

Task 5.5 Water Audits with First Users: Lessons Learned from the European Water Stewardship (EWS)

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1. Introduction

This External Report summarises outcomes from European Water Stewardship (EWS) pre-screening pilots at 17 production sites in Europe. These audits were originally planned to be performed in the INNOWATER project. However, this deliverable was not complied with, as the 22 intended audits in ‘other European countries’, turned difficult to be carried out in the framework of the INNOWATER project; the audits were planned to be executed in conjunction with the European Water Stewardship, and EWP negotiated with 17 companies in 10 EU countries but these companies preferred to carry out EWS audits outside of the EU funded project mainly due to intellectual property rights this would entail. The EWS completed these audits (termed pre-screenings) but it was not authorised to use them as a deliverable. We were able, however, to use publicly available outcomes of these audits to assess the usefulness of EWS audits and complementarity to other tools developed by the INNOWATER project.

This report outlines the lessons learned from EWS. The information in this report served as a basis for organising the joint workshops with user associations, developing the Water Innovation Quick Scan and the INNOWATER Water Audit (IWA). The information was also highly valuable in performing the EWS pre-screenings in Cyprus that were conducted within the framework of the INNOWATER project.

This report includes a summary of the views of participants on their experience of applying the EWS Standard at their production sites. Common observations across the Pre-screening outcomes are established, perceived benefits and drawbacks of EWS implementation are listed, and general conclusions are drawn from the pilot experiences.

2. Pre-screening study description

2.1 Background

With its partners from business, agriculture, civil society and with support of public authorities, the European Partnership (EWP) endorsed the European Water Stewardship (EWS) in 2008. The core document of the EWS, the EWS standard¹, provides to water users a basis to evaluate, certify and communicate its water management performance at operational level within the referring watershed – and based on this, gives guidance to develop individual strategies to improve.

As an independent, auditable standard, EWS allows sites to evaluate their current water management performance and assess gaps that need to be addressed, thus providing a useful tool to foster increased transparency and legitimacy in the management and external perception of these activities.

The EWS standard has been shaped within the project “Communication of Sustainable Water Management” of the European Water Stewardship program in order to:

- Define Sustainable Water Management principles and criteria in a comprehensive and concrete manner.
- Provide guidance to European water users on how to become a good water steward.
- Create the basis for an objective reporting, certification and communication scheme for water stewardship.

¹ To download the EWS standard follow the link:

<http://www.ewp.eu/activities/ews/water-stewardship-standard/standard-glossary/>

- Initiate and support the discussion within Europe and within the global Water Stewardship movement.

The EWS standard aims to be applicable to a broad range of water users and industries that may affect the availability and quality of water while still respecting the complexity of impacts linked to water use, and therefore comprises environmental, social and economic aspects. The standard is valid on global scale but based on local assessment with focus on Europe and is valid across sectors.

EWS commits to the definition of Water Stewardship as:

“The use of water that is socially equitable, environmentally sustainable, and economically beneficial, achieved through a stakeholder-inclusive process that involves site- and catchment-based actions. Good water stewards understand their own water use, catchment context and shared risk in terms of water governance, water balance, water quality, and important water-related areas; and then engage in meaningful individual and collective actions that benefit people and nature.”

2.2 Objectives

The objective of pre-screening is to evaluate the Sustainable Water Management of a production site (or a group of production sites) in line with the indicators defined in the EWS standard, with the following end results:

- Identification of points of improvement via an objective performance analysis.
- Highlight strong areas and Best management Practices implemented.
- Development of an integrated response strategy.
- Reveal critical areas and risks.
- Assistance preparing to address legal requirements and link to public authorities.
- Facilitate external communication to stakeholders and general public.

2.3 Tasks and deliverables

Pre-Screening organization (operator or coordinator):

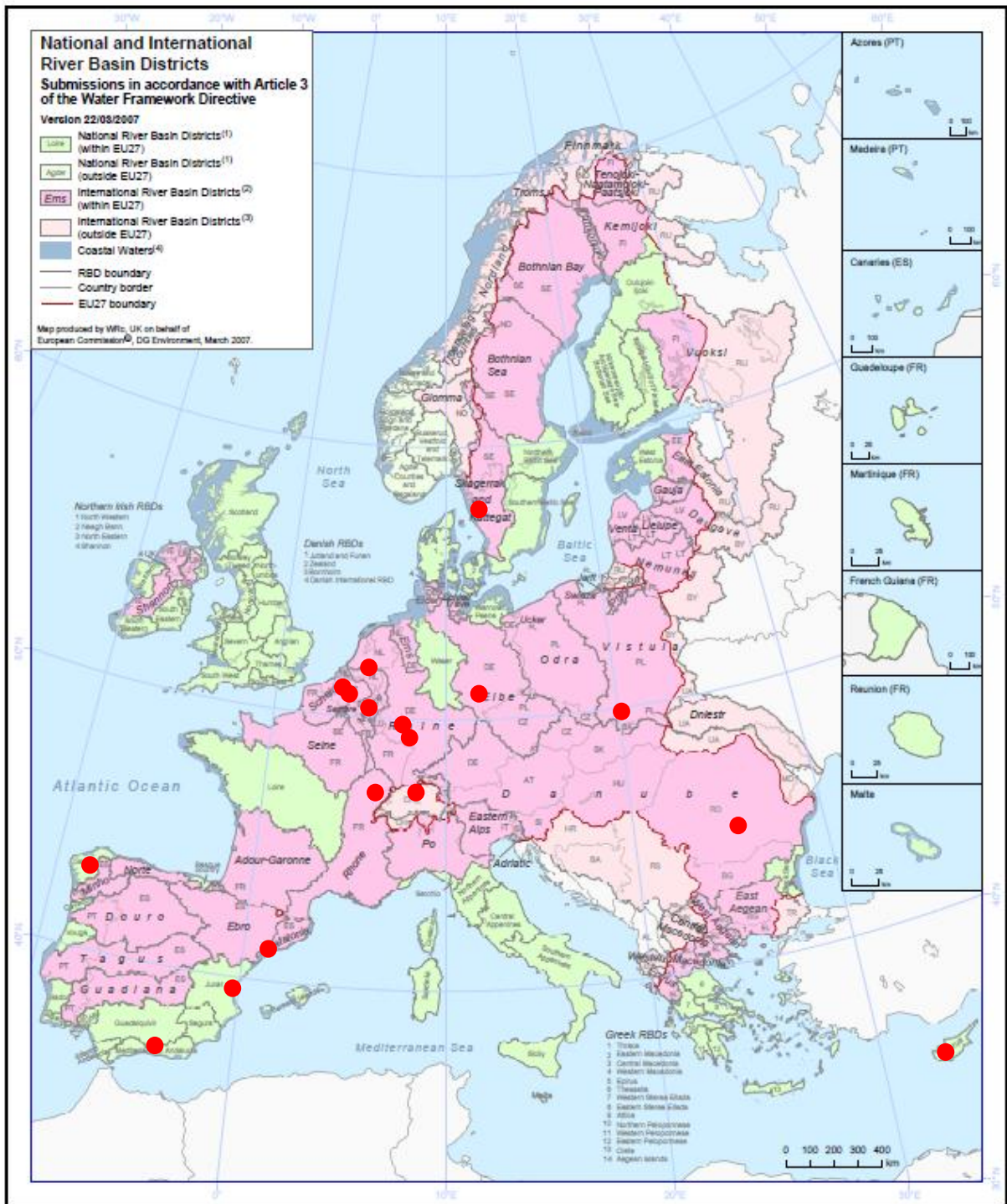
- Performs a complete study and reports the results to EWS.
- Facilitates EWS access at any part of the pre-screening study as an observer.
- (Deliverable) Provides information of compliance with the EWS standard (filling in the System Plan).

European Water Stewardship team:

- Coordinates and manages the pre-screening study.
- Provides the EWS standard and all referring guidance documents.
- Gives technical support during the entire study.
- Provides advice on whether to go for EWS certification.
- (Deliverable) Performs a training session on the EWS standard on-site.
- (Deliverable) Provides a pre-screening report after the pre-screening session.

3. Site Characteristics

3.1 Location of study sites (River Basin)



3.2 List of study sites

Sector	Number of sites
Plant Production	1
Paper industry	1
Beverage Industry	6
Airport Operations	3
Chemical industry	6
Total	17

3.3 Study Timeline

The pre-screening sessions began in April 2012, and were completed in July 2013. Differences in the timing of Pre-screening were attributable to differing data requirements between sites and availability of site personnel and assessors. Human resource requirements from the pilot companies ranged from 15 to 40 full-time-employee days, although participants noted that this was likely to be reduced with increasing familiarity with the standard (in future implementation projects).

4. Project Outcomes per sector

4.1 Plant Production

The pre-screening farmers' group was located in a region with water stress periods. As mentioned in the River Basin Management Plan for the region: "... has an intense Mediterranean climate with typical seasonal variation according to temperature, rainfall and weather generally. Fast changes in weather characterize autumn and spring which are short and separate the hot, dry summers lasting from mid-May to mid-September and the rainy, rather changeable winters which last from November to mid March. It depends as far as natural water resources are concerned, solely on rainfall. In recent years, the artificial production of desalinated water has been added to the water resources potential."

Thus, one of the main focus points for the pre-screened farmer group regarding water management needs to be water use. This concept integrates ensuring compliance with maximum abstraction limits and establishing own limits if the official ones are not period sensitive; analysing the impacts of surface water and groundwater abstraction; setting and ensuring water efficiency targets. Since alternative water sources may be set in place only on long-term (retention ponds or grey water use), one major short-term target is to manage water demand by farmers.

As first steps the recommendations from the pre-screening session are to:

- Elaborate a water efficiency strategy.
- Start implementing efficiency actions: e.g. ensuring efficiency of the winter irrigation scheme and further investigating the possibility of connecting the farmers' central irrigation system to rain and storm water collected in a common retention pond.

This efficiency strategy will be integrated into the water resource management strategy. It is recommended that this strategy is integrated into an Environmental Management System that will be set in place in collaboration with the responsible authorities on long term.

Finally, the water stewardship concept promotes the importance of participating in the activities organized by the River Basin Authority.

4.2 Paper Industry

The paper sector has proved a high performance in terms of water management, fulfilling pro-actively the requirements of EWS standard implementation.

Strengths of the pre-screened paper mill are the studies and measures implemented in order to reduce water consumption as well as the pro-active measures taken to have a clear disclosure of substances used on-site. Concerning High Conservation Value (HCV) areas, the pilot organization has clearly defined the HCV areas around the paper mill. The next step should be the integration of these areas in strategic decisions, including how the given protection targets have been considered in the operational water management decisions.

Water governance has a high priority and awareness within the pilot organization management but also within the corporate environmental strategy. The pilot plant is ISO 14001 and EMAS certified. Best Available Techniques (BAT) are also implemented as part of the continuous improvement system. On corporate level, the tendency is to develop a variety of internal and external communication initiatives on water challenges, water saving campaigns and education on sustainable water management (such as the participation in international initiatives on water management like CEO water mandate and water footprint network).

There are two main points detected in the pre-screening that should be addressed:

- The production site should undertake a risk assessment on the “Top 10 substances” in the effluent and classify them. This information will be the decision basis to identify whether specific monitoring of these substances in the effluent is needed or not. As the paper mill is compiling this information as required by the external waste water treatment plant, compliance with this indicator will be achieved once the information is compiled.
- Regarding the requirements in principle 4 “Equitable water governance”, the EWS standard considers the water management strategy as indispensable since it represents a crucial tool to integrate all water linked activities within a production site and within the entire company. It initiates and supports management decisions on water management performance and facilitates the public and internal transparency. In case that strategic issues are addressed at corporate level and then implemented at site level, EWS suggests as a first step to refer within the corporate strategy to the four EWS principles and to provide guidelines for site-specific adaptation.

4.3 Beverage Industry

EWS Pre-screening has highlighted the high standard of on-site water management achieved by the beverage industry. It has also identified a number of gaps in water management on site that should be addressed not only for possible EWS Certification, but to help mitigate operational risks linked to water.

An important and cross-cutting recommended action is to increase the area of influence defined activity/policy wise. It is one of the pillars of water stewardship to have an out of the fence approach which means that the area of influence has to be extended out of the production site limits. This approach not only is needed to comply with the water stewardship principles but also to analyze and mitigate potential reputational risks. This action is even more relevant when the plant is reliant on external water supplier and external waste water treatment plant. In such cases, and in order to address the potential water risks that might arise from the fact of having external supply and treatments, the plant needs to gather more information on the external companies and evaluate their performance in terms of Sustainable Water management.

Common points of improvement rising from the pre-screenings on beverage industry are:

- Supply chain engagement. This represents a major challenge for the all sectors and should be an important long-term priority. Engagement in this sense entails establishing a dialogue and raising awareness of sustainability in water management following an assessment of the existing performance of suppliers in terms of transparency and reporting on water management. This process can be initiated through channels such as River Basin Committees and is more practical than full life-cycle or quantitative assessment approaches.
- Elaborate further the relationship between water and other resources, such as energy. Given that water management is taking place in a context of competing resources, this was a high priority for all sites. Many of the sites held detailed information on the relationships between water use and energy consumption at various stages of production processes but this has not been assessed in a structured way. An analysis of the areas where water and energy (and other resources, where applicable), come together should be provided. The idea is to define critical points (for example in the process diagram) in order to monitor the relation.

4.4 Airport Operations

The results of the EWS Airport Pilot pre-screening study are an exemplary opportunity to demonstrate how to address sustainable water management across an entire sector and provided an excellent comparison of the standard implementation on sites with unique site-specific challenges. The process of the pilot study demonstrated not only the common challenges shared by airport water management by also unique ones which require individualized solutions.

Results from the airport assessment showed that one of the principle challenges that airports face in water management is in regards to their location in population nuclei. This creates collective water quality issues and requires careful management of storm water over the large areas of impermeable surfaces to prevent flooding from affecting surrounding areas. Additionally, communication with airports revealed that fluctuations in discharge associated to seasonal patterns are another complicated challenge for management. The quality of runoff depends largely on the use of various substances to de-ice aircrafts and runways for safety reasons as well as potential fuel spills. This fluctuation requires careful and extensive monitoring grid to manage effluents properly and prevent contamination of nearby water bodies.

Airport operators are not the sole players at airports. Other stakeholders such as airlines, cargo operators, maintenance companies, ground handling, etc., play significant roles in the operational performance of airport activity. These service providers have widely differing roles and responsibilities in terms of terminal ownership and management, and other key airport functions. Pre-screenings highlighted the need for airport operators to further engage with these actors in order to fully address water management. This approach can be taken on by fully implementing the EWS standard to facilitate dialogue between stakeholders.

In regards to site specific challenges, results showed the manner in which these challenges stem from shaped by their various climatic and environmental differences. For example, airports located in naturally drier climates, which experience with demand peaks attributed to tourism during water stressed summer months creates risks associated to water supply, incremented by dependence on a sole water supply source. Alternatively, managers of airports located in northern countries deal with large quantities of storm water and de-icing needs during winter months, deal with a different set of management responsibilities.

The pre-screenings detected that, as airports have a relatively large economic and water user responsibility, a cohesive management strategy is an important first step in engaging with local river basin authorities in order to address regional problems with tangible solutions.

Additionally, this strategy could preclude measures to improve water management along the supply chain as well as internally, the potential for which is notable although not always straightforward. The transparency brought on by a unified management strategy is exemplary of excellent water stewardship and serves as an excellent tool for future actions. The pre-screenings pointed out the value of the EWS standard as a tool to elaborate a meaningful water management strategy by answering questions of what should be included and how responsibilities can be shared.

4.5 Chemical Industry

EWS Pre-screening has highlighted the high standard of on-site water management achieved by all sites to date, helping to communicate 'good work done' that may otherwise go unrecognised. Identifying gaps is important not only for possible EWS Certification, but to help mitigate operational risks linked to water. Pre-screening helped identify major reputational and regulatory risks at some production sites- including historical pollution and cases of possible non-compliance with abstraction permits. EWS can help facilitate better internal communication around water and to ensure that these risks are managed effectively once identified.

Significantly, many water-related risks emerge externally from chemical processes within the wider watershed. Only a genuinely 'out of the fence' approach- based on engagement with other water users- will enable the full range of operational risks relating to water to be identified and mitigated. This reflects the real-world complexity of water management and is a fundamental aspect of the Water Stewardship concept.

The pre-screening highlighted the following measures needed in the sector:

- Obtain detailed information relating to water sources and destinations. Whilst the participating sites can generally provide good data relating to water abstraction, there is a need to analyze water use in the wider watershed context. Knowledge of periods of high freshwater scarcity and competition within the River Basin is needed to fully manage water-related risks. Groundwater recharge rates and trends should be known where applicable. The relevant River Basin Management Plan (RBMP) should be the first source for this information. Where water or wastewater services are sourced externally, direct contact should be made to ascertain abstraction rates within permits, as well as environmental water requirements and potential water stress periods of the water source(s).
- Promote internal transparency. Promotion of Water Stewardship on the part of one individual was pivotal to the success of each of the Pre-screenings. Formalizing responsibility for EWS implementation and monitoring are thus important steps towards promoting internal transparency on water issues. Structured internal communication strategies, building on existing activities, should be included within a Water Management Strategy. Measures to promote awareness or 'ownership' of water management among employees should be introduced.

Whilst this outreach process may entail additional time and resource investments, Pre-screening outcomes indicate that it may help realise a range of other benefits and minimise the costs of original data collection and monitoring. Implementing and monitoring a Water Management Strategy at each site will address many required actions and significantly aid the process towards final EWS Certification.

5. Participant Feedback: Benefits and Drawbacks of EWS Pre-Screening

5.1 Benefits of EWS Implementation

- Significant existing water resource management activities and data collection are already undertaken, and highlighted within the pre-screening studies- emphasising the importance of EWS as a tool for communicating 'good work done'.
- Given the range of water management activities currently undertaken, EWS adds value by bringing these activities together whilst reflecting the complexities of water resource management.
- The EWS activities are useful for building trust, enhancing relationships with authorities and stakeholders or establishing new ones.
- EWS allows companies to anticipate future regulation in the context of the Water Framework Directive, and to comply with a changing regulatory environment.
- EWS helps sites to identify and mitigate water related risks- from both production site operations and external water suppliers and sources.
- EWS supports sites to respond to specific water risks identified within an ISO14001 audit.

5.2 Drawbacks of EWS Implementation

- Opinion differed as to whether EWS is suitably aligned with existing environmental or quality management systems such as ISO14001- with some concern relating to duplication of workloads between the respective audit processes. EWS suggests using existing auditor services to minimise this risk.
- Based on the experiences of the pre-screening sessions, pre-screening requires around 15-40 FTE days for one employee- a significant requirement for smaller sites with fewer human resources and competences, although part of this may be attributable to unfamiliarity with the Standard.
- Similarly, closure of gaps identified within the EWS pre-screening process may require significant investments in analytical capabilities and monitoring for areas such as pollutant monitoring in waste water or metering of water losses.
- The need to consult municipal water suppliers and wastewater services was perceived as a difficulty because such partners may not be forthcoming with information; communication through River Basin Management authorities may be a potential solution.
- Participants reported some difficulty with the terminology and language of the EWS Standard, and navigating the Standard and Glossary documents; future integration of the documents will address this.

5.3 EWS Feedback on the process

- The majority of companies did not consult EWS during the Pre-screening information collection phase.
- Information on water shed conditions was often minimal, with River Basin Management Plans not known at production sites.
- EWS noted a high level of engagement with EWS among company employees and a willingness to learn more about production sites.
- Both 'top -down' and 'bottom -up' approaches to EWS implementation were seen; Water Stewardship requires good communication between corporate and site levels.
- In many cases, a coherent water strategy was not in place at the corporate level of management- this would be needed to roll out EWS to other production sites.

6. Conclusions

The main conclusions and lessons learned from the EWS Pre-screening has highlighted the high standard of on-site water management achieved by all sites to date, helping to communicate 'good work done' that may otherwise go unrecognised. The information gathered in this report has been of great value in developing the tools for water-users in the INNOWATER project.

Identifying gaps is important not only for possible EWS Certification, but to help mitigate operational risks linked to water. Pre-screening helped identify major physical, reputational and regulatory risks at some production sites. EWS can help facilitate better internal communication around water and to ensure that these risks are managed effectively once identified.

Significantly, many water-related risks emerge externally from the sector activities within the wider watershed. Only a genuinely 'out of the fence' approach- based on engagement with other water users- will enable the full range of operational risks relating to water to be identified and mitigated. This reflects the real-world complexity of water management and is a fundamental aspect of the Water Stewardship concept.

The supply chain engagement still represents a major challenge for all sectors in general owing to the complexity of primary sources and inputs. Building stronger relationships with the value chain (from primary suppliers to end-consumers) is essential for all sectors. In the long term, from a Water Stewardship perspective the supply chain engagement is meant to establish a dialogue and raise awareness of sustainability in water management also with suppliers, in terms of transparency and reporting on water management. The future role of INNOWATER in this process, as described in the exit strategy, is to support innovative technologies to be commercialised, and promote them as solutions to water challenges identified in the EWS.

Whilst this outreach process may entail additional time and resource investments, Pre-screening outcomes indicate that it may help realise a range of other benefits and minimise the costs of original data collection and monitoring. Implementing and monitoring a Water Management Strategy at each site will address many required actions and significantly aid the process towards final EWS Certification. Innovative solutions that are both economically and environmental profitable are viewed as main 'stepping stones' for achieving certification.