

1 INFORMATION ON WORK PROGRESS

1.1 Summary and aims for the period

Work Package 2 : The aim of the task is to explore the operating mechanisms of bank filtration and its potential impact on the immediate environment, and to assess the sustainability of the method as a drinking water supply in terms of potential changes in water quality.

Work Package 4: The project aims to identify the risks to the stability of water abstraction in bank filtered aquifers, the options for their remediation and to examine the remediation effectiveness. The study will be carried out in order to gain an understanding of the remediation options that can be implemented during the operation of wells feeding the drinking water network and their impact on the drinking water supply, so that the operation of the wells can be optimised on the basis of this information.

1.2 Initially planned Milestones/Deliverables/Budget and the impact on the project

The first milestone of the project is defining the expert reports containing the results of the baseline research needed to achieve the project objectives:

Work package 2: Expert report on the results of the laboratory-scale investigation of the potential for rehabilitation of bank filtration wells, with laboratory logs attached. The expert report shall contain a scientifically rigorous description of the experiments carried out (objectives, tools and methodology used, results, conclusions), accompanied by photographic documentation. The protocols shall include all information on the experiments carried out (environmental conditions, settings, results and comments).

Work package 4: Expert reports containing derivations of mathematical relationships based on the experimental results, which will form the basis of a decision support module to be integrated into the software developed in collaboration with the project partner. The correlations and baseline data revealed as a result of the research work linked to the milestone will fundamentally determine the further progress of the project and its success. This milestone is the basis for the successful implementation of further industrial research and experimental development tasks, as without the definition of the necessary basic data and the identification of the interrelations, the interdependent tasks of the project cannot be implemented.

1.3 Current status (completed/ongoing/started) of the work packages, as well as status (achieved/on track/delayed) of tasks, deliverables and milestones

Work Package 2 : The environmental impacts of drinking water extraction from coastal filtered aquifers were identified and evaluated through a literature search.

Work Package 4 : Laboratory-scale experimental testing of environmental and anthropogenic impacts threatening the bank filtered water base and remediation methods are underway.

- Experimental investigation of the effects of riverbed colmatation: under laboratory conditions, the effects of sedimentation of fine-grained sediment transported in river water on the cleaning processes and flow in the bed material will be investigated. In the experiments, water samples, bed samples and sediment samples from the Danube River will be used to model both the river flow and the filtration processes in the bed sediment.
- Evaluating the efficiency of adsorption removal of metal and manganese contaminants from water using adsorbent loads typically used in water intake by bank filtration, under laboratory conditions. For the study, adsorbent loads of different particle sizes are used and the amount of pollutant adsorbed on the adsorbent layer from water flowing at the flow rate typical of bank filtered water sources is calculated from the measured pollutant concentration in the effluent to determine the removal efficiency as a function of particle diameter.
- Evaluation of the removal of chlorinated organic pesticides by reduction: Experiments to investigate the reduction of organic herbicides by nanoiron are under preparation.

2 FUTURE EXPECTATIONS OF THE PROJECT

2.1 Information about the intermediate results obtained or any successes

Laboratory experiments are underway in the current phase of the project. The results of the project phase are:

- an assessment of the environmental impacts of drinking water extraction from a bank filtered aquifer based on literature data
- experimental design developed on the basis of literature (under implementation)
- initial measurement results of the experiments

The experimental results currently available are used to refine the experimental procedures and to develop a methodology for the further evaluation of the results and therefore cannot be considered as results that can be reported.

2.2 Indication whether the expectation of the project is still valid or whether there could be any deviation of the project in the medium term which can affect the financing, the planning and expected results

The experiments are carried out and the results are being processed according to the timetable planned for the workflows. No deviation from the project schedule is expected in the medium term.