THE DETAILED TWINNING LIGHT PROJECT FICHE

1. BASIC INFORMATION

1.1 Désirée number: 2006/18111.05.01
1.2 Twinning Light number: EE06-IB-TWP-ESC-01
1.3 Project Title: Reducing the health risks from algal toxins in drinking and bathing waters
1.4 Beneficiary:
Direct Beneficiary: Health Protection Inspectorate (HPI)
Final Beneficiaries: Ministry of Environment, Tallinna Vesi AS, Narva Vesi AS, The owners of bathing sites (mainly municipalities), Estonian Maritime Institute, Institute of Chemical Physics and Biophysics and Estonian University of Life Sciences.
1.5 Sector: Health care

2. OBJECTIVES

2.1 Overall Objective(s):

Minimise health risks due to biological and chemical hazards in drinking and bathing waters of Estonia.

2.2 Project purpose

Minimise health risks caused by presence of blue algae and/or their toxins in drinking and bathing waters by creating Alert Level Frameworks to detect and react in timely manner to algal blooming and algal toxins in bathing waters of Estonia and drinking waters of Tallinn and Narva Cities.

3. BACKGROUND AND JUSTIFICATION

3.1 Context in the beneficiary country

Blue-green algae can grow exponentially (bloom) in favourable conditions in summertime and pollute vast areas in seas, lakes and ponds. Consumption and contact with the polluted water may cause serious poisoning. The toxin can be accumulated by fish and seafood.

It is not possible to remove the toxins from water by traditional purification methods. Therefore, it is essential to monitor the blooming, and to investigate surface waters, which are used for bathing water supply, in order to detect the algal blooming and toxins.

The most probable way of getting into an immediate contact with blue-green algae is bathing in polluted water. The risk is acknowledged also in a new Bathing Water Directive 2006/7/EC, which states directly: “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).

There are 86 bathing places in Estonia, which are under surveillance of Health Protection Inspectorate during the swimming season, from May 15 to September 15. Algal blooming has been reported almost every season, and the problem seems to aggravate due to the eutrophication of inland and marine waters.

To ensure safe bathing waters, inspectors must be trained to detect algal blooming, to take samples and to take measures in order to avoid health risks. Health Protection Inspectorate must be prepared to identify possible hazards, and to disseminate information on quickly to

the public. Taken samples should be analysed in a laboratory in order to detect the presence of algal toxins. The sampling and analysis methods for detecting algal toxins were worked out in the course of the 5th Framework Programme CYANOTOXIC, EVK1-2002-00107, thus, the project scope does not include working out these methods. However, participation in this project would be a great advantage for the potential project partner.

As health protection inspectors cannot be present at the bathing sites all the time, the owners of the bathing sites (mainly municipalities) have a major role in detecting possible problems, informing Health Protection Inspectorate, and restricting access to the bathing sites. It is essential to inform and train the responsible persons to take necessary measures.

The co-operation of Health Protection Inspectorate and bathing site owners will enable to establish the Alert Level Network (ALF) for algal blooming in bathing sites, and to ensure the safety level and the measures required by the Bathing Water Directive. Establishing of Alert Level Networks was also one of the key recommendations of the CYANOTOXIC project.

The other route of algal toxins to humans is through polluted drinking water. There is no simple method to distinguish toxic forms of cyanobacteria from the non-toxic forms. The unpredictability of toxin production within any given bloom renders them potentially dangerous and suspect at all times. Therefore, analyses of toxins in the water are needed while the blooming has been detected.

In Estonia, surface water is used for drinking water production in two places: Tallinn (Lake Ülemiste) and Narva (Narva Water Reservoire, Lake Peipsi).

In Tallinn water purification plant monitoring activities have been carried out almost for 10 years. In the period from May till October, every week lake water samples are investigated microscopically. If 3..4 colonies of blue-green algae are detected, ELISA tests for microcystins will be carried out. When the temperature of water reaches 17^{o}C, the risk of growth potentially toxic algae increases, and the tests are carried out daily. Water samples from lake, water processing plant and drinking water are analysed. It is reported that no microcystins were found after the processing plant, and that the toxins in the lake are rapidly metabolised and destroyed.

However, additional training is needed for the specialists of Tallinn water purification plant to ensure the correctness of monitoring schemes and to work out communication procedures for ALF, especially in the case of contingency planning. Additional and more complex analyses should be carried out in suspect cases.

The situation is different in Narva water purification plant, where no surveillance for algal toxins is carried out. Lake Peipsi, which is the primary supply for water production, is the 5th biggest lake in Europe. During the last decades, extensive eutrophication processes have taken place due to pollution. Currently, the pollution has decreased, but nutrients, phosphorus being the most important, continue leaching from sediments. The increased contents of phosphorus are directly connected to algal blooming. Investigations have shown that the contents of microcystins have repeatedly exceeded the limits recommended by WHO. In addition, more toxic substances can be suspected. No investigations have been carried out to detect algal toxins in the Narva River and in the drinking water of Narva.

The specialists of Narva water purification plant should be trained in detecting the presence of cyanobacteria in the raw water, in monitoring and communication procedures in order to be able to inform Health Protection Inspectorate and the public in timely manner. Assistance should be provided to work out viable monitoring schemes. Analyses of algal toxins should be carried out in suspect cases to detect possible pollution.

Health Protection Inspectorate is an essential link in the drinking water surveillance for algal toxins, as its specialists who are responsible for monitoring of bathing water, are also responsible for drinking water surveillance. Health protection inspectors should be trained to be able to link the overall situation to the possible risk factors in drinking water, to assist drinking water suppliers and to take appropriate measures in the case of emergencies.

It is essential to involve also Ministry of Environment, Estonian Maritime Institute, Institute of Chemical Physics and Biophysics and Estonian University of Life Sciences who are responsible for investigation and surveillance of water bodies.

According to Water Framework Directive 2006/60/EC, Estonia has to work out river basin management plans for 2010. Implementing these plans should also improve the probability of algal bloomings through reduced pollution and euthrophication, also improve the monitoring of algal growth in future. However, the problem of bloomings is becoming more and more acute, and health protection measures in the scope of this particular project should be applied immediately. It is expected that the results of the project will be also included in the basin management plans.

3.2 *Acquis* relevance

3.2.1 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy;

3.2.2 Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC;

3.2.3 EU Council Directive 98/83/EC (Nov. 3, 1998) “The quality of water intended for human consumption”;

3.2.4 Council Directive 91/492/EEC of 15 July 1991 laying down the health conditions for the production and the placing on the market of live bivalve molluscs.

3.3 Description of the Beneficiary institution

Health Protection Inspectorate (HPI) is a governmental institution supervised by Ministry of Social Affairs. HPI is responsible for surveillance of environmental health risk factors. HPI is a beneficiary in this project. For the time of the project, HPI will appoint a project manager. Specialists of Monitoring and Planning Department and HPI laboratories will be actively assisting in the project. More information is attainable on website http://www.tervisekaitse.ee.

3.4 Linked activities

In 2003-2005, a Phare project 2002/000-579.07.02 “Drinking Water Directive, Urban Waste Water Treatment Directive, Directive on Discharge of Dangerous Substances to the Aquatic Environment and relevant Daughter Directives Implementation” was carried out. The project purpose was to increase administrative capacities in the field of water management.

For forthcoming years, 2007-2013, Estonia has allocated 447 million euros to improve the quality of water and reduce eutrophication. For the fifth consecutive year, Estonia is actively involved in drinking water and waste water projects supported by the EU cohesion fund, and have taken on the obligation of guaranteeing the collection and proper treatment of waste water from all residential areas in waste water collection zones with a pollution

load of more than 2000 IE by the end of 2010 (IE being the unit of pollution load, with 1 IE equating to one person in a non-industrial area). 75 local governments are currently involved in CF projects, a number of which have been completed (such as the new waste water treatment facilities in Viljandi and the updating of the facilities in Narva).

Nitrate-sensitive zones have been established in the Pandivere uplands and on the Adavere limestone plateau in order to reduce contamination from diffuse sources. Stricter measures on the use of fertilisers, manure and pesticides that threaten water quality have been introduced in these zones to limit non-point source pollution from agricultural production. As a result of these restrictions there has been no worsening of the situation over the last few years, notwithstanding the renewed intensification of agricultural production.

All these projects directly help to diminish the problem of algal blooming. However, as the Gulf of Finland and Lake Peipsi/Pskov are polluted by untreated sewage from St. Petersburg and Pskov, there are still factors, which cannot be influenced by these projects.

Estonian University of Life Sciences is participating in a Interreg IIIc project "Lakepromo - Tools for water management and restoration processes", taking place in years 2004-2007. romote multilevel and interregional cooperation in the field of water management, focusing on limiting of eutrophication. In Estonia, project activities involve Lake Võrtsjärv.

Although the above-mentioned projects contribute to successful implementation of the current project by providing training in administrative and practical issues of water management, the topic of blue algae is not covered by them.

It is not possible to use alternative sources for financing of this project. In planning further projects, results of the current project will be considered in order to avoid possible overlapping.

3.5 Proposed methodology (for implementing the intended reform)

The Estonian participants of the project include: Health Protection Inspectorate, Estonian Maritime Institute and Estonian University of Life Sciences, Institute of Chemical Physics and Biophysics, owners of bathing sites, drinking water suppliers AS Narva Vesi and AS Tallinna Vesi.

The international expertise will be used in the fields where Estonia is lacking experience, especially in organising the monitoring and alert level networks, which should act as a network of institutions included in the project. As such goal needs efforts on the national scale, and, presumably, changes in legislative acts, the most appropriate form of the co-operation would be twinning with a public body of a partner state which has already established the ALF. The mandate and experience of the private sector is not sufficient for creating such network. Participation in the CYANOTOXIC project would be an advantage for the partner.

Health Protection Inspectorate will be assisted in working out a viable monitoring and ALF schemes in cooperation with the owners of bathing sites and drinking water suppliers.

Health protection officers, environmental protection officers and water supply specialists will be trained to detect algal blooming, to identify the agents of, to take samples, and to take appropriate measures in suspected emergency situations.

Information days will be held for sensitising of the owners of bathing sites.

Analyses of water will be carried out during the blooming season in order to detect algal toxins. The samples will be bought as a service from local laboratories having the needed capacity (for example, laboratories of AS Tallinna Vesi or Institute of Chemical Physics and Biophysics).

Health protection officers and laboratory workers will be trained to identify algal bloomings.

Monitoring schemes, contingency plans and ALF activities for drinking water will be worked out together with Narva Vesi AS and Tallinna Vesi AS, who have to secure the safety of the drinking water supply.

The scientific institutions play an important role in ALF as advisors and consultants. As they have no previous experience in ALF activities, their specialists should be trained in this aspect.

4. DESCRIPTION OF THE ASSIGNMENT

4.1 Mandatory results

The Beneficiary Country and the Member State will jointly achieve the following mandatory results.

4.1.1 Health protection and environmental protection officers (40 persons) have the professional knowledge to detect algal bloomings, to take samples and to take measures in order to avoid health risks as a part of ALF;

4.1.2 Scientists (10 persons) are ready to act in ALF as consultants;

4.1.3 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 algal blooming;

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

4.1.5 The owners of bathing sites (100 persons) are informed of the potential problems connected to algal blooming and their role in ALF.

4.2 Benchmarks

4.2.1 Analyses of algal toxins carried out according to the sampling plan and documented;

4.2.2 Training courses carried out according to the training plan;

4.2.3 Surveillance and ALF guidelines documented and training carried out and cooperation agreements signed.

4.3 Activities

4.3.1 Working out the sampling plan for detecting algae and algal toxins. At least 10 series of analyses will be carried out in the period of May-September, containing samples from the bathing waters, raw water, processing plant and drinking water.

4.3.2 Sampling and analysis of water samples according to the sampling plan by the laboratories having adequate capacities (for example, Institute of Physical Chemistry and Biophysics, Tallinna Vesi AS).

4.3.3 Working out the training plan for health protection and environmental protection officers, scientists, drinking water suppliers. The training plan should include and define needed equipment for:

4.3.3.1 Sampling procedures;

4.3.3.2 Identification of bloomings and species composition;

4.3.3.3 Identification methods for algal toxins;

4.3.3.4 Planning of surveillance and ALF activities;

4.3.3.5 ALF training.

4.3.4 Carrying out training courses according to the training plan.

4.3.5 Working out and documenting of surveillance and ALF activities, guidelines and agreements;

4.3.6 Information seminars to the owners of bathing sites.

4.4 Expert input

4.4.1 Expert 1 (acting also as MS Project Leader; 60 working-days over 6 consecutive months)

Tasks:

- Overall co-ordination of the project.
- In co-operation with a pool of STEs, the MS Expert 1 will carry out the activities listed in Section 4.3 and explained in Section 3.5).

4.4.2 Pool of STEs (60 working-days over 6 consecutive months).

- In co-operation with Expert 1, the pool of STEs will carry out the activities listed in section 4.3 and explained in Section 3.5.

4.5 Contribution of the Beneficiary institution

HPI will be directly responsible for co-ordination and management of the project and will assist the project team in organizational and technical matters. Specialists of HPI will be actively assisting in the project. (http://www.tervisekaitse.ee). In addition, Health Protection Inspectorate will provide in-kind contribution: office and communication facilities for project experts. The results will be achieved jointly with the MS Partner.

4.6 Sustainability

HPI has a direct responsibility of surveillance and preventing environmental health risk factors according to the law. The annual financing and staff qualifications of HPI enable to solve organizational, technical and medical issues.

Surveillance and warning schemes will be established 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 ALF.

5. EXPERTS PROFILE

5.1 Profile of experts

5.1.1 Profile of Expert 1:

- Full university degree, preferably in life sciences or information technology;
- Working experience (>5 y) in the field of environmental health or life sciences with experience in management and organisation of programmes related to environmental health, with specialist skills in implementing necessary changes in public administration and management;
- Experience in project management;
- Fluent English;
- Teamwork and training skills;
- Experience in newly acceded countries would be an advantage;
- Participation in the CYANOTOXIC project would be an advantage.

5.1.2 Profile for experts in Pool of STEs

- Full university degree (preferably in life sciences or chemistry);
- Proven practical experience (>5 years) in working with blue algae;
- Good communication and teamwork skills;
- Fluent English;
- Experience in newly acceded countries would be an advantage;
- Participation in the CYANOTOXIC project would be an advantage.

5.2 Working language

The working language is English, but all results of the project as guidelines, action plans, training materials etc. must be translated into Estonian.

Financing will be foreseen for translating of 100 pages of project materials.

If necessary, interpretation will be provided for training courses and the project closing meeting.

6. INSTITUTIONAL FRAMEWORK

6.1 Beneficiaries

6.1.1 Direct Beneficiary

Health Protection Inspectorate is a governmental institution supervised by Ministry of Social Affairs. HPI is responsible for surveillance of the safety of drinking and bathing waters.

6.1.2 Final Beneficiaries

Ministry of Environment is a governmental institution, responsible for water quality in Estonian water bodies and organising their surveillance. Tallinna Vesi AS is a private company providing drinking water for Tallinn. Narva Vesi AS is a private company owned by municipalities of Narva and Narva- Jõesuu. The owners of bathing sites are mainly municipalities. Estonian Maritime Institute, Institute of Chemical Physics and Biophysics and Estonian University of Life Sciences are public bodies.

The project will assist the final beneficiaries in integration into monitoring and ALF schemes and training of specialists.

Project conditionality:
Co-operation agreements between Ministry of Social Affairs, Health Protection Inspectorate, Tallinna Vesi AS, Narva Vesi AS and Ministry of Environment will be concluded for the participation in the project (role in the project).

6.1.3 The Project Leader (PL) and contact for the project:

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6.1.4 Programme Officer (PO) of the project

Dr Ivi Normet
Deputy Secretary General on Healthcare
Ministry of Social Affairs of Estonia
Gonsiori 29
15027 Tallinn
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Fax: +372 699 2209
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6.1.5 Project management (including day-to-day project manager for the project):

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6.2 Co-ordination mechanisms between institutions and departments

HPI will be directly responsible for co-ordination and management of the project and will assist the project team in organizational and technical matters.

A Steering Committee (SC) will be established by the beginning of the project to oversee the project implementation and make the key strategic decisions concerning the project. The SC will meet once in a quarter and the following institutions will be represented in the Steering Committee: Ministry of Social Affairs, Health Protection Inspectorate, Tallinna Vesi AS, Narva Vesi AS, Narva City Government, Ministry of Finance, Ministry of Environment.

The everyday work is organised by continuous contacts by project parties.

6.3 Administrative Office

The Central Finance and Contracting Department (CFCD) in the Ministry of Finance (*Suur-Ameerika 1, Tallinn 15006, Estonia)* is the Contracting Authority of current project and will be responsible for tendering, contracting and payments.

7. LOCATION AND DURATION

7.1 Foreseen start of project activities

May 2008. It is essential to carry out project activities in summer seasons.

7.2 Project duration

6 months.

7.3 Estimated schedule and number of days for the assignment per expert:

Expert 1 - 60 working days; Pool of STEs - 60 working days

Project activities and their estimated schedule:

May 2008: Working out the sampling plan, the training plan and the list and structure of guidelines and other documentation;
May 2008: Working out a detailed project schedule with HPI;
May-June 2008: Purchase of sampling materials (BC responsibility);
June-September 2008: Sampling according to the sampling plan.
June-September 2008: Training according to the training plan, information seminars to the owners of bathing sites;
June-October 2008: working out guidelines for surveillance and ALF activities;

Detailed time-schedule will be agreed by the project partners and reported in the Inception Report.

7.4 Location of assignment

The project activities in Tallinn will take place in Health Protection Inspectorate, Paldiski mnt. 81, 10617 Tallinn.
A major part of the work will be carried out in Narva. Office rooms will be allocated in Narva Vesi AS, Kulgu 4, 20104 Narva.

8. REPORTING AND MONITORING

8.1 Content, language, format and number of reports

Two reports have to be compiled during the execution of the assignment: inception report and final report.

During the first month of the assignment **an inception report** must be compiled defining the working programme covering main working steps and the activity schedule as well as inputs required from MS experts and BC authorities and expected results of implementation in close co-operation with the BC counterpart.

By the end of the project **a final report** must be compiled highlighting and assessing the achieved results of the project in retrospect. It accounts the project's activities, the results and outputs as compared to the Twinning Light Project Fiche, the recommendations to the beneficiary, the use of the project's resources. The final report includes in its appendix all the relevant documents produced during the project.

All reports shall consist of a content section and a financial section. Reports will reflect the Project Leader's opinion on the progress of the project and should also be based on and reflect the information provided by BC and other sources (i.e. short term experts, organisation of training and seminars, etc.). Reports will be drafted by the MS PL (Expert 1) and will be first submitted to the counterpart BC Project Leader for comments (if any) and co-signature prior to formal submission to the designated authority (see below).

Reports are elaborated in English in 4 copies (a copy for BC PL, BC PO, MS PL and CFCD) following the provisions and requirement in the Twinning manual.

8.2 Date of submission of reports and approval process

Inception report will be submitted not later than one month after signing of the contract.

Final report will be submitted to CFCD not later than three months after the completion of the project.

All reports must have received an evaluation from the project's Steering Committee (SC). For this reason each report shall be submitted electronically in English to members of the project SC at least 1 week before the SC meeting. The report will be discussed at the SC meeting and approved or commented and approved conditionally. Considering that the comments of the SC have been taken into account MS PL (Expert 1) signs the report and sends it to the BC project leader for approval. BC project leader approves the report with its signature and returns one copy of the report to the MS PL (Expert 1). PO will submit the report to the CFCD for approval. Final version of the report is sent electronically to all SC members upon the signature of both project leaders.

The final financial report must be accompanied by an audit certificate from a recognized, independent auditor, following the template in Annex VI to the Twinning Light Contract. The final report includes in its appendix all relevant documents (descriptions of methodologies, questionnaires, results of analysis etc) produced during the project.

The requests for payments (request of pre-financing and final invoice) together with supporting documentation will be submitted to the CFCD for endorsement and in parallel, a copy of the invoice will be sent to PO for approval certificate.

8.3 Monitoring

A Steering Committee will be established by the beginning of the project to oversee the project implementation and make the key strategic decisions concerning the project. The SC will meet once in a quarter and the following institutions will be represented in the Steering Committee: Ministry of Social Affairs, Health Protection Inspectorate, Tallinna Vesi AS, Narva Vesi AS, Narva City Government, Ministry of Finance, Ministry of Environment.

The responsibility for the organisation of the Project Steering Committee meeting lies with both Project Leaders.

The Steering Committee will be instituted in order:

- to take the key strategic decisions concerning the project;
- provide advice and guidance on issues raised by the project team;
- to review all project reports and work plans;
- to oversee the implementation and to analyse the effectiveness of the project.

Steering committee agenda and draft report are distributed electronically to the participants at least one week before the meeting. The SC meetings are recorded by the Estonian

counterpart. The minutes are sent for approval to the Steering Committee members within 2 weeks after the meeting. Signed minutes by the BC and MS PL-s and recorder are included to the project reports.

The kick-off and project closing meeting will be held immediately before beginning and immediately after ending of project activities.

9. BUDGET

9.1 Estimated budget including national co-financing – detailed budget will be proposed by the MS partner in its proposal taking into account Twinning requirements explained in Twinning Manual Section 5.

Budget item	**Estonia (€)**	**TF (€)**	**Total (€)**
Expert fees (1 person 350 EUR* per working day, 60 working-days; pool of experts 250 EUR* per working day, 60 working-days)		36 000,00	36 000,00
Project Management Costs (1,5 x total expert fees)		54 000,00	54 000,00
Experts per diems (181 EUR per day); 144 nights in Estonia		26 064,00	26 064,00
International transportation costs (average return flight to Estonia 800 EUR); 24 flights		19 200,00	19 200,00
Local transportation costs in Estonia for training courses	500,00		500,00
Other costs (translation, interpretation, seminar facilities and materials, sampling materials etc.)	15 500,00		15 500,00
Audit certificate		5 000,00	5 000,00
Analyses, at least 30 samples, as a service from local laboratories.	8 000,00		8 000,00
Provision for the changes in prices (2,5% of the total budget)		3 506,00	3 506,00
PROJECT TOTAL	**24 000,00**	**143 770,00**	**167 770,00**

* To be revised based on proposed experts and regulation in Twinning Manual art 5.4.

9.2 Co-financing arrangements

National parallel co-financing (state budget 2008):

1. Translation, interpretation, seminar facilities and materials, sampling materials – 15 500 EUR (parallel co-financing);

2. Transportation in Estonia for training courses – 500 EUR (parallel co-financing);
3. Analyses, at least 30 samples – 8 000 EUR (parallel co-financing).
In addition, Health Protection Inspectorate will provide in-kind contribution: office and communication facilities for project experts.

The co-financing expenses will be monitored by the beneficiary and Ministry of Finance. For the earmarked co-finances, a clear and verifiable set of costs will be provided.

9.3 Subcontracting arrangements

A laboratory must be selected and sub-contracted in order to carry out analyses of algal toxins. Subcontracting of co-financing resources will be the responsibility of the Beneficiary.