



EviBAN

Evidence Based Assessment of NWRM
for sustainable water management

Exploitation plan

« Progress » Report

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Advertising

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Synopsis

The EviBAN project exploitation plan is dedicated to provide information about the EviBAN toolbox for adaptive water management with Nature Base Solution (NBS) to end users and policy-makers. Closely related to the development of tools, private companies (e.g. ANTEA, IMAGEAU) conduct Exploitation Plans for their innovating tool developed in EviBAN, making connection between project partners, interested parties, stakeholders and policy-makers regarding the Soil Aquifer Treatment / Managed Aquifer Recharge (SAT/MAR) Information and Communicated Tool (ICT), to assess the marketability and the cost effectiveness of the technologies to enable their commercialisation. Exploitation of project results will be further ensured through dissemination to the stakeholders in each case study and beyond.

The exploitation plan is an integrated part of WP4 “Exploitation and dissemination”.

Contents

1. Ambition of the Project	6
2. NORRMAN tool	6
2.1. TECHNICAL DESCRIPTION	6
2.1.1. Product properties and benefits	6
2.1.2. Inherent technical risks and limitations	7
2.1.3. Expectation towards EVIBAN project	7
2.2. MARKET	7
2.2.1. Target markets	7
2.2.2. Boundary conditions: Drivers and trends for the tool	7
2.2.3. Market sizing	7
2.2.4. Benchmark technologies/main competitors	7
2.2.5. Competitive advantages	8
2.3. EXPLOITATION STRATEGY	8
2.3.1. MAR management	8
2.3.2. Exploitation routes, dissemination & communication actions	8
2.3.3. Exploitation Risk	8
2.3.4. Business model development	8
2.3.5. Economic feasibility and financial projections	8
3. SMD Instrumentation and Monitoring	9
3.1. TECHNICAL DESCRIPTION	9
3.1.1. Product properties and benefits	9
3.1.2. Inherent technical risks and limitations	9
3.1.3. Expectation towards EVIBAN project	9
3.2. MARKET	9
3.2.1. Target markets	9
3.2.2. Boundary conditions: Drivers and trends for the tool	9
3.2.3. Market sizing	10
3.2.4. Benchmark technologies/main competitors	10
3.2.5. Competitive advantages	10
3.3. EXPLOITATION STRATEGY	10
3.3.1. MAR management	10
3.3.2. Exploitation routes, dissemination & communication actions	10

3.3.3. Exploitation Risk.....	10
3.3.4. Business model development.....	10
3.3.5. Economic feasibility and financial projections	10

1. Ambition of the Project

EviBAN will promote adaptive water management for global change by developing a toolbox to evaluate implementation of NBS in various conditions regarding climate change, anthropogenic activities and societal change. A tool for initial assessment of the social ecological context and scope for NBS in specific cases will be developed. EviBAN will address stormwater management with NWRM in case studies with test sites for grey-green engineered solutions and flood protection alternatives, and by further developing an existing stormwater management tool. EviBAN will address management of runoff and treated wastewater by infiltration of peak stormwater flows in water scarce areas to augment groundwater sources and by SAT/MAR of secondary wastewater treatment effluent, including application, dissemination and optimisation of a SAT/MAR ICT (Information & Communication Technology) tool to extend MAR practices and management to a larger scale. An optimization tool for complex situations of water demand and supply will be developed to enable determination of the best solution for multiple management objectives. To evaluate the sustainability of alternatives for NBS in a holistic manner, an integrated sustainability assessment (ISA) tool will be developed. The ISA will condense the results from the other tools and optimal use of NBS will be linked to the United Nations (UN) sustainable development goals (SDGs) 15. Integrative management by implementing NWRM such as MAR and mitigating water stress in coastal zones will be addressed in the case studies with infiltration of stormwater to augment ground water resources and SAT/MAR of wastewater treatment plant effluent. Reuse of water is addressed by the developed decision support tools, which can also evaluate the inclusion of non-conventional water sources such as regenerated water.

2. NORRMAN tool

2.1. TECHNICAL DESCRIPTION

2.1.1. Product properties and benefits

NORRMAN is published by Antea Group after an initial collaboration with the Loire Bretagne Water Agency. Antea Group is the unique owner of the NORRMAN app.

NORRMAN simulates the impacts of polluting emissions in rivers (WWTP). It helps assess emission limits and thus to determine the authorizations for rejection in accordance with the objectives of good quality state.

NORRMAN estimates:

- The chemical state
- The ecological state of macropollutants
- The ecological state of micropollutants
- Specific pollutants of the ecological state

The calculation is based on:

- Self-purification kinetics
- depending on the type of settings:

- Hydrophilic micropollutants (DT50),
- Hydrophobic micropollutants,
- Macropolluants
- flow rates and speeds

2.1.2. Inherent technical risks and limitations

NORRMAN is a desktop application. As it stands, the application is mainly oriented for the French market. Its interfaces are not multilingual.

The desktop application connects to a central database (hosted by Antea Group) using web services to initiate simulations. The rest of the work is done locally with the NORRMAN application.

These data services are based on a database that contains the repositories. This repository must be initialized with middle data (water masses, streams, river flows, etc.).

2.1.3. Expectation towards EVIBAN project

Now, the available data only concern the Loire-Bretagne basin. As part of the project, Seine-Normandie data will be integrated.

The project will be also an opportunity to incorporate an additional feature that will allow the user to assess whether their WWTP are in areas suitable for the installation of MAR/SAT systems.

2.2. MARKET

2.2.1. Target markets

Industrial or collectivities WWTP operators that wish or have an obligation to assess the impact of their releases are user targets.

The design offices that accompany these operators are also potential users.

2.2.2. Boundary conditions: Drivers and trends for the tool

For the time being, NORRMAN's commercial perimeter is confined to French territory. But the application can work in other countries. This will require the translation of interfaces and the creation of a repository of data on the targeted territories.

2.2.3. Market sizing

No evaluation at this stage. However, the purpose of the tool is to a niche market.

2.2.4. Benchmark technologies/main competitors

We have not identified a competing solution.

2.2.5. Competitive advantages

The Norrman tool allows Antea Group to demonstrate both its technical expertise in terms of software development but also its mastery of business issues in the field of water and the environment.

2.3. EXPLOITATION STRATEGY

2.3.1. MAR management

Collecting reference information (national scale) to apply a spatial data processing methodology to produce a layer of information. Integrated in Norrman, this layer will be used to determine the feasibility of a MAR facility at the scale of a WWTP site.

2.3.2. Exploitation routes, dissemination & communication actions

The Loire-Bretagne water agency is already an excellent promoter of the NORRMAN tool among operators. We plan to approach other French agencies to increase our visibility.

The Norrman tool will need to be further promoted in the company's corporate website to attract new prospects. But this action will only be relevant when data from the entire French territory is made available.

2.3.3. Exploitation Risk

The Norrman app is now available free of charge to users of the Loire-Bretagne basin. There is therefore no revenue for Antea Group and as a result, maintenance is very limited. It is mainly done at the request of users who are financially involved in the developments.

Without a real business model, the application risks depreciating over time.

2.3.4. Business model development

For now, the Norrman tool is distributed free of charge to its users. By expanding its scope of action, we will need to put in place a business model that will keep the application and repository of data up to date.

To do this, we are looking at several ways to monetize the application:

- Selling simulation run packages.
- Sell simulation download packages.
- Selling access to specific data specific to a given territory

2.3.5. Economic feasibility and financial projections

This has not yet been addressed.

3. SMD Instrumentation and Monitoring

3.1. TECHNICAL DESCRIPTION

3.1.1. Product properties and benefits

SMD (Subsurface Monitoring Device) is published by IMAGEAU (Saur Group). SMD is an automatic geophysical tool installed in a piezometer used to constantly record water's electrical conductivity along the aquifer's vertical axis. It provides a real-time picture of the position and evolution of the saltwater intrusion. In coastal environments, the saltwater intrusion can penetrate several kilometers inland after a drop in the piezometric level caused by excessive pumping and/or droughts. If uncontrolled, this phenomenon can compromise the region's drinking water supply and economic activity.

In case of aquifer recharge, the SMD monitoring allows to determine the impact of the recharge in terms of water quality and potential benefit of this recharge to struggle against the saltwater intrusion.

3.1.2. Inherent technical risks and limitations

This permanent instrumentation requires some technical skills for the start implementation and for the maintenance in time.

3.1.3. Expectation towards EVIBAN project

The implementation of the SMD technologies in the EVIBAN project provides evidence of the potential benefit of MAR practices and management to a larger scale of aquifer recharge, particularly in coastal areas to struggle saltwater intrusion.

3.2. MARKET

3.2.1. Target markets

Industrial or communities WWTP operators are the potential market. SMD monitoring could provide them proof of the potential benefit impact of their releases against saltwater intrusion.

The design offices that accompany these operators are also potential users.

3.2.2. Boundary conditions: Drivers and trends for the tool

The SMD tool industrialisation is under process and the installer and maintenance network is being developed

3.2.3. Market sizing

As long as aquifer recharge in coastal area has not become common (in France), the market is difficult to assess.

3.2.4. Benchmark technologies/main competitors

As SMD is a particular tool with automatic running, remote control and profiles acquisition, no direct competitors are present. Other technologies exist but with less information or more technical limitations.

3.2.5. Competitive advantages

The SMD (Subsurface Monitoring Device) is an automatic and remote-controlled geophysical tool which allows measuring EC_{w20} vertical profiles and others parameters such as water level and temperature profiles.

Other existing tools allow either a conductivity profile to be made at a given time (not repeatable, needs for human intervention), or automatic data acquisition over time at a single depth (no global vision of the aquifer).

3.3. EXPLOITATION STRATEGY

3.3.1. MAR management

The POC of using SMD monitoring to provide environmental benefit of aquifer recharge in costal area allows to give assets for using monitoring tools in this case.

3.3.2. Exploitation routes, dissemination & communication actions

The results of the projects, particularly for the saltwater struggle, are being to be shared with WWTP operational and industrial within the Saur Group in internal dissemination (case studies, intranet, newsletter...).

3.3.3. Exploitation Risk

The benefit of SMD Monitoring is only present in case of MAR system in costal area (with saltwater intrusion).

3.3.4. Business model development

The SMD Monitoring is part of a large set of hydrogeological services provided by imaGeau (from sensors to data management and analyses). As a first step, these services are proposed within the Saur Group.

3.3.5. Economic feasibility and financial projections

Not addressed.



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