STANDARD SUMMARY PROJECT FICHE

1. Basic Information

1.1. Desirée Number  2002/000-282.06.04
1.2. Title  Equipment for the Waste Management Centre
1.3. Sector  Environment
1.4. Location  Czech Republic

2. Objectives

2.1 Overall Objectives

The overall objective is to take on the obligations of membership of the European Union, including adherence to the aims of political, economic and monetary union, and the acquis communautaire.

2.2 Project purpose


2.3 Accession Partnership and NPAA Priority

The Accession Partnership 2001 identified as its priorities in the environment sector: „to complete transposition and implementation of framework and sectoral legislation; continue strengthening administrative capacity, monitoring and enforcement capacity.“

The project will contribute to the achievement of these aims, in particular:

➢ integration and implementation of transposed national and EC legislation and international treaties in the waste management area

➢ development of an independent, fully functional controlling and informational system of the waste in compliance with EC Directives

NPAA 2001

The National Programme for the Preparation of the Czech Republic for Membership of the European Union, and the Approximation Strategy which forms part of this programme, both refer to the importance of improving waste legislation and its implementation.

3. Description

3.1 Background / Justification

The project will assist to establish system of independent analyses of specific waste with dangerous contents. This system will make, as a part of the informational background for methodological and information support for state administration institutions (CEI, MoE), an integral part of the Centre for Waste Management. Independent laboratory control system also exists in EU Member countries (e.g. in Austria).

It is crucial to equip the Centre for Waste Management with laboratory equipment, which is fundamental to ensure independent analyses of hazardous waste, waste from water treatment plants, PCB analyses, sewage sludge analyses. It shall provide the technical conditions for establishing the independent control system (Directive 91/689/EEC on hazardous waste and amendment, Article No1,4) and complete technical conditions for fulfilling the Directive 75/442/EEC on Waste.

Relation to the EC legislation
Directive 75/442/EEC on Waste, Article No: 4,5,8
Directive 91/689/EEC on hazardous waste, Article No: 1,4
Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT), Article No: 8
Directive 86/278/EEC on the protection of the environment, in particular of the soil, when sewage sludge is used in agriculture
Directive 99/31/EC on the landfilling of waste
Directive 82/883/EEC on procedures for surveillance and monitoring of environments concerned by waste from titanium dioxide industry

Relation to the State Environmental Policy
The need to establish a fully equipped expert base for waste management has been identified in the National Programme 1999, the Approximation Strategy 1999, the State Environmental Policy 2001 as well as the Implementation Plan in the waste area.

The State Environmental Policy published in April 1999 among requires: Develop specialised background centre for the expertise, methodological and information support of the state administration institutions in the waste management.

This centre should be additionally equipped with equipment for independent analyses. Establish the independent control system for analyses (Directive 91/689/EEC on hazardous waste and amendments, Article No.1,4).

Relation to the Approximation strategy in the Environmental Sector In regard to the Approximation strategy in section C1, the insufficiency of the national funds in 2001 and the need for support of building up of the informational and supporting background in the waste management area, lead the Ministry of the Environment to submit this Project to the Phare 2001 Programme.

The requirement to establish the equipped expert body is also listed in the result in the latest screening (Chapter 22 – Environment, part 2.1.4. middle term objectives 1999 – 2002).

3.2 Linked Activities
This project will directly follow the project Phare CZ 00 – 06 – 02: Centre for Waste Management. The aim of the Phare 2000 twinning project was to:

- establish the Centre for Waste Management (CWM).
- prepare detailed acceptable implementation Action Plan for establishment of CWM.
- provide training for CWM staff (skills in: EU waste legislation and current situation on changes and future development, Czech waste legislation and situation in this field, international conventions on waste (in order to act as the Focal Point for Basel Convention), handling the designated Waste Information System, reporting in accordance with EC directives, management, information systems).
- establish operational Waste Information System available for related institutions.

The investment part is focused on hardware and software (for CWM, MoE and support of Environmental Departments of the Regional Authorities). Technical equipment for the Waste Management Centre has not been involved in any Phare or any other projects.

Other linked projects:
- Phare CZ, 9811-01, Strengthening the Institutional/Regulatory Capacity in the Environmental Sector - ongoing project in the Czech Environmental Inspectorate – institutional building in regulation/control capacities in the environmental sector in CR;
- First version of the Waste Management Conceptions in Czech Republic – supplier will be Czech Ecological Institute (December 2000)
3.3 Results

This supplies project is complementary to project CZ00.05.02 and aims to ensure full compliance with the acquis as regards waste treatment, and Directives 91/689/EEC (hazardous Waste), 96/61/EC (IPPC), 86/278/EEC (sewage sludge), 96/39/EC, 99/31/EC (landfills) and waste resulting from a variety of chemical substances.

The project should result in the Centre for Waste Management (CWM) having the capacity required to carry out independent analyses of hazardous waste, including sewage sludge from Waste Water Treatment Plants (WWTPs) and PCBs, in compliance with the acquis.

The supplies should allow the Centre to equip its laboratories so as to carry out sampling and analysis activities of chemical components, substances and ions of sewage sludge and mineral oil pollution.

3.4. Activities

Investment – technical equipment (Phare budget: 2,0 M€; State budget: 0,67 M€)

- Deliver and make fully operational equipment.
- Deliver procedures, techniques, manuals/documentation.
- Staff training

Additional equipment for the Centre of Waste Management (Note: this is only indicative list which will be further fine-tuned and specified in the process of preparing the Technical Specifications):

1) Laboratory equipment for heavy metals determination:
   - OES-ICP (optical emission spectrometer with inductively coupled plasma,
   - AAS (atomic absorption spectrometer),
   - Mercury analyser,
2) Gas chromatography equipment:
   - GC/ECD,
   - GC/MS,
   - GC/FID,
3) Equipment for ecotoxicological testing:
   - Fluorescence microscope,
   - Test tube luminometer,
   - UV/VIS spectrophotometer for ecotoxicological applications,
   - Flow box for inoculation,
   - pH meter,
   - Laboratory thermostats,
   - Laboratory refrigerators,
4) AOX analyser
5) Automatic extractor for solid waste samples
6) Equipment for gel chromatography
7) Laboratory glassware cleaning machines (2 pcs)
8) Equipment for sample treatment and storage, particularly:
   - Vacuum evaporators (2 pcs),
   - SPE units – equipment for the cleaning of extracts (2 pcs),
   - Laboratory drying ovens (3 pcs),
   - Laboratory micromills (2 pcs),
   - Crushing equipment for waste samples,
   - Laboratory homogenisers (2 pcs),
   - Sieving equipment,
   - High pressure filtration equipment,
   - Vacuum filtration equipment,
   - Nitrogen generator,
   - Pressure air generator,
   - Laboratory centrifuges (4 pcs),
   - Laboratory shakers (4 pcs),
   - Concentrators of organic extracts (2 pcs),
- Vacuum pumps (2 pcs),
- Laboratory refrigerators (10 pcs),
- Laboratory freezers (4 pcs),
- Lyophilizers (2 pcs),
- Equipment for preparing of distilled water (3 pcs),
- Equipment for preparing of ultra-pure water (3 pcs),
- additional equipment for sample treatment

9) Laboratory equipment for determination of general quality parameters of wastes:
   - Spectrophotometer UV/VIS,
   - Automatic titrator,
   - Ion chromatograph
   - Equipment for BOD determination
   - Flow analyser,

10) Equipment of microbiological laboratory:
    - Homogenizer
    - Bioincubator with cooling system
    - Autoclave
    - Flowbox

11) Mobile equipment for wastes sampling:
    - Waste samplers
    - Mobile drilling set for soil sampling
    - Peristaltic and submersible pumps
    - Water samplers
    - Soil gas sampling system
    - Transporting means

12) Microwave mineralization unit
13) Infrared spectrophotometer
14) Liquid chromatography equipment
15) Laboratory balances:
    - Analytical balances (3 pcs)
    - Precision balances (3 pcs)

16) Equipment for field analysis and measurement
17) Gammaspectrometric unit

3.5 Lesson learned

All relevant recommendations from previous projects have been taken into account.

4. Institutional Framework

The Ministry of the Environment (the Waste Management Department) is the responsible body for overall harmonisation and implementation of the environmental legislation and organises liaison and co-operation among all involved institutions.

The newly established Centre for Waste Management is a part of the Water Research Institute. It will only provide technical expertise for permitting or monitoring bodies at all levels.

Czech Environmental Inspectorate is in charge of checking the duties and penalising.

State local authorities - District Offices and Municipalities are responsible for administration on waste handling at district and local levels.

5. Detailed Budget (in M €)

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Investment Support</th>
<th>Institution Building</th>
<th>Total Pharé (= I + IB)</th>
<th>National Co-financing*</th>
<th>IFI</th>
<th>TOTAL</th>
</tr>
</thead>
</table>

4
<table>
<thead>
<tr>
<th>Investment - equipment</th>
<th>2,00</th>
<th>0</th>
<th>2,00</th>
<th>0,67</th>
<th>0</th>
<th>2,67</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>2,00</td>
<td>0</td>
<td>2,00</td>
<td>0,67</td>
<td>0</td>
<td>2,67</td>
</tr>
</tbody>
</table>

* There will be parallel co-financing

6. Implementation Arrangements

6.1 Implementing Agency
The CFCU is the Implementing Agency responsible for tendering, contracting and accounting. The project will be administered by CFCU: Mr. Jan Slaviček, CFA, kpt. Jaroše 1000, Praha 7, Czech Republic.

The contact person responsible for the project: Ms. Zdenka Bubeniková, Director of Waste Deptm., Phone: 6712-2216, mail: zdenka_bubenikova@env.cz

6.2 Twinning
n.a.

6.3 Non-standard aspects:
n.a.

6.4 Contracts
(1) supply contract(s) – Phare – 2,00 MEUR

6. Implementation Schedule

7.1. Tendering: 2Q 2003
7.2. Contract signature: 4Q 2003
7.3. Delivery: 1Q 2004

7. Equal Opportunity
Equal opportunity principles and practices in ensuring equitable gender participation in the Project will be guaranteed.

8. Environment: N/A

10. Rates of Return: N/A

11. Investment Criteria: N/A

12. Conditionality and Sequencing
The project is conditional on Czech cofinancing and unequivocal clarifications as concerns the allocation of responsibilities between the Centre for Waste Management and the Czech Environmental Inspectorate in the area of waste, and the allocation of responsibilities between the CWM and the Ministry of Agriculture as concerns soil analysis.

The project will depend on Phare project 2000. It's successful implementation will be bond with sufficient personnel and technical resources.

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Annexes to Summary Project Fiche

1. Logframe matrix
2. Detailed implementation chart for the project
3. Contracting and Disbursement Schedule
4. Relation of Project with Previous Phare Activities and other On-Going Projects Financed from various sources Detailed implementation chart
5. Indicative data on investment in details
Logframe matrix

**Project: Equipment for the Waste Management Centre**

<table>
<thead>
<tr>
<th>Overall Objective(s)</th>
<th>Objectively verifiable indicators</th>
<th>Sources of Verification</th>
<th>Project number</th>
<th>Contracting period expires: 31/10/2004</th>
<th>Disbursement period expires: 31/10/2005</th>
</tr>
</thead>
</table>
| - Take on the obligations of membership of the European Union, including adherence to the aims of political, economic and monetary union, and the acquis communautaire | - Acknowledgement by the European Commission.  
- Compliance of the Czech legislation with EC Directives. | - National and EU legislation (Prepared Act on Waste, EU Directives), State policy, move down  
- International treaties in WM, ?  
- EC Regular Reports. | 2002/000-282.06.04 | 31/10/2004 | 31/10/2005 |
| **Project purpose** | **Objectively verifiable indicators** | **Sources of Verification** | **Assumptions** |
- Implementation of the Directive 96/59/EC on the disposal of PCB/PCT.  
- CWM equipped with modern technology for analyses of hazardous waste including sewage sludge from waste water treatment plants. | - Reports of Ministry of the Environment of the Czech Republic (hereafter MoE),  
- EC – reports on implementation of the Directives 86/278/EEC, 96/59/EEC.  
- Implementation Plan Chapter 22 Environment,  
- Czech Environmental Inspection,  
- Statistics and studies in WM,  
- International reports | - Other parts of the acquis implemented  
- Phare 2000 twinning project Centre for Waste Management successfully started. |

Total Budget: 2,67 MEUR  
Phare Budget: 2,00 MEUR

<table>
<thead>
<tr>
<th>Results</th>
<th>Objectively verifiable indicators</th>
<th>Sources of Verification</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Centre for Waste Management&quot; has been equipped with laboratory equipment necessary for independent analyses of hazardous waste including sewage sludge from waste water treatment plants and including PCB analysis.</td>
<td>Improvement of waste analyses provided by additional laboratories equipment</td>
<td>European Commission - regular reports, Directive 75/442/EEC, Directive 91/689/EEC on hazardous waste, Independent analyses of sludge and soil on which it is used (86/278/EEC Art. 9 and Annex IIA, B and C), Objective Project Reports (should be comparable with international sources)</td>
<td>Continuous funding of established CWM maintenance and operations from national budget ensured, adequate cofinancing ensured</td>
</tr>
<tr>
<td>Existing laboratories have been equipped in order to be in compliance with EU requirements on manipulation with samplings and providing of analyses.</td>
<td>Detailed waste analyses, control analysis and techniques of chemical components, substances and ions without radiochemical analysis of sewage sludge and toxicological tests, sampling and analysis laboratory, Improvement of control on waste producers</td>
<td>Effective operational control of CWM will be ensured</td>
<td></td>
</tr>
<tr>
<td>Appointed sampling and analysis laboratory have been provided.</td>
<td>Independent analysis of waste, which will be intended for landfilling in the way that the hazardous properties shall be excluded, validation of technologies.</td>
<td>The Ministry of the Environment should be responsible for the full duty of the Centre of the waste management</td>
<td></td>
</tr>
<tr>
<td>Specific laboratory control analysis and techniques of chemical components, substances and ions of sewage sludge and toxicological tests have been provided.</td>
<td>all laboratory staff received 3 days training</td>
<td>CEI is the responsible body for overall monitoring and infringement, as well as in the field of the waste management (controlling, revision, inspection, takes penalties, see Act 125/1997 Coll., and also Act 157/1998 Coll. on chemicals, and Act 185/2001 on waste)</td>
<td></td>
</tr>
<tr>
<td>Exact weighing of solid samples and materials have been made.</td>
<td></td>
<td>CWM is responsible for supervision on the methodological performance of laboratory quality (see CSN EN 17025 on assessment of the system of quality of laboratory function)</td>
<td></td>
</tr>
</tbody>
</table>

The overall role of the CWM and CEI shall be in compliance with acquis communautaire.
<table>
<thead>
<tr>
<th>Activities</th>
<th>Means</th>
<th>Source of Verification</th>
<th>Assumptions</th>
</tr>
</thead>
</table>
| Delivered and make fully operational equipment | **Investment**  
- (facilities supply and training of the staff)  
- Following equipment will be acquired - indicative (detailed specification is in enclosed table):  
  1. Laboratory equipment for heavy metals determination  
  2. Gas chromatography equipment  
  3. Equipment for ecotoxicological testing  
  4. AOX analyser  
  5. Equipment for automatic extraction of solid waste samples  
  6. Equipment for gel chromatography  
  7. Laboratory glassware cleaning machines  
  8. Equipment for sample treatment and storage  
  9. Laboratory equipment for determination of general quality parameters of wastes  
  10. Equipment of microbiological laboratory  
  11. Mobile equipment for waste sampling  
  12. Microwave mineralisation unit |       |                        | • Phare 2000 twinning project was aimed to set up operational Centre for Waste Management within framework of the Action Plan and Waste Management Strategy. The investment part (0.4 MEUR) was focused on software and hardware (both for CWM and Regional Authorities). Phare 2002 is designed to equip Centre for Waste Management with laboratory equipment.  
• Outputs from Phare 1998 Implementation/Investment Strategies for EC Waste Directives (in particular the Investment Strategy) will be taken into consideration.  
• No further investment support will be requested from the Phare programme for the Centre for Waste Management  
• Sampling methods and methods of evaluation will be objective |
| 13. | Infrared spectrophotometer |
| 14. | Liquid chromatography equipment |
| 15. | Laboratory balances |
| 16. | Equipment for field analysis and measurement |
| 17. | Gas spectrometric unit |
|  | laboratory equipment for heavy metals determination (OES-ICP optical emission spectrometer inductively coupled plasma, AAS - atomic absorption spectrometer, mercury analyser, infrared spectrophotometer |
|  | Gas spectrometric unit, |
|  | microwave mineralisation unit, laboratory balances (analytical balance, precision balance), |
|  | automatic extractor for solid sampling, |
|  | equipment for sample treatment and storage (vacuum evaporator, SPE unit, equipment for the cleaning of extracts) |

**Preconditions**
- Project Phare 2000 – 02 – 05: Center for Waste Management – building up of the Center will be successfully implemented.
- The Ministry of Environment (MoE) is the state competent authority in waste management including sewage sludge
- The Ministry of Agriculture (MoA) is a competent body for control of soil.
- Adequate co-operation within the Ministry of Agriculture (MoA) will be ensured
- Budget allocated and state co-financing secured.

**Logframe - Annex I/1**
The Centre for Waste Management will fulfil requirements of following directives:
- Directive 91/689/EEC on hazardous waste,
- Directive 96/61/EC concerning IPPC – Annex I, para 5,
- Directive 86/278/EEC “on the protection of the environment, in particular of the soil, when sewage sludge is used in agriculture”,
- full implementation of the Directive 96/59/EC on disposal of polychlorinated biphenils and polychlorinated terphenils,
- implementation of the Directive 99/31/EC on the landfilling of waste, enforcement of the technical conditions for establishing of the independent control system,
- Council Directive 82/883/EEC on procedures for surveillance and monitoring of environments concerned by waste from titanium dioxide industry,
- Council Directive 96/112/EEC,

Logframe - Annex I/2
Establishment of the Centre for Waste Management
The Management Board of the Ministry of Environment decided on 2 July 2001 to place the Centre for Waste Management in the Water Research Institute TGM (WRIM), Prague 6, Podbaba (from 1 September 2001). The Centre for Waste Management shall be built step-by-step depending on the financial resources like a separate Section of Water research institute TGM during 2001-2003 years. At present this body has 28 people and at the end of the year 2002 the CWM is expected to have 44 people according to the state budget.

Logframe - Annex I/3
Role of the Center for Waste Management
- Centre for Waste Management is planned to carry out the following activities: preparation and drafting further legislation changes and decrees required by development of the EU waste management and related legislation especially in connection with the new Waste Act; continuous work on conceptual support documents, materials for environmental policy; in co-operation with district and regional administrative offices the CWM will prepare waste management strategies, implemented through waste management plans at regional and district levels, fulfilling tasks specific for handling hazardous waste (licensing, training, providing information for economic operators and individual management of waste information system, proposals on waste monitoring programmes; consulting and supporting activities for the state administration organisations and for professional public (associations, universities, etc.)
- Publishing activities and waste educational programs,
- Adequate expert background in the following areas: waste prevention, hazardous waste treatment, waste minimisation, recycling, composting, biodegradation, thermal, chemical, physical and mechanical treatment and landfills;
- Preparation of expert supporting materials for the waste prevention and waste minimisation, technical requirements for waste treatment facilities

Providing analyses of waste, monitoring of hazardous properties of waste, sewage sludge analyses and analyses of PCB*(*)

Responsibility of CWM are as follows: CWM will provide analyses of waste and samplings in accordance with suggestions of CEI. CWM will also provide biological, microbiological and toxicological laboratory testing of wastes, information and methodological support for Czech Environmental Inspectorate, research, development, application and evaluation of analytical and technological methods of waste treatment. (Other responsibilities: see Covenant CZ00/IB/EN/02, Centre for Waste Management) Responsibilities of CEI in the field of waste is stipulated in par. 76 of the Act 185/2001 Coll. on waste. CEI orders provision of analyses and sampling, controls documentation in the line with this Act and also makes physical controls of waste. The highest authority is the MoE which delegates some responsibilities to regions.

Responsibility of CEI are as follows: Responsibility of CEI in the field of waste is stipulated in para 76 of the Act 185/2001 Coll. on waste. CEI enables to provide analyses and samplings, to provide control of documentation in accordance with this act and also the physical control of waste.

The entering on the land in private property can be realized individually only within the permission of the owner of the land and thus in compliance within the relevant legislation of the Czech Republic.
Reference laboratories in CWM will be equipped by indicative equipment in compliance with requirement of the state administration (CEI don’t possess any laboratory equipment for waste analyses, so service of other laboratories for analyses is being used)
### Annex 2

**Detailed implementation chart for the project**

<table>
<thead>
<tr>
<th>Detailed Project Implementation</th>
<th>Year</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
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<tr>
<td><strong>Investment Component</strong></td>
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<td></td>
</tr>
<tr>
<td>- Tender Launch</td>
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<tr>
<td>- Contract(s) Signature</td>
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<tr>
<td>- Delivery</td>
<td></td>
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<td>x x x x x</td>
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</table>
Contracting and Disbursement Schedule

### Cumulative Quarterly Contracting Schedule (M €)

<table>
<thead>
<tr>
<th>Project</th>
<th>3Q/02</th>
<th>4Q/02</th>
<th>1Q/03</th>
<th>2Q/03</th>
<th>3Q/03</th>
<th>4Q/03</th>
<th>1Q/04</th>
<th>2Q/04</th>
<th>3Q/04</th>
<th>4Q/04</th>
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<tbody>
<tr>
<td>Additional equipment for Waste Management Centre</td>
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<td></td>
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<td>2.00</td>
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</tbody>
</table>

### Cumulative Quarterly Disbursement Schedule (M €)

<table>
<thead>
<tr>
<th>Project</th>
<th>3Q/02</th>
<th>4Q/02</th>
<th>1Q/03</th>
<th>2Q/03</th>
<th>3Q/03</th>
<th>4Q/03</th>
<th>1Q/04</th>
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</thead>
<tbody>
<tr>
<td>Additional equipment for Waste Management Centre</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>2.00</td>
</tr>
</tbody>
</table>
Annex 4

Relation of Project with Previous Phare Activities and other On-Going Projects
Financed from various sources Detailed implementation chart

5. CR 98F – 01, ongoing project in CIZP – strengthen of institutions in regulation and capacities in the Environment in CR,

All above-mentioned projects should be taken as a basis for the Project "Additional equipment for Center for Waste Management".
Technically equipped Centre of Waste Management shall be the part of the system of independent analyses of specific waste with dangerous contents as part of the informational background for methodological and information support of the state administration institutions.
### Data on investment in details

**Centre of Wastes Management**

<table>
<thead>
<tr>
<th>Laboratory equipment</th>
<th>Objects</th>
<th>Estimated price (Euro)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New laboratories and service rooms</td>
<td>Construction of new laboratories and service rooms and reconstruction of the existing ones for receipt, storage, treatment and analytical determination of wastes samples</td>
<td>960 000,-</td>
</tr>
<tr>
<td>Gas chromatograph I</td>
<td>PCB analysis of sewage sludge and waste material samples according Council Decision 96/59/ES and other projects of PCB monitoring</td>
<td>80 000,-</td>
</tr>
<tr>
<td>Gas chromatograph II</td>
<td>Analysis of priority organic pollutants in sewage sludge and waste material samples</td>
<td>60 000,-</td>
</tr>
<tr>
<td>AOX Analyser</td>
<td>Analysis of adsorbable organic halogens (AOX) in sewage sludge and waste material samples</td>
<td>30 000,-</td>
</tr>
<tr>
<td>Spectrophotometer UV/VIS</td>
<td>Analysis of phosphorus, ammonium, nitrates, nitrites, silicate and other parameters in sewage sludge and waste material samples and their extracts</td>
<td>20 000,-</td>
</tr>
<tr>
<td>OES-ICP (optical emission spectrometer inductively coupled plasma)</td>
<td>Analysis of heavy metals and other elements in sewage sludge and waste material samples and their extracts</td>
<td>150 000,-</td>
</tr>
<tr>
<td>AAS (atomic absorption spectrometer)</td>
<td>Analysis of heavy metals and other elements in sewage sludge and waste material samples and their extracts</td>
<td>90 000,-</td>
</tr>
<tr>
<td>Mercury analyser</td>
<td>Mercury determination in sewage sludge and waste material samples and their extracts</td>
<td>20 000,-</td>
</tr>
<tr>
<td>Automatic titrator</td>
<td>Volumetric determinations (COD, major ions) in sewage sludge and waste material samples and their extracts</td>
<td>20 000,-</td>
</tr>
<tr>
<td>Infrared spectrophotometer</td>
<td>Determination of mineral oil pollution in sewage sludge and waste material samples and their extracts</td>
<td>40 000,-</td>
</tr>
<tr>
<td>Gamaspectrometric unit</td>
<td>Radiochemical analysis of sewage sludge and waste material samples and their extracts</td>
<td>60 000,-</td>
</tr>
<tr>
<td>Microwave mineralisation unit</td>
<td>Equipment for mineralisation of sewage sludge and waste material samples before determination of heavy metals and other elements</td>
<td>60 000,-</td>
</tr>
<tr>
<td>Laboratory balances</td>
<td>Exact weighing of solid samples and materials</td>
<td>20 000,-</td>
</tr>
<tr>
<td>- analytical balance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- precision balance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equipment for sample treatment and storage, particularly:</td>
<td>Equipment for the uniform treatment of sewage sludge and wastes samples</td>
<td>60 000,-</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>- vacuum evaporator</td>
<td>The mentioned equipment items are necessary for sample treatment and storage before analytical determination of individual parameters</td>
<td>150 000,-</td>
</tr>
<tr>
<td>- SPE unit (equipment for the cleaning of extracts)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- laboratory drying oven</td>
<td></td>
<td></td>
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<tr>
<td>- laboratory micromill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pressure filtration equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pressure air generator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- laboratory centrifuges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- laboratory shakers</td>
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<tr>
<td>- concentrator of organic extracts</td>
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<td>- vacuum pump</td>
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<tr>
<td>- laboratory refrigerators</td>
<td></td>
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<tr>
<td>- additional equipment for sample treatment</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Equipment for ecotoxicological measurement:</th>
<th>Equipment for toxicological tests of sewage sludge and waste material samples and their extracts with the help of bacteria, autotrophic organism (algae), crustaceans and fish</th>
<th>50 000,-</th>
</tr>
</thead>
<tbody>
<tr>
<td>- fluorescence microscope</td>
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<tr>
<td>- test tube luminometr,</td>
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<tr>
<td>- UV/VIS spectrophotometer for ecotoxicological applications</td>
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<td>- flow box for inoculation</td>
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<td>- pH meter</td>
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<td>- laboratory thermostats</td>
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<tr>
<td>- laboratory refrigerator</td>
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</tbody>
</table>

| Central computer evaluation unit | Equipment for collection and evaluation of analytical results and their application in environmental databases | 20 000,- |

| Laboratory computers including communication cables | Computers located in individual laboratories for raw data collection and communication with Central computer evaluation unit | 20 000,- |

| Equipment for sewage sludge and wastes sampling, including special car | Equipment for representative sampling and sample transport according system quality assurance | 90 000,- |

**Total** | 2.00 M € |

The list of the equipment is only indicative, it may be subject to modification. The final detailed list of equipment and technical specification will be part of the relevant tender dossier.