

**TWINNING INTERIM QUARTERLY REPORT NUMBER 9**



**EUROPEAN COMMISSION**

**TWINNING PROJECTS  
INTERIM QUARTERLY REPORT**

**Project Title: “Capacity Building in the Directorate of Water”**

**Partners: Ministry for Environment, Nature Conservation and Nuclear Safety of the Federal Republic of Germany (BMU)**

**Ministry for Agriculture, Forestry and Water Management of the Republic of Serbia, Directorate for Water (MAFWD)**

**Date: . 09. 2008**

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**Signature of BC Project leader**

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**Signature of MS Project leader**

**Section 1: Project data**

<b>Twinning Contract Number</b>	SR2005/IB/EN/01
<b>Project Title:</b>	“Capacity Building in the Directorate of Water”
<b>Twinning Partners (MS and BC)</b>	Ministry for Environment, Nature Conservation and Nuclear Safety of the Federal Republic of Germany (BMU)  and  Ministry for Agriculture, Forestry and Water Management of the Republic of Serbia, Directorate for Water (MAFWD)
<b>Report Number:</b>	9
<b>Period covered by the report:</b>	24 May to 23 August 2008
<b>Duration of the project:</b>	27 Months
<b>Rapporteur:</b>	Aleksandar Prodanovic (MAFWD) and Heinz-Jochen Poremski (BMU)

## **Section 2: Content**

### **2A – BACKGROUND**

#### **Policy Developments**

The new government of the Republic of Serbia was established in July 2008.

#### **Project Assumptions**

This Twinning project purposes to upgrade Serbia's institutional capacity to be able to implement and enforce the guiding principles of the EU's Water Framework Directive and related legislation. The overall objectives of this project are:

- Development of capacity in the WD to implement WFD and relevant water directives.
- Improve the organisation of the WD
- Improve public awareness.
- To upgrade the existing monitoring system up to EIONET standards.
- To strengthen the capacity of Serbian institutions engaged in water monitoring.

In order to achieve these wider objectives, the project will be carried out in 7 Components (besides Component 0: Project Co-ordination):

- Training Plan prepared and under implementation. (Sub-Component 1.1)
- Pilot application of the WFD under implementation. (Sub-Component 1.2)
- Action Plan for legal alignment with the Acquis Communautaire prepared and being implemented.(Sub-Component 1.3)
- Human Resource management Capacity established in water Directorate. (Sub-Component 1.4)
- WFD awareness programme implemented. (Sub-Component 1.5)
- Detailed Strategy for upgrading the water monitoring system prepared (including detailed list of equipment and infrastructure requirements together with a budget and financial plan) and under implementation. (Sub-Component 2.1)
- Inter- and intra-organisation communication procedures and systems implemented. (Sub-Component 2.2)

### **2B – ACHIEVEMENT OF MANDATORY RESULTS**

It is expected that the contents of this Twinning project will contribute substantially to achieving some of the wider objectives of Serbian Water Management and will lead to the following results:

- Training needs identified and prioritized.
- Training Plan including a time schedule for implementation and Training Material prepared and disseminated.
- First training units implemented within the scope of the Twinning project.
- Components of River Basin Management Plan prepared for a Pilot River basin implemented.
- Action Plan and Draft legislation elaborated and agreed in the water administration.
- Human Resource management staff appointed in Water Directorate, HRM procedures in operation.
- Awareness strategy relating to goals, target groups, media and measures including a time schedule elaborated.
- Key messages developed and WFD awareness campaign launched.
- Two events for raising awareness on WFD with stakeholders carried out.
- Strategy document adopted as Conclusions of the Government. Identified upgrading of the monitoring programmes and systems taking place.
- Communication procedures and systems, Standard Operating procedures and Quality Management Systems installed.

ALL of the benchmarks above related with the mandatory results have been achieved so far.

## 2C – ACTIVITIES IN THE REPORTING PERIOD

The following table reveals the current status of activities and benchmarks.

Table 1: Activities completed and benchmarks delivered

Activity	Benchmark	Status
<b>Component 0: Project Coordination</b>		
0.1 Project set-up	RTA offices installed and operable. Relevant contact persons identified and contacted by project month 1	Done
0.2 Kick-off meeting	All project partners informed on the project work plan, time schedule and the further proceedings by project month 2	Done
0.3 Coordination with parallel projects and the International Commission for The Protection of the Danube (ICPDR)	Regular meetings with representatives of parallel projects in the water sector carried out and information disseminated in project month 4, 10, 17	Ongoing
0.4 Wrap-up workshop	Project results summarised and disseminated. Further steps for the harmonisation of the Serbian water sector with EU requirements identified by project month 23	Done
<b>Component 1: Strengthening the institutional capacity of the Directorate for Water and related institutions</b>		
<b>Sub-Component 1.1: Assessment of institutional capacities and planning of training activities</b>		
Training Plan and Training Material prepared and disseminated.		
1.1.1 Assessment of the institutional structures and review of achieved training by the WD and Hydromet in the field of River Basin Management Planning	Assessment report on the current institutional situation, training status and training needs for WD and Hydromet staff elaborated and agreed by project month 3	Done
1.1.2 Establishment of joint working group with WD and Hydromet	First meeting of the joint working group carried out and meeting schedule fixed by project month 4	Done
1.1.3 Formulation of a training plan	A training plan for the staff of WD and Hydromet (department for hydrology and department for environmental control) is elaborated by project month 5	Done
1.1.4 Preparation of training material	Training material is developed and agreed by project month 3 – 19 parallel to the training sessions in the specific activities	Done
<b>Sub-Component 1.2: Joint elaboration of a RBMP for the pilot small river basin</b>		
Components of River Basin Management Plan prepared for a Pilot River basin.		

1.2.1 Introduction of conceptual issues for the implementation of the Water Framework Directive	3 seminar series for the implementation of River Basin Management Planning (I Characterisation of river basins and programmes of measures, II Monitoring, III GIS and Reporting) held. Relevant staff at the WD and Hydromet trained by project month 14	Done
1.2.2 Characterisation of the river basin district, review of the environmental impact of human activity and economic analysis of water use (Article 5 WFD)	Characterisation of the pilot small river basin according to article 5 of the WFD delivered by project month 12.	Done
1.2.3 Formulation of a monitoring programme of surface water and ground water status according to WFD and Serbian legal requirements in the small river basin.	Monitoring Programme for the pilot small river basin developed and disseminated in the WD and Hydromet and involved institutions by project month 17.	Done
1.2.4. Formulation of the programme of measures (Article 11 WFD) for the RBMP	Programme of measures for the pilot small river basin developed by project month 21.	Done
1.2.5 Mapping out water resources in the pilot river basin with the help of GIS techniques.	RBMP maps according to Annex 7 of the WFD are prepared month 20.	Done
1.2.6 Study tour on surface and groundwater monitoring and the use of GIS	5-day study tour for 10 persons from the WD and Hydromet implemented and potential technical and administrative solutions for Serbian monitoring system identified by the participants in project month 3.	Done
<b>Sub-component 1.3 Developing of action plans for the alignment of legislative, administrative and financial measures in the water sector</b>	Action Plans and Draft legislation elaborated and agreed in the water administration.	
1.3.1 Gap analysis of the existing legal framework in the water sector in Serbia	Gap analysis of the Serbian water legislation with regard to the harmonisation with the <i>acquis communautaire</i> is elaborated by project month 6.	Done
1.3.2 Preparation of the transposition of key directives	Central elements for the transposition of the selected key directives formulated and agreed in the water administration by project month 9.	Done
1.3.3 Upgrading administrative structures for enforcement	An action plan for administrative restructuring of the Serbian water administration according to the harmonisation needs is prepared and disseminated by project month 15.	Done
1.3.4 Development of a financial plan	Support to the elaboration of long-term financial plan for the harmonisation process with the EU is accomplished by project month 19.	Done
<b>Sub-Component 1.4 Human Resources Development</b>	Human Resource management staff appointed in Water Directorate and Hydromet, HRM procedures in operation.	

1.4.1 Restructuring of the administrative units responsible for human resource development	Core team for recruitment, HR development and motivation established and trained in a 1-week seminar on personnel management instruments by project month 4.	Done
1.4.2 Elaboration of a human resource development strategy	A human resources development strategy is elaborated and agreed between the partners by project month 21.	Done
<b><i>Sub-Component 1.5 Design of a WFD public awareness programme</i></b>	Awareness programme, Awareness raising materials and events implemented.	
1.5.1 Assessment of obstacles and opportunities for public participation in the implementation of the WFD	Assessment report on public participation elaborated by project month 11.	Done
1.5.2 Design of a multi-level awareness strategy	Awareness strategy relating to specific goals, key target groups, mix of medias and selection of measures including time frame elaborated by project month 13.	Done
1.5.3 Implementation of the public awareness programme	Key messages developed and WFD awareness campaign launched by project month 13. 2 stakeholder seminars with participation of the administrations, industry, NGOs, researchers involved in the water sector held by project month 14 and 20. Interim evaluation of awareness undertaken for a key target group by project month 22.	Done

<b>Component 2: Support for the upgrading of the Water Monitoring system in Serbia</b>	Strategy document adopted as Conclusions of Government. Identified upgrading taking place.	
<b>Sub-Component 2.1 Enhancing monitoring system and laboratory capacity</b>		
2.1.1 Review of the existing monitoring programmes and facilities (measuring stations, i.e. monitoring sites) for surface water, groundwater and hydrological observations, i.e. water level, discharge, sediment transport	Monitoring programme and facilities reviewed and recommendations developed and agreed by project month 3.	Done
2.1.2 Redesign of the monitoring programme and observation network and sampling design for surface water, ground water hydrological observations, i.e. water level, discharge, sediment transport	Monitoring network for monitoring surface and groundwater meeting WFD and Eurowaternet requirements agreed by project month 8.	Done
2.1.3 Technical Implementation plan for enhancing the monitoring system and the monitoring facilities (hardware)	Specifications for the preparation of the tender of the equipment for water monitoring / testing by project month 8.	Done
2.1.4 Training of personnel involved in Water Monitoring	2-week intensive training on monitoring issues for 2 persons from Hydromet in Germany and transfer of specialised know-how on the operation of automated monitoring stations undertaken by project month 9.	Done
2.1.5 Development of a field handbook of methods for the collection, preservation and transportation of water samples.	Manual for (Serbian) procedures in collection, preservation and transportation of water samples drawn up as draft by project month 16.	Done
2.1.6 Technical implementation plan for enhancing the laboratory equipment and capacity	Hardware needs identified and agreed, cost estimation, investment needs and operating costs identified by project month 12.	Done
2.1.7 Training of laboratory staff in processing/handling of samples and analytical techniques.	Relevant staff at Hydromet trained and training progress evaluated by project month 14.	Done
<b>Sub-Component 2.2 Enhancing organisational capacity of institutions undertaking water monitoring</b>	Communication procedures and systems, Standard Operating procedures and Quality management Systems installed.	
2.2.1 Assessment of intra- and inter-institutional communication procedures and data management	Existing communication procedures described and gaps analysed by project month 6.	Done
2.2.2 Improvement of communication between the institutions by the elaboration of standard communication /reporting procedures and systems	Recommendations for the improvement of communication procedures formulated and agreed by project month 12.	Done
2.2.3 Quality assurance/control of the documentation of monitoring results and data	Guidance document for quality control system of monitoring results and data developed by project month 19.	Done

**Component 0: “Project Coordination”****Missions related to Activity 0.4:**

Title                   “Wrap-up workshop”

Separated for each project component an additional workshop was carried out. The key experts presented the project results. After the evaluation of the project with a definition of the further tasks and training needs the participants discussed the future co-operation between the Twinning partners. In this frame work new project ideas were presented. Besides the foreseen key experts 13 additional German experts appeared to clarify some remaining open questions related to their activities. A press release was elaborated and submitted. The closure event ended with a press conference. The press release and the participation list are attached as Annex.

Duration:           58 days

Participants: 18 STE (Mr. Kessler, Mr. Domroese, Mr. Blohm, Mr. Seel, Mr. Berthold, Mr. Henneberg, Ms. Sommerwerk, Mr. Pfeiffer, Mr. Sittig, Mr. Mühle, Ms. Leonhard, Mr. Löw, Mr. Postpieszala, Mr. v. Keitz, Mr. Roch, Mr. Nuber, Mr. Lechelt,, Mr. Mühlberg), Water Directorate, RHMS, Serbia Vode, Vode Vojvodine, MESP, SEPA, RTA 1 Mr. Heuberger, RTA 2 Mr. Ebel

**Sub-Component 1.1: “Assessment of institutional capacities and planning of training activities”****Missions related to Activity 1.1.4:**

Title                   Preparation of training materials”

The training material was compiled in the form of a concise manual which contains all the presentations translated into Serbian and held under activity number 1.1.4 and the selected accompanying reference material for each seminar. Additionally more subject related material was added as training reference material.

25 handbooks with the training material comprising more than 700 pages of presentations and material in Serbian were printed as physical copies and distributed to the involved institutions which participated within the training seminars given under activity 1.1.4 as reference material. Furthermore a CD containing the handbooks contents was produced and the contents are also available as downloads from the website [www.twinning-serbia.org](http://www.twinning-serbia.org).

**Sub-Component 1.2: “Implementation of training for the pilot application of River Basin Management Plan (RBMP) issues in a small river basin.”**

**Missions related to Activity 1.2.1:**

Title Introduction into conceptual issues for the implementation of the Water Framework Directive”

Under this activity six STE missions took place and four seminars were given.

STE Jörg Janning (08.07-10.07.2008) held a seminar on general aspects concerning the reporting procedures according to the requirements of the European Directives.

STE Holger Ingenpass (09.06-13.06 and 21.07-25.07.2008) and STE Juergen Domroese (21.07-25.07.2008) held a training seminar on specific advanced reporting issues of the Water Framework Directive concerning the river Basin management plan.

STE Erzen and STE Günter Kusterer (both missions between 11.08-15.08.2008) held a training seminar on aspects of planning *programmes of measures* and introduced into methods for first cost estimations for investment allocation for sewage water treatment infrastructure.

STE Klaus Baumgardt held an additional training seminar (two days) comprising the advanced use of GIS techniques when producing RBMP related maps reflecting the strong interlinkages with activity 1.2.5.

Overall 14 subject specific seminars (one more than foreseen) were held during the project under this activity. The material used for the seminars and further reference information were already elaborated in activity 1.1.4.

Duration: 38 days

Participants: STEs, Mr. H. Ingenpass, Mr. Juergen Domroese, Ms. N. Erzen, Mr. G. Kusterer, Ms. N. Sommerwerk, Mr. J. Janning RTA, 2 Mr. Christian Ebel, further participants see annexed attendees list.

**Missions related to Activity 1.2.2:**

Title                   “Characterisation of the river basin district, review of the environmental impact of human activity and economic analysis of water use (Article 5 WFD)”.

STE Mr. Mühlberg (between 16.-20.06.2008) accompanied the ongoing works with his short term mission on the economic analysis of water use for the Kolubara river. The works for this chapter came to an end and will be embedded into the chapter dealing with the characterisation of the Kolubara basin by the Serbian colleagues from the Directorate for Water.

STE Mr Berthold (dates of the mission 09.06-13.06.2008 and 28.07-01.08.2008) and STE Mr Domroese (mission from 11.06-13.06.2008) worked together with the Serbian colleagues upon the elaboration and development of the RBMP chapters referring to groundwater. They reviewed the works of the Serbian partners concerning the work progress of the chapter characterisation and monitoring programmes. Meetings with the groundwater monitoring group were held during their visits in order to organize the finalization of the works.

During two missions Mr. Uwe Schultz (mission dates 02.06.-06.06.2008 and 07.07-11.07.2008) assisted the Serbian partners in processing the maps produced under activity 1.2.5 appropriately for their embedding into the corresponding chapters of the RBMP.

Mr Peter Seel carried out a short mission between the 02.07-04.07.2008 with a brief review of the sketched monitoring programme in conjunction with the pressures and impact analysis. A meeting with the surface water working group was held.

It was agreed with the Serbian partner that the respective report will be delivered as soon as it is finalized. Vacation time and limited staff number hindered its finalization in time.

Duration:       35 days

Participants: 7 STEs, Mr. Mühlberg, Mr. Henneberg, Mr. Georg Berthold, Mr. Juergen Domroese, Ms. Uwe Schultz, Mr. H. Schneider, Mr. Peter Seel, RTA 2 Mr. Christian Ebel, RTA Counterpart 2 Mrs. Dragana Milovanovic.

**Progress achieved related to Activity 1.2.3:**

Title           “Formulation of a monitoring programme of surface water and ground water status according to WFD and Serbian legal requirements in the small river basin”.

Due to the given fact that there are thematically overlapping issues under activities 1.2.2 and 1.2.3 which have to be dealt with jointly, the monitoring programmes under preparation for surface water and groundwater could be finalized with the assistance of the German experts.

**Missions related to Activity 1.2.5:**

Title           “Mapping out water resources in the pilot river basin with the help of GIS”

During his mission to Belgrade between 28.07 - 01.08.2008 STE Mr Klaus finalized the maps of the RBMP and corrected the projection of some maps. Additionally Mr. Baumgardt gave a two day seminar on the advanced use and application of GIS Software at RHMS. The maps i.e. the digital GIS material was used to train the participants. The GIS seminar was given as contribution to project activity 1.2.1. The DVD with the training material was delivered with the training material manual under activity 1.1.4.

With the assistance of the surface water and groundwater experts the complete set of required maps for drafting the parts of the RBMP under the project activities 1.2.3, 1.2.3 and 1.2.4 was elaborated. The final report of activity 1.2.5 comprising the results is annexed to this report.

Duration:       5 days

Participants: STEs Mr. Baumgardt, RTA 2 Mr. C.Ebel, RTA, staff of RHMS, 6 participants on the seminar

**Sub-Component 1.3: “Developing of action plans for the alignment of legislative, administrative and financial measures in the water sector”**

**Mission related to Activity 1.3.2:**

Title: „Preparation of the transposition of key directives”

Mr. Gerstmann completed the work on the Bathing Water Directive and on the Drinking Water Directive. Ms. Pawlowski finalised the action plan and the strategy paper for the transformation of the Directives into the Serbian legislation framework. The report with all annexes was submitted to the EAR. The report is attached as Annex.

Duration: 13 days

Participants: 3 STE (Ms. Pawlowski, Mr. Gerstmann, Mr. Köllner), Water Directorate, RTA 1 Mr. Heuberger

**Mission related to Activity 1.3.3:**

Title: „Upgrading administrative structures for enforcement”

STE Sittig overworked the action plan for upgrading the enforcement structures. The report was submitted to the EAR and is attached as Annex.

Duration: 10 days

Participants: 1 STE (Mr. Sittig), Water Directorate, RTA 1 Mr. Heuberger

**Mission related to Activity 1.3.4:**

Title: „Development of a financial plan”

German experts together with representatives from the Water Directorate prepared the Financial Action Plan. They provided the settlement method and the agglomeration method as well. The report was submitted to the Ear and is attached as Annex.

Duration: 35 days

Participants: 5 STE (Mr. Köllner, Mr. Kusterer, Mr. Pfeiffer, Mr. Hotopp, Ms. Eržen), Water Directorate, RTA 1 Mr. Heuberger

**Sub-Component 1.4: “Human resources development”**

**Mission related to Activity 1.4.1 and 1.4.2:**

Title: „Restructuring of the administrative units responsible for human resource development”

Title: „Elaboration of a human resource development strategy”

In close co-operation with the Core-Team the experts discussed the final results concerning the human resource management, particularly the Human Resource Development Strategy. They adapted the report and agreed in the result. The report was handed out to the EAR. The report is attached as Annex.

Duration: 10 days

Participants: 2 STE (Mr. Mühle, Mr. Schütte), Water Directorate, RHMS, RTA 1 Mr. Heuberger

**Mission related to Activity 1.5.3:**

Title: „Implementation of the public awareness program”

STE Schütte prepared and carried out a second stakeholder seminar on public awareness strategy. He presented and explained the instruments of a public awareness campaign such as press releases, print media, exhibitions, information meetings, film, video and data (DVD, CD) etc. The issue concerning the identification and addressing of target groups was taken into consideration as well. Last but not least the German expert gave hints for a joint public relation campaign of the water related stakeholders. Obviously due to the summer period only 7 BC experts representing 5 institutions involved in water affairs in Serbia took part in this meeting. The participant list for the meeting is attached as Annex.

Furthermore the evaluation of the second opinion pool was carried out. The second round didn't find the same number of participants as the first. All the same the results could be evaluated and compared:

In June/July 2007 and in May/June 2008 an evaluation of the awareness for the WFD related issues with the help of questionnaires took place. The questionnaire was provided as an electronic version on the project's website and as hard copy. Out of 300 participants approximately 100 used the e-version and responded via email. The quality of the answers is very different. Most of the questionnaires were filled in completely. The German expert developed a PC-Program on the basis of Microsoft-ACCESS for the purpose of further comprehensive evaluations. This allows the assessment of the given data considering various criteria. Therefore it was necessary to develop an entry mask to enable the fast and

easy input of the questionnaire's information into the data base. A special module supports the finding of single questionnaires following particular search criteria. With that, potentially necessary amendments are easily possible. Particular efforts were given to the evaluation functions of the questionnaire. The data can be evaluated along various criteria and printed out separately

- Complete list with all collected information
- List concerning the various ages of the participants
- List concerning the various education of the participants
- List concerning each single question, the education and the age of the participants
- List with all answers to the question „Have you ever heard of Serbian Water Law or read about it? “
- List with all answers to the questions „Have you ever heard or read about the Water Framework Directive? “
- List of all available email-addresses

It is possible to carry out the evaluation separately for the years 2007 and 2008 or combined for both years. The overall focus of the evaluation was the comparison of the answers from 2007 and 2008. In the result there were some crucial differences considering the profile of the participants. The technical answering of the questions however was more similar

- 2008 more than 50%, 2007 only 15% of the participants were in the age of 21-35,
- 2008 nearly 80% had a university degree
- The reaction referring to the water price was in both years nearly identical. The majority (2007: 50% ; 2008: 55%) voted for 100-500 Dinars for each m<sup>3</sup>.
- More participants than 2007 responded “YES” to the question whether the water price should be connected with the water consume, 2007: 65% und 2008: 80%
- There is also an increase of participants answering the questions whether the participant once has heard / read about the Serbian Water Law or once has heard / read about the Water Framework Directive. Answers with “YES” were 2007: 41% and 13 % and 2008: 58% and 33%.

All the lists exist as hard copy and as PDF -Document. The programme „Questionnaire\_2007\_08.mdb“ will be handed out as CD. It can be used as further data collections and evaluations in the future. The result is attached as Annex.

## **Sub-Component 2.1: “Enhancing monitoring system laboratory capacity”**

### **Missions related to Activity 2.1.3:**

Title: “Technical implementation plan for enhancing the monitoring system and the monitoring facilities (hardware).”

Three missions by the STEs Mr. Stefan Anke and STE Michael Lechelt (both 16.06-20.06.08) and Werner Blohm (30.06.-04.07.2008) took place during this reporting period. The purpose of the missions was to finalise the works on the technical implementation plan document for automated water monitoring equipment in future and the technical specifications list. With the presentation of the required document to the EAR by the project this activity was finalized. The technical implementation plan was published in 100 copies in Serbian and distributed to the corresponding institutions and partners. It is also downloadable from the website under [www.twinning-serbia.org](http://www.twinning-serbia.org).

The automated monitoring station, constructed from donations from Germany was inaugurated on the 2 of July 2008 with the presence of 39 representatives from the involved institutions.

Duration: 15 days

Participants: 3 STEs, Mr. M. Lechelt, Mr S. Anke, Mr. Werner Blohm, RTA 2 Mr. Christian Ebel, RTA Counterpart 2 Ms. Dragana Milovanovic, Mr. Bojan Palmar (RHMS), Mr. Svetomir Mijovic (RHMS).

### **Missions related to Activity 2.1.4:**

Title: “Training of personnel involved in water monitoring”

Three missions by the STEs Mr. Michael Lechelt (30.06-04.07.08), Mr. Stephan Anke and Mr. Werner Blohm (both between 14.07.08 and 18.07.08) took place under this activity.

The automated surface water monitoring station in Beli Brod on the Kolubara river which was constructed by donations from the City of Hamburg and the German Ministry for the Environment, Nature Conservation and Nuclear Safety was used as “on site training camp” for this activity. Ten enthusiastic and motivated participants of RHMS were trained in the operation and maintenance of the automated station, including routine service work and

trouble shooting. It became clear that applied training in the field is always more effective than the introduction of exclusively theoretical concepts. Some of the participants were also actively involved in the elaboration of the technical concept under activity 2.1.3 as well as in the construction works taking place at the station at Beli Brod to test the applicability of the concept.

For the delivery of an effective training of the staff an operation manual for the automated station was developed in Serbian in order to guarantee sustainability for the operation of the station and introduced with a training unit. The intensive training unit of the staff comprised for all ten participants four full day “on site” training days.

For more details please see the specific report for this activity in the annex.

Duration: 15 days

Participants: 3 STEs, Mr. M. Lechelt, Mr. S. Anke, Mr. W. Blohm,  
10 trainees from RHMS.

#### **Missions related to Activity 2.1.7:**

Title: “Training of laboratory staff processing/handling of samples and laboratory techniques.”

Three missions by the STEs Gerhard Dahlmann (23.06-27.06.08), Dirk Löffler (21.07-25.07.08), and Ms. Birgit Raue (both 28.07-01.08.08) took place during this reporting period. The missions were used to introduce the staff of RHMS more deeply into the use of the given analytical instruments which were donated by the EU at an earlier stage.

The seminars aimed at enhancing the knowledge of the staff for instrumental analytics in operating the modern laboratory equipment donated by the EC. This was done to enable appropriate use of the powerful and modern equipment. The seminars were held by German experts in the following field:

**Seminar upon the use of application of liquid chromatography and mass spectrometry for the analysis of polar substances in water (LC/MS)  
(Date 07.-25.07.2008)**

The presence of polar substances in water is becoming a prominent environmental issue. This is also reflected in the Annex 10 „Priority Substance list“ of the Water Framework Directive. The analytics for such compounds require the development of adequate methods to detect these substances. For this reason this specific issue was addressed by the given seminars.

The seminar was held by the STE Mr. Dirk Löffler who is a specialist in this type of analysis and works for the Federal Institute BFG (Bundesanstalt für Gewässerkunde) /Koblenz. He also conducted the first seminar held before. The second seminar addressed advanced aspects of analysis of polar compounds of water and sample preparation in the lab.

Isotope (not radioactive) marked standard substances are essentially necessary for a sound calibration and the estimation of recovery rates and very difficult to purchase, since the customs procedures are long lasting and represent a barrier. For an efficient laboratory process this is a must change in the future. Otherwise all effort i.e. the results produced will become questionable.

### **Evaluation**

At the end of the seminar it was checked that the analyzed standards could be traced with adequate accuracy meaning that the elaborated laboratory method is successfully applied, but will need further development through routine and practice. The existing LC/MS equipment is not convenient and efficient for the analysis of a highly complex matrix represented by surface water, where many disturbing compounds could be found. The provision of one tandem LC-MS equipment would be of substantial help. Otherwise the analytical possibilities remain technically limited.

### **Seminar upon the use of oil spill identification with the help of gas chromatography and mass spectrometry (GC/MS) (Date 23.06. - 27.06.2008)**

Oil spill by accidents or illegal discharge are an issue of serious concern in Serbia, more important when they occur on the Danube, stating a trans boundary issue. It is often difficult or impossible to trace its origin or the polluter.

STE Gerhard Dahmann held a five day training seminar with the laboratory staff of RHMS and introduced the Serbian colleagues into the analytical techniques. The method provides

tools to identify and match oil spills by „fingerprint matching“ of gas chromatograms which could be compared with data base results containing reference material of worldwide petrol extraction wells or with suspect polluters. Within this seminar a standard laboratory method was established for the laboratory of RHMS.

### **Evaluation**

At the end of the seminar it was checked that the analyzed standards could be traced with adequate accuracy meaning that the elaborated laboratory method is successfully applied, but will need further development by routine and practice. The methods were developed that GC/MS results can be potentially interchanged between institutions in future and discussed among competent experts without sending any water samples.

### **Seminar on multi-element analysis with the use of induced couple plasma and mass spectrometry (ICP/MS) (Date 28.07-01.08.2008)**

The new ICP-MS equipment allows the simultaneous measuring of heavy metals and elements within one analytical cycle. The operation of the machine is complex and requires deep knowledge of its software. The German expert Ms. Raue introduced the Serbian colleagues to the operation of the equipment by „teaching at the machine“, as all other German experts of the other seminars did. The German expert installed additional software which facilitates the handling of data as excel files, as this was not done before when the machine was delivered by the manufacturer. The seminar comprised the calibrating of the machine, the measuring and verification of blind values, the checking of the adequacy of the ambient of the machine (which is not satisfactory) as well as measuring certified standards to check for the plausibility of values measured after the training to place. This working approach was also applied in the complementing seminars at RHMS.

## **Evaluation**

At the end of the seminar it was checked that the analyzed standards could be traced with adequate accuracy meaning that the elaborated laboratory method is successfully applied, but will need further development by routine and practice. Concerning the ambient (room) in which the machine is standing, it seems probable that the room is not suitable since results produced from blind values, that the room is contaminated with heavy metals which disturb successful measurements at ultra trace level. Room modification is urgently necessary.

Duration: 15 days

Participants: 3 STEs, STE G. Dahlmann, STE D. Löffler, STE Birgit Raue, laboratory staff of RHMS (6).

## **Sub-Component 2.2 “Enhancing organisational capacity of institutions undertaking water monitoring”**

### **Missions related to Activity 2.2.3:**

Title: “Quality assurance/control of the documentation of monitoring results and data”

In the reporting period two missions took place by STE Klaus Roch (14.07 -25.07.08) and STE Matthias Menger (14.07 -18.07.08). Based upon the works carried out under this activity in earlier missions the initiated works were finalized. With the input from the Serbian partners a guidance document concerning quality assurance for the documentation of the monitoring data comprising

- Laboratory works
- Automated surface water measuring stations
- Data storage and processing of monitoring results

was elaborated and disseminated. Also a translated version of the report was produced. The material can be downloaded from the website under [www.twining-serbia.org](http://www.twining-serbia.org). The report to this activity is annexed to this report.

Duration: 15 days

Participants: 2 STE, STE Mr. Klaus Roch, STE Mr. Matthias Menger RTA Christian Ebel, staff of RHMS.

**2D – TIMING AND DELAYS**

**Table 2: Time schedule of the project**

Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
<b>Component 0: Project Coordination</b>																												
0.1 Project set-up	x																											
0.2 Kick-off meeting		x																										
0.3 Coordination with other projects and the ICPDR	o																											
0.4 Wrap-up workshop																												
<b>Component 1: Strengthening the institutional capacity of the Directorate for Water and related institutions</b>																												
<b>Sub-component 1.1: Assessment of institutional capacities and planning of training activities</b>																												
Activity 1.1.1: Assessment of the institutional structures and review of achieved training by the WD and Hydromet in the field of River Basin Management Planning				x																								
Activity 1.1.2: Establishment of joint working group with WD and Hydromet					x																							
Activity 1.1.3: Formulation of a training plan												x																
Activity 1.1.4: Preparation of training materials																												
<b>Sub-component 1.2: Implementation of training for the pilot application of RBMP issues</b>																												

Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
Activity 1.2.1: Introduction of conceptual issues for the implementation of the WFD											o																	
Activity 1.2.2: Characterisation of the river basin district, review of the environmental impact of human activity and economic analysis of water use										o																		
Activity 1.2.3: Formulation of a monitoring programme of surface water and ground water status according to WFD and Serbian legal requirements in the small river basin										o																		
Activity 1.2.4: Formulation of the programme of measures (Art. 11 WFD) for the RBMP										o																		
Activity 1.2.5: Mapping out water resources in the pilot river basin with the help of GIS techniques									o																			
Activity 1.2.6: Study tour on surface and groundwater monitoring and the use of GIS and						x																						

Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
<b>Sub-component 1.3: Development of action plans for the alignment of legislative, administrative and financial measures in the water sector</b>																												
Activity 1.3.1: Gap analysis of the existing legal framework in the water sector in Serbia												x																
Activity 1.3.2: Preparation of the transposition of the UWWTD and Nitrates directives										o													x	x	x	x		
Activity 1.3.3: Upgrading administrative structures for enforcement										o													x	x	x	x		
Activity 1.3.4: Development of a financial plan										o														x	x	x		
<b>Sub-component 1.4: Human Resources Development</b>																												
Activity 1.4.1: Restructuring of the administrative units responsible for human resource development																												
Activity 1.4.2: Elaboration of a human resource development strategy													o											x	x	x	x	
<b>Sub-component 1.5: Design of a WFD public awareness programme</b>																												

Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Activity 1.5.1: Assessment of obstacles and opportunities for public participation in the implementation of the WFD																											
Activity 1.5.2: Design of a multi-level awareness strategy													x														
Activity 1.5.3: Implementation of the public awareness programme															o											x	
<b>Component 2: Support for the upgrading of the Water Monitoring system in Serbia</b>																											
<b>Sub-component 2.1 Enhancing monitoring system and laboratory capacity</b>																											
Activity 2.1.1: Review of the existing monitoring programmes and facilities (measuring stations, i.e. monitoring sites) for surface water, groundwater and hydrological observations, i.e. water level.																											
Activity 2.1.2: Redesign of the monitoring programme and observation network and sampling design for surface water, ground water and hydrological observations, i.e. water level.																											

Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Activity 2.1.3: Technical Implementation plan for enhancing the monitoring system and the monitoring facilities (hardware)																									x		
Activity 2.1.4: Training of personnel involved in Water Monitoring																									x	x	
Activity 2.1.5: Development of a field handbook of methods for the collection, preservation and transportation of water samples.																					x						
Activity 2.1.6: Technical implementation plan for enhancing the laboratory equipment and capacity				o																					x	x	x
Activity 2.1.7: Training of laboratory staff in processing / handling of samples and analytical techniques																									x	x	
<b>Sub-component 2.2: Enhancing organisational capacity of institutions undertaking water monitoring</b>																											
Activity 2.2.1: Assessment of intra- and inter-institutional communication procedures and data management								x																			

Project Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
Activity 2.2.2: Improvement of communication between the institutions by the elaboration of standard communication /reporting procedures and systems										o																		
Activity 2.2.3: Quality assurance/control of the documentation of monitoring results and data																		o										

**Legend**

- |                         |                                                                    |
|-------------------------|--------------------------------------------------------------------|
| Grey tick box           | Activities planned according to the initial time schedule          |
| Tick box o              | Actual starting date of a still ongoing activity                   |
| Tick box x              | Actual finish date of an activity                                  |
| Black tick box          | Activities with a delay of more than three months                  |
| Grey tick box with an X | Activities planned after prolongation of the implementation period |

## **2E ASSESSMENT**

### **Overall assessment of progress**

During the reporting period 252 expert days took place and at the end all benchmarks have been achieved in accordance with the work plan. The reports comprising activities 1.2.2 and activity 1.2.4 are at the stage of finalization and translation and will be submitted by the Serbian partner after the vacation period in Serbia has ended (mid September). These results could only be achieved thanks to a constructive cooperation between the project partners, the prolongation of the project and an enormous final effort by all involved persons.

In spite of the given critical personal resource situation in the Serbian administration for Water Management issues, which is significantly understaffed, the work of the project was extremely successful.

On 8<sup>th</sup> of June 2008 the 8<sup>th</sup> Steering Committee Meeting took place. The minutes of this meeting are attached in the Annexes.

The Joint Working Group met for the last time on 19<sup>th</sup> of June 2008. The minutes of this meeting are attached as Annex.

The project partners would like to express their gratitude to all the involved colleagues and contributors. They are well aware of the fact that the Serbian partners are burdened with heavy workload due to understaffing and were doing their best in this project. Under the given circumstances the success of the project is indeed striking.

## **2F ANNEXES**

List of annexes

Press release

Participant lists for closure event

Action plan for the transposition of the directives (act. 1.3.2)

Action plan for upgrading enforcement structures (act. 1.3.3)

Financial action plan (1.3.4)

Report human resource development strategy (1.4.2)

Evaluation of awareness (1.5.3)

Participant list stakeholder follow-up seminar on public awareness strategy

Minutes of 8<sup>th</sup> Steering Committee Meeting

Quarterly Financial Report

Report to activity 1.2.5 Mapping out water resources in the pilot river basin with the help of GIS techniques”

Report to activity 2.1.4 “Training of personnel involved in water monitoring”

Report to activity 2.2.3 “Quality assurance/control of the documentation of monitoring results and data”