1. Basic Information

Désirée Number: BG 01.06.06

Title: Arda River Basin - Construction of three Urban Waste Water Treatment Plants – Madan, Rudozem, Zlatograd

Sector: EN

Location: Bulgaria – South Central Region – Smolian District

2. Objectives

2.1. Overall Objective(s):


2.2. Purpose of the project:

- The design and construction of waste water treatment plants (WWTP) for Madan, Rudozem and Zlatograd.
- The reduction of the pollution in the discharging bodies from the waste water from three towns; at the present they discharged directly to the receiver bodies without any treatment. The discharging bodies are Arda river and its tributaries - Madanska and Vurbitza Rivers;
- To improve environmental status of Arda River and its tributaries Madanska and Vurbitza Rivers;
- Contribution to the protection of the water quality of the transboundary water current – Arda river

2.3. Accession Partnership and NPAA priority:

- Accession Partnership Medium -Term Priority
  - Complete transposition and implementation of framework and sectoral legislation according to pre-defined timetable.
  - Integrate sustainable development principles into the definition and implementation of all other sectoral policies.

- Accession Partnership Short Term Priority
  - Continue transposition of framework legislation in the water, air and waste sectors, prepare and implement detailed directive specific approximation programmes; strengthen implementation structures, particularly at the regional level.
2.4. Cross Border Impact:

Arda River is a transboundary River, which starts in Bulgaria and continues into Greece. The Madanska and Vurbitza Rivers are tributaries of Arda River. This requires fulfillment of the commitments resulting from the Convention for protection and use of the transboundary water currents and the international lakes (1992). By improving the water quality in Madanska, Vurbitza and Arda Rivers, a contribution to the water quality both in Bulgaria and Greece will be achieved. In this way, an alleviation of some of the problems of cross-border friction and pollution will be also achieved.

3. Description

3.1. Background and justification:

To reflect the requirements of the EU Directives in the field of waste water treatment, the Ministry of Environment and Waters has prepared a National Programme for Priority Construction of Urban Wastewater Treatment Plants for settlements with population above 10,000 equivalent inhabitants. As a priority, it is proposed in the programme to initiate construction of 36 wastewater Treatment Plants. This Programme was developed for river basins and includes Arda River basin, the proposed Wastewater Treatment Plants for the cities of Madan, Rudozem and Zlatograd. The three cities belong to the Smolian Region with total population of about 70 thousand inhabitants.

**Madan** is located in the East part of Rodopi Mountain at 27-km Southeast of Smolian at 27 km Southeast of Smolian and 3 km from Rudozem. Madan has 8,686 inhabitants. The town is a center of mining industry. The sewerage system, including the connecting collector, is constructed at about 60%. The site for the WWTP has been selected.

**Rudozem** is located at the region of Smolian at a distance of 15 km. It has a population of 5,900 inhabitants. The number of equivalent inhabitants according to BOD5 is 10,000. The town is a center of mining industry. The water recipient body for the waste waters is Arda river of IIInd category. The degree of completion of sewerage system is 80% and the degree of use – 85%. The delivery main is constructed partly. The needed length for completion is 700 m. The site for the WWTP has been selected. “Plovdivproject” has developed a detailed design for the WWTP of Rudozem in 1985, which includes primary treatment only.

**Zlatograd** is located in the Eastern part of Rodopi mountain some 3 km from the Greek border. The population of Zlatograd amounts to 9,500 inhabitants. The number of equivalent inhabitants according to BOD5 is 14,000. The wastewater generated on the territory of the town discharges directly in Varbitsa river - IIInd category. 70% of the sewerage system is completed and the utilization ratio is 75%. The main delivery needs to be constructed. The envisaged length is 300 m. The site for the WWTP has been selected. A detailed design was prepared in 1983, which is outdated.

This project is in compliance with the Accession Partnership and the National Programme for the Adoption of the Acquis in the environment sector. According to the draft vademecum on co-ordination of the three financial pre-accession instruments and due to the strong cross-border impact and the existence of a joint development strategy of the two border regions, this project is proposed for Phare CBC funding rather than ISPA funding.

Additionally, this project is in compliance with the priorities agreed within the Joint Programming Document (JPD) during the Joint Cooperation Committee (JCC) meeting.
between Bulgaria and Greece (Athens, 20 Nov. 2000). Within the JPD it is described the Axis 3 –Quality of Life /Culture/Environment and the proposed project satisfies the specific goals:

- Improvement of life
- Protection, promotion and management of natural resources.

### 3.2. Linked activities:

- **BG9904-02-02 Project Preparation for Waste Water treatment plants in Madan, Rudozem, Zlatograd with budget 400.000 Euro.** This includes:
  - Collection, review and update of the existing data and information;
  - Preparation of a Feasibility Study with Cost Benefit Analysis including development of alternative technological schemes and carrying out a Financial and Socio-Economic Analysis;
  - Develop a Preliminary Design;
  - Prepare 3 separate and complete sets of Tender Dossiers for construction works;
  - Prepare 3 separate and complete sets of Tender Dossiers for Site Supervision;

### 3.3. Results:

- Constructed WWTPs in compliance with the EU requirements in the field of wastewater treatment;
- Improved environmental status of cities regions and Arda River and its tributaries Madanska and Vurbitsa;
- Pollution Prevention of the transboundary water current of Arda River and contribution to the improvement of the water quality.
- The construction of the WWTPs, would lead to reduction of the health risk for about 15000 people, using waters downstream of Zlatograd.

### 3.4. Activities:

Three numbers of contracts for Works and Site Supervisions:

1. Three (3) separate Works Contracts for each WWTP, Madan, Rudozem and Zlatograd including:
   - Preparation of detailed design for 3 WWTPs - Madan, Rudozem and Zlatograd
   - Delivery main
   - Inlet
   - Grit channels
   - Blowers
   - Distribution and flow measurement chambers
   - Sludge pump stations
   - Aeration and sedimentation tanks
   - Effluent collection
   - Site de-watering system, auxiliary buildings etc.
   - supply of the equipment for the work of 3 WWTP – Madan, Rudozem and Zlatograd
   - commissioning of the 3WWTP, including training of operations staff;

2. One (1) Site supervision of the construction works contracts for each WWTP – Madan, Rudozem and Zlatograd.
4. Institutional Framework

Recipient country – Bulgaria

- **Beneficiary Institutions** – Municipalities of Madan, Rudozem and Zlatograd.
  
  Owner of the asset after project completion:
  Municipalities of Madan, Rudozem and Zlatograd. The Operators of the WWTPs will be the local branches of the Regional Water Company - Smolyan. Regional Water Company – Smolyan will cover all operational, administrative and maintenance costs. The regional water Company is in charge of calculating water tariffs and implementing local “water” policy according to national legislative framework.

- **Engineer** - will be appointed after successful open International Tender Procedure according Phare Conditions of Contract.

- **Employer** - will be nominated according FM and FIDIC, Works Contract;
  
  The “Strategy, Accession Programmes and Projects” Department within the Ministry of Environment and Waters act as Employer. The Department will bear the administrative costs linked to the implementation of the Project.

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Ministry of Environment and Waters
Tel: 00359 2 940 62 64
Fax: 00359 2 980 33 17

5. Detailed Budget, in Meuro

<table>
<thead>
<tr>
<th>COMPONENTS</th>
<th>Phare support</th>
<th>Total Phare (=I+IB)</th>
<th>National co-financing (*)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment Support</td>
<td>Institution Building</td>
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<tr>
<td>1. Works Contracts</td>
<td>6.00</td>
<td>6.00</td>
<td>1.525</td>
<td>7.525</td>
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<td>Project Lot 1 – WWTP Madan</td>
<td>1.750</td>
<td>1.750</td>
<td>0.450</td>
<td>2.200</td>
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<tr>
<td>Project Lot 2 – WWTP Rudozem</td>
<td>1.750</td>
<td>1.750</td>
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<td>2.200</td>
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<tr>
<td>Project Lot 3 – WWTP Zlatograd</td>
<td>2.500</td>
<td>2.500</td>
<td>0.625</td>
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<tr>
<td>2. Supervision Contract</td>
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<td></td>
<td>0.750</td>
<td>0.750</td>
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<td>TOTAL</td>
<td>6.00</td>
<td>6.00</td>
<td>2.275</td>
<td>8.275</td>
</tr>
</tbody>
</table>

(*) National Environmental Protection Fund

6. Implementation Arrangements

6.1. Implementing Agency

The Project shall be managed under the Decentralised Implementation System (DIS). The Bulgaria CBC Implementing Agency is the Ministry of Regional Development and Public Works (MRDPW), which retains overall responsibility for the implementation of the project.
Programme Authorizing Officer (PAO) will be nominated for the Programme by the National Authorizing Officer (NAO), after consultation with National Aid Coordinator (NAC).

The “Strategy, Accession Programmes and Projects” Department within the Ministry of Environment and Waters will be responsible towards the CBC Implementing Agency for the operational and technical management of the project: studies, preparation of Terms of reference, Tender Documents, preparation and proceeding of the Tender procedures, evaluation criteria, evaluation of Tenders, award of contracts, invoices for payment, Commissioning and Handing over of the implemented projects, works contracts under FIDIC rules. The Head of the Department acts as the Employer and invoices have to be certified by the independent Engineer contracted and financed by the Programme. The Department reports monthly to the CBC Implementing Agency (with direct copies to the EC Delegation) with monthly disbursement and commitment schedules and with sufficient detail to allow assessment of progress made and remaining work to be accomplished. It leases directly with the EC Delegation for all issues related to the operational management of the project. The Department shall be adequately staffed with at least 3 qualified full-time experts.

The Site Supervision of the Projects will be selected under FIDIC conditions of contract and will be funded by the Programme. Works tender documents will include all required parts depending on availability of funds from other programmes and on satisfactory performance of the contractor with the lots already contracted. Works will be tendered to contractors with relevant financial capacity, and technically FIDIC experience in such or similar projects and will be also selected under FIDIC conditions of the contract.

6.2. Non-standard aspects

There are no “non-standards aspects”. The “Practical Guide to Phare, Ispa and Sapard contract procedures” will strictly be followed.

6.3. Contracts:

I. Three (3) Works Contracts

- Design and construction of WWTP – Madan – 2.200.000 EURO
- Design and construction of WWTP – Rudozem – 2.200.000 EURO
- Design and construction of WWTP – Zlatograd – 3.125.000 EURO

II. One (1) Supervision Contract – 750.000 EURO

7. Implementation Schedule

<table>
<thead>
<tr>
<th>Start of tendering</th>
<th>Start of project activities</th>
<th>Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2002</td>
<td>March 2002</td>
<td>November 2004</td>
</tr>
</tbody>
</table>

8. Equal Opportunity

Equal opportunity for men and women to participate in all the components of the project will be ensured.
9. Environment

The Municipalities of Madan, Rudozem and Zlatograd are in charge of submission to IA the Preliminary EIA Reports for selected sites for the WWTPs not later than June 2001, approved by Higher Ecological Expert Counsel at the Ministry of Environment and Waters.

The construction of the proposed WWTPs and its co-operation with the sewerage networks improvements will contribute to pollution prevention of the trans-border water course of Arda river and its tributaries. Reduced health risk for the population living in the downstream regions of both sides of the border also participates to expected environmental and social effects.

10. Rates of return (To be completed for all investment support projects)

Financial rate of return: Not available
Economic internal rate of return: Not available

The main task of the future Feasibility Study is to complete the technical, financial and socio-economic analysis. The FS is expected to be completed till the end of 2001, under the Phare CBC contract with the awarded consultant company.

11. Investment criteria

11.1. Catalytic effect:

Without Phare assistance, the project would have never taken place due to a lack of funds.

11.2. Co-financing:

The project is co-financed by National environmental Protection Fund, which will provide 25% of the total cost of the project.

11.3. Additionality:

No other financing sources from the private sector or from IFIs were available for financing this project.

11.4. Project readiness and Size:

The preliminary studies are not completed yet. The implementation of the project can start according to the implementation chart (Annex 2). The project complies with the 2 Meuro minimum Phare allocation requirement.

11.5. Sustainability:

The financial sustainability of the Project will be ensured trough flexible policy for calculation of the “water tariffs”, to cover the running costs of the already constructed WWTPs.

11.6. Compliance with state aids provisions

The project respects the state aids provisions.
12. Conditionality and sequencing

- Bulgaria undertakes the obligation to cover any additional cost, above the envisaged Meuro 8.275, necessary for the completion of the whole project during its implementation timeframe.

- Land acquisition is financed by the Bulgarian authorities. The Bulgarian authorities undertake to notify to the European Commission before the signature of the works contracts that related land acquisitions have been completed.

- Every infrastructure project will be publicised according to a publicity action plan to be prepared by the Ministry of Environment and Waters and endorsed by the Commission before tendering the works.

- The Ministry of Environment and Waters will make all data and inspection equipment fully available to the constructor in charge in order to complete the detailed design.

- The construction of the proposed 3 WWTPs should be taken into consideration as part of an overall system of the waste water treatment (including rehabilitation of the water supply and sewerage systems) in the three towns and the Bulgarian authorities undertake the responsibility by the end of the project to make this system full operational in order to improve the water quality in Madanska, Vurbitza and Arda Rivers.

- Beneficiaries should take all institutional responsibilities and all necessary measures should be taken in order to ensure technical and financial sustainability. Additionally, polluter-pays -principle should be respected.
### Annex 1: Logframe Matrix for project:

**Arda river Basin – Construction of 3 Urban Waste Water treatment Plants - Madan, Rudozem, Zlatograd**

<table>
<thead>
<tr>
<th>Overall objective</th>
<th>Indicators of Achievement</th>
<th>Sources of Information</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>To improve the water quality in Arda River and its tributaries Madanska and Vurbitza Rivers in respect of EC Directive N 91/271EEC concerning urban wastewater treatment; EC Directive 76/464 EEC on the pollution of waters with hazardous substances and its daughter directives; Directive 2000/EEC for establishing of framework for Community action in the field of water policy; Convention on protection and use of the transboundary water currents and the international lakes signed on 92/13.03.1992 with a decision of the Council of Ministries.</td>
<td>• Correspondence with EU requirements and regulations</td>
<td>National and international statistics</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project purpose</th>
<th>Indicators of Achievements</th>
<th>Sources of Information</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>To construct 3 WWTPs in compliance with the EU requirements in the field of wastewater treatment; To improve environmental status of in all 3 receiving bodies; To prevent the pollution of the trans – border watercourse of Arda River and to contribute to the improvement of the water quality. To improve the quality of life of the 3 towns’ population</td>
<td>BOD levels bellow 25 mg/l COD levels bellow 125 mg/l SS levels below 35 mg/l in all 3 receiving bodies</td>
<td>Laboratory tests Users</td>
<td>economic growth in other sectors Bulgarian Government continues its current commitment to reform and to accession to the European Union</td>
</tr>
<tr>
<td>Results</td>
<td>Indicators of Achievement</td>
<td>Sources of Information</td>
<td>Assumptions</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------</td>
<td>------------------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| • Constructed WWTP in compliance with the EU requirements in the field of wastewater treatment;  
• Improved environmental status of Madanska and Arda Rivers.  
• Pollution Prevention of the trans-border watercourse of Arda River and contribution to the improvement of the water quality. | • Taking over certificates | • MoEW  
• Resident Engineers  
• Contractors | • Most of constructions does not exceed cost estimates and no major contingency during construction |
| Activities | Means | Assumptions |
| I contract:  
• preparation of detailed design for 3WWTP, Madan, Rudozem and Zlatograd;  
• construction of 3WWTP, Madan, Rudozem and Zlatograd including Inlet grit channels blowers distribution and flow measurement chamber sludge pump station aeration and sedimentation tanks effluent collection Site de-watering system, auxiliary buildings etc.;  
• supply of the equipment for the work of 3 WWTP – Madan, Rudozem and Zlatograd  
• commissioning of the 3WWTP, including training of operations staff; | • 6 Meuro contracted and disbursed  
• purchase of adequate equipment | • reports issued by MoEW, Resident Engineers, Contractors  
• MoEW bank statements | • Land acquisition completed  
• Continuity of staff and policy in MRDPW enabling implementation of the project without delays  
• Effective project Engineer  
• Capable Contractors |
### Annex 2 – Detailed implementation chart

Arda river Basin – Construction of 3 Urban Waste Water treatment Plants - Madan, Rudozem, Zlatograd

<table>
<thead>
<tr>
<th>Components</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review / Evaluation of Tender</td>
<td>R R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Contracting</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Implementation of Works</td>
<td>I I I I I I I I I I I I</td>
<td>I I I I I I I I I I I I</td>
<td>I I I I I I I I I I I I</td>
</tr>
</tbody>
</table>

C = Contracting  I = Implementation/works  R = Review/evaluation
Annex 3 – Contracting and disbursement schedule by quarter
Arda river Basin – Construction of 3 Urban Waste Water treatment Plants - Madan, Rudozem, Zlatograd

<table>
<thead>
<tr>
<th>Components</th>
<th>Cumulative contracting schedule by quarter in Meuro (planned)</th>
<th>Total Phare</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002                2003                  2004</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I  II  III  IV  V  VI  VII  VIII  IX  X  XI  XII</td>
<td></td>
</tr>
<tr>
<td>01-Civil Works</td>
<td>6.000  6.000  6.000  6.000  6.000  6.000  6.000  6.000  6.000  6.000  6.000  6.000</td>
<td>6</td>
</tr>
<tr>
<td>Total contracting:</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Cumulative disbursement schedule by quarter in Meuro (planned)</th>
<th>Total Phare</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002                2003                  2004</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I  II  III  IV  V  VI  VII  VIII  IX  X  XI  XII</td>
<td></td>
</tr>
<tr>
<td>01-Civil Works</td>
<td>0.900  1.860  2.820  3.780  4.740  5.700  6.000  6.000  6.000  6.000  6.000  6.000</td>
<td>6,000</td>
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<tr>
<td>Total disbursement:</td>
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<td>6,000</td>
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