

# TWINNING FINAL REPORT



EUROPEAN COMMISSION

## **TWINNING PROJECT FINAL REPORT**

**Project Title:** Reducing the Health Risks from algal toxins in drinking and bathing waters

**Partners:** German Federal Ministry of Health (BMG), Water Technology Centre (TZW) (Germany), Ministry of Social Affairs of Estonia, Health Protection Inspectorate (Estonia)

**Date:** 20.01.2009

**Twinning Contract number:** EE06-IB-TWP-ESC-01

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**Section 1: Project data**

<b>Twining Contract Number</b>	EE06-IB-TWP-ESC-01
<b>Project Title:</b>	Reducing the health risks from algal toxins in drinking and bathing water
<b>Twining Partners (MS and BC)</b>	MS: DVGW Technologiezentrum Wasser Karlsruhe Außenstelle Dresden BC: Health Protection Inspectorate
<b>Duration of the project:</b>	6 + 3 months
<b>Authors:</b>	Dr. Wido Schmidt Jüri Ruut

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## 2A - EXECUTIVE SUMMARY

*The aim of this twinning light project was the improvement of the health protection of Estonian population against toxic cyanobacteria in water bodies used for leisure activities and drinking water production. This is a world wide problem and in many countries clear rules based on newest scientific results exists in form of guide lines and recommendations. A leading rule in this field is covered by the WHO. Central points of their philosophy are the Alert Level Framework (ALF) and the Water Safety Plans (WSP). In order to install the knowledge and regulations in Estonia systematic training was necessary. This training was focused 1. to local authorities responsible for bathing sites and drinking water, 2. to staff in waterworks responsible for the quality of drinking water and 3. to scientists which play a leading act in identification of cyanotobacteria and cyanotoxins. According to the state of the art which was obtained by visiting local sites and intensive discussions with Estonian person responsible and sampling campaigns, the partners decide to organize three training segments. The content of these training courses based on the outcome of two European joint research projects (TOXIC and PEPCY) considering between 2003 and 2006 all relevant issues of cyanobacteria and cyanotoxins.*

*The objectives of the training segments were:*

- 1. Sampling and identification of cyanobacteria,*
- 2. Analysis of cyanotoxins*
- 3. Assessment in the context of ALF and WSP, prevention*

*The courses were held in Estonian institutes and were prepared in collaboration with the relevant Estonian partners.*

*In the outcome of the courses written manuals were designed in English and Estonian language. These manuals form the base for handling of authorities and water companies. The material gives the directive for actions during the next algal seasons, illustrate prevention measures for sustainable improvement of the situation, and shows the Estonian partners the way concerning the improvement of collaboration of the partners dealing with identification, analysis and assessment under the aspect of efficient information flow.*

## 2B - BACKGROUND

### Overall objectives

Background of the present Twining Light proposal is the growing requirement to react to emerging threats of aggravated **eutrophication of Estonian** bathing sites and drink-water reservoirs, which is connected with massive blooms of toxic cyanobacteria.

Blooms were relatively common in smaller lakes, but from 1990s the situation was aggravated for the Baltic Sea and Lake Peipsi, the 5<sup>th</sup> biggest lake in Europe. This has caused trouble for recreational sites, reports of blooms have become common in media.

As Narva City takes its water from Lake Peipsi, and Tallinn from Lake Ülemiste, cyanobacteria and toxins in these water bodies may break through to drinking water. However, these risks are not fully investigated, especially in the case of Narva waterworks.

Thus, the project activities are concentrated to assessment and avoiding of risks of bathing sites in general, and specifically to Tallinn and Narva waterworks.

### **Project purpose**

The Twinning project will concentrate on trainings for preventive and reactive measures such as: detecting algal blooming, taking samples (time-scheme based), emergency response, concrete measures to avoid health risk, etc. Further implementation assistance for communication networks (Alert Level Framework – ALF) and management plans following the WHO Water Safety Plan (WSP) concept together with concrete training measures will be provided to health protection inspectors and municipal owners of the bathing sites.

Second focal point of the Twinning project is the enhanced protection of surface water which is used for drinking water production in Tallinn and Narva.

### **Policy Developments**

The European drinking water frame work is under revision. The actual statement of EUREAU (European Federation of National Associations of Water & Waste Water Services) concerning the risk of cyanobacterial toxins for drinking water is as follow:

*“Control at source is the prime method to handle these substances. EUREAU supports more work by the catchments control...to reduce the level of nutrients, particularly phosphate...”*

*“EUREAU agrees that the analytical methods for cyanotoxins are under development. Therefore this subject will require more elaboration at the WHO and DWD level to allow a correct implementation by the Member States. Microcystin-LR might not be a sufficient indicator for the occurrence of cyanotoxins in water bodies.”*

In 2006, the European Parliament implemented the Bath Water Directive, which states: *“When the bathing water profile indicates a potential for cyanobacterial proliferation, appropriate monitoring shall be carried out to enable timely identification of health risks. When cyanobacterial proliferation occurs and a health risk has been identified or presumed, adequate management measures shall be taken immediately to prevent exposure, including information to the public (Article 8).”* This directive applies for all of the 86 officially recognised sites in the country and the project will provide the Estonian partners with knowledge and assistance to fulfil the statutory requirements on the spot.

## Project Assumptions

The project covers three main segments:

### 1. Current situation and needs (Activities: 0, 1, 2, 3, 5, 6)

- Inspection of waterworks in Tallinn and Narva,
- Inspection of bathing sites,
- Specification of needs from the point of view of the authorities and water suppliers,
- Inspection of the local laboratory capacities under the aspect of knowledge and equipment.

### 2. Training courses (Activities: (3, 4)

- Sampling and Identification,
- Analysis.

### 3. Assessment and Implementation (Activities: (5, 6)

- Implementation and training of the ALF in the framework of the WSP-concept for waterworks and bathing sites.

## 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? Which of the original assumptions of the project (Article 2 of the Work Plan) were fulfilled? (I would rather mention Article 3 than Article 2, as Article 3 elaborates on the assumptions and the mandatory results of the project).*

During the project, cyanobacteria-related problems in bathing water and drinking water were handled in detail, both from theoretical and practical aspects, which gave an opportunity in depth to review and update the existing knowledge and resources.

It was the first time in Estonia when the issue of cyanotoxins in drinking water of Tallinn and Narva cities was investigated systematically in close cooperation between Health Protection Inspectorate, waterworks, and scientific institutions. The high qualifications and interdisciplinary composition of the MS Partner team enabled effectively link technological and public health aspects, supported by the highest level of analysis technology.

The project gave a good basis for improving of the water treatment train in Narva, where the current capabilities do not allow removal of cyanotoxins. For now, the owner of Narva waterworks, AS Narva Vesi, has applied for the EU funds to support the launching of a new water purification plant, in which the aspects of the removal of cyanotoxins are taken into account. Recommendations for surveillance activities were given for the existing situation.

In Tallinn waterworks, the treatment train was analyzed and recommendations given concerning the existing surveillance scheme. It was reassured that the water treatment technologies in Tallinn were able to remove most of the cyanobacterial threats.

Analyses of cyanotoxins were carried out, covering all critical points of water treatment and suspect blooms in bathing places. "Unfortunately", there were no serious algal blooms during the summer 2008. However, the analyses proved low levels of cyanotoxins in bathing water, which remained near the WHO guideline level 1 µg/L, and sometimes exceeding it. No cyanotoxins were found in treated drinking water. It was concluded that for usual conditions the risk posed by cyanotoxins was low. However, further analyses should cover blooming conditions in order to find out the effectiveness of water treatment technologies and to assess the risks from recreational activities. An interesting finding was detection of cyanotoxin cylindrospermopsin in Lake Ülemiste, which occurrence was established the first time in Estonia.

Training activities were an essential part of the project, involving the most important stakeholders: the staff of Health Protection Inspectorate, laboratories, water producers and scientific institutions, also specialists from municipalities. It was possible to carry out all the initially planned training activities, covering identification, sampling and analysis of cyanobacteria, and surveillance and reporting activities. The feedback from participants was entirely positive.

Health Protection Inspectorate was able to review and modify surveillance schemes, discussing them with stakeholders. The practical activities carried out enabled to test the functioning of the whole surveillance system.

In the whole, all the results planned in the Project Fiche were achieved. Even more: introduction of PEPCY Decision Support Tool gave a powerful instrument for further risk assessment activities.

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

*There were no major drawbacks in the project from management side, all planned activities went smoothly.*

*The biggest obstacle was absence of algal blooms, which did not enable to test surveillance schemes and water treatment technologies in critical situations. These aspects should be covered in the future.*

## **Project developments**

### *Key Developments*

According to the state of the art, that means

1. The knowledge of Estonian partners,
2. The current situation in Estonian drinking water industry,
3. The situation of bathing sites, and
4. The special weather situation in 2008 (no significant algal bloom)

the project partners decide to set a special focus to systematic theoretical lessons. The outcome of such lessons should be documented in form of Manuals which are available in Estonian and English language.

The main focus of the manuals is summarized as follow:

1. Title: "Sampling and Identification of Cyanobacteria"  
Main focus: Introduction concerning cyanobacteria and cyanotoxins, practical exercises concerning sampling, preparation and identification of cyanobacteria in waters, quantification of cyanobacteria, work with artificial samples.
2. Title: "Analysis of Cyanobacterial Toxins"  
Main focus: Sampling, sample preparation and identification of main cyanotoxins: microcystins, cylindrospermopsin by ELISA and HPLC-PDA and MS/MS, work with artificial and real samples.
3. Title: "The Development of a Setting-specific Strategy against the Occurrence of Cyanotoxins in Drinking Water, from Catchment to Consumer"  
Main focus: Risk assessment, system performance, control measures, validation, definition of sustainable measures for cyanobacteria reduction, implementation of ALF and WSP.

The project partners pointed out that the lectures described in that Manuals are the fundamental knowledge to achieve a sustainable improvement of the Estonian situation concerning cyanobacteria occurrence.

The appropriation of material described in the Manuals by Estonian staff is a key task, which can be done by practical exercises. So, the complementation and improvement of the knowledge can be understood as a process, which is moving during the algal season in 2009 and the following years depending on the amount of different algal blooms.

Because of that "Learning process" the situation concerning the state of the knowledge in

- Water works and
- Health inspectorates

should be evaluated regularly.



In general, inside of the project there was no significant change concerning key staff, reorientation, or completion of the work packages necessary.

### *Internal Problems and Solutions*

The growth of cyanobacteria in 2008 was on a very low level. This was untypical for Estonian conditions. Therefore, the practical field exercises were limited only. Many exercises were supported by standardised samples, samples with known toxins and concentrations and theoretical lessons.

The equipment for cyanotoxin analysis required is expensive. Some necessary equipment was borrowed from the laboratory of Prof. Meriluoto during the project. In future, the analytical work requires a relative high financial effort, which is necessary in every season.

The knowledge concerning the cyanotoxin analysis is a very special field. In Estonia, there is really only one person who is an international known expert in toxin analysis. The finding and training of young specialist for future seasons becomes to be urgent.

### **Project visibility**

Cyanobacteria growth in water bodies used for leisure activities and drinking water production is a world-wide problem. The strategy against this situation has been tested in many countries before, was discussed in conferences and was the objective of an unknown number of national and international research projects. This is a global problem and the strategies have always the same general structure:

- identification of cyanobacteria,
- analysis of cyanotoxins,
- measures against massive cyanobacteria growth based on risk assessment and
- risk minimization of humans (leisure activities, drinking water)

This intention was reflected in the structure of the project.

In order to learn this strategy and to transfer the intention to local authorities and water treatment facilities written material in mother language is urgent.

The manuals produced in the outcome of the project exactly follow this direction. Additional the content of the manuals bases on the newest results of two European joint research projects concerning strategies against toxic cyanobacteria. These projects are:

- Strategies against cyanobacteria in drinking water – TOXIC (EC-EVK1-2001-00182) and
- Toxic and bioactive peptides in cyanobacteria – PEPCY (QLRT-2001-02634).

The coordinators of both projects (Wido Schmidt for TOXIC and Ingrid Chorus for PEPCY) played an active role in this Twinning light project with Estonia.

The visibility of the project was ensured by the following steps:

- Design of three manuals which describe the operational activities initiated by local authorities, e.g. health inspectorates, the responsible staff in water treatment plants, owners of bathing sites, and the institutes which are responsible for analysis and identification.
- These manuals were the tools for all project participants in the training courses and formed the base for all discussion and the original outcome of the project.
- These manuals reflect the work of the project outside to other parties which were not directly involved in the project work.
- About 10 copies of the TOXIC book, containing SOP's for environmental sampling of cyanobacteria and liquid chromatography with mass spectrometric detection (LC-MS) were handed out to the Estonian partners. The SOP's of the TOXIC book were transferred to the manuals designed during the project.
- An examination was organised after the training course and certificates were passed to participants. The certificate confirms the participants of the course special knowledge in sample preparation included filtration of water samples, extraction of toxins from cyanobacterial cells by ultrasonication for cell disruption and the clean-up of toxins in samples by solid-phase extraction technique.
- The visibility of the project to governmental authorities was ensured by two steering committee meetings held in August and December 2008.
- The information of the project results to all relevant parties like the owners of the bathing sites, health inspectorates and water facilities in Estonia was organised by the Estonian partners by distribution of the manuals in Estonian language.
- The results of the project were presented during the national health inspectorate meeting of Estonia on 15 December in 2008 in Tallinn.
- Information days (8 sessions) were arranged for the owners of bathing sites, drinking water suppliers and environmental officers (140 persons), covering the activities of the project and introducing the surveillance schemes.

## 2D - ACHIEVEMENT OF MANDATORY RESULTS

The mandatory results of the project (in summary), as formulated in the project contract, are:

- Health protection and environmental protection officers (40 persons) have professional knowledge to detect cyanobacterial blooms, to take samples and to take measures in order to avoid health risks as a part of WSP and ALF;

*This mandatory result was fulfilled completely. The sampling and identification has a long tradition in Estonia. The Centre for Limnology in Vortsjärv is an excellent base for that knowledge pool. Local authorities such as health inspectors and environmental protection officers can use that institute for regular improvement and validation of their knowledge. There are seminar rooms and the equipment for teaching lectures is excellent. The Vortsjärv Centre for Limnology is the central institute for all questions concerning sampling and identification of cyanobacteria. This is known and accepted in all regions of Estonia.*

*On the other hand, there is an urgent need for exact cyanotoxin analysis. The strategy of Estonia as a small country to install the toxin cyanobacteria identification and cyanotoxin analysis in only one special institute for each is correct. Analysis and identification is expansive and time consuming. The scientific institutes are the best places for guaranteeing a continuous work in future.*

*There is only one laboratory in Estonia which can do this work. This is the National Institute of Chemical Physics and Biophysics in Tallinn. This department is very small and the staff is limited. Dr. Risto Tanner, in the age of more than 65 years is the only expert in the whole country. This situation urgently needs to be improved by actively recruiting someone to follow up his position. Additionally the equipment is not on a level which is necessary for exact toxin analysis in routine modus.*

- Scientists are trained and informed (10 persons) to act in ALF communication process as consultants;

*The ALF communication process has to be learned, this is a process which needs time, because the process is very complex. About 10 persons (local authorities and staff from water purification plants) were trained. The process has to be evaluated regularly. An active collaboration between health inspectorates and water facilities is necessary.*

*The project formed the base for systematic training in future. This mandatory result was fulfilled completely and was correctly planned in the work plan.*

- Specialists of drinking water suppliers (10 persons) have the skills to implement monitoring schemes and contingency planning to manage risks in drinking water related to cyanobacterial blooms;

*In Estonia there are two waterworks only which need that knowledge, the waterworks in Tallinn and in Narva.*

*In Tallinn waterworks monitoring schemes and systematic forms of risk management have been always implemented. In contrast to that, this thinking was relatively new for the staff in Narva waterworks. Therefore the project activities were focused to Narva. This was more a theoretical work, because the equipment there is not sufficient to give the waterworks safety against cyanobacteria. Under this situation the Narva drinking water suppliers have got the skills to implement monitoring schemes and contingency planning to manage risks in the training courses, nevertheless they cannot transfer it in practise. The staff in Narva waterworks knows this and tries to improve the situation.*

*Regarding to the working plan, there was formed the base for improving the situation in Narva waterworks. In the outcome of the project, the staff has got the theoretical knowledge to implement monitoring schemes in order to assess the realistic risk. Nevertheless, this requires several investments in near future.*

*The cyanobacterial risk in Narva is high. In situations of massive algal blooms (this was not the case in 2008) the breakthrough of cyanobacteria up to the drinking water is possible. There is no active barrier, except the chlorination step. The change of the situation is urgent. The Narva waterworks recognised that. This is one of the main outcomes of that project under the aspect of "implementation of theoretical knowledge in practise"*

- Schemes and guidelines for national-scale ALF have been worked out and cooperation agreements signed between relevant parties by the end of the project;

*The schemes and guidelines for national-scale ALF were orientated on international regulations such as given by the World Health Organisation (WHO). The base for cooperation between relevant parties was worked out. Relevant parties are scientific institutes, Vortsjärv Centre for Limnology and National Institute of Chemical Physics and Biophysics as the scientific partners and the health inspectorate and the waterworks as the responsible authorities for bathing water sites and drinking water quality. This partnership was built in the project and now it is clear "who is doing what" and "how is to organize the information flow".*

*This mandatory result was fulfilled completely in the frame of the work plan.*

*ALF and WSP lessons were completed with exercises on specific examples (lakes, etc.)*

- The owners of bathing sites (100 persons) are informed of the potential problems connected to cyanobacterial blooms and their role in risk assessment and ALF.

*The project built the frame for complete information. In order to guarantee that information all the material worked out during the project was produced in Estonian language. This gave the Estonian Health Inspectorate the possibility for information all relevant persons including the owners of bathing sites concerning the potential problems connected to cyanobacterial blooms.*

*Information days were carried out during November- December 2008 in 8 sessions: in Rapla (14.11.2008), Haapsalu (18.11.2008), Jõhvi (25.11.2008), Kuressaare (26.11.2008), Türi (28.11.2008), Võru (02.12.2008), Rakvere (03.12.2008), Tallinn (05.12.2008).*

*There were 140 participants: owners of bathing sites, drinking water suppliers, representatives of environmental services and inspections. In addition, there were 30 representatives from HPI involved.*

*This mandatory result was fulfilled completely.*

## **2E - IMPACT**

### *Achievements*

The original work plan of the project has not been changed. The purpose of the project could be achieved completely with the planned working segments.

Nevertheless there were two aspects which have to be mentioned more in detail:

1. The bloom of cyanobacteria was on very low level in 2008. There was no realistic risk for water treatment facilities and bathing water sites. The algal season in the following years can be expected much more intensive. During such a period the Estonian parties (local authorities and staff in waterworks) have to apply the learned lessons. The theoretical base was given by the manuals.
2. The Narva waterworks has to manage the conditions for a more intensive water monitoring. The budget needed for this has to be planned and should be a real segment in the whole budget for 2009 and in future.

### *Unexpected Results*

During the project no really unexpected results could be recognised. Nevertheless, it seems that the occurrence of the cyanotoxin "cylindrospermopsin" is more relevant than expected earlier. Especially the waterworks should consider this aspect in the monitoring process as well as optimization of treatment train.

## **2 F - FOLLOW-UP AND SUSTAINABILITY**

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

*The project gave a good basis for further developing of surveillance and risk assessment schemes for cyanobacteria. These activities are tasks of Health Protection Inspectorate, and will be financed from state budget.*

*Surveillance and warning schemes will be updated on the basis of project results, being a tool for routine work on day-to-day basis. The resources for this will be available from the state budget.*

*User manuals and guidelines will enable to carry out further training, if needed. This will ensure the continuity of users: it will be easy to involve new users.*

Health Protection Inspectorate will guarantee the sustainability and updating of the worked-out methodology and provide the resources for Alert Level Framework.

*assistance to AS Narva Vesi for launching the new water treatment plant;*

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

*The following will be carried out:*

*Implementing the updated surveillance schemes for Health Protection Inspectorate, especially considering critical situations;*

*Assistance to Narva waterworks in working out the surveillance schemes and design of the new water treatment facility;*

*Assistance to Tallinn waterworks in updating the surveillance schemes;*

*Further training for owners of bathing sites;*

*(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?*

In order to assess the risks in critical conditions, Health Protection Inspectorate will arrange sampling and analysis of cyanotoxins during algal blooms for bathing water and drinking water.

## 2G - CONCLUSIONS

The project “**Reducing the Health Risks from algal toxins in drinking and bathing waters**” in Estonia was designed in order to give the Estonian partners material for

- identification of cyanobacterial blooms in water bodies used for leisure activities and drinking water production,
- correct analysis of cyanotoxins and
- the assessment of the situation under the aspect of the Alert Level Framework (ALF) strategy in the context of Water Safety Plans (WSP).

Central segments of the project were different teaching lectures addressed to the Estonian health inspectorates and the staff of Estonian drinking waterworks.

These lessons covered three teaching segments:

1. The training course for sampling and identification of cyanobacteria was carried out in Vortsjärv Centre for Limnology near Tartu. About 40 persons from health inspectorates and waterworks took part. The conditions for teaching were excellent and the general base of knowledge in Estonia is high. In the outcome of this project segment is a manual with the title “*Training of sampling and identification of cyanobacteria*” which was edited in English and Estonian language.
2. The training course for analysis of cyanobacterial toxins was held in National Institute of Chemical Physics and Biophysics in Tallinn. About ten persons were taught in the field of sample preparation and analysis. The theoretical lessons covered all relevant analytical techniques. In practise the LC with PDA and MS-detection and the ELISA-tests were trained. In conclusion an overview about relevant equipment including costs and competitiveness were given. In the outcome of this project segment a manual titled with “*Analysis of cyanobacterial toxins*” was designed in Estonian and English language.
3. The training course for assessment the situation concerning the cyanobacterial toxins in bathing waters and raw water used for drinking water production was the base for building efficient barriers against cyanotoxins in future. This course was held in Tallinn. The focus of this training course was the Alert Level Framework directive and the Water Safety Plan. For both instruments, recommended by WHO the tools were worked out and concrete examples for drinking water reservoirs, waterworks and lakes were simulated with and by the Estonian partners. In the outcome of the project a manual titled with “*The development of a setting-specific strategy against the occurrence of cyanotoxins in drinking water from catchment to consumer*” was designed in Estonian and English languages.

These three manuals form the base for a risk-based approach of the relevant Estonian partners with the problem of cyanobacteria growth in surface water bodies. The material of the manuals bases on the outcome of the European joint research TOXIC and PEPCY from 2005 and 2006 respectively. So the material guaranteed an actual level of knowledge concerning the state of the art. The base for definition of efficient barriers against cyanobacterial toxins in order to reduce the health risk for Estonian people could be worked out and documented in the outcome of this project. The systematic documentation of all relevant knowledge is the requirement for a sequential transformation of the philosophy to local authorities such as health inspectorates and the responsible partners in drinking water treatment plants

## **Overall Assessment**

Governmental and local authorities need written material if they have to introduce complex processes in material which is relevant for guaranteeing and improving public health. The issue of toxic cyanobacterial growth in surface water bodies is recognised to be such a complex problem world wide. Efficient training courses are needed. Because of the complexity of that objective the written material is urgent for each individual person. It can be concluded that both, the lessons held during the project and the designed manuals are excellent base for the application of new knowledge in Estonia. This considers especially the fact that most of the authorities do not have and need a special scientific education.

## **2H – RECOMMENDATIONS: lessons learned**

It is absolutely correct that a small country like Estonia install only a very low number of special organized places for such a special problem of cyanobacteria and cyanotoxin identification. In that situation is very important (and relative easily practicable) that all relevant persons know their contact points.

On the other hand, water works and local authorities need rapid information in cases of massive algal blooms. The monitoring of cyanobacterial toxins, microcystins and cylindrospermopsin, by using ELISA methods can be performed at two places in Estonia: at the Tallinn waterworks (mostly concerning Lake Ulemiste) and at the National Institute of Chemical Physics and Biophysics in Dr. Tanner's laboratory. The identification of microcystin variants in the water needs HPLC or LC-MS instrumentation and this has been accomplished only by Dr. Tanner. The instrumentation at Dr. Tanner's laboratory has been somewhat improved in 2008 to be able to host the training course (e.g. purchase of a probe sonicator) but there is a clear need to modernise the analytical equipment, i.e. HPLC with UV and MS detection for future work.

The situation requires a very close collaboration between all partners. Sometimes this is not easy in the case of two different scientific institutes, waterworks and owners of bathing sites. The Estonian authorities in form of the National Health Inspectorate should manage this process under implementation of the public and private water companies.

It should be considered also, that a relative high rate of the Estonian population speaks Russian only. Despite of that political issue it should be guaranteed that all information concerning massive cyanobacteria blooms are to be reached for Russian speaking Estonians also.



**Annex 1: Overview mandatory results achieved**

ACTIVITY	MANDATORY RESULTS	Activity planned	Activity carried out	BENCHMARKS	ASSESSMENT to date	Self-assessment Rate <sup>1</sup>
<b>Activity 0</b> <i>Kick-off meeting, steering committee meeting and final meeting</i>	N/A	PM 1 – 6	PM 1 – 6	N/A	Protocol 06/08 and 01/09	S
<b>Activity 1</b> <i>Needs assessment, work out sampling plan</i>	N/A	PM 1	PM 1	N/A	TWINNING INTERIM QUARTERLY REPORT no. 1 07/08	HS
<b>Activity 2</b> <i>Sampling and analysis</i>	N/A	PM 1 – 6	PM 3	Analyses of algal toxins carried out according to the sampling plan and documented	Manual: Sampling and Identification Manual: Analysis	HS
<b>Activity 3</b> <i>Training Plan</i>	N/A	PM 1	PM 1 & 3	N/A	09/08	HS
<b>3.1. Sampling Procedures</b>	N/A	PM 1	PM 1 & 3	N/A	=”=	S
<b>3.2. Identification of Blooms</b>	N/A	PM 1	PM 1 & 3	N/A	=”=	HS
<b>3.3. Methods</b>	N/A	PM 1	PM 1 & 3	N/A	=”=	HS
<b>3.4. Alert Level Framework (ALF) Water Safety Plan (WSP)</b>	N/A	PM 1	PM 1 & 3	N/A	=”=	HS

<sup>1</sup> HS (Highly satisfactory), S (Satisfactory), U (Unsatisfactory)

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<b>3.5. ALF and WSP Training</b>	N/A	PM 1	PM 1 & 3	N/A	="=	S
<b>Activity 4</b> <i>Training Courses</i>	<p>Health protection and environmental protection officers (40 persons) have professional knowledge to detect cyanobacterial blooms, to take samples and to take measures in order to avoid health risks as a part of WSP and ALF;</p> <p>Scientists are trained and informed (10 persons) to act in ALF communication processes consultants</p> <p>Specialists of drinking water suppliers (10 persons) have the skills to implement monitoring schemes and contingency planning to manage risks in drinking water related to cyanobacterial blooms.</p>	PM 2 – 5	PM 3, 4, 6	Training courses carried out according to the training plan	<p>09/08: Sampling and Identification</p> <p>09/08: Analysis</p> <p>12/08: ALF and WSP</p>	HS
<b>Activity 5</b> <i>Working out ALF and WSP, guidelines for surveillance and agreements</i>	Schemes and guidelines for national-scale ALF have been worked out and cooperation agreements signed between relevant parties by the end of the project	PM 2 – 6	PM 6	Surveillance and ALF guidelines documented and training carried out and cooperation agreements signed	12/08	HS
<b>Activity 6</b> <i>Information Seminar</i>	The owners of bathing sites (100 persons) are informed of the potential problems connected to cyanobacterial blooms and their role in risk assessment and ALF	PM 2 – 5	PM 6	N/A	<p>09/08</p> <p>12/08</p> <p>Final Report</p>	HS

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**Section 3: Expenditure**

Please find the total figures of disbursement for key groups of costs on the following pages.

**FINANCIAL REPORT**

**QUARTER NO.:**

**2**

**(Final)**

**PERIOD COVERED BY REPORT:**

**12.07. - 16.12.2008**

**COVENANT NO.:**

**EE/06/IB/TWP/ESC/01**

No.	Services / goods purchased or direct costs	Date of Service	Invoice no. or appendix no.	Date of invoice	Breakdown and clarification	Amount paid in local currency	currency	Exchange rate applied (infor-euro) (1,00€ = x)	Amount paid in EURO	Amount foreseen in original budget	Amount charged to contingencies	Remarks / Explanations documentation available for audit
<b>1 Budget section</b>									<b>3.619,07</b>	4.112,00	0,00	
	<b>PROJECT LEADERSHIP</b>								<b>3.619,07</b>	4.112,00	0,00	
<b>1</b>	<b>Dr. Schmidt</b>								1.843,47	2.056,00	0,00	
a	Fees	26.08.-28.08.08 whole mission	002-002 (splitted with 002-001)	01.09.08	1 working day a € 450,-				450,00	450,00		1 working day (28.08.2008)
b	150% Project Management Costs	26.08.-28.08.08 whole mission	002-002 (splitted with 002-001)	01.09.08	150% of working days				675,00	675,00		
c	Travel	26.08.-28.08.08 whole mission	002-002 (splitted with 002-001)	07.08.08	Air ticket economy class ticket				537,47	750,00		Air ticket economy class (Berlin-Riga-VilniusTallinn-Berlin), arrival 26.08.2008 (22:00 h), departure 28.08.2008 (15:00 h), boarding passes available
d	Per diems	26.08.-28.08.08 whole mission	002-002 (splitted with 002-001)	01.09.08	1 per diem a € 181,-				181,00	181,00		1 per diem (27.08.2008)
<b>2</b>	<b>Dr. Schmidt</b>								1.775,60	2.056,00	0,00	
a	Fees	09.12.-12.12.08 whole mission	002-020 (splitted with 002-021)	16.12.08	1 working day a € 450,-				450,00	450,00		1 working day (10.12.2008)

b	150% Project Management Costs	09.12.-12.12.08 whole mission	002-020 (splitted with 002-021)	16.12.08	150% of working days				675,00	675,00		
c	Travel	09.12.-12.12.08 whole mission	002-020 (splitted with 002-021)	17.11.08	Air ticket economy class ticket				469,60	750,00		Air ticket economy class (Berlin-RigaTallinn-Frankfurt-Dresden), arrival 09.12.2008 (00:50 h), departure 12.12.2008 (18:30 h), boarding passes available;
d	Per diems	09.12.-12.12.08 whole mission	002-020 (splitted with 002-021)	16.12.08	1 per diem a € 181,-				181,00	181,00		1 per diem (09.12.2008)
<b>2 Budget section Activities</b>									<b>62.311,91</b>			
<b>Activity 0 – Kick-off meeting, steering committee meeting and final meeting</b>									<b>0,00</b>	0,00	0,00	
<b>Activity 1 – Needs assessment, work out sampling plan</b>									<b>0,00</b>	0,00	0,00	
<b>Activity 2 – Sampling and analysis</b>									<b>9.335,00</b>	11.198,00	0,00	
<b>1</b>	<b>Dr. Schmidt</b>								<b>1.306,00</b>	<b>1.306,00</b>	<b>0,00</b>	
a	Fees	26.08.-28.08.08 whole mission	002-001 (splitted with 002-002)	01.09.08	1 working day a € 450,-				450,00	450,00		1 working day (27.08.2008)
b	150% Project Management Costs	26.08.-28.08.08 whole mission	002-001 (splitted with 002-002)	01.09.08	150% of working days				675,00	675,00		
c	Travel	26.08.-28.08.08 whole mission	002-001 (splitted with 002-002)	07.08.08	Air ticket economy class ticket				0,00	0,00		Travel costs are reported with mission 002-002 in BS 1 (splitted mission)
e	Per diems	26.08.-28.08.08 whole mission	002-001 (splitted with 002-002)	01.09.08	1 per diem a € 181,-				181,00	181,00		1 per diem (26.08.2008)
<b>2</b>	<b>Dr. Meriluoto</b>								<b>4.102,50</b>	<b>4.668,00</b>	<b>0,00</b>	
a	Fees	26.08.-29.08.08	002-003	16.09.08	3 working days a € 450,-				1.350,00	1.350,00		3 working day (27.-29.08.2008)
b	150% Project Management Costs	26.08.-29.08.08	002-003	16.09.08	150% of working days				2.025,00	2.025,00		

c	Travel	26.08.+29.08.08	002-003	23.08.08	Air ticket economy class ticket				184,50	750,00		Air ticket economy class (Helsinki-Tallinn-Helsinki), arrival 26.08.2008 (16:30 h), departure 29.08.2008 (18:30 h), boarding passes available
d	Per diems	26.08.-29.08.08	002-003	16.09.08	3 per diems a € 181,-				543,00	543,00		3 per diems (26.-28.08.2008)
<b>3</b>	<b>Dr. Meriluoto</b>								2.150,75	2.799,50	0,00	
a	Fees	01.09.-04.09.08 whole mission	002-008 (splitted with 002-009)	29.09.08	1,5 working days a € 450,-				675,00	675,00		1,5 working days (02.09.08 full day + 03.09.2008 half day)
b	150% Project Management Costs	01.09.-04.09.08 whole mission	002-008 (splitted with 002-009)	29.09.08	150% of working days				1.012,50	1.012,50		
c	Travel	01.09.-04.09.08 whole mission	002-008 (splitted with 002-009)	30.08.08	Air ticket economy class ticket				101,25	750,00		Ferry ticket (Helsinki-Tallinn-Helsinki), arrival 01.09.2008 (16:30 h), departure 04.09.2008 (17:30 h), boarding passes available, Turku-Helsinki-Turku by car
d	Per diems	01.09.-04.09.08 whole mission	002-008 (splitted with 002-009)	29.09.08	2 per diems a € 181,-				362,00	362,00		2 per diems (01.-02.09.2008)
<b>4</b>	<b>Dr. Spoof</b>								1.775,75	2.424,50	0,00	
a	Fees	01.09.-04.09.08 whole mission	002-010 (splitted with 002-011)	29.09.08	1,5 working days a € 350,-				525,00	525,00		1,5 working days (02.09.08 full day + 03.09.2008 half day)
b	150% Project Management Costs	01.09.-04.09.08 whole mission	002-010 (splitted with 002-011)	29.09.08	150% of working days				787,50	787,50		
c	Travel	01.09.-04.09.08 whole mission	002-010 (splitted with 002-011)	30.08.08	Air ticket economy class ticket				101,25	750,00		Ferry ticket (Helsinki-Tallinn-Helsinki), arrival 01.09.2008 (16:30 h), departure 04.09.2008 (17:30 h), boarding passes available, Turku-Helsinki-Turku by car
d	Per diems	01.09.-04.09.08 whole mission	002-010 (splitted with 002-011)	29.09.08	2 per diems a € 181,-				362,00	362,00		2 per diems (01.-02.09.2008)

	<b>Act. 3: Work out of training plan (Sampling procedures, Identification of blooms, Methods, Alert Level Framework (ALF) Water Safety Plan (WSP), ALF and WSP training)</b>								<b>3.362,00</b>	4.112,00	0,00	
<b>1</b>	<b>Dr. Meriluoto</b>								<b>1.868,50</b>	<b>2.618,50</b>	<b>0,00</b>	
a	Fees	01.09.-04.09.08 whole mission	002-009 (splitted with 002-008)	29.09.08	1,5 working days a € 450,-				675,00	675,00		1,5 working days (03.09.08 half day + 04.09.2008 full day)
b	150% Project Management Costs	01.09.- 04.09.08whole mission	002-009 (splitted with 002-008)	29.09.08	150% of working days				1.012,50	1.012,50		
c	Travel	01.09.-04.09.08 whole mission	002-009 (splitted with 002-008)	30.08.08	Air ticket economy class ticket				0,00	750,00		Travel costs are reported with mission 002-008 in BS 2, Act. 2 (splitted mission)
d	Per diems	01.09.-04.09.08 whole mission	002-009 (splitted with 002-008)	29.09.08	1 per diem a € 181,-				181,00	181,00		1 per diem (03.09.2008)
<b>2</b>	<b>Dr. Spoof</b>								<b>1.493,50</b>	<b>1.493,50</b>	<b>0,00</b>	
a	Fees	01.09.-04.09.08 whole mission	002-011 (splitted with 002-010)	29.09.08	1,5 working days a € 350,-				525,00	525,00		1,5 working days (03.09.08 half day + 04.09.2008 full day)
b	150% Project Management Costs	01.09.-04.09.08 whole mission	002-011 (splitted with 002-010)	29.09.08	150% of working days				787,50	787,50		
c	Travel	01.09.-04.09.08 whole mission	002-011 (splitted with 002-010)	30.08.08	Air ticket economy class ticket				0,00	0,00		Travel costs are reported with mission 002-010 in BS 2, Act. 2 (splitted mission)
d	Per diems	01.09.-04.09.08 whole mission	002-011 (splitted with 002-010)	29.09.08	1 per diem a € 181,-				181,00	181,00		1 per diem (03.09.2008)
	<b>Act. 4: Training courses</b>								<b>32.390,55</b>	35.400,00	0,00	
<b>1</b>	<b>Dr. Preussel</b>								<b>2.554,53</b>	<b>2.362,00</b>	<b>0,00</b>	
a	Fees	15.09.-18.09.08	002-004	19.09.08	3 working days a € 250,-				750,00	500,00		3 working days (16.- 18.09.2008)
b	150% Project Management Costs	15.09.-18.09.08	002-004	19.09.08	150% of working days				1.125,00	750,00		

c	Travel	15.09.+18.09.08	002-004	21.08.08	Air ticket economy class ticket				136,53	750,00		Air ticket economy class (Berlin-Tallinn-Berlin), arrival 15.09.2008 (22:05 h), departure 18.09.2008 (22:15 h), boarding passes available
d	Per diems	15.09.-18.09.08	002-004	19.09.08	3 per diem a € 181,-				543,00	362,00		3 per diem (15.-17.09.2008)
<b>2</b>	<b>Dr. Schmidt</b>								4.589,08	4.668,00	0,00	
a	Fees	15.09.-18.09.08	002-005	19.09.08	3 working days a € 450,-				1.350,00	1.350,00		3 working days (16.-18.09.2008)
b	150% Project Management Costs	15.09.-18.09.08	002-005	19.09.08	150% of working days				2.025,00	2.025,00		
c	Travel	15.09.+18.09.08	002-005	14.08.08	Air ticket economy class ticket				671,08	750,00		Air ticket economy class (Berlin-Tallinn-Frankfurt-Dresden), arrival 15.09.2008 (22:50 h), departure 18.09.2008 (18:30 h), boarding passes available
e	Per diems	15.09.-18.09.08	002-005	19.09.08	3 per diems a € 181,-				543,00	543,00		3 per diems (15.-18.09.2008)
<b>3</b>	<b>Dr. Petzoldt</b>								4.580,08	4.668,00	0,00	
a	Fees	15.09.-18.09.08	002-006	19.09.08	3 working days a € 450,-				1.350,00	1.350,00		3 working days (16.-18.09.2008)
b	150% Project Management Costs	15.09.-18.09.08	002-006	19.09.08	150% of working days				2.025,00	2.025,00		
c	Travel	15.09.+18.09.08	002-006	14.08.08	Air ticket economy class ticket				662,08	750,00		Air ticket economy class (Berlin-Tallinn-Frankfurt-Dresden), arrival 15.09.2008 (22:50 h), departure 18.09.2008 (18:30 h), boarding passes available
d	Per diems	15.09.-18.09.08	002-006	19.09.08	3 per diems a € 181,-				543,00	543,00		3 per diems (15.-18.09.2008)
<b>4</b>	<b>Dr. Schmidt</b>								4.407,32	4.668,00	0,00	
a	Fees	22.09.-25.09.08	002-007	26.09.08	3 working days a € 450,-				1.350,00	1.350,00		3 working days (23.-25.09.2008)
b	150% Project Management Costs	22.09.-25.09.08	002-007	26.09.08	150% of working days				2.025,00	2.025,00		



c	Travel	22.09.+25.09.08	002-007	14.08.08	Air ticket economy class ticket				489,32	750,00		Air ticket economy class (Berlin-Tallinn-Frankfurt-Dresden), arrival 22.09.2008 (22:50 h), departure 25.09.2008 (18:30 h), boarding passes available
d	Per diems	22.09.-25.09.08	002-007	26.09.08	3 per diems a € 181,-				543,00	543,00		3 per diems (22.-24.09.2008)
<b>5</b>	<b>Dr. Meriluoto</b>								5.311,50	5.974,00	0,00	
a	Fees	21.09.-25.09.08	002-012	29.09.08	4 working days a € 450,-				1.800,00	1.800,00		4 working days (22.-25.09.08)
b	150% Project Management Costs	21.09.-25.09.08	002-012	29.09.08	150% of working days				2.700,00	2.700,00		
c	Travel	21.09.-25.09.08	002-012	30.08.08	Air ticket economy class ticket				87,50	750,00		Ferry ticket (Helsinki-Tallinn-Helsinki), arrival 21.09.2008 (16:30 h), departure 25.09.2008 (17:30 h), boarding passes available; private car (Turku-Helsinki-Turku)
d	Per diems	21.09.-25.09.08	002-012	29.09.08	4 per diems a € 181,-				724,00	724,00		4 per diems (21.-24.09.2008)
<b>6</b>	<b>Dr. Vesterkvist</b>								4.311,50	4.974,00	0,00	
a	Fees	21.09.-25.09.08	002-013	29.09.08	4 working days a € 350,-				1.400,00	1.400,00		4 working days (22.-25.09.08)
b	150% Project Management Costs	21.09.-25.09.08	002-013	29.09.08	150% of working days				2.100,00	2.100,00		
c	Travel	21.09.-25.09.08	002-013	30.08.08	Air ticket economy class ticket				87,50	750,00		Ferry ticket (Helsinki-Tallinn-Helsinki), arrival 21.09.2008 (16:30 h), departure 25.09.2008 (17:30 h), boarding passes available; private car (Turku-Helsinki-Turku)
d	Per diems	21.09.-25.09.08	002-013	29.09.08	4 per diems a € 181,-				724,00	724,00		4 per diems (21.-24.09.2008)
<b>7</b>	<b>Dr. Spoo</b>								4.311,50	4.974,00	0,00	
a	Fees	21.09.-25.09.08	002-014	29.09.08	4 working days a € 350,-				1.400,00	1.400,00		4 working days (22.-25.09.08)

b	150% Project Management Costs	21.09.-25.09.08	002-014	29.09.08	150% of working days				2.100,00	2.100,00		
c	Travel	21.09.-25.09.08	002-014	30.08.08	Air ticket economy class ticket				87,50	750,00		Ferry ticket (Helsinki-Tallinn-Helsinki), arrival 21.09.2008 (16:30 h), departure 25.09.2008 (17:30 h), boarding passes available; private car (Turku-Helsinki-Turku)
d	Per diems	21.09.-25.09.08	002-014	29.09.08	4 per diems a € 181,-				724,00	724,00		4 per diems (21.-24.09.2008)
<b>8</b>	<b>Dr. Fastner</b>								<b>1.099,52</b>	<b>1.556,00</b>	<b>0,00</b>	
a	Fees	09.12.-12.12.08 whole mission	001-015 (splitted with 001-016)	17.12.08	1 working day a € 250,-				250,00	250,00		1 working day (10.12.2008)
b	150% Project Management Costs	09.12.-12.12.08 whole mission	001-015 (splitted with 001-016)	17.12.08	150% of € 250,-				375,00	375,00		
c	Travel	09.12.+12.12.08 whole mission	001-015 (splitted with 001-016)	18.11.08	Air ticket economy class ticket				293,52	750,00		Air ticket economy class (Berlin-Riga-Tallinn-Copenhagen-Berlin), arrival 10.12.2008 (00:50 h), departure 12.12.2008 (18:10 h), boarding passes available
d	Per diems	09.12.-12.12.08 whole mission	001-015 (splitted with 001-016)	17.12.08	1 per diem a € 181,-				181,00	181,00		1 per diem (09.12.2008)
<b>9</b>	<b>Dr. Chorus</b>								<b>1.225,52</b>	<b>1.556,00</b>	<b>0,00</b>	
a	Fees	09.12.-12.12.08 whole mission	001-017 (splitted with 001-018)	14.12.08	1 working day a € 250,-				250,00	250,00		1 working day (10.12.2008)
b	150% Project Management Costs	09.12.-12.12.08 whole mission	001-017 (splitted with 001-018)	14.12.08	150% of € 250,-				375,00	375,00		
c	Travel	09.12.+12.12.08 whole mission	001-017 (splitted with 001-018)	21.11.08	Air ticket economy class ticket				419,52	750,00		Air ticket economy class (Berlin-Riga-Tallinn-Copenhagen-Berlin), arrival 10.12.2008 (00:50 h), departure

											12.12.2008 (18:10 h), boarding passes available
d	Per diems	09.12.-12.12.08 whole mission	001-017 (splitted with 001-018)	14.12.08	1 per diem a € 181,-				181,00	181,00	1 per diem (09.12.2008)
<b>Act. 5: Working out ALF and WSP, guidelines for surveillance and agreements</b>									<b>13.780,89</b>	12.997,50	0,00
<b>1</b>	<b>Dr. Fastner</b>								1.612,00	806,00	0,00
a	Fees	09.12.-12.12.08 whole mission	001-016 (splitted with 001-015)	17.12.08	2 working days a € 250,-				500,00	250,00	2 working days (11.- 12.12.2008)
b	150% Project Management Costs	09.12.-12.12.08 whole mission	001-016 (splitted with 001-015)	17.12.08	150% of € 250,-				750,00	375,00	
c	Travel	09.+12.12.08 whole mission	001-016 (splitted with 001-015)	18.11.08	Air ticket economy class ticket				0,00	0,00	Travel costs are reported with mission 002-015 in BS 2, Act. 4 (splitted mission)
d	Per diems	09.12.-12.12.08 whole mission	001-016 (splitted with 001-015)	17.12.08	2 per diems a € 181,-				362,00	181,00	2 per diem (10.- 11.12.2008)
<b>2</b>	<b>Dr. Chorus</b>								1.612,00	806,00	0,00
a	Fees	09.12.-12.12.08 whole mission	001-018 (splitted with 001-017)	14.12.08	2 working days a € 250,-				500,00	250,00	2 working days (11.- 12.12.2008)
b	150% Project Management Costs	09.12.-12.12.08 whole mission	001-018 (splitted with 001-017)	14.12.08	150% of € 250,-				750,00	375,00	
c	Travel	09.+12.12.08 whole mission	001-018 (splitted with 001-017)	21.11.08	Air ticket economy class ticket				0,00	0,00	Travel costs are reported with mission 002-017 in BS 2, Act. 4 (splitted mission)
d	Per diems	09.12.-12.12.08 whole mission	001-018 (splitted with 001-017)	14.12.08	2 per diems a € 181,-				362,00	181,00	2 per diem (10.- 11.12.2008)
<b>3</b>	<b>Dr. Meriluoto</b>								3.593,29	4.105,50	0,00
a	Fees	09.12.-12.12.08	002-019	16.12.08	2,5 working days a € 450,-				1.125,00	1.125,00	2,5 working days (10.- 12.12.08)

b	150% Project Management Costs	09.12.-12.12.08	002-019	16.12.08	150% of working days				1.687,50	1.687,50		
c	Travel	09.+12.12.08	002-019	28.11.08	Air ticket economy class ticket				237,79	750,00		Air ticket economy class (Turku-Helsinki-Tallinn-Helsinki-Tallinn), arrival 09.12.2008 (20:40 h), departure 12.12.2008 (21:30 h), boarding passes available
d	Per diems	09.12.-12.12.08	002-019	16.12.08	3 per diems a € 181,-				543,00	543,00		3 per diems (09.-11.12.2008)
<b>4</b>	<b>Dr. Schmidt</b>								<b>2.612,00</b>	<b>2.612,00</b>	<b>0,00</b>	
a	Fees	09.12.-12.12.08 whole mission	002-021 (splitted with 002-020)	16.12.08	2 working days a € 450,-				900,00	900,00		2 working days (11.-12.12.2008)
b	150% Project Management Costs	09.12.-12.12.08 whole mission	002-021 (splitted with 002-020)	16.12.08	150% of working days				1.350,00	1.350,00		
c	Travel	09.12.-12.12.08 whole mission	002-021 (splitted with 002-020)	17.11.08	Air ticket economy class ticket				0,00	0,00		Travel costs are reported with mission 002-020 in BS 1 (splitted mission)
d	Per diems	09.12.-12.12.08 whole mission	002-021 (splitted with 002-020)	16.12.08	2 per diems a € 181,-				362,00	362,00		2 per diems (10.-11.12.2008)
<b>5</b>	<b>Dr. Petzoldt</b>								<b>4.351,60</b>	<b>4.668,00</b>	<b>0,00</b>	
a	Fees	09.12.-12.12.08 whole mission	002-022	15.12.08	3 working days a € 450,-				1.350,00	1.350,00		3 working days (10.-12.12.2008)
b	150% Project Management Costs	09.12.-12.12.08 whole mission	002-022	15.12.08	150% of working days				2.025,00	2.025,00		
c	Travel	09.12.-12.12.08 whole mission	002-022	17.11.08	Air ticket economy class ticket				433,60	750,00		Air ticket economy class (Berlin-RigaTallinn-Frankfurt-Dresden), arrival 10.12.2008 (00:50 h), departure 12.12.2008 (18:30 h), boarding passes available

d	Per diems	09.12.-12.12.08 whole mission	002-022	15.12.08	3 per diems a € 181,-				543,00	543,00		3 per diems (09.- 11.12.2008)
<b>Act. 6: Information seminar</b>									<b>3.443,47</b>	4.112,00	0,00	
<b>1</b>	<b>Dr. Meriluoto</b>								1.607,79	2.056,00	0,00	
a	Fees	14.12.-15.12.08	002-023	16.12.08	1 working day a € 450,-				450,00	450,00		1 working day (15.12.08)
b	150% Project Management Costs	14.12.-15.12.08	002-023	16.12.08	150% of working days				675,00	675,00		
c	Travel	14.+15.12.08	002-023	11.12.08	Air ticket economy class ticket				301,79	750,00		Air ticket economy class (Turku-Helsinki-Tallinn- Helsinki-Tallinn), arrival 14.12.2008 (20:40 h), departure 15.12.2008 (17:55 h), boarding passes available
d	Per diems	14.12.-15.12.08	002-023	16.12.08	1 per diem a € 181,-				181,00	181,00		1 per diem (14.12.2008)
<b>2</b>	<b>Dr. Schmidt</b>								1.835,68	2.056,00	0,00	
a	Fees	14.12.-15.12.08	002-024	16.12.08	1 working day a € 450,-				450,00	450,00		1 working day (15.12.08)
b	150% Project Management Costs	14.12.-15.12.08	002-024	16.12.08	150% of working days				675,00	675,00		
c	Travel	14.+15.12.08	002-024	18.11.08	Air ticket economy class ticket				529,68	750,00		Air ticket economy class (Berlin-RigaTallinn- Frankfurt-Dresden), arrival 14.12.2008 (22:50 h), departure 15.12.2008 (18:30 h), boarding passes available
d	Per diems	14.12.-15.12.08	002-024	16.12.08	1 per diem a € 181,-				181,00	181,00		1 per diem (14.12.2008)

<b>3 Budget section</b>											
<b>Operational Costs</b>								<b>1.000,00</b>	5.000,00	0,00	
a	Audit							1.000,00	5.000,00		
	<b>This Quarter:</b>						<b>Section 1 SUBTOTAL</b>	<b>3.619,07</b>		<b>0,00</b>	
							<b>Section 2 SUBTOTAL</b>	<b>62.311,91</b>		<b>0,00</b>	
							<b>Section 3 SUBTOTAL</b>	<b>1.000,00</b>		<b>0,00</b>	
							<b>all Sections TOTAL:</b>	<b>66.930,98</b>		<b>0,00</b>	

<b>Total</b>	<b>66.930,98</b>
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Signature BC Project  
Leader, Date

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Signature MS Project Leader, Date