved through the rendering of consultancy services (Contract C (see paragraph 6.4))

Water monitoring in Cyprus is fragmented into small scale monitoring schemes executed by the 3 departments involved in the monitoring of water resources (i.e. the State General Laboratory of the Ministry of Health, the Water Development Department of the Ministry of Agriculture, Natural Resources and Environment and Medical and Public Health Services of the Ministry of Health), with almost no co-ordination among them. Through this activity the consultants will review the existing situation and suggest ways to formally establish inter-departmental co-operation, producing co-operation protocols.

Training of personnel

- Technical Assistance (TA) includes the services of a database developer, a database programmer and a GIS specialist and training on these subjects of the personnel of the 3 co-operating Agencies i.e. the Water Development Department (WDD), the Department of Fisheries and Marine Research (DFMR) and the State General Laboratory (SGL). TA also includes training of personnel on database maintenance, water monitoring and analysis methods and procedures as specified in the Water Framework Directive e.g. sampling procedures, method development, use of high technology equipment (e.g. HRGC-MS) etc.
- Workshops on subjects related to monitoring programmes, associated databases and the preparation of thematic maps based on Geographical Information System (GIS) technology organized by the Consultants (Contract C) and/or study visits to EU and other relevant organisations and institutions as well as participation in relevant workshops organized by these organizations offered by the Consultants (Contract C).

These workshops (Table 1) and/or study visits EU are considered a necessary part of knowledge transfer to the three cooperating Agencies.

<table>
<thead>
<tr>
<th>Workshops &amp; Seminars</th>
<th>Duration</th>
<th>No. of people attending</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Database Design, Structure and Development</td>
<td>3 days</td>
<td>9 (2 WDD, 1 SGL, 1 DFMR, 1 Ministry of Agriculture, Natural Resources &amp; Environment, 2 Government Information Technologies Services)</td>
</tr>
<tr>
<td>2) Maintenance of Hydrologic/Hydrogeologic Database (data entry, quality control and validation of data and use of database)</td>
<td>1. 5 days</td>
<td>15 (WDD)</td>
</tr>
<tr>
<td></td>
<td>2. 5 days</td>
<td>15 (WDD)</td>
</tr>
<tr>
<td>3) Maintenance of Water Quality Database (data entry, quality control and validation of data and use of database)</td>
<td>5 days</td>
<td>13 (6 WDD, 5 SGL, 2 DFMR)</td>
</tr>
</tbody>
</table>
4) Preparation of thematic maps based on Geographical Information System (GIS) technology for the reporting to the EU in accordance with the Water Framework Directive

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) Preparation of thematic maps based on GIS technology for EU reporting</td>
<td>3 days</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4 WDD, 2 SGL, 1 DFMR)</td>
</tr>
<tr>
<td>5) Sampling and Monitoring Procedures</td>
<td>3 days</td>
<td>14 mid-management personnel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8 WDD, 2 SGL, 4 DFMR)</td>
</tr>
<tr>
<td>6) High Level Seminar for the presentation and discussion of project outcome</td>
<td>2 days</td>
<td>Management and mid-management personnel from the WDD, SGL, DFMR, Geological Survey Department, Ministry of Agriculture, Natural Resources, Ministry of Finance, Planning Bureau</td>
</tr>
</tbody>
</table>

This will be achieved through the rendering of consultancy services (Contract C (see paragraph 6.4))

**Project Management**

This will be achieved through the rendering of consultancy services (Contract B (see paragraph 6.4))

### 3.5 Lessons learned

Up-to-date, only one Interim Evaluation Report for Cyprus was issued in June 2004, covering the National Pre-accession Programmes 2000, 2001, 2002, and 2003. According to the key achievements and findings, project design was considered generally very good and relevance of projects with respect to the acquis requirements and to national needs has been scored highly.

The same approach as the one adopted for Pre-accession aid was followed regarding project design under the Transition Facility and for this reason it is expected that assessment will continue to be positive.

There were no specific recommendations in the Interim Evaluation Report relevant to earlier projects in the field.

The following Pre-accession Funds 2001-2002 projects have been implemented by the SGL:

a) Project: “Upgrading of the State Laboratories – State General Laboratory CY.01.01.02.04 Budget (1,530,000 euro).

b) Project: “Upgrading of the State General Laboratory” 2002/000 – 298 (Budget 700,000 Euro)

Although design of projects was found good by the evaluators, a number of problems (not related to project design) was faced during implementation as follows:

Project (a) had two components
- Technical Assistance (Framework contract 100 000 Euro)
• Purchase of equipment (Supply contracts 1,430,000 Euro)

Problems with the Framework contract have been experienced and the contract was not completed by the expiry date. The problems were beyond the responsibility of the Contracting authority and awareness had been raised at early stages. The prepared Terms of Reference were detailed and precise but delays occurred, on behalf of the contractor in implementing the contract.

Regarding the Supply Contracts the Contracting authority signed three supply contracts through three launched tender procedures.

Two contracts from the first procedure (EUROPEAID/114582/D/S/CY) for total amount of 840,155,40 Euro and one contract from a relaunched tender (EUROPEAID/114582/D/S/CY “Relaunch”) for an amount of 412,040 EURO.

The second project was not completed successfully and only a small part of the budgeted amount was contracted (17,056,00 Euro for Lot 2). The European Commission did not endorse the evaluation report for Lot 1 and insisted to this decision.

The above projects and the facing of various problems which arose during their implementation gave the opportunity to the Contracting Authority to gain experience especially regarding:

• Project proposals – Preparation of Project Fiche
• Preparation of Terms of reference
• Preparation of Tender Dossiers – Tender Procedures
• Evaluation of Tenders and Preparation of Contract Dossiers.
• Implementation of contracts according to the provisions of the Contract Dossiers.

4. Institutional Framework

The proposed project will be executed by the Implementing Agency, which is the Water Development Department of the Ministry of Agriculture, Natural Resources & Environment, in co-operation with the Department of Fisheries and Marine Research of the same Ministry and the State General Laboratory of the Ministry of Health and in close contact with the Environment Service of the MANRE.

Implementing Agency: The Water Development Department (WDD)

WDD assumes the main responsibility for the implementation of the water policy in Cyprus. The main objective of this policy is the rational and sustainable development and management of the water resources. In this context, the responsibilities of the Department cover a wide and diverse spectrum, which include:

• Planning, implementation and management of all water resources of the island;
• Collection, processing and classification of hydrological, hydrogeological, geotechnical etc.
• Design, construction, operation and maintenance of works, such as dams, ponds, irrigation schemes domestic water supply and sewerage schemes, water treatment works, sewage treatment works, and desalination plants;
• Maintenance and safety of the water development works;
• Protection of the water resources from pollution.

The Water Development Department comprises 9 Divisions, 4 Regional Offices and 3 Management Offices. It has a total number of 1100 employees (including labour).

Co-operating Agencies:

1. The Department of Fisheries and Marine Research (DFMR)
DFMR is responsible for the sustainable use of marine resources, the development and sound management of fisheries and aquaculture, the marine ecology, the protection of endangered species and habitats, physical and chemical oceanography, and the prevention and combat of marine pollution. It is within its mandate to undertake multi-disciplinary research studies in its aspects of its fields. Within the framework of WFD, DFMR is responsible for the coastal waters.

The Department consists of four Divisions, a Fishery Monitoring Center and four District Units, which are located in the four coastal cities.

2. State General Laboratory (SGL)

SGL comprises 22 specialized Labs seven of which are dedicated to Environmental issues. It has a unique infrastructure in Cyprus to cover chemical, microbiological, virological, ecotoxicological and radiological aspects of monitoring and pollution investigation, as the basis of an integrated and Holistic evaluation. The 7 environmental Labs are providing a wide range of highly sophisticated and state-of-the-art analytical services and undertake target-oriented research. Five of them (4 are accredited) will participate in this project (Environmental Chemistry I & II, Ecotoxicology, Water Microbiology and General Water Quality). The SGL is a supporting Institute to the Competent Authorities in particular the WDD (since 1988) and the Environment Service. The prime goal of the SGL in the field of Environment is to support the development and implementation of environmental policy and legislation, by providing state of the art analytical services of the highest quality and expertise as well as adequate information to decision makers. The two pillars of the SGL strategy the a) The development of holistic investigation and evaluation schemes for the identification of present status, changes and trends and the forecasting future developments, and b) the development of mechanisms and tools for Early identification of emerging pollution and related priorities for prevention.

5. Detailed Budget

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>EU support (million Euros)</th>
<th>TOTAL EU (=I+IB) (million Euros)</th>
<th>National Co-financing (million Euros)</th>
<th>TOTAL PROJECT (million Euros)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Support (I)(^{(1)})</td>
<td>Institution Building (IB)(^{(2)})</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contract A: Equipment, reagents, hardware, software</td>
<td>0.430</td>
<td>0.430</td>
<td>0.156</td>
<td>0.586</td>
</tr>
<tr>
<td>Contract B: Project Management</td>
<td>0.15</td>
<td>0.15</td>
<td></td>
<td>0.15</td>
</tr>
<tr>
<td>Contract C: Consultancy Services</td>
<td>1.10</td>
<td>1.10</td>
<td></td>
<td>1.10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.430</td>
<td>1.25</td>
<td>1.68</td>
<td>0.156</td>
</tr>
</tbody>
</table>

\(^{(1)}\) - In relation to equipment, software and related services (installation, testing, training etc.);

\(^{(2)}\) - In relation to management, organisation, procedures, legislation, training programmes etc.

\(^{(3)}\) - In relation to joint co-financing for the acquisition of the equipment specified in Annex 4.
6. Implementation Arrangements

Project Management and Coordination

The project will be coordinated by the WDD which is the Implementing Agency. Implementation arrangements will comprise 2 bodies, a Project Steering Committee (PSC) and a Project Working Group (PWG)

1. The Project Steering Committee (PSC) chaired by the Project Coordinator will be the decision making body as well as the body where scientific outcome from the Project will be evaluated. The Project Coordinator will have the overall responsibility for the project, assisted in his/her work by the Project Manager who will be contracted by the Project. The Project Coordinator will also be the project’s contact point for the EU Commission.

All 3 Departments as well as the Planning Bureau and the Environment Service will be represented in the PSC. The PSC will supervise the overall progress and implementation of the project according to the timeframe; it will define priorities, provide guidance for different components of the project and approve final reports.

2. The Project Working Group (PWG) comprises the Coordinator, representatives of the 3 Departments and the leaders of the individual scientific groups of the various departments or divisions involved in the Project. This will deal with the more technical and scientific aspects of the implementation of the project and will serve as a platform for effective interaction among the different groups, consent finding and exchange of ideas.

6.1 Implementing Agency:

Water Development Department (WDD) of the Ministry of Agriculture, Natural Resources and Environment

Project Authorising Officer (PAO):
Mr. Christodoulos Artemis
Director

Address: Water Development Department
Nicosia, P.S. 1413
CYPRUS
Tel.: +357 22803100
Fax.: +357 22675019
E-mail: director@wdd.moa.gov.cy

Co-operating Agencies:

1. Department of Fisheries and Marine Research of the Ministry of Agriculture, Natural Resources and Environment

Address: 13 Aeolou Street, Nicosia, P.S. 1416, CYPRUS
E-mail: ggabriel@cytanet.com.cy

2. State General Laboratory of the Ministry of Health.

Address: 44 Kimonos Street, Nicosia, P.S. 1451, CYPRUS
E-mail: stellacm@spidernet.com.cy

6.2 Twinning - Not applicable
6.3 Non-standard aspects – Not applicable

6.4 Contracts

The project will be implemented through 3 contracts

- Contract A: Equipment, reagents, hardware, software: 0.586 million Euros [EU contribution (0.430 million Euros) + National Co-financing (0.156 million Euros)]
- Contract B: Project Management: ..........................0.150 million Euros
- Contract C: Consultancy Services: .........................1.10 million Euros

Project management is kept separate (Contract B) from the rest of the consultancy services (Contract C) to ensure an objective evaluation and a more efficient administration of the project.

7. Implementation Schedule

7.1 Start of tendering/call for proposals: October 2004

7.2 Start of project activity: February 2005

7.3 Project Completion: June 2007

8. Sustainability

All three co-operating agencies i.e. The Water Development Department, the Department of Fisheries and Marine research and the State General Laboratory are well established government organisations with adequate and highly skilled administrative personnel capable of maintaining administrative function of the project. This has been proved through successfully implemented projects financed by EU and Organisations of the UN System. Expenditure related to administrative function are covered through the annual National Budget.

The required maintenance and update agreements will be covered by national funds through separate contracts that will be signed by the contracting authority. Adequate financial provisions will be included in the relevant financial year’s Government Budget

9. Conditionality and sequencing

Tendering procedures for all 3 contracts will start simultaneously and the contracts will be running in parallel.

The most important milestones of the project are:

- Completion of tendering and contracting procedures
- Conclusion of the assessment of the existing situation
- Establishment of the Integrated Water Monitoring Programme
- Establishment of database(s) and decision supporting tools
- Set-up of cooperation protocols between the three co-operating agencies.
ANNEXES TO PROJECT FICHE

1. Logical framework matrix in standard format (compulsory)
2. Detailed implementation chart (compulsory)
3. Contracting and disbursement schedule by quarter for full duration of programme (including disbursement period) (compulsory)
4. Investment Support
5. List of non-EU Projects & EU Projects indirectly related to the proposed Project
## ANNEX I

**LOGFRAME PLANNING MATRIX FOR**

*DEVELOPMENT OF INTEGRATED WATER MONITORING NETWORKS AND TOOLS FOR COST – EFFECTIVE MONITORING AND ASSESSMENT TO SUPPORT SUSTAINABILITY OF WATER RESOURCES AND THE IMPLEMENTATION OF WATER FRAMEWORK DIRECTIVE (WFD) 2000/60/EC IN CYPRUS*

<table>
<thead>
<tr>
<th>Wider Objective(s)</th>
<th>Indicators of Achievement*</th>
<th>How (H), When (W) and By Whom (BW) Indicators Will Be Measured</th>
</tr>
</thead>
</table>
| Effective implementation of the Water Framework Directive 2000/60/EC (WFD) and all related EU Acquis and policy. | WFD and related acquis are successfully implemented | • (H) Cyprus progress report on the development of the monitoring plans and the capacity building  
• (W) Reports will be provided on annual basis  
• (BW) European Commission’s Opinion on the status of Cyprus institution capacity as regards Art. 8 of WFD. |

<table>
<thead>
<tr>
<th>Immediate Objective (Purpose)</th>
<th>Indicators of Achievement*</th>
<th>How (H), When (W) and By Whom (BW) Indicators Will Be Measured</th>
<th>Assumptions and Risks</th>
</tr>
</thead>
</table>
| To establish water monitoring programmes, databases and information systems and to develop environmental criteria for target chemicals for the implementation of Article 8 of the Water Framework Directive, 2000/60/EC (WFD) and all related Acquis The project’s outcome will significantly contribute to the implementation of Articles 11 and 13 of WFD. | • Monitoring programmes established  
• Integrated evaluation schemes for chemical and biological monitoring including environmental criteria, established  
• Information Systems in place  
• Databases developed and functioning | • Description of monitoring programmes by end of project adopted by the Project Steering Committee  
• Evaluation schemes adopted by the relevant departments by the end of the project  
• Relevant information produced by the new databases and information system by the end of the project period.  
• Monitoring and Assessment Reports | • Completion of the study for the articles 5 and 6 of WFD by the end of 2004. |

### Details

- **CRIS number:** 2004/016-926.02.01
- **Contracting period expires:** 15 December 2006
- **Disbursement period expires:** 15 December 2007
- **Total Budget:** 1.836 (MEUR)
- **EU contribution:** 1.680 (MEUR)
<table>
<thead>
<tr>
<th>Results (Outputs)</th>
<th>Indicators of Achievement*</th>
<th>How (H), When (W) and By Whom (BW) Indicators Will Be Measured</th>
<th>Assumptions and Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Efficient and reliable groundwater and surface water monitoring networks in</td>
<td>1.i) Monitoring networks operational - reliable data collected for water quality/quantity evaluation</td>
<td>• Final report on training (exam report)</td>
<td>The consultants provide efficient services IT established in conformity with plans</td>
</tr>
<tr>
<td>accordance with WFD established (Activity 1,2,4)</td>
<td>1.ii) Trained staff to meet the requirements of the system</td>
<td>• System reports</td>
<td>Users’ willingness to adopt the new system</td>
</tr>
<tr>
<td>1a. Standardisation of data collection and data recording procedures achieved</td>
<td>2. Sampling and Testing/analysis Protocols</td>
<td>• Progress reports by the Project Manager (monthly) and summary progress reports by the Project Steering Committee (bi-annually).</td>
<td>Participants willing to strengthen their cooperation</td>
</tr>
<tr>
<td>1b. Environmental quality criteria for target chemicals developed</td>
<td>3. Environmental criteria developed and integrated into the evaluation and decision making process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Integrated databases and Information Systems linked to appropriate tools and supported by GIS technology provided (Activity 3)</td>
<td>4. Database(s), information systems and decision supporting tools supported by GIS technology in place and functioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a. Greatly improved data accessibility</td>
<td>5. Tools for data conversion into concrete information for the use</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. Development of smooth coordinated activities and effective interaction among the 3 participating Departments achieved (Activity 5)

4. Personnel of the 3 cooperating agencies trained, in order to meet the requirements of the system (Activity 6)

5. Efficient and effective management of the project and objective evaluation of the project progress (Activity 7)

<table>
<thead>
<tr>
<th>Activities</th>
<th>Means</th>
<th>Assumptions and Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Evaluation of existing situation</td>
<td>1. This will be achieved through the rendering of consultancy services. (Contract C)</td>
<td>• Successful implementation of the tendering procedures and conclusion of the contracts.</td>
</tr>
<tr>
<td>2. Development and implementation of the monitoring Programme. Review and fine tuning of monitoring networks and procedures</td>
<td>2. This will be achieved through the rendering of consultancy services (Contract C) and the purchase of specialized equipment (Annex 4) – Contract A</td>
<td>• Smooth and timely delivery of the equipment</td>
</tr>
<tr>
<td>3. Improvement and/or</td>
<td>3. This will be achieved through</td>
<td>• Any additional national funds required made available on time.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Recruitment of adequate staff</td>
</tr>
<tr>
<td></td>
<td>Contracts and acceptance certificates</td>
<td></td>
</tr>
<tr>
<td>4. Development of environmental criteria for target chemicals identified under activity 2</td>
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<tr>
<td>5. Review present co-operation between the 3 Departments and suggest ways to improve it</td>
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<tr>
<td>6. <strong>Training of personnel</strong></td>
<td></td>
<td></td>
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<tr>
<td>7. <strong>Project Management</strong></td>
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</tbody>
</table>

| the rendering of consultancy services (Contract C) and the purchase of specialized equipment (Annex 4) – Contract A |
| 4. This will be achieved through the rendering of consultancy services (Contract C) |
| 5. This will be achieved through the rendering of consultancy services. (Contract C) |
| 6. Consultancy services-Contract C |
| 7. This will be achieved through the rendering of consultancy services (Contract B) |

* Must be quantified and measurable
## DETAILED TIME IMPLEMENTATION CHART FOR THE PROJECT

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>2004</th>
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<th>2006</th>
<th>2007</th>
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<td>Contract A</td>
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<td>C</td>
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<tr>
<td>Contract B</td>
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<td>C</td>
<td>C</td>
<td>C</td>
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<tr>
<td>Contract C</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
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</tbody>
</table>

D = Design (Preparation of Tender Documents will be outside the scope of the Project)
C = Contracting (Tendering and Contracting)
I = Implementation  X = Closure
ANNEX 3

CUMULATIVE CONTRACTING AND DISBURSEMENT SCHEDULE


Project number:

All figures in million EURO

<table>
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<tr>
<td>CONTRACTED</td>
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<td>1.58</td>
<td>1.68</td>
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<tr>
<td>DISBURSEMENT</td>
<td>0.35</td>
<td>0.95</td>
<td>1.05</td>
<td>1.20</td>
<td>1.50</td>
<td>1.58</td>
<td>1.68</td>
<td></td>
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</tbody>
</table>

NB: 1. *All contracting should normally be completed within 6-12 months and must be completed within 24 months of signature of the FM.*

2. *All disbursements must be completed within 36 months of signature of the FM.*
## Annex 4

### Investment Support

<table>
<thead>
<tr>
<th>Description</th>
<th>Description</th>
<th>Euro</th>
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</thead>
</table>
| GIS equipment/software to serve the 3 cooperating Agencies i.e the Water Development Department (WDD), the Department of Fisheries and Marine Research (DFMR) and the State General Laboratory (SGL) | **Software:** floating ArcInfo licenses & modules (1 for WDD, 1 for DFMR and 1 for SGL)  
**Hardware:** 3 Database & GIS servers including supporting, dedicated peripherals to these servers e.g. scanners, plotters etc. One system for each of the 3 co-operating Agencies | 170,000 |
| Monitoring Equipment                                                        | Portable Conductivity meters, handheld Ph meters, handheld GPS's, samplers, pumps, dissolved oxygen meters, data loggers, etc. (for fieldwork required by the WFD - to be used by monitoring teams of the 3 co-operating Agencies) | 51,000 |
| Laboratory Equipment                                                        | Ion Chromatography – (WDD)  
HRGC/MS (Lab. Instrument) – (SGL)                                                                                                             | 59,000 | 306,000 |
| **Total**                                                                  |                                                                                                                                                                                                             | 586,000 |
ANNEX 5

A. EU Projects indirectly related to the proposed Project:

1) Project: “Upgrading of the States laboratories – State General Laboratory”. CY 01.01.02.04. 1,530,000 Euro.


3) Life project: “Special Areas of Conservation (Directive 92/43/EEC) in Cyprus” proposed sites for inclusion to the NATURA 2000 (implemented by the Ministry of Agriculture, Natural Resources and Environment). 300,000 Euro.


B. Non-EU Projects:

1) Project: “Re-assessment of the Water Resources and Demand of the Island of Cyprus” 2-year project completed in June 2002 and implemented by WDD in cooperation with the Food and Agriculture Organization of the United Nations (FAO);

2) MEDPOL/UNEP Project: “National Monitoring and Research Program for the assessment of the Quality of Marine Waters” (implemented by DFMR in collaboration with the SGL and DMP – ongoing activity).

3) Studies concerned (i) the assessment of the situation regarding nitrate pollution on the surface and ground waters of Cyprus and (ii) the protection of waters caused by nitrates from agricultural sources according to the Directive 91/676/EEC have been implemented, while a map of Nitrate Vulnerable Zones has been produced.