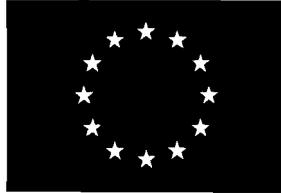


TWINNING FINAL REPORT



EUROPEAN COMMISSION

**TWINNING PROJECTS
FINAL REPORT**

Project Title: Institutional Strengthening of the River Basin Authorities in Bulgaria for Implementation of the EU Water Framework Directive in the Danube River Basin (Pilot River Basin and Sub-River Basin)

Partners: The Ministry of Environment and Water of the Republic of Bulgaria
The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Date: 02, November 2006

Section 1: Project data

Twinning Contract Number	BG03/IB-EN-02
Project Title:	Institutional Strengthening of the River Basin Authorities in Bulgaria for Implementation of the EU Water Framework Directive in the Danube River Basin (Pilot River Basin and Sub-River Basin)
Twinning Partners (MS and BC)	German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety Bulgarian Ministry of Environment and Water Danube River Basin Directorate, Pleven
Duration of the project:	22 months
MS Project leader:	Mr. Heinz-Jochen Poremski
BC Project leader:	Mr. Vladimir Dontchev

Section 2: Content

This section describes the activities of the project. It is divided in nine sub-sections.

2A – EXECUTIVE SUMMARY

2B – BACKGROUND

2C – IMPLEMENTATION PROCESS

2D – ACHIEVEMENT OF MANDATORY RESULTS

2E – IMPACT

2F – FOLLOW-UP AND SUSTAINABILITY

2G –CONCLUSIONS

2H – FINAL RECOMMENDATIONS

2I – ANNEXES

2A - EXECUTIVE SUMMARY

The overall objective of the project was the institutional strengthening of the river basin authorities in Bulgaria for the implementation of the EU Water Framework Directive (WFD) in the Danube River Basin.

The WFD as legal basis of the Twinning project consists of 26 Articles and 11 Annexes which aims at an integrated management of water resources in the Member States. All elements of the WFD were integrated into the Twinning Contract consisting of 3 phases (inventory, monitoring programmes, programmes of measures), 11 components (11 CP) and more than 40 activities. After evaluating, testing and implementing the Bulgarian approach of the elements of WFD (inventory, risk assessment, baseline scenario, economic analysis, monitoring programmes, programme of measures) the know-how of the Twinning partners was transferred to the other 3 Water Basin Directorates (West Aegean Water Basin Directorate, East Aegean Water Basin Directorate, Black Sea Water Basin Directorate).

Basis of the know how transfer was the Operational Manual elaborated as a kind of "cook book" to implement the WFD in an uniform way in whole Bulgaria and in time according to the WFD-requirements.

The principal objective of the WFD is to achieve a "good status" of surface waters and groundwater by 2015. To achieve the objectives, programmes of measures on the basis of 5 Tool Boxes were defined for pilot regions (river tributaries) in the Danube River Sub-Basin.

The Programme of Measures to improve the ecological (morphological) status of the rivers (Tool Box 3) was linked with preventive measures of flood protection.

The results of the programme of measures on point sources (Tool Box 1) focused on the necessity to reduce the organic impacts coming from municipalities (settlements) with less than 2.000 inhabitants (producing more than 30 % of the organic load on the Osam river as model river system).

The appropriate instrument of the WFD is the river basin management plan, which structures were drafted for the pilot river tributaries in the Danube River Sub-Basin to be transferred on the whole Danube catchment area in time.

The activities were linked to the results and road map of the International Commission for the Protection of the Danube River (ICPDR, Vienna).

2B - BACKGROUND

Starting Point

Briefly describe the original situation in the relevant area of the BC administration before the project, indicating the gaps that the project had to address.

The Water Framework Directive (WFD, Article 3 Paragraph 2) addresses to the Member States that they shall ensure the appropriate competent authority to apply the rules of the WFD.

In 2002, Bulgaria decided to set up 4 Water Basin Directorates to be responsible as competent authorities for the WFD implementation. The straight requirement of the Twinning Project was to support and straighten the new Bulgarian water administration, especially the Danube River Basin Directorate in Pleven, to implement the WFD in time and according to the requirements.

The starting point in January 2005 was affected by the following gaps in the WFD implementation:

- **Typology for surface waters to be changed**

Bulgaria had used System A to develop the typology of surface waters.

In the whole Danube Basin District only the Czech Republic and Bulgaria were using System A, all other countries apply System B. The reason is that System B is more meaningful than System A to comply with the occurrence of the real existing type specific biological elements in the rivers and lakes. Thus the results of the ecological classification and possible subsequent measures will depend on the confidence of the typology used. It was strongly recommended by the German Twinning partner to establish System B in Bulgaria as soon as possible as an important basis for the River Basin Management Planning (risk assessment, monitoring programmes, programme of measures).

- **Risk Assessment not transparent:**

In general, the inventory of the Bulgarian water administration to describe the quality and quantity status of the surface waters and groundwater was well designed. However, it was not possible to reconstruct the decision why a surface water body or a groundwater body was identified as "at risk", "not at risk" or "possibly at risk". The results of the risk assessment were not transparent. Additionally, practical and comprehensible risk assessment criteria for surface water and groundwater bodies were missing.

- **Missing of biological data and of data on the morphological structure of the rivers as starting point for the risk assessment on morphological alteration**

Data or parameters on significant morphological alteration of the river systems were not available. This led to the problem that a pressure and impact analysis on morphological alterations of surface water bodies could not be done.

- **Missing data on relevant substances according to Annexes V, VIII, IX and X of the WFD**

WFD-Annexes V, VIII, IX and X will include more than 301 relevant substances including priority substances. Only a small fraction of the 301 parameters could be monitored in the past. This led to the problem that a pressure and impact analysis on relevant substances was not executed in the Water Basin Directorates.

Report on the First Economic Analysis of Water Use was not in compliance with the WFD-requirements

The Report on the 1st Economic Analysis of Water Use did not contain

- interpretations and calculation of the socio-economic data on the significance of water use regarding the different sectors like households, industry and agriculture
- baseline scenario for the water services
- cost recovery calculation of the river tributaries (sub basins).

Objectives

List the objective, purpose and mandatory results of the project (as stated in the Work Plan and / or amended during implementation), addressing the gaps identified above.

The overall objective was to assist the Danube River Basin Directorate in Pleven and the other 3 Water Basin Directorates as beneficiaries in drawing up important structures of the River Basin Management Plan as well as to ensure institutional capacity (Institutional Strengthening) in fulfilling the planning, regulation, reporting and information requirements under the WFD. An additional output of the Twinning project was to

document all the evaluated, practical tested methods, approaches, implementations and road maps

- to identify the surface water bodies and the groundwater bodies “at risk” (phase I of River Basin Management Planning – RBMP -),
- to structure the elaboration of the monitoring programmes (phase II of RBMP) and
- to structure and to start with the elaboration of the cost-effective programme of measures (phase III of RBMP).

The Twinning activities lead to the elaboration of the Guidance Document or Operational Manual (“cook book”) to serve as a basic tool for the Bulgarian water experts in all 4 Water Basin Directorates, in the Executive Environment Agency (EEA), in the Ministry of Environment and Water (MoEW) and the WICU-Ministries to implement the WFD in a uniform and harmonised way on the national, regional and local level.

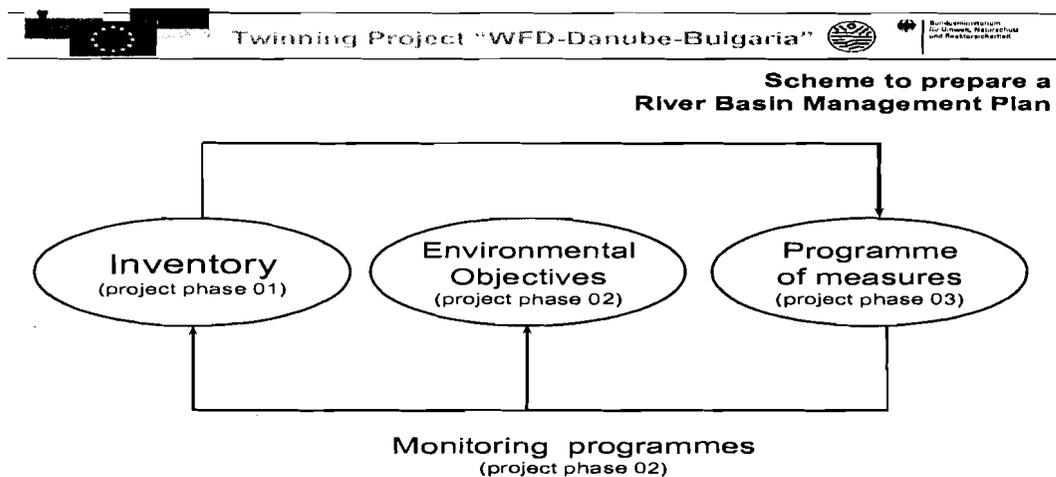


Fig. 1: Three elements to elaborate the River Basin Management Plan.

According to Fig. 1, the River Basin Management Planning process consists of the 3 phases

- Inventory and risk assessment (phase 1)
- Monitoring programmes (phase 2) and
- Programmes of measures (phase 3).

In view of the facts of the above mentioned gaps, new and transparent criteria of risk assessment were developed to restart the risk assessment on surface water bodies and groundwater bodies. The results of the reviewed risk assessment served as the basis for the elaboration of the Monitoring Programmes and the Programmes of Measures.

As an amendment to the work plan, the transfer from typology System A to System B was necessary to identify the cost effective Monitoring Programmes and the Programmes of Measures. Developing System B makes sense not only for one Directorate but for all 4 Water Basin Districts. By the way, turning from System A to System B was a Bulgarian wide challenging task, which was done best by the Pleven-Directorate.

A second note:

System B had to be developed not only for rivers but also for the other water categories like lakes and coastal waters.

This extra work was done by the German and Bulgarian Twinning partners in close co-operation with the other 3 Directorates and the EEA, shortly.

Three factors have been the guarantee for the success to transfer from System A to System B Bulgarian wide in 2005:

First, 2 Bulgarian experts from the DRBD, Pleven, and the EEA, Sofia, got a 7 day training on all the steps to develop System B at the German University Essen-Duisburg (stream typology, reference conditions, biological assessment of rivers and lakes) .

Second, the Twinning office contracted a Bulgarian consultant to support the Twinning project in developing the step-by-step transfer to System B by providing information or data on abiotic and biological parameters (indicators) for System B (substratum, slope, benthic macroinvertebrates, fish, macrophytes, phytobenthos, phytoplankton), and in organizing a field trip to the rivers and lakes to be used as reference conditions.

Third, the Bulgarian experts being trained at the German University of Essen-Duisburg started to train their colleagues in the other Directorates in developing System B (Training of the Trainees).

2C - IMPLEMENTATION PROCESS

Developments outside the project

(a) What were the key developments in the relevant policy area in the Beneficiary Country during the implementation of the project?

Ministry of Environment and Water

In the policy area of the environment field the legislative process including the parliamentary debate on the new Water Management Act started in 2005. The draft of the new act was evaluated with regard to legal compatibility with the Water Framework Directive (WFD). A detailed legislative synopsis (gap analysis) was made in the 1st half of

2005 to compare the text of the WFD with the draft act (English translation) and to illustrate legislative gaps and differences between national and EC law. The synopsis could be used by the lawyers of the MoEW and other ministries during the development of the draft act and for the parliamentary debate.

Because of the actual situation of flood catastrophes in Bulgaria in 2005 (in the Danube tributaries) and 2006 (Danube itself) the Twining partners decided that the River Basin Management Plan has to take measures on flood protection into account. Preventive flood protection measures were integrated into the Programme of Measures (see: Operational Manual – Annex – and the River Basin Management Plan – Annex 2 and 3).

By training the experts, the Danube River Basin Directorate (DRBD) got a leading position in the implementation procedure of the WFD in Bulgaria ("Training of the Trainees"). The DRBD experts themselves supported the experts of the other 3 Directorates in Plovdiv (East Aegean Water Basin Directorate), in Blagoevgrad (West Aegean Water Basin Directorate) and in Varna (Black Sea Water Basin Directorate) in implementing the steps of the WFD implementation, especially on the

- transfer from typology system A to typology system B,
- risk assessment on surface waters and groundwater
- economic analysis of water use
- Programmes of Measures.

The training of the trainees by the Twining project was a sound multiplication instrument to lead to a communication platform between the 4 Directorates and to an harmonized way to implement the WFD in Bulgaria.

Ministry of Regional Development and Public Works (MRDPW)

In the policy area of the MRDPW the draft of the Act on Regulation of Water Supply and Sewage Services Act was updated to finish the parliamentary hearing procedure.

Additionally, the Draft of the Property Acts was elaborated to regulate the right on the property of water service facilities.

Another act on water supply and water sewerage systems was under preparation (internal draft).

The fragmentation of the water legislation into 4 different Acts could be a disadvantage in managing the national and international (transboundary) water resources sustainable.

The more Acts exist the harder and less transparent will be the execution of the Water Act. In addition, the fragmentation of the water legislation into 4 Acts could contradict the principle of integrated water resource management.

(b) Which of the original assumptions of the project (Article 3 of the Work Plan) were fulfilled?

It can be stated that all assumptions mentioned in Article 3 of the Work-Plan were fulfilled.

1. The Operational Manual as cook book to implement all steps (inventory, risk assessment, economic analysis, monitoring programmes, programmes of measures) of the Water Framework Directive in Bulgaria in a uniform way was finalized in time.
2. The Programme of Measures as the most important element of the WFD was completed to structure the elaboration of the RBMP until 2009 (deadline according to WFD).
3. All water authorities like the Ministry of Environment and Water (MoEW), 4 Water Basin Directorates, the Regional Environmental Inspectorates (REI' s) and the Executive Environmental Agency (EEA) were involved into the implementation of the WFD in general and in particular in the elaboration of the Operational Manual and the River Basin Management Plan.
4. The other Ministries dealing with water issues like the Ministry for Regional Development and Public Works (MRDPW), Ministry of Health and Ministry of Agriculture and Forestry and the Academy of Sciences were involved in the preparation of the Programmes of Measures and in the economic analysis of water use.
5. Important stakeholders like municipalities, WIK companies (operational companies for water supply and sewage services, also called "W & S operators"), NGO' s like WWF Bulgaria were involved actively in the workshops, seminars and meetings. Their comments and proposals could be used to improve the WFD implementation procedure.
6. The Twinning Project Homepage was used as an information, communication, discussion and co-ordination unit to harmonize the WFD implementation between the water administration and the WICU members and the members of the Basin Councils.
7. The acceptance of the e-Learning course (Digital Correspondance Course) to disseminate the philosophy of the WFD and the results of the Twinning project was high. More than 100 participants of all institutions (water administration, WICU members, municipalities, WIK' s, NGO' s) participated in the e-Learning between June and October 2006. The eLearning Course could be used as an awareness campaign for the WFD and the objectives of the Twinning project.

(c) What external problems threatening smooth implementation of the project appeared and how were they solved?

External problems in the relevant policy areas did not threaten smooth implementation of the project.

Project developments

(a) Describe the key developments inside the project, such as change of key staff, re-orientation, completion of an important package of activities, other turning points. (NB: Do not make a detailed account of all activities here)

The Twinning project was settled in the Ministry of Environment and Water (MoEW). The main beneficiary was the Danube Water Basin Directorate in Pleven. Trained by the Twinning Project, the Danube Water Basin Directorate (DRBD), Pleven, lead the way to implement the WFD Bulgarian wide.

After testing, evaluating and implementing the Twinning approach in the Danube River Sub-Basin, the experts of the DRBD support the experts of the other 3 Directorates in implementing the Bulgarian approach in their River Basin Districts in Varna, Plovdiv and Blagoevgrad.

The transformation from typology system A to system B was originally not part of the Twinning contract. Faced with the disadvantages of the existing Bulgarian typology System A at the beginning of the Twinning project in January 2005 which could provoke wrong status assessment, inefficient monitoring networks and inefficient Programmes of Measures, the Twinning partner decided to transfer from typology System A to System B. The advantages of System B are

- International comparability related to typology, status assessment, programmes of measures, monitoring etc. will increase by the application of System B
- System B enables an efficient development of monitoring networks and cost effective Programmes of Measures
- System B enables a precise definition of reference conditions
- System B usually leads to a reduction of the number of types (and consequently will put the costs down !)

After finishing the transfer from System A to System B, the risk assessment on surface water bodies and groundwater bodies was updated by the experts of the DRBD, Pleven.

The first economic analysis of water use revealed following gaps and deficits in the planning, management and organisation of the water service sector (water supply and waste water disposal sector):

- High fragmentation of the responsibilities for planning, decision, financing, maintenance, water pricing and controlling to different institutions like municipalities, MoEW, MRDPW, WiK companies, national co-financing institutions, decision groups installed by the Ministries of Council and water authorities)

- The calculation of cost recovery of the water services shows a huge spectrum between less than 70 % and more than 260 %
- Calculation of the water prices (water pricing) are not transparent
- The cash flow between the WiK' s and the other responsible financial institutions on water services is not clear
- The technical rules and the quality management in the water service sector is low. New constructed water supply or water treatment facilities being subsidized by EU- or/and international or/and national funding programmes were out of service within some years
- The cash flow for the WiK's companies to enable a maintenance and service of the facilities according to the state-of-the-art is not clear.

The Twinning partners recommend strongly to start a Follow-up Twinning Project (Annex 6) on the economic elements of the WFD and on the elaboration of supplementary measures as part of the Programme of Measures to close the gaps and deficits in management and organisation of water infrastructure as soon as possible.

The risk assessment on point sources of pollution showed that especially settlements lower than 2.000 inhabitants will have a high organic impact on the quality status of the tributaries of the Danube River like Ossam, Vit, Yantra etc.

Calculation of the organic pollution referring the immission and emission approach showed that concentrations of BOD₅, COD, TN, NH₄-N, TP in the Danube River tributaries will cross significantly the limit values of the EU-Urban Waste Water Treatment Directive 91/271/EEC.

To meet the objectives of the WFD, the Twinning partners recommend to modify existing funding programmes (EU-, international, national) or to start a new funding programme on decentral waste water collection and treatment to support settlements/municipalities with less than 2.000 inhabitants.

(b) What internal problems threatening the implementation of the project appeared, and how were they solved?

On 17 November 2003, the Delegation of the European Commission to Bulgaria informed the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety that the Bulgarian Ministry of Environment and Water has selected it as the partner for the implementation of the twinning project.

Both project partners immediately set out to prepare the draft contract for the project. The RTA Mr. Quadflieg presented the draft contract to the Delegation of the European Commission to Bulgaria on 21 May 2004. On 16 June 2004, the Delegation of the European Commission to Bulgaria sent its detailed comments on the draft contract.

The twinning partners revised the draft contract and sent it to the Delegation of the European Commission to Bulgaria on 19 July 2004. The Delegation of the European Commission to Bulgaria requested further corrections on 12 August 2004.

The 2nd revised contract was sent to the Delegation of the European Commission to Bulgaria on 23 August 2004. The Delegation of the European Commission to Bulgaria approved the contract on 27 September 2004.

The European Commission informed the twinning partners on 29 October 2004 that the Commission Steering Committee for Institution Building/Twinning has unconditionally approved the project. On 2 November 2004, the Delegation of the European Commission to Bulgaria informed the twinning partners that the duration of the twinning partners had to be shortened because the end of the disbursement period for the project is 30 November 2006. Therefore, the duration of the project was shortened from 24 to 22 months. The shortening of the implementation period of the project increased the time pressure on the Bulgarian and German experts to deliver the mandatory results. On 23 December 2004, the Delegation of the European Commission to Bulgaria formally notified the twinning partners about the endorsement of the project.

Project visibility

(a) What steps were taken to ensure project visibility and EU visibility and what was the influence on the project implementation process?

1. The Twinning project focused to 3 different geographical scopes or levels. The regional level (1st scope) is represented by the Danube River Sub-Basin and its tributaries like Iskar, Ogosta, Yantra etc. The national level is the transfer of the Know how of the Twinning Project to the other 3 Directorates West Aegean Water Basin Directorate, East Aegean Water Basin Directorate and the Black Sea Water Basin Directorate (2nd level). The 3rd scope is the international level of the International Commission for the Protection of the Danube River (ICPDR).

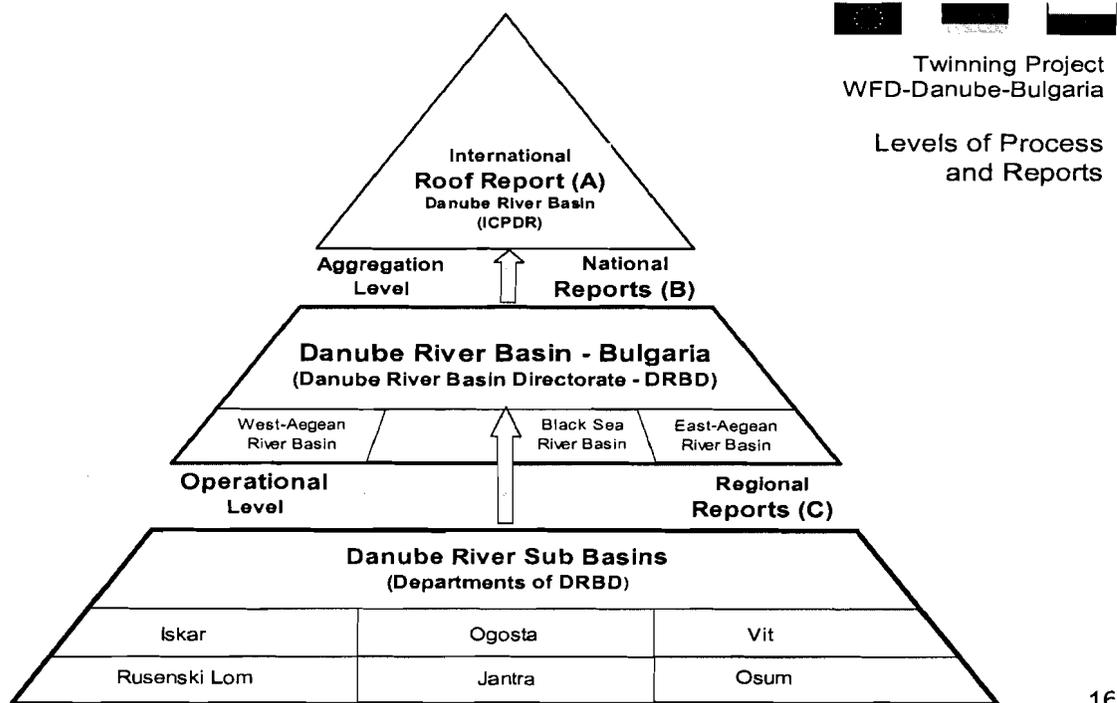


Fig 2: Three levels of River Basin Management Planning.

All approaches and results of the Twinning project were co-ordinated with the activities of the International Commission for the Protection of the Danube River (ICPDR) to elaborate the international Roof Report. The RTA Dr. Arnold Quadflieg presented the Twinning results in 4 meetings of the ICPDR-River Basin Management Expert Group (Chairman: Mr. Joachim d' Eugenio, EU-Commission, DG Environment) in Belgrade (Serbia), Budapest (Hungary), Ulm (Germany) and Chisinau (Moldova).

For this reason, the approaches, methodologies and the results of the Twinning project are compatible to the international road map of the ICPDR to implement the WFD. The counter flow principle will guarantee a bottom-up and top-down compatibility between the regional, national and international level of River Basin Management Planning.

The ICPDR Countries, especially Serbia, Romania, Croatia, Bosnia-Herzegovina, Ukraina, Moldova appreciated the Bulgarian approach to implement the different components of the WFD in a transparent and practical way.

2. The other PHARE-Projects and bilateral projects dealing with WFD issues (ARCADIS, Sogreah-PM etc.) were involved in the workshops of the Twinning project after meeting a milestone of the Twinning project. Additionally, the RTA presented the Twinning results in joint seminars of the international consulting companies dealing with WFD issues like ARCADIS or Sogreah-PM to adapt their work plan and programmes to the Twinning approach.

3. Seminars of the Regional Environmental Centre for Central and Eastern Europe, Branch Bulgaria, with municipalities, counties, stakeholder and interest groups etc. could be used to raise awareness for the WFD in general and for the Twinning project activities in particular.
4. The Web Side of the Twinning Project could be used to inform and to involve actively all WICU-members, members of the Water Basin Councils and stakeholders into the Twinning Project procedure. In this context the role of the WWF-Bulgaria has to be highlighted. The WWF Bulgaria supported actively the experts of the Danube River Basin Directorate to carry out the risk assessment on the morphological alteration of the surface water bodies by providing the DRBD with historical data, information and maps as reference conditions for the river systems. On this basis the river sinuosity (meandering structure of rivers) could be used as risk assessment criteria to identify the morphological and ecological status of the rivers in the Danube River Sub-Basin.

2D - ACHIEVEMENT OF MANDATORY RESULTS

(a) Describe the extent to which each of the mandatory results (measured against the benchmarks agreed in the Work Plan) was achieved.

The overall objective of the Twinning Project was the implementation of the WFD in Bulgaria. The project purpose of the Twinning project was to elaborate an Operational Manual on all the methods, approaches and results being tested in the Danube River Sub-Basin. This cookbook shall serve as a basic tool for the Bulgarian water experts in all Water Basin Directorates, the EEA, the Regional Environmental Inspectorates, the Academy of Sciences, for the other WICU-Ministries involved in the WFD implementation process (WICU members) and for the stakeholders (municipalities, farmer association, WiK companies, NGO's) to implement the WFD in a uniform way on the national level, regional and local level.

The Twinning project homepage, the e-Learning platform and WICU-meetings were used to coordinate all steps and activities of the WFD implementation procedure with the WICU members. Additionally, the members of the Basin Councils were informed on the activities of the Twinning project every six months.

The mission reports and presentations of the MS and BG experts on all activities of the 11 Component are published on the Twinning project Homepage:

www.hlug.de/twinning/water/index.htm

Component 1: Start up'

Kick-off-Meeting

The mandatory result of component 1 could be achieved.

The Kick-off-Meeting took place in the MoEW on 02 February 2005. Representatives of all Water Basin Directorates, the EEA, the Regional Environment Inspectorates, the MoEW and the other bilateral and PHARE-Projects in Bulgaria on WFD implementation participated in the Kick-off-meeting. The aim of the Kick-off-Meeting was to introduce in the duties and responsibilities of the Twinning project management and to co-ordinate all the missions to perform the 11 components, 40 activities and the data management.

As instrument for the project management in the next 22 months, the German Twinning partner prepared the following technical and organizational documents

- Compiling and updating of the overall Project Schedule
- Compiling and updating of the Task breakdown of all activities
- Fine-tuning of all Components of the Twinning project
- Structuring of the Danube River Basin Management Plan.

The Twinning office provided the Bulgarian Twinning partner with the above mentioned outputs (documents) to manage the Twinning project, effectively:

The objectives of the 4 documents were to define

- the technical and organizational basics for the Twinning project up to November 2006
- to inform and co-ordinate the team working between the MS and BG experts
- to describe technically all activities and
- to appoint the milestones (Start, interim results, completion of activities and components).

Component 2: Networking between the Activities of the Twinning Project and the Activities of the International Commission for the Protection of the Danube River (ICPDR); Gap Analysis on Data Management

The mandatory result of component 2 could be achieved. In detail, the following results could be achieved:

Analysis on the Bulgarian Project Status to Fulfil the ICPDR-Work Plan and ICPDR-Timetable to Implement the WFD (activity 2.1).

Ursula Schmedtje from the ICPDR in Vienna and responsible in the ICPDR for the international reporting to the EU-Commission could be enlisted as expert for the Twinning activity 2.1. The objective of activity 2.1 was to draw a precise picture of the reporting structure between the

International Report of the ICPDR to the EU-Commission (Roof Report A) and the Bulgarian National Report on the WFD implementation results.

The following results were achieved:

- **Reporting requirements to European Commission**

The ICPDR has agreed to jointly prepare a Danube River Basin District Roof Report, which builds on contributions by the Danube countries based on commonly agreed criteria for data collection. Version 1 of the Danube WFD Roof Report 2004 was endorsed by the Contracting Parties under the Danube River Protection Convention on December 13, 2004. The report is currently undergoing a final review.

The ICPDR has also suggested an outline for the National Reports on Art. 5 WFD, which follows that of the WFD Roof Report. The outline of the WFD Roof report is recommended for use in the National Reports (e.g. Bulgarian National Report) in order to allow easier cross-referencing.

This outline may be modified as needed on the national level.

To avoid any duplication of work in Bulgaria, the MoEW (Danube River Basin Directorate) should add a short report in his National Report, which shows the links between the Bulgarian National Report (data sheets) and the ICPDR Roof report to complete the EU requirements on the Bulgarian National Reporting.

Regarding the EU requirements on reporting, which will attach importance to a coherent and transparent workflow from the data sources up to the produced maps and results, the objective of this additional "link" is to describe the database, the data management, the used methodologies, the data analysis, the expert interpretation and the results to pave a transparent way between the ICPDR-Roof Report A for all Danube countries and the Basin Overview Report of the Danube River Basin Directorate, Pleven.

This approach of the Twinning project was also agreed by the Chairman of the ICPDR-River Basin Management Expert Group, Joachim D'Eugenio (DG Environment/EC).

- ***Major hydraulic structures in the Danube River Basin (DRB)***

The criteria for "major hydraulic structures" in the WFD Roof report are not clearly defined. It was up to the countries to define what major hydraulic structures are. Bulgaria has only included those dams on reservoirs larger than 0.5 km². It was intended to include all major dams on rivers.

The Bulgarian experts sent an update of the data on major hydraulic structures for the WFD Roof report 2004 by 10, February 2005.

Gap Analysis on the Database Management (DM) as Obligatory Element to Produce Maps, Base Layers and Thematic Layers for the River Basin Management Plan and Gap Analysis on IT-Infrastructure to Identify Needed Hardware and Software (activity 2.2)

The first mission of the German GIS experts serves to exchange experience and information on the GIS status in Pleven as important basis to co-ordinate all future GIS activities during the Twining project and to prepare the Technical Specification.

The main objectives of data management

- WFD report maps (digital and analogue)
- support of WFD management plan
- support of water management according to the Bulgarian Water Act

and the three target groups

1. Ministry of Environment and Water
2. European Commission
3. ICPDR

were defined for IT purposes.

On the basis of the actual and current status of the technical infrastructure (Hard- and software, GIS staff) and the data situation (Geobasis data) in the Danube River Basin Directorate (DRBD), Pleven, the German GIS experts identify the deficits (gaps) on data management. In a second step, the Twining experts fixed a To-Do-List to close the gaps and to structure all the actions to prepare the first draft of the Technical Specification as the most urgent task be done by the Twining partner as base for planning and building of the technical infrastructure in Pleven.

The German GIS expert pointed out that all the new GIS architecture for the DRBD will call for more GIS staff in Pleven and demand a high Know how and knowledge of many years. The objective of the Technical Specification must be not only to identify the technical components of hard- and software for GIS- and IT-application, but also to supply the needs in the Pleven-Directorate for IT-Training and IT-support.

The duty of the MoEW is to provide the DRBD, Pleven, with sufficient and qualified IT staff. To be very effective, training should be accomplished at the own system in Pleven, with own GIS data (WFD data) and with WFD-related GIS questions in Pleven. General GIS training courses are only second quality. Additionally, it was pointed out that in each of the 4 regional offices (Vratza, Sofia, Russe, Veliko Tornovo) at least one user must work with geodata. They have to edit attributive data and send these data to the DRBD.

To reduce high investment and running costs in the 4 Water Basin Directorates in Varna, Blagoevgrad, Plovdiv and Pleven, the German IT- and GIS experts recommend a data aggregation of the 4 Directorates for an overall data base (GIS-layers and maps for the whole

Bulgaria). Therefore a central GIS working group for the generation of a Bulgarian wide should be established (proposal: EEA).

All outputs of the German GIS experts (mission reports, powerpoint presentations) were made available to all Water Basin Directorates, to the EEA and to the project leader of the other Phare-Projects dealing with the implementation of the WFD (2 Arcadis-Projects, 1 Sogreah-PM-Project, Iskar-Project).

Preparation of a Web/Internet based Communication and Information Platform (Project-Homepage) including a Web based Glossary "Water Framework Directive" (activity 2.3)

The main objective of activity 2.3 was to operate a web based Homepage (Web side) for the Twinning project.

The activity to operate a web based Homepage (Web side) could be finalized by the German Twinning partner before starting the Twinning project. At the first starting day of the Twinning project on 23 December 2004, the Internet page under

<http://www.hlug.de/twinning/water/index.htm>

has been activated for the German and Bulgarian Twinning partners as a communication platform.

The language of the website is English, documents could be offered in German and Bulgarian. Additionally, German web master paved the way to transfer the German web side to a Bulgarian Website and a Bulgarian web server to continue with the Web side after finalizing of the Twinning project.

Support in the preparation of the Technical Specification (Service Contract) for the Installation of Hardware and Software (e.g. Geographical Information System -GIS-) to Optimise the Data Management and the IT-Infrastructure (Hard- and Software)

and

Workshop on the Results of Component 2 (activities 2.4 and 2.5)

The draft of the Technical Specification on the "Installation of Hardware and Software to optimise the Data Management and the IT-infrastructure" in the DRBD, Pleven, was finished in April 2005. The Twinning partners present the first draft of the Technical Specification on

- 20, April 2005 to the GIS experts of the Executive Environmental Agency (EEA)
- 21, April 2005 to the GIS experts of the other 3 Water Basin Directorates of Varna, Plovdiv, Blagoevgrad and the representatives of the other WFD-related PHARE-projects (2 Arcadis projects, one Sagreah-PM-project)
- 22, April 2005 to the CFCU and the EU-Delegation.

Assistance in the Supervision of the Technical Specification and the Installation of a Web Based Information and Communication Platform (activity 2.6)

The German web master operated the web based Homepage (Web side) for the Twinning project. Additionally, the Twinning partner structured and co-ordinated the handing over of the web based Homepage to a Bulgarian server.

To identify possible synergies with the project "Enhancing Access to Information and Public Participation in Environmental Decision Making", which is funded by UNDP/GEF the RTA arranged a network activity to the Regional Environmental Center in Sofia.

The REC-Country Office in Bulgaria offered financial and technical support in designing and updating the web page/s of the Danube River Basin Directorate in Pleven to give access on the data and information of the WFD implementation procedure to the public and the stakeholders.

Component 3: Legal Implementation and Strengthening of the Bulgarian Administrative Bodies for the Implementation of the WFD

The mandatory result of component 3 could be achieved. In detail. In detail, the following results could be achieved

Legal Implementation (activity 3.1)

The key expert for the Legal Implementation in Germany established a detailed synopsis to compare the text of the WFD with the Bulgarian draft of the New Water Management Act (English translation) and to illustrate legislative gaps and differences between national (Bulgarian) and EC law

Analysis of the State of Preparation of the Bulgarian Administrative Bodies; Organizational Structure of the Twining Project, Proposal of a Day-to-Day Project Management to Produce the River Basin Management Plan (RBMP) (activity 3.2)

The institutional analysis focused on the fitness of the Bulgarian environmental administration to implement the WFD. Because the WFD has an integrated approach, the institutional analysis included not only the WFD but also other EU-Directives which are affected by a cross media approach (water, soil, air) or a horizontal approach. Especially the IPPC-Directive is to mention. The reference basis of the IPPC-Directive is the facility and not the river basin.

The institutional gap analysis focused on the following points:

- Apply of responsibilities to the institutions are often unclear. Oftentimes it remains unclear if the task is immission or emission related, if the task is technical or is dealing with law enforcement¹ and often it' s unclear who – if more than one authority is involved – has the leadership.
- Unsatisfying shaped is the interface between the Water Basin Directorates and the Regional Environmental Inspectorates and the boundaries/borders between the different authorities and institutions.
- Individual tasks were administrated on a too high hierarchical level. E.g. the MoEW is dealing with permission for water abstractions and with the approval of water protection areas which should be done by the Directorates and not by the MoEW.
- Many tasks and duties dealing with the implementation of the WFD are distributed to a lot of authorities. The fragmentation of duties leads to frictions and delays in the WFD implementation.

¹ Planning, data management, monitoring, labour analysis and expert' s report belong to the technical tasks, execution of law are expressed in administrative acts.

Component 4: Inventory of Surface Waters including Typology and Reference Conditions for Surface Water

Typology and Reference Conditions for Surface Waters

The mandatory result of component 4.1 and 4.2 could be achieved. The transfer from typology system A to typology system B was not part of the Twining contract. However, the following reasons were crucial to develop System B for whole Bulgaria:

- **System B types are more relevant for aquatic biocoenosis than types delineated within System A**

According to the EU WFD the status of surface waters has to be assessed type-specific mainly by biological quality parameters. The typology therefore is the first step to be performed towards status assessment, and it should reflect the basic characteristics of potential biocoenotic types or type-specific habitat regions (bioregions). The better the basic characterisation/typology, the better will be the results of future status assessments, the monitoring programme and the programme of measures.

- **International comparability/compatibility with other typologies within the Danube River Basin (DRB)**

Within the DRB all countries are applying System B – only the Czech Republic and Bulgaria are using System A for their national typologies. Also for the Danube River itself, a System B typology has been developed for the Roof Report and adopted by all DRB states. The international comparability related to typology, status assessment, programmes of measures, monitoring etc. would increase by the application of System B.

- **System B usually leads to a reduction of the number of types (= reduction of costs)**

System B enables a very distinct differentiation of types. Each type includes basic parameters which are of high relevance for the aquatic fauna. The high differentiation achieved by System B and the distinct classification of aquatic fauna within each type therefore often allows the aggregation of several types to one unit. Moreover, types which are not biological meaningful may be skipped. This leads to a reduction of types.

- **System B enables a precise definition of reference conditions**

Referring to the points mentioned above, a more precise definition of reference conditions is enabled by a highly differentiated typology as achieved by System B.

- **System B enables an efficient development of monitoring networks and Programme of Measures**

Highly differentiated typologies and related reference conditions (= basis of status assessment) enable better status assessments (phase 1 of river basin management planning). As a follow up, the development of efficient monitoring networks (phase 2) and Programme of Measures (phase 3) is possible. Typologies with low relevance for aquatic biocoenosis could provoke

wrong status assessment, inefficient monitoring networks and Programmes of Measures. As a consequence, costs could rise without need!

The workshop on “Typology of Surface Waters in Bulgaria” held on 19th and 20th of May 2005 in the EEA, Sofia, was the starting point to elaborate typology system B for whole Bulgaria. The workshop was attended by a broad spectrum of Bulgarian participants representing the MoEW, all 4 Bulgarian River and Water Basin Directorates, the Bulgarian Executive Environmental Agency, the Bulgarian Academy of Sciences as well as private consultants. Further, representatives of the EU Phare projects (head of project and STEs) like the Dutch Arcadis Consultants and the French-Irish Sagreah/PM Consortium – who are involved in WFD related Bulgarian projects for the Black Sea Basin Directorate, Varna, the Eastern Aegean Basin Directorate, Plovdiv, and the Western Aegean Basin Directorate, Blagoevgrad, - participated. The Austrian and German experts of the Twinning Project Team elaborated a concept design in co-operation with the Bulgarian Twinning partner to develop System B of the typology of surface waters by using the “bottom up” and top-down” tool box.

Two methodological approaches to develop a typology

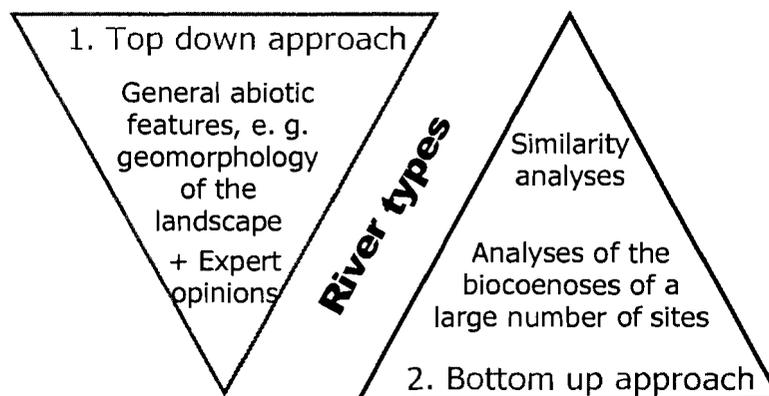


Fig. 3: Top-down and bottom-up approach to develop typology system B for Bulgaria.

The typology was designed in order to cover not only the Danube River Basin District, but all rivers and streams of Bulgaria, including transitory waters (Black Sea region).

The typology proposed comprises 23 types of streams and rivers from a minimum size class of 10 km² to the largest occurring rivers (e. g. Danube). The expert knowledge of the Bulgarian biologists involved and of the International experts can be regarded as a “first validation” of the biological relevance of the types. After the first monitoring the types can be checked again

on the base of datasets of many natural or near natural sites investigated and possibly altered or improved

The related documents to develop System B:

- Typology of rivers in Bulgaria, System B (Table of Types)
- Proposal of optional parameters and classes
- Explanations

and the Powerpoint presentations to initiate and to structure the necessary steps for System B are published on the Twining project Homepage:

www.hlug.de/twining/water/index.htm

[switch "Activities" and then "Component 4"].

Inventory and risk assessment on Surface Waters

The mandatory result of component 4 referring the inventory and risk assessment on surface waters (activities 4.3 to 4.8) could be achieved. Fig 4 shows the Bulgarian status of the inventory and the risk assessment by starting the Twining Project in January 2005. The inventory was well done. However, the risk assessment was not transparent and is was hardly understandable why a surface water body was classified as "at risk", "not at risk" or "possibly at risk".

Result of DANCEE-Project (2004)



Criteria for risk assessment („at risk criteria“) are missing

- surface water bodies
- groundwater bodies

Fig. 4. Starting point of inventory and risk assessment in January 2005.

The Twinning project developed new risk assessment on surface water bodies. To start with, a general table on all 7 significant pressures according to Annex II No. 1.4 "Identification of Pressures of Surface Waters" and Annex II Nr. 1.5 "Assessment of Impacts" of the WFD to assess the impact and pressure situation on the surface waters in Bulgaria (4 Water basin Directorates) was prepared (Fig. 5).

Significant pressures/Risk assessment (Phase I of RBMP)

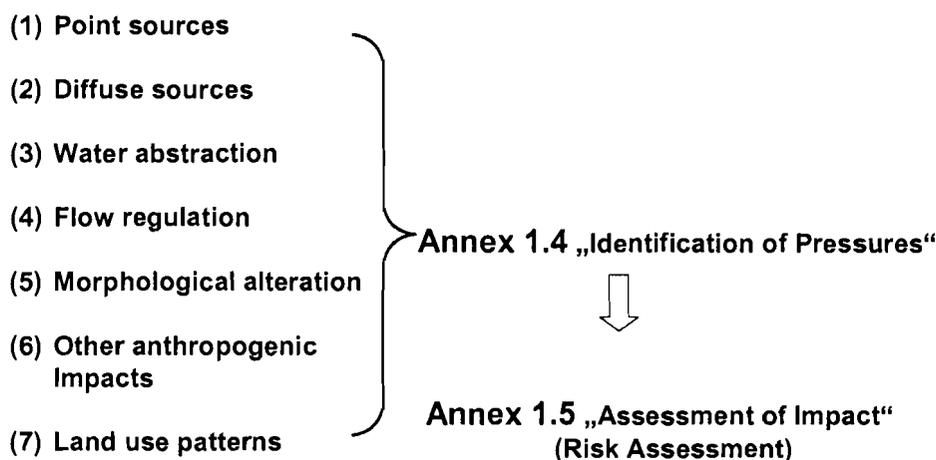


Fig. 5. New Risk Assessment for Bulgaria.

The new Bulgarian approach (methodology) on the identification of pressures and on the assessment of impacts for surface water bodies is part of the Operational Manual (**Annex**).

As next step the Danube River Basin Directorate reviewed the risk assessment (Pressure and impact analysis) for the water bodies in 2 pilot regions (Ossam and Vit tributaries). To avoid any delay in the implementation procedure the following sequencing of the step-by-step reviewing (updating) of the risk assessment was decided between the Twinning partners:

- Reviewing of the risk assessment criteria on the level of the river sections (smaller than the water bodies)
- Reviewing of the delineation of the water bodies according to the new typology system B
- Aggregation of the risk assessment of the river sections on the level of the water bodies.

The results of the successful testing and implementation of the new risk assessment in the pilot areas of the Vit and Ossam tributaries are documented on the Twinning Project Homepage.

After testing the new risk assessment on surface water bodies in the Ossam and Vit Pilot project region, the new risk assessment was implemented by the Danube River Basin Directorate in the whole Danube catchment area (all Danube tributaries).

Relevant (hazardous) Substances according to Annexes V, VIII, IX and X of the WFD (special part of the activities 4.4 to 4.7)

Many data on hazardous substances are not available or are missing. By the way, a risk assessment on hazardous substances is not possible (Gap analysis).

One of the activities with the highest priority for the Bulgaria's WFD-implementation procedure is the performing of the Annexes V, VIII, IX, X by the Bulgarian water administration as far as chemical substances are relevant for the WFD implementation. The German Twinning partner worked out 5 worksheets as a road map to implement the Annexes V, VIII, IX and X step by step in all 4 Water Basin Directorates by using the support of the EEA and REI

The 5 worksheets and the presentations due to relevant substances are published on the Twinning project Homepage:

www.hlug.de/twinning/water/index.htm

[switch "Activities" and then "Component 4"].

The individual worksheet to close the gap on risk assessment for relevant substances emphasis the following topics:

1st Worksheet: Relevant Substances

The worksheet „*Relevant Substances*“ covers all the relevant/hazardous substances of WFD-Annexes VIII, IX und X. For Germany, there are 301 Relevant Substances and parameters identified. Some substances with the dimension $\mu\text{g}/\text{kg}$ or mg/kg refer to solid substances like sediments.

The worksheet "*Relevant substances*" has to be modified and completed with the substances be relevant in Bulgaria and which are touched by Bulgarian norms, standards, rules, regulations and legislations. It is possible to delete substances from the worksheet (register) in cases this substances are not relevant for Bulgaria. However, the deletion of substances has to be proven and evaluated in a transparent and comprehensible way.

Result of the evaluation of the 1. worksheet:

Amendment, completion and checking of Altmayer's worksheet referring the substances relevant for Bulgaria.

2nd Worksheet "Quality Norm"

The 2nd worksheet has to list and to contain all quality norms and quality standards being part either of the WFD or international conventions or national programmes (Overview on existing quality standards in Bulgaria).

3rd Worksheet „Measurements points“

The 3rd worksheet has to register all immission data of the substances (qualitativ) be measured (analysed) in the river systems of the Danube River Sub Basins (tributaries of the Danube catchment area). All data have to be enlisted which have been measured (analysed) in monitoring programmes of the EEA, the REI. The Water Basin Directorates or which had been measured by a third institution (university, Academy of Sciences, private labs etc.). Additionally, all emission data have to be evaluated and listed.

Result:

Qualitative overview on substances of national and international monitoring programmes with an immission or/and emission value.

4th Worksheet “Measurements and comparison with Quality standards

The annual average of the data (values) or monitoring data have to be enlisted in the 4th worksheet for all tributaries (river sub basins). As far as possible actual monitoring data (values) have to be documented in the worksheets. The monitoring data have to be compared with the existing quality standards.

Result of the 4th worksheet:

Comparison of measured data (immission data) with the quality standards. Identifying all the parameters without any immission data and identification of parameters to be measured by a short term and preliminary Bulgarian monitoring programme to close the gaps of the implementation of WFD-Annexes VIII, IX and X as soon as possible.

5th Worksheet: GAP-analysis and monitoring-programme

The 5th step is a kind of follow up of the 4th worksheet to implement the results of the gap analysis. The gap analysis should have the following objectives:

1. Monitoring sites (measuring points):

2. Substances (parameters)

The objective of the GAP-analysis is to identify all the substances for which monitoring data are missing, yet.

3. Quality standards

A conclusion has to be made for which substances and in which monitoring sites (locations) quality standards are exceeded.

On the basis of the results of the GAP analysis a proposal for an international PHARE project on a preliminary monitoring programme (Title of MoEW-Project Fiche for PHARE 2006: Strengthening of surface water monitoring network) was prepared by the RTA and fine tuned by the Bulgarian Twining partner. Later, the risk assessment on hazardous substances has to be restarted on the data basis of the preliminary monitoring programme.

Component 5: Inventory of Groundwater

The mandatory result of component 5 could be achieved.

Along the lines of Component 4, the inventory on groundwater quality and quantity was well done. However, the risk assessment was not transparent.

The Twinning project developed the following new criteria on risk assessment for groundwater bodies:

- pressures from point sources
- pressures from diffuse sources
- groundwater abstraction (quantitative status)
- groundwater dependent ecosystems

The following results were achieved::

1. A first draft of the Bulgarian Manual on risk assessment (criteria for risk assessment) for groundwater bodies latest was elaborated by June 2005.
2. A workshop with all Water Basin Directorates, the EEA, the MoEW, the Academy of Sciences and the other WFD related international Phare projects was organised to present and discuss the draft of the Bulgarian Manual on risk assessment for groundwater bodies.
3. On the results and written comments of the involved institutions, the Bulgarian Operational Manual on risk assessment for groundwater bodies was reviewed and published (**Annex**).

After publication, the Bulgarian Operational Manual on risk assessment for groundwater bodies was used by the 4 Water Basin Directorates to update the risk assessment step by step by the end of 2005.

Component 6: Protected Areas and Economic Analyses of Water Use

The mandatory result of component 6 could be achieved.

Protected Areas

A register on protected areas inside the Danube River Sub-Basin according to WFD Annex IV was elaborated and documented.

Economic Analysis of Cost Recovery of Water Services

In co-operation with the MoEW and the MRDPW a questionnaire (see: templates in the Operational Manual) on the structure, services, performances, cost and revenue of the water service companies (water supply companies and waste water treatment companies) was prepared and sent to all water service companies in the Danube River Sub-Basin. The templates filled out by the water service companies (WiK' s) can be used as a sound basis for the all steps of the economic analysis and the identification of adequate economic instruments for a sustainable water resource management in the Danube River Sub-Basin.

The MoEW ordered the elaboration of the WFD Economic Analysis for the Danube River Sub Basin to the private Sofia Consulting Group. The Sofia Consulting Group presented its paper on the “Economic analysis of water uses in DRBD” in August 2005. However, the consultant' s Report had to be improved to meet the objectives of the WFD. On the basis of the cost data of the WiK companies, the Report on the first economic analysis could be reviewed. The reviewed Report consists of the following 4 chapters (see: Draft of the River Basin Management Plan – RBMP-):

1	General characteristics and description of River Basin Описание на Речния басейн
2	Economic significance of water use Икономическа значимост на водоползването
3	Baseline-scenario 2015 Изходен сценарий 2015г.
4	Cost recovery of water services Възстановяване разходите за услуги във В. сектор



WRRL-Danube-Bulgaria
РДВ-Дунав-България

Economic Analysis
Икономически анализ

Inventory
Опис на дейностите

2

Moldova, 10-10-06

Fig. 7. The 4 chapters of the 1st Economic Analysis of Water Use

A summary of the reviewed Report on the First Economic Analysis of water Use is part of the RBMP.

Two Business Games on the water infrastructure and water services

The responsibilities in Bulgaria in the water supply and waste water treatment sector are highly fragmented to different institutions like municipalities, to different Ministries (MoEW, MRDPW), WiK's, to different financing, funding and decision institutions of the MoEW, of the MRDPW or of the Council of Ministry.

The disadvantage of the fragmented situation in the water service sector is that a management of the water infrastructure and services (waste water, water supply) according to the state-of-the-art technologies is not possible.

One consequence of the fragmented and dysfunctional organisation of the water infrastructure is that facilities of the drinking water supply infrastructure and waste water infrastructure are not maintained according to the rules. After construction, the new facilities funded with millions Euro by international (World Bank Investment activities, EU-Programmes like ISPA, EIB and EBRD programmes) and national donors will decline and finally be out of service in only some years.

Another disadvantage of the fragmented organisation of the water infrastructure in Bulgaria is that the cash flow between the different responsibilities and the owner of the plants is not very clear and not transparent.

Faced with the gaps in water services and regarding the importance of the economic elements of the WFD, the Twinning partners organised 2 Business Game with decision making experts of the water infrastructure sector in Bulgaria coming from the

- MoEW
- MRDPW
- DRBD
- Municipality Nikopol
- WiK GmbH' s in the Danube River Sub Basin

and German experts from innovative and exemplary water service companies of Darmstadt (Waste Water Disposal Company), of Munich (Water Supply Company) and of the Technical and Scientific Association for Gas and Water (DVGW) focussing on the following topics:

- Planning and decision procedure on water infrastructure
 - Costs and financing of water infrastructure
 - Operating and maintaining the facilities according to the rules
 - Costs of operation and maintenance of water infrastructure
 - Training and further education of the administrations' staff (MoEW, MRDPW, Directorates)
 - Training and further education of the operational staff (municipalities, WiK's)
- The results of the 2 Business

Games leads to a proposal for a Follow-up Twinning project (**Annex 6**).

Economic Analysis of Cost-Effectiveness of Measures and of Environmental and Resource Costs

Fig. 8 shows three approaches to be used in Bulgaria to identify the most cost effective measures and the external costs.

Procedures of Assessment

Working steps	Methods			Target:
	A	B	C	
Nr. Bezeichnung	Comparison of Costs (KVR)	Multi-dimensional Procedures of Assessment (KNA / KWA)	Expert-judgement; (Delphi) Scenarios (EV)	As simple as possible, as complex (difficult) as needed
1 Criteria of Objectives	Minimum of Costs	National Economic Efficiency	Spezific Objectives	
2 Ranking	Capital and Operational Costs	National Economic Costs	Verbal Assessment	

Acc. to KVR: Measures without "external" Effects

Acc. to Zu KAN/KWA: Measures with significant "external" Effects
 (Environmental and Costs of Resources)

Fig. 8. Three Procedures of Economic Assessment.

In co-ordination with the ICPDR road map to develop the Programmes of Measures (PoM) for the International Roof Report A, the decision which of the 3 approaches should be used, depends on the individual Key Water Management Issues 1 to 5.

Second Study Tour to Germany

The 2nd Study Tour to Germany focused on the following topics:

- Presentation and discussion on the interim results of the German Pilot projects for the River Basin Management Planning and especially the Programmes of Measures
- Presentation and discussion of the Model QSim to calculate the quality of surface waters as a appropriate model for the Bulgarian approach
- Organisation of the data-management (data bases, data collection, data flow)
- On-the-job-demonstration of all steps of waste water collection and treatment of the municipality of Darmstadt, especially focussing the requirements on maintenance of the WWTP facilities according to the state-of-art-technology
- Initializing the know-how transfer on sustainable management of a waste water collection and treatment between Darmstadt, Germany, and Pleven, Bulgaria.
- Field trip on the side of the river Main to demonstrate the planning of Hydropower station and fish by-passes

- Field trip to retention areas for flood protection to demonstrate the concepts of the Hessian Ministry of Environment, Rural Areas and Consumer Protection on flood protection for tributaries to the Rhine river
- Know how transfer on innovative technology of decentral waste water treatment plants in the municipality of Brandau, Odenwald (pilot project)

All the presentations were published as paper or as CD and handed out to the Bulgarian participants.

Development and realisation of a digital correspondence course (e-Learning) in the Bulgarian language on Management of Water Resources - Transfer of know-how to implement the Water Framework Directive.

The objectives of this Distance Learning Course (e-Learning) are:

- to transfer the know-how of the Twinning results and to coach and train the Bulgarian water administration (4 River Basin Directorates and their Regional Branches, EEA, Regional Environmental Inspectorates)
- to provide training on how to implement the WFD for the WICU-member institutions and for the stakeholders of the Basin Councils (municipalities, water supply and sewage companies, farmer and irrigation co-operations, NGO's etc.)

More than 100 Bulgarian experts from different institutions (water administration, Ministries, municipalities, WIK's, NGO's etc.) dealing with or interested in the implementation of the WFD had applied and registered for the Course.

The Digital Correspondance Course started officially on 1, June by sending the first modul 1 (Study Unit 1) "Water Management Structure in Europe" to all participants via eMail or via Internet, the last Study Unit Nr. 11 was delivered to the participants on 21, September 2006.

The presence phase of the e-Learning Course was held between 9, and 12, October in Sofia with a field trip to river system Ossam and Vit organized by the NGO's.

The participants who passed the test got a Certificate by the Bauhaus University.

Annex 5 provides an overview on organisation and results of the e-Learning Course in Bulgaria.

Component 7: Definition of Environmental Quality and Quantity Objectives for Surface Waters, Groundwater and Protected Areas and the Preparation of Monitoring Programmes

The mandatory result of component 7 could be achieved.

The German experts provided the Bulgarian Twinning partner with the methodological approaches and the German threshold values to determine the environmental quality and quantity objectives for surface waters, groundwater and protected areas (see: Annex 2 and 3).

Regarding the outstanding significance to define environmental objectives for surface waters, the following approaches including the definition of threshold values to meet the very good status (reference conditions) and the good status were pinpointed for:

- chemical quality elements
- biological quality elements (macrophytes, phytobenthos, macro-zoobenthos, fishes)
- hydro-morphological quality elements (water balance, continuity, morphology)
- chemical-physical quality elements
- specific synthetic substances (e.g. pesticides)
- specific non synthetic substances (e.g. heavy metals like Pb, Cu, Cr etc.).

Preparation of Elements of a Draft Strategy for Surface Water Monitoring and evaluation of Elements of a Draft Strategy for Groundwater Monitoring and for Supplementary Monitoring Requirements for Protected Areas

The methodological approaches to elaborate the surveillance and operational monitoring programmes on

- surface waters
- groundwaters

were fine-tuned and co-ordinated (see: Fig. 9).

Additionally, the approach to elaborate the investigative monitoring programmes on surface waters was pinpointed.

Types of WFD-Monitoring

- **Surveillance Monitoring -> Main Element of Status Control**
 - Verification of Risk Assessment
 - Check for Trends and „Verschlechterungsverbot“
 - result-dependent Planning of future Monitoring
- **Operative Monitoring -> Element of Programmes of Measures**
 - only for water bodies at risk with known reason(s)
 - strict temporarily and restricted for problematic aspects
 - Assessments only on demand (controll of success of measures)
- **Investigative Monitoring**
 - for quality problems of unknown reason and/or extent
 - for accidental spills
 - for screening of new water problems

Fig. 9. Components of the Monitoring Programmes.

In detail, targets were defined to

- identify the number of monitoring sites in total
- pinpoint the monitoring sites (surveillance, operational)
- select the parameter (or group of parameters)
- determine the analytical method.

Component 8: Development of Elements of a Programme of Measures

The mandatory result of component 8 could be achieved. Having finished the inventory including the risk assessment (Project Phase 1), the organisation of the Twinning project had to be restructured to elaborate the programme of measures (project phase 3) as most important element of the Twinning project for the 2 pilot tributaries of the Danube River Sub Basin

- Ossam river with main focus on surface water management and
- Vit river with main focus on groundwater management (Fig. 10).

In close co-ordination with the ICPDR, the programmes of measures (Schemes of measures) were elaborated for the 5 key water management issues (Tool Boxes or Catalogue of Measures) shown in Fig. 11.

Project-Phase 1	Inventory and Risk Assessment	completed
Project-Phase 2	Design of the Monitoring Programmes (Groundwater; Surface Water)	completed
Project-Phase 3	Programme of Measures (PoM) for the pilot regions (tributaries) Osam and Vit	Start: October 2005
Section 3.1	a) Elaboration Groundwater b) Elaboration Surface Water	
Abschnitt 3.2	↓ Integrative elaboration Groundwater-Surface Waters	completed in May 2006
Project-Phase 4	River Basin Management Plans	Start: May 2006
Section 4.1	Structuring River Basin management Plans according to WFD	
Section 4.2	Elaboration of pilot River Basin Management Plans for Osam and Vit	End: October 2006

Fig. 10. Sequences of the Project Phases.

Tool Boxes (Catalogue of Measures)

Tool Box 1: Waste Water Treatment (municipal, industrial)

Central waste water treatment systems versus decentral systems ?
Combined sewer system versus separated sewer system ?
Management of rainwater
Maintenance of sewer systems and waste water treatment plants

Tool Box 2: Reduction of Diffuse Sources (Agriculture: N, PSM, Erosion: P)

**Tool Box 3: Renaturation/Rehabilitation of river systems (Morphological alteration)
linked with flood protection measures**

Tool Box 4: Reduction of impacts coming from hazardous substances (Point sources)

Sub Tool Box: Precautionary principle: Plant related water protection
Sub Tool Box: End-of-Pipe principle: Remediation/Rehabilitation of contaminat
(groundwater)

Tool Box 5: Sustainable Water use (Reduction of water losses)

Fig 11. Tool Boxes as starting points for the Programmes of Measures (PoM).

The individual steps preparing the 5 Catalogues of Measures were structured as following:

Step 0: Inventory and description of Pressures and Polluters

Step 1: Selection of possible measures (Tool Boxes)

Step 2: Selection of effective Measures

Step 3a: Combination of measures; estimation of effectiveness

Step 3b: Description of instruments, estimation of effectiveness

Step 4: Description of interactions, ranking of measures

Step 5: Identification of effects and costs (qualitative, quantitative)

Step 6: Identification of cost effective measures (Ranking list)

Step 7: Co-ordination with PoM in the other Danube tributaries

Regarding the actual situation on storm floods and on the water resource management in Bulgaria, importance was attached to the elaboration of the PoM on

Key Water Management Issue 1:

Catalogue of measures (tool box) for urban (municipal) waste water treatment facilities

and

Key Water Management Issue 3:

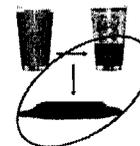
Catalogue of measures (tool box) to reduce the impacts coming from hydromorphological alteration

Settlements / Dischargers without WWT acceptable ?



Thesis:

The discharge of untreated wastewater from settlement less than 2.000 PT probably endangers the Bulgarian water objectives and the *good status*, in particular because of substantial local problems.

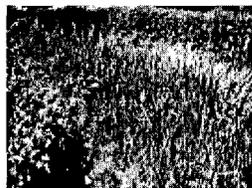


Discharge of untreated wastewater is not possible under the view of aesthetic and hygiene.

Fact is, it is necessary to construct WWTP. You should handle the order with high priority. The main thing is only a question of the ranking of construction of WWTP.

Acceptable solutions are available even for smaller plants.

Vegetation plant:



Wastewater pond:



Fig. 12. Gaps identified for high organic and nutrient impacts coming from settlements with less than 2.000 inhabitants (acc. emission and immission approach)

It is feasible to elaborate the Schemes of Measures (Tool Box) to improve the morphological (ecological) structure of the river systems in the Danube catchment area in a first step.

Measures which are focussing on the rehabilitation and renaturation of the river systems should be linked with measures of the

- Technical flood protection (security services for settlements like dams) and
- Precautionary/preventive flood protection (retention areas).

Link to Flood Protection activities (measures):

Measures to improve the technical flood protection are

- Safety engineering for run-off
- Protection of objects (settlements etc.) by technical measures of flood protection
- Reducing the high tide of run off during floods by central retention basins

Precautionary measures to improve the preventive flood protection (precautionary flood protection)

- Reducing the run-off by improving the natural retention capacity
- Reducing the run-off by local/decentral retention measures.

Component 9: Artificial and Heavily Modified Water Bodies of Surface Water and Water Bodies with Less Stringent Environmental Objectives, Extensions of Deadlines, Permission for a Deterioration of the Environmental Status

The mandatory result of component 9 could be achieved.

The approach to identify heavily modified and artificial waters in the Danube River Sub Basin was structured according to the CIS Working Group 2.2 HEAVMOD.

Economic elements will be used for the evaluation and the final designation of surface water bodies as heavily modified latest by the end of 2009 (see: Annex 6).

The empirical and pragmatic methodology to identify water bodies with less stringent environmental objectives or with extensions of deadlines was co-ordinated for the pilot areas, the Vit and Ossam rivers.

The evaluation of the water bodies with less stringent environmental objectives or with extensions of deadline is part of the economic analysis ("disproportionate costs") of the Follow up Twinning Project (Annex 6)..

Component 10: Public Information, Consultation, and Participation

The mandatory result of component 10 could be achieved.

Instruments like the round table meetings, workshops and seminars with the representatives of the water administration, other Ministries, Stakeholders like municipalities, WiK' s companies, farmer association, NGO' s) were used as public participation instruments to integrate the opinions and comments of the different interest groups in the River Basin Management Plan.

Component 11, Conclusion of the Project

The mandatory result of component 11 could be achieved.

The Wrap-up Meeting with representatives of the water administration, other PHARE projects, other Ministries and the Academy of Sciences on 27, October 2006 focused on all important results of Component 2 to Component 10.

(b) In case one or more mandatory results were not entirely achieved, explain why.

The tendering procedure (activity 2.4) was rejected by the CFCU. The reason was that the competition rules of the EU are higher valued than technical principles to address for ESRI Software.

However, in the technical sense it is better and at least more cost effective to install ESRI GIS-Software in the DRBD because of the software compatibility issues with the other 3 Directorates, the EEA and the other Bulgarian water institutions like Academy of Sciences working with ESRI software. Other GIS software than ESRI would increase significant the problem of Software incompatibility between the mentioned institutions.

The MoEW decided that the GIS Hardware and Software will be realized by public procurement of the MoEW. A contract is under preparation for delivery of equipment standardizes for the 4 Basin Directorates.

(c) Overview mandatory results achieved (See Annex 1)

2E - IMPACT

(a) Specify to what extent the achievement of the results led to the achievement of the purpose of the project and the overall objective (measured against the benchmark(s) specified in the Work Plan).

The purpose of the project and the overall objective could be achieved. The capacity of the

- Bulgarian water administration (MoEW, Directorates, EEA, REI),
- the other ministries dealing with WFD-issues like Ministry for Regional Development and Public Works, Ministry of Health, Ministry of Agriculture and Forestry, Ministry of Finance and Ministry of Energy and Energy Resources
- members of the Water Basin Councils (municipalities, WiK companies, NGO' s)

has been strengthened. The different interest groups were involved in the

- review of the risk assessment on surface waters and groundwater (like WWF-Bulgaria, Academy of Sciences, Ministry of Health, Ministry of Agriculture and Forestry)
- economic analysis of water use (especially the MRDPW)
- elaboration of the Programmes of Measures

and finally in the Digital Correspondance Course (e-Learning) between June and October 2006.

It is recommended to organize the co-ordination and harmonization procedure on the WFD issues in 3 circle units:

1st circle: Co-ordination of all the WFD issues inside the water administration (MoEW, 4 Directorates, EEA, REI),

2nd circle: The results of the 1st co-ordination circle unit has to be presented in the 2nd circle of co-ordination with all WICU-members (see: WICU meeting on).

The 3rd circle should be used to co-ordinate the WFD activities (especially the Programme of Measures) with the different stakeholders and interest groups (municipalities, Wik' s, farmer association, industry, NGO' s etc.)

Measured against the benchmarks of Article 3 of the Work Plan it can be stated:

- 1) The established implementation unit WICU was reviewed and improved by the MoEW to integrate more effectively the WICU-members in the WFD co-ordination procedure.
- 2) The Operational Manual ("Cook Book") is developed.
- 3) The Structure of the River Basin Management Plan is developed.
- 4) The acceptance of the Bulgarian approach as result of the Twinning project to implement the WFD in a transparent and practical way is increasing on the international level (ICPDR, EU-Commission, DG Environment). The Bulgarian approach finds high approval especially by the South East European Countries (Serbia, Romania, Croatia, Ukraina, Moldova, Bosnia-Herzegovina).
- 5) The transfer from typology system A to System B is finished Bulgarian wide for rivers, lakes and coastal waters.
- 6) The risk assessment on surface water bodies and on groundwater bodies is transparent and comprehensible.
- 7) The register on protected areas was elaborated and the economic analysis of water use reviewed.
- 8) The Environmental Objectives for surface waters, groundwater and protected areas were defined and the monitoring programmes prepared.
- 9) The elements of the Programme of Measures (so called Tool Boxes) were developed to reduce the organic impacts from point sources (Tool Box 1), to reduce "diffuse" nutrient

impacts (Tool Box 2), to improve the morphological structure of the rivers including measures for preventive flood protection (Tool Box 3), to reduce the impact coming from hazardous substances (Tool Box 4) and to manage water resources sustainable (Tool Box 5 –reduction of water losses).

10) The Artificial and Heavily Modified Water Bodies are identified and have to be evaluated in the context of the second economic analysis on exemptions and supplementary measures (disproportionate costs as criteria for less stringent environmental objectives or with extensions of deadlines)

11) The Public information, consultation and participation was realised by using different instruments (workshops, seminars, Twinning project Homepage, e-Learning course, round table meetings with the stakeholders etc.)

12) Conclusion of the project was organised by the Wrap-up meeting at 27, October 2006.

(b) List any unexpected results of the project.

The following 3 results of the project were unexpected before starting the Twinning project:

1. During the updating of the risk assessment in the 1st half of 2005, it became apparent that the risk assessment on relevant (hazardous) substances according to Annexes V, VIII, IX and X of the WFD did not comply with the requirements of the WFD.

The reasons were that data on hazardous substances were not available or were missing or the data were analysed wrong. By the way, a risk assessment on hazardous substances is crucial to meet the objectives of the WFD.

The German Twinning partner worked out 5 worksheets as a road map to implement the Annexes V, VIII, IX and X step by step in all 4 Water Basin Districts and recommended strongly to initiate a Follow-up PHARE- or Twinning project to close this gap as soon as possible. In the meantime, the MoEW has submitted the Project Fiche on “Strengthening of the Surface Water Monitoring Network” to the EU-Delegation which is in the pipeline to decision on the PHARE 2006 Projects in Bulgaria.

It has to be highlighted that on the results of the PHARE project “Strengthening of the Surface Water Monitoring Network” the risk assessment on hazardous substances has to be started to meet the WFD objectives and to identify the water bodies “at risk” because of impacts coming from relevant (hazardous) substances.

2. The actual situation in planning, decision, financing, operating, maintenance and controlling of water service infrastructure (water supply, waste water collection and treatment) has deficits. Organisation, management and service of the water supply and sewage disposal infrastructure are fragmented and dysfunctional. The consequences are that the waste water of the municipalities are not treated according to the rules and are contaminating surface water bodies highly. Drinking water supply for the municipalities and the settlements has to be interrupted for weeks each year and the water losses are increasing (more than 50 %).

It is recommended strongly that the MoEW initiates a Follow-up Twinning project on the 2nd economic analysis and on supplementary measures linked with public participation activities.

The following topics should be included in to the Follow-up Twinning project:

- Planning and decision procedure on water service infrastructure
Costs and financing of water service infrastructure
Operating and maintenance of the facilities according to the rules (state-of-the-art)
Costs of operation and maintenance of water service infrastructure
Training and further education of the administrations' staff
Training and further education of the operational staff.

3. The organic pollution of the rivers in the Danube catchment area are coming with a high percentage (30 – 40 %) from settlements with less than 2.000 inhabitants (immission and emission approach). It is absolutely necessary to modify the ranking of financing and funding of waste water treatment plants according to the results of the Twinning project.

Annex 6 provides the MoEW with a layout on the Follow-up Twinning project to be initiated as soon as possible to meet the objectives of the WFD in time.

2 F - FOLLOW-UP AND SUSTAINABILITY

(a) In what way will the results of the project / recommendations be utilised by the BC administration?

The advantage of the Twinning project was that first the Twinning partners identified the Bulgarian approach or methodology for the different components of the WFD like risk assessment on surface waters and groundwater, baseline scenario, economic analysis of water use, programmes of measures etc..

Secondly, the identified Bulgarian approach was implemented by the Danube River Basin Directorate in the Danube River Sub-Basin and subsequently by the other 3 Water Basin Directorates in their basin districts.

By the way, all the results of the Twinning Project can be used to elaborate the Programmes of Measures and the River Basin Management Plan in time by 2009 to meet the EU requirements on reporting.

The water administration will use the new tested and implemented approaches, methods and structures to fulfil the requirements of the WFD.

The water administration (MoEW, 4 Water Basin Directorates, EEA, REI's) and the other Ministries (MRDPW, Ministry of Health etc.) dealing with WFD issues are aware of the need to continue the close cooperation between each other initiated by the Twinning project.

☞ A follow-up project on monitoring network issues to close the gaps of implementing the Annexes V, VIII, IX and X is in the pipeline for PHARE 2006.

A Follow-up-Twinning project (see: Annex 6) on economics and supplementary measures is absolutely necessary and should be submitted by the Ministry to continue the work started under the project. The follow-up Twinning project would support the MoEW and the WICU-members to co-ordinate and to implement the WFD in time.

(b) How is the administration going to continue with the work started under the project?

The WFD has an integrated approach. This means that not only all water disciplines but also the interactions of water with other sectors like land use and environment management has to be involved.

This pleads for appointing step by step experts with interdisciplinary and planning skills to be responsible for the WFD implementation in the 4 Directorates.

Training of the experts of the 4 Directorates and the EEA and experts of the REI's being responsible for WFD-issues on the individual elements of WFD is absolutely necessary. This counts especially for topics which are new for a more traditional oriented water administration like water ecology and water economy.

The WFD has a high potential for conflicts between the different water users which will be come up in the elaboration of the Programme of Measures. It is necessary that especially the different levels of the management of the Directorates and MoEW should be trained in moderation and in mediation technics.

In the meeting of the Inter-institutional Unit for Co-ordination of the WFD Activities (WICU-meeting) on 26, May 2006 it was decided to involve a representative of the local authorities (representative of the National Association of the Bulgarian Municipalities). The WICU-meetings

are used to co-ordinate all running projects in the water sector, especially the transboundary river projects like the Mesta Nestos river.

The Ministry of Environment and Water (MoEW) should apply for a follow-up Twinning Project concerning economics and supplementary measures.

(c) In case of failure to achieve the mandatory results in their entirety, what future actions should the final BC administration take in order to achieve them?

All mandatory results could be achieved.

2G - CONCLUSIONS

Overall Assessment

Make a one-paragraph evaluation of the project, its progress and impact.

The Twinning project implementation has been successful. All activities mentioned in the Work Plan have been carried out successfully and mainly in the original foreseen time period.

Additionally to the Work Plan, the transfer from typology System A to System B was developed for all rivers and lakes Bulgarian wide. The structure of the River Basin Management Plan was elaborated as basis for the whole Danube catchment area.

The mandatory results have been achieved satisfactorily. The cooperation between the German and Bulgarian Twinning Partners was perfect.

The Twinning results are highly accepted on international level (ICPDR, DG Environment of EU Commission). The Ministry of Environment and Water is motivated to continue the work started under the project.

2H – RECOMMENDATIONS: lessons learned

Recommendations for future actions necessary to be undertaken in the area the twinning operates in.

Ad: Preparation of the Twinning contract:

The draft contract for the twinning project was presented to the Delegation of the European Commission to Bulgaria on 21 May 2004. The project was endorsed by the Delegation of the European Commission to Bulgaria on 23 December 2004. The approval and endorsement process by the European Commission for the project took about seven months. This delay in the implementation of the project caused significant difficulties for the Bulgarian and German

authorities which participated in the project. We recommend to streamline the approval process in the European Commission and look for opportunities to shorten it.

Ad: Twinning project:

Three or 4 settlements with less than 2.000 inhabitants should be identified in the Osum river catchment area as "Model municipalities/settlements" to start a model project on decentral waste water collection and treatment with focus on innovative and low cost technology. The German foundation "Deutsche Bundesstiftung Umwelt" will fund to train the experts of the model municipalities and experts of the MoEW, MRDP, WiK, financing institutions and DRBD to implement a sound planning, financing, construction, operating and controlling steps of the WWTP for the 3 or 4 municipalities.

A Follow-up Twinning Project on economics and supplementary measures linked with public participation activities is necessary to

- continue the road paved by the Twinning project
- continue the networking and co-operation between all institutions
- focus on the main important elements to meet the objectives of the WFD
- elaborate the River Basin Management Plan in time.

21 – ANNEXES

Annex 1: Overview mandatory results achieved

Overview mandatory results achieved

Component	ACTIVITY	expected MANDATORY RESULTS (Components)	Deadline	Delay +/- [months]	expected BENCHMARKS (Activities)	ASSESSMENT to date	Self-assessment Rate HS (Highly satisfactory), (Satisfactory), U (Unsatisfactory)
	Project Purpose	Drafting of the Operational Manual –OM- (cook book) to elaborate a river basin management plan for the Bulgarian part of the Danube river basin completed,, Additionally drafting of structure of River basin management Plan completed	month 22	in time	Elaboration of OM was started in 2005 and finished in 10.2006 ("living paper").	Mandatory results achieved.	HS
1	Kick-off meeting	<p>Elaboration of documents on</p> <ul style="list-style-type: none"> • Compiling, updating of the Project Schedule • Compiling, updating of the Task breakdown of all activities • Fine-tuning of all Components • Structuring of the Danube River Basin Management Plan. 	month 1	in time	4 documents to structure Twinning project available.	Meeting was important as starting point,, EU-Commission, ICPDR, German water director and BG Deputy Minister participated	HS
2	Networking between the Activities of the Twinning Project and the Activities of the International Commission for the Protection of the Danube River (ICPDR); Gap Analysis on Data Management	Bottom up and top down comparability between Danube RBM Plan and international Roof Report A of ICPDR, TOR for GIS Hardware and software prepared	month 4	In time	Gaps identified, Terms of Reference are defined, approved and ready for tendering.	Terms of reference successful, tendering for national financing started.	HS (ICPDR networking) S (GIS hard- and software)
3	Legal Implementation and Strengthening of the Bulgarian Administrative Bodies for the Implementation of the WFD		month 3	In time	Synopsis on comparison between Water Act Draft and WFD elaborated, approved by the MoEW Institutional Report to improve	Input from all 4 Directorates	HS

					efficiency of water administration approved		
4	Inventory of Surface Waters including Typology and Reference Conditions for Surface Waters	Transfer from System A to System B Identification of new risk assessment criteria Reviewing and restarting of risk assessment	month 9	in time	The water administration trained in developing System B, Implementing risk assessment on surface waters finished. Two-day workshop for more than 30 experts from all institutions of water administration has been accomplished, New risk assessment finished	Participation of experts from all 4 Directorates, EEA and Academy of Sciences, PHARE projects in workshops on Transfer from System A to B and on identifying and implementation of new risk assessment	HS
5	Inventory of Groundwater and risk assessment.	Identification of new risk assessment criteria Reviewing and restarting of risk assessment	month 11	In time	The water administration trained in risk assessment on groundwater (qualitative, quantitative) Implementing risk assessment on groundwater finished. Two-day workshop for more than 50 experts from all institutions of water administration has been accomplished, New risk assessment finished	successful workshop, very good results, high interest from the other 3 Directorates, EEA , Academy of Sciences and other PHARE + international Projects	HS
6	Protected Areas and Economic Analyses of Water Use	Register on Protected Areas and Economic Analyses of Water Use finished	Month 19	in time	Criteria for protected areas in accordance with the WFD identified , practical and empirical method for economic analysis of water use approved by MEW; additionally 2 Business Games organized to identify the deficits in water service infrastructure policies, additionally a ToR on economics and supplementary measures elaborated e-Learning course realized with more than 100 participants	Report on first economic analysis reviewed, 2 Business Games organized on water infrastructure and supplementary measures, Certificates from Bauhaus University for the participants of e-Learning course.	HS
7	Definition of Environmental Quality and Quantity Objectives for Surface Waters, Groundwater and Protected Areas and in the Preparation of Monitoring Programmes	WFD required criteria for environmental quality and future monitoring programmes approved by MEW	Month 17	in time	Register on protected areas finalized, environmental quality and quantity objectives for surface waters and groundwater determined, monitoring programmes drafted	High successful workshop on relevant substances and on structuring the monitoring programmes, high interest from the	HS

						other 3 Directorates, EEA , Academy of Sciences and other PHARE + international Projects, PHARE 2006 Project on monitoring network in the pipeline	
8	Development of Elements of a Programme of Measures	Elements of a programme of measures approved by MEW	month 21	in time	Drafting of 5 Tool boxes (Schemes of Measures) as core of the Programmes of Measures finished, Tool Box 3 (Morphological alteration) and Tool Box 1 (waste water treatment) of high priority	Programme of Measures coordinated with ICPDR, High successful workshops on the elaboration of programmes of measures, all Directorates, EEA , Academy of Sciences , PHARE Projects, and WICU-members and NGO's involved	HS
9	Artificial and Heavily Modified Water Bodies of Surface Water and Water Bodies with Less Stringent Environmental Objectives, with Extensions of Deadlines, Permission for a Deterioration of the Environmental Status	EU guideline of the working group "Heavily modified water bodies" implemented	month 21	in time	Elements on economic approach to identify water bodies with less stringent environmental objectives or with extensions approved and for defining HMWB approved, Layout for ToR on economics and supplementary measures elaborated	High successful workshops on the economics elements to estimate disproportionate costs as parameter Links between economic methods and Tool Boxes approved, all Directorates, EEA , Academy of Sciences , PHARE Projects, and WICU-members and NGO's involved	HS
10	Public Information, Consultation, and Participation	mechanism and strategy for public participation approved by MEW	Month 11	In time	Different instruments on public participation like round table meetings with all institutions of water administration, WICU meetings, meetings of Water Basin Councils, e-Learning Course implemented	High successful realisation of e-Learning Course (digital correspondence course) with more than 100 participants of all institutions and interest groups	HS

11	Conclusion of the Project	Conclusions and recommendations of the project approved by MEW (month 22)	Month 22	In time	Final report with 6 Annexes completed	Wrap up meeting with representatives of MoEW, 4 Directorates, EEA, WICU-members, NGO's, Academy of Sciences realised	HS
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All further Annexes are enclosed to the Final Report as one CD-Rom Version including following files:

- 1) **Annex 2:** Operational Manual to implement the EU Water Framework Directive (WFD) in Bulgaria (English Version)..
- 2) **Annex 3:** Operational Manual to Implement the EU Water Framework Directive (WFD) in Bulgaria (Bulgarian Version).
- 3) **Annex 4:** Structure of a River Basin Management Plan for the Danube River Basin, Sub River Basins Osam and Vit.
Annex 4a: Road Map of the German Twinning partner
Annex 4b: Implementation of the Bulgarian Twinning partner
- 4) **Annex 5:** Digital Correspondance Course on Management of Water Resources in Bulgarian Language.
- 5) **Annex 6:** Layout for a Follow-Up Twinning Project on Economic Elements, Supplementary Measures and Public Participation.

Section 3: Expenditure

See: Separate Transmission Note including Financial Report, Final Invoice,
Budget Overview and Audit Certificate of Marek & Koch

**Please remember that this report must be accompanied by an AUDIT CERTIFICATE
(Model audit certificate: Annex VI to the Twinning Contract)**

For the administration of the Member State

Mr. Heinz-Jochen Poremski
Project Leader

[signature]

[date]

For the administration of the BC

Mr. Vladimir Dontchev
Director for Water Protection
Ministry of Environment and Water
Project Leader

[signature]

[date]