water mining

water mining
value for society

Deliverable 11.1

Strategic Communication Plan

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[1] **R**=Document, report; **DEM**=Demonstrator, pilot, prototype; **DEC**=website, patent fillings, videos, etc.; **OTHER**=other

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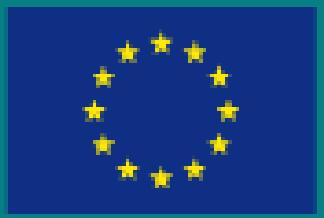

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water
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1. Introduction

1.1. Executive Summary

The WATER-MINING project, "Next generation water-smart management systems: large-scale demonstrations for a circular economy and society", is funded by the European Commission under the Horizon 2020 Framework Programme. Part of Work Package 11, Dissemination and Communication Activities, the Strategic Communication Plan (D11.1) outlines the project's methods to engage with various stakeholder groups with the goal of transferring the results and findings to the external community. Specifically, the Strategic Communication Plan (SCP) outlines the project's dissemination activities, communication planning, engagement tactics and key performance indicators. This includes 1) establishing an online and social media presence; 2) conducting stakeholder identification and engagement; 3) publishing market-related, scientific and public communication; and 4) engaging in thematic initiatives and events.

1.2. Objectives

To ensure the greatest impact from the WATER-MINING project, its findings and results need to be communicated to and disseminated amongst the relevant key players. Specifically, those players involved in the market uptake and implementation of the innovative and sustainable WATER-MINING technologies need to be identified and targeted via communication activities in order to gather their input and feedback for how to best support the technologies' commercialization. The WATER-MINING communication objectives are therefore to:

- Build smart communication channels and tools that will raise awareness about the WATER-MINING technologies and their benefits
- Build smart communication channels and tools that will foster interaction with and dissemination to the target audiences
- Directly engage with scientific, technical, non-technical, regulatory and public stakeholder groups to foster co-creation of the WATER-MINING developments and to support capacity building and efficient exploitation
- Ensure efficient exploitation and commercialisation support for the project developments and applications by following specific dissemination routes

To help achieve these communication objectives, the SCP does the following:

- Outlines the stakeholder mapping procedure and presents the identified stakeholder groups
- Summarizes the stakeholder engagement activities that will take place as part of the WATER-MINING project
- Provides examples of key messages and themes that can be used to reach out to the different stakeholder groups

- Presents the WATER-MINING online and social media channels, project releases and other materials developed for promoting the project
- Outlines the various communication methods that will be used to reach stakeholders involved in the market, scientific and public sectors
- Provides avenues for engagement in external events and associations
- Explains how communication activities will be monitored and assessed throughout the duration of the four-year project

The SCP will be updated annually (in Month 24 and Month 36) by assessing the success of communication and stakeholder engagement activities and refining the communication methods and tactics as needed.

2. Stakeholder Engagement Plan

2.1. Introduction to Stakeholder Engagement

Stakeholder engagement and interaction plays a significant role in WATER-MINING. The goal of this engagement is to ultimately deliver innovative solutions for water management that benefit local communities and businesses and are supported by the key players involved in the implementation of these solutions. Stakeholder engagement takes different forms, and this chapter will explain the identification process and detail the different types of engagement activities that comprise WATER-MINING. The various engagement activities have their own unique objectives, such as creating networks of knowledge exchange between stakeholders (T2.1), integrating social values into technological design and development, as well as increasing public acceptance (T2.2), supporting market uptake (T9.4), recommending policy and circular business models (T10.2, T9.4), and increasing citizen awareness (T11.3). However, there may be overlap among the identified stakeholders for these different objectives, raising the need to coordinate stakeholder engagement activities within WATER-MINING. This coordination pertains not only to identification, but also to outreach and interaction. This Strategic Communication Plan outlines in later chapters the key themes WATER-MINING should communicate to the stakeholders so that the right messages and "asks" can be communicated.

2.2. Stakeholder Identification & Mapping

2.2.1. Summary of Process

Regardless of the intended objective of the stakeholder engagement, stakeholder identification must be conducted as the first step in order to identify the relevant actors and determine their role in the WATER-MINING ecosystem. In WATER-MINING, the same identification process was used among all the stakeholder engagement objectives and is summarised in the following paragraphs. The Community of Practice Roadmap and Facilitation Guidelines (D2.1) on the WATER-MINING website provides more information.

In all instances of stakeholder identification, the system boundaries need to first be identified to determine which stakeholders are involved and which ones do not play a role at specific levels or in specific fields. This is done by creating a diagram and identifying the relevant players. Figure 2-1 provides an example of a WATER-MINING system diagram, which can and should be tailored to fit each specific stakeholder engagement objective. Using this diagram, WATER-MINING partners identified the major players involved. For technology implementation, this includes end-users who can implement the technology and/or the recovered products/materials from the circular process. The recovered materials themselves should be considered as part of the system. For certain objectives, the major players can also include policy makers who can address policy gaps that may act as a barrier to market uptake and technology implementation. Other major players include those who may have an indirect influence on the system, such as regulators, customers, experts, technology

suppliers etc. The aim of this system mapping is to identify all relevant actors, processes, factors that may positively or negatively influence the market uptake and implementation of the innovative WATER-MINING technologies and circular economy processes.

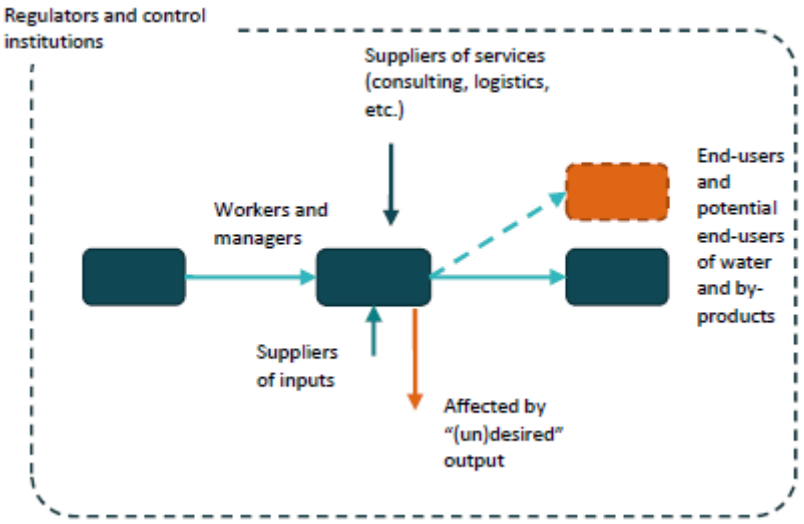

Figure 2-1. Template of water system diagram with roles of potential stakeholders.

Some stakeholders identified in Task 2.1, "Identification of stakeholders and establishment of Communities of Practice (CoPs) per case study," were interviewed as part of the first steps of Value Sensitive Design (T2.2) and market mapping (T9.2). Additionally, two questions relevant to policy packaging (WP10) were included in the market mapping stakeholder interviews.

2.2.2. Stakeholder Groups

As a result of the mapping procedure, WATER-MINING identified several stakeholder groups that play a role in, work in or who would be interested in learning about sustainable methods to implement circular economy processes in the water management sector. These groups play different roles within the WATER-MINING system and may be relevant for multiple work package activities. By coordinating between overlapping work packages, the duplication of identified stakeholders can be avoided, as well as stakeholder exhaustion, which occurs when stakeholders are approached too many times and asked to participate in the research project. Further, coordination can also help to take advantage of synergies between stakeholder knowledge areas and the different work package objectives.

There are several different ways to classify the WATER-MINING stakeholders. As mentioned in the previous section, stakeholders can include end-users or customers. For each case study, the respective actors – either organisations or individuals - were identified in the approach specified in Figure 2-1 in

order to establish a solid member base for each Community of Practice (CoP). The Community of Practice Roadmap and Facilitation Guidelines (D2.1) proposes four categories to classify concerned individuals and groups:

- Upstream stakeholders: end-users and clients
- Downstream stakeholders: supplies and contractors
- Project stakeholders: investors, project sponsors, project team
- External stakeholders: affected communities, concerned groups, knowledge networks, regulators

Example members of these groups can be found in Section 3.2.1.3 of D2.1.

Additionally, through the stakeholder mapping activity in WP2, co-creation through social engagement for societal embedding, several stakeholder groups were identified for each of the six case studies. Their possible areas of contribution were also identified. This is important as it will help the WATER-MINING partners formulate relevant messages and communication materials that are directed at the different groups. Table 2-1 summarizes the WATER-MINING stakeholder groups and their sphere of influence and provides potential communication themes.

Table 2-1. Identified stakeholder groups most relevant for WATER-MINING.

Stakeholder Group	Group Composition	Sphere/Area of Influence	Key Communication Themes/Messages
Academic/ Scientific Community	Universities, observatories, research institutes	Technological development, subject-matter expertise and perspective, participation in research projects	WATER-MINING technologies will minimize energy consumption, minimize pollution and recover valuable resources and nutrients from wastewater
Business Community, Industry	Industry consumers of water or recovered materials, technology providers, investors	Water users, product users, access to regulators, commercialisation support, business model development	Available business opportunities, development of new circular economy business models, commercial implementation methods for new technology
Regulator, Authority (international, national, local)	Standardisation & certification bodies, government agencies (sustainability, water, waste), city councils	Influence or make policy/legislation, promote sustainable development, issue licenses/certificates	Development of policy briefs and governance models, policy recommendations to remove barriers for circular economy technologies, achievement of Sustainable Development Goals (SDGs).

Stakeholder Group	Group Composition	Sphere/Area of Influence	Key Communication Themes/Messages
Operator	Wastewater treatment plants (WWTPs), water supply, technology developers	Can implement the WATER-MINING technologies	6 case studies will demonstrate innovative wastewater treatment and desalination technologies. Improved capture of resources, phosphorus and energy. Technologies associated with cost-savings potential.
Supplier	Utilities, chemical providers/ manufacturers	Supply the needed technology, chemicals and utilities	High-grade materials recovered from wastewater treatment and desalination. 6 case studies will demonstrate the potential implementation of the innovative technology.
Civil society	Public administration, citizens, end users, mass media	Place pressure on regulators at local level, expand communication outreach, consumer trends	WATER-MINNG aims to address the growing challenge of water scarcity, ensure access to clean water and sanitation. 6 case studies will demonstrate innovative technology. WATER-MINING will generate value from improved WW treatment.

The WATER-MINING Communication & Dissemination Guidelines, created for internal use to support the project partners, provide a few examples of short messages that can be used to address the following different stakeholder groups: industry and business, authorities and administrative bodies, and the general public. Further, Chapter 3 of this report provides additional tips and strategies to create the right message for specific stakeholder groups.

2.2.3. Analysis of Identified Stakeholders

An important part of stakeholder identification and mapping is to analyse the identified groups to ensure that all branches and sectors are included and that the stakeholder engagement events are composed of an equally represented mix of stakeholders. Table 2-2 summarizes the composition of the identified stakeholder groups (presented in Table 2-1), listing the type of organisations or institutions that were identified for each group by the WATER-MINING partners.

Table 2-2. Composition of identified stakeholder groups.

Stakeholder Group	% of Total Unique Identified Stakeholders	Group Composition
Academic/ Scientific Community	10%	Universities in Spain, Italy, German, Netherlands, Portugal, Saudi Arabia, Tunisia; research foundations
Business Community, Industry	34%	Hotels, WWTPs, chemical manufacturers, utility suppliers, professional associations, agricultural sector, landfill & solid waste management
Regulator, Authority (international, national, local)	36%	Sewage boards; city councils; river basin management boards; regional water authorities; Departments of Agriculture, Sustainability, Economics, Water
Operator	3%	Trucking sector, water management companies, construction companies
Supplier	7%	Chemical suppliers, solar energy installers, agricultural sector, technology providers
Civil Society	8%	Community associations; NGOs

As seen from the above table, most of the identified WATER-MINING stakeholders are from two major groups: 1) the business and industry communities and 2) regulators and authorities. After closer inspection of the composition of each of the groups, there are certain institution types that are missing. The business community is missing stakeholders from the public and private investment sector, which would be useful for WATER-MINING to secure funding to assist with technology development and implementation, and the consulting/expert industry, which could help with technological development and implementation. The group of regulator stakeholders could also include standardisation entities, who define standards based on certain needs, and certification bodies, who can assess a certain product or process and determine its compliance. Both groups would be beneficial for WATER-MINING in creating an environment that promotes circular economy processes (i.e. through standardisation) and in potentially certifying the innovative technology or products recovered through the project (i.e. through certification). Lastly, the civil society can also include primary schools (i.e. school-aged children), citizens, and local or national media outlets. The WATER-MINING partners involved in the case studies or the various stakeholder engagement activities (see Section 2.3) should consider expanding their list of identified players to include these groups in order to maximize the results impact and dissemination.

2.3. Methodology for Stakeholder Engagement

Once the relevant stakeholders are identified, it is important to contact them and bring them together to discuss innovative solutions. Collaboration, communication and exchanging of ideas are key to ensuring that effective and suitable solutions are developed and implemented. This requires input from stakeholders from each of the identified target groups in order to examine the solutions from a multi-faceted approach, thereby increasing their implementation. In the WATER-MINING project, we will create opportunities for this collaboration through four major avenues: internal project coordination, Communities of Practice (CoP), Living Labs and Citizen Engagement Workshops.

Each avenue is responsible for their own outreach and communication with the stakeholders. This can take different forms depending on the timing, objective and schedule of the engagement activities. For example, D2.1 includes several resources that help with outreach for the CoP meetings (T2.1). These include moderation techniques for different objectives (e.g. brainstorming, decision-making) and ideas for how to initially approach stakeholders. As another example, the leaders of Task 9.2 created email templates, which can be sent to stakeholders to invite them to take part in market mapping workshops.

The WATER-MINING project pursues a coordinated approach to stakeholder engagement to ensure maximum efficiency as well as to avoid stakeholder fatigue. Within Task 11.1, monthly stakeholder engagement coordination meetings take place, comprised of all consortium members from the horizontal work packages (WP2, WP7, WP8, WP9, WP10 and WP11) who are in charge of tasks involving stakeholder engagement, e.g. activities on market mapping (Task 9.2) or policy formulation and packaging (WP10). This ensures a constant exchange on progress and actions of the different work packages. A targeting process has been created to contact stakeholders, with case study owners (CSO) and case study facilitators (CSF) playing a centralized and crucial role. The consortium members from the horizontal WPs also take part in the case study (CS) meetings organized by WP2 to facilitate the communication between the technical and the horizontal project activities. For events involving stakeholder contact, processes are aligned, and synergies are used in an efficient and structured way. Altogether, these stakeholder engagement coordination measures are a powerful tool and unique feature of WATER-MINING, avoiding overlap as well as stakeholder fatigue and thus maximising the created impact.

2.3.1. Communities of Practice

A CoP, as defined in D2.1, is a space where people come together to share ideas or express concerns and learn from the experiences of one another, often resulting in recommendations for improvement or innovation. The success of a CoP depends on the inclusion and reassurance of the CoP members, which results from a safe and supportive space where co-creation and co-development can thrive.

In the context of WATER-MINING, this system will include stakeholders from various backgrounds and points of view who all have a shared common interest and a commitment to improve water management. A CoP has been established for each of the six case studies by the CSOs and CSFs, with the help of WP2 leaders and KWR Water Research Institute. Each case study created a CoP roadmap

(explained in D2.1), which outlines the timeline of the CoP meetings, defines their and identifies the participating stakeholders. CoP participates will validate the identified stakeholders during the first CoP meetings, and further stakeholder groups may be added to maximise the impact. The CoP roadmaps can be found on the WATER-MINING internal server and are useful for the partners to understand the topics and focuses of each CoP meeting. The organisation and structure of the CoP meetings is unique to each of the case studies. Some case studies involve all identified stakeholders in every CoP meeting, whereas other case studies have divided the stakeholders into focus groups, who will be asked to provide input on their specific areas of expertise (i.e. phosphorus recovery).

Complementing the six case studies as the technical core of WATER-MINING, the corresponding CoPs form the heart of the stakeholder engagement activities. The CoP workshops and activities foster the fruitful exchange with the different stakeholder groups outside of the project in respect to the technical innovation and developments within the WATER-MINING project. Most importantly, the input from the CoPs will greatly enhance the support the design of the WATER-MINING technologies by following the Value Sensitive Design (VSD) approach for incorporating the stakeholders' social values, concerns and expectations. A detailed description of the CoPs and VSD can be found the Communities of Practice Roadmap and Facilitation Guidance (D2.1).

The information exchange with the citizens in the frame of the citizen engagement activities such as the modular exhibition and the citizen workshops (as described in Section 2.3.3) will add to the input gathered and exchanged in the CoPs. The views and concerns of citizens on the presented WATER-MINING technological developments will complement the VSD process.

2.3.2. Living Labs

Within the WATER-MINING project, two Living Labs (LLs) will be developed. LLs are defined as "user-centred, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real life communities and settings" (ENoLL, n.d.). Similar to CoPs, LLs also aim to support and foster collaboration and innovation by providing a real-life environment where technologies or processes can be examined and understood. The aim within WATER-MINING is to make use of social learning and value-sensitive design in these two real-life settings to gather information and opinions from stakeholders on the innovative technologies.

One of the WATER-MINING LLs will be located at Platforma Solar de Almería (PSA), a solar technology research, development and test centre in Almería, Spain. The PSA living lab aims to engage with public authorities, policy makers (both national and regional), irrigation communities, farmers' associations and other relevant stakeholders. The second LL will be at Floating Farm in the harbour of Rotterdam, Netherlands. The purpose of this LL is to demonstrate the innovative WATER-MINING technology, engage with citizens and stakeholders and publicize the project's process and results. ENoLL will support both LLs as a 'mentor' throughout the whole process. Further, ENoLL will evaluate the impact of both LLs based on a set of six key indicators in order to help them mature and become role models.

Before the LLs are opened to the WATER-MINING stakeholders, ENoLL will lead the preparation and scoping process for both to ensure they are implemented effectively. During the first part of the LL preparation, a general introduction about LLs and an introduction about the overall approach (see

Figure 2-2) will be presented and explained. The goal of this first part is to develop a stakeholder engagement plan of action for both Living Labs. This stakeholder engagement plan will allow the LLs to organize the ways they are planning to interact with all actively involved stakeholders throughout the entire project. The plan will also allow them to follow up on implemented activities, tools and methods in order to identify lessons learned for future improvement.

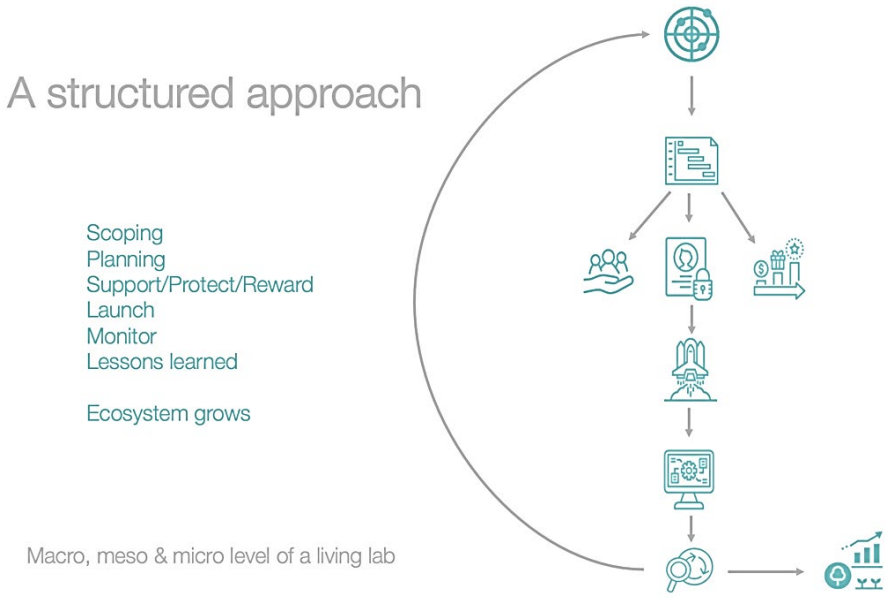

Figure 2-2. Visual diagram of the approach to be used for the WATER-MINING LLs.

Following this introduction, a series of (online) workshops will be performed with each individual LL to work through the overall approach step by step. The first online workshop (using Miro, an online whiteboard) will focus on the purpose of each LL in regard to the stakeholders and on stakeholder engagement activities which will take place.

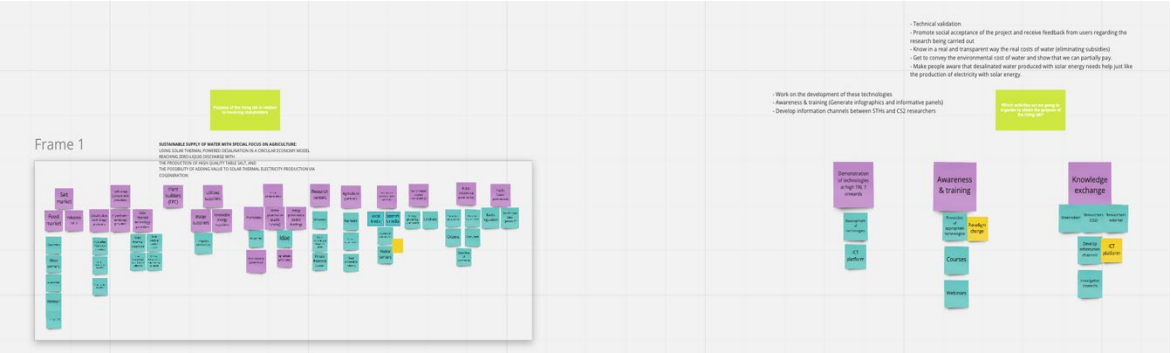

Figure 2-3. A screenshot of a Miro board that can be used for the first LL workshop.

The second workshop will focus on mapping the stakeholders in relationship to each other (panel squares) and then mapping the stakeholders to the identified engagement activities (panel matrix). Also, each LL can further develop this matrix to be used as a workable monitoring instrument for tracking stakeholder engagement. The purpose of this exercise is to align the stakeholders with the most relevant engagement method to ensure that the outreach is effective.

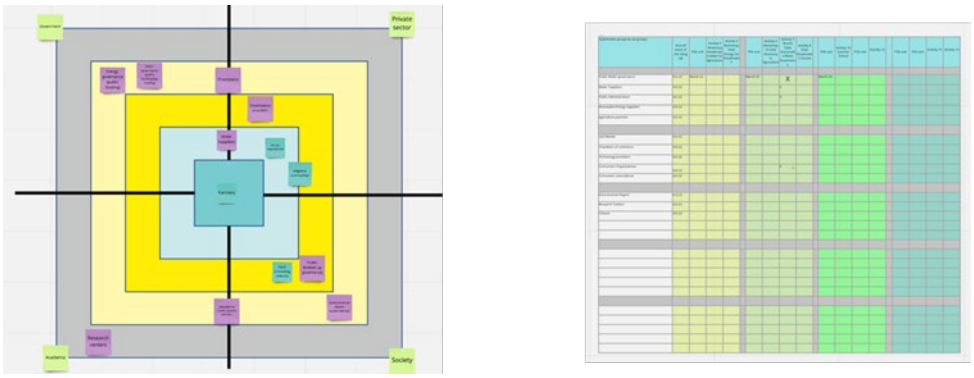

Figure 2-4. a) Panel square Miro board to show the relationship of the different stakeholders to one another. b) Panel matrix Miro board to align the stakeholders to the identified activities.

After the workshops, the next steps of the LL preparation phase focus on:

- creating a support structure for the living labs, offering them a structure to answer all questions that engaged stakeholders might pose
- developing a communication plan to interact with different stakeholders via different communication channels
- installing the necessary 'legal' protection measures for stakeholders to guarantee their privacy and protect them during activities

To facilitate these steps, the following roadmap will be provided to help the LLs develop a structured timeline.

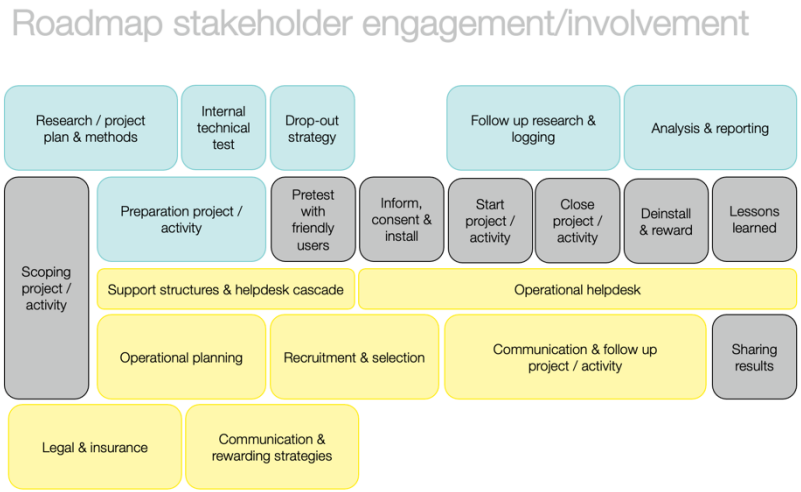

Figure 2-5. Roadmap for facilitating stakeholder involvement in the Living Labs.

2.3.3. Citizen Engagement

NEMO and Ecsite will deliver a package to be used by partners in the consortium to facilitate public engagement. The package will contain a light modular exhibition, a Playdecide game concept and a workshop format. The design, production and deployment of the public engagement package will be an iterative process involving all relevant partners where possible and key partners from WPs 2, 7 and 11. The preparation and scoping process will include an internal partner workshop co-creation program with at least two meetings (the first was held on 22 June 2021 with over 25 participants). Partners were asked to share their ideas on the target audiences, main communication goals and key messages for the citizen engagement activity. The partners also contributed content and aligned the future planning steps. The production process will start in the fall of 2021 and continue until summer 2022. The deployment of the public engagement program is planned to start in the fall of 2022. Alongside NEMO, SciCo and Parque de las Ciencias will conduct citizen engagement dialogue workshop activities comprised of at least 100 participants per country (Netherlands, Cyprus/Greece and Spain).

NEMO, SciCo and Parque de las Ciencias will use their local and national channels to communicate and promote the WATER-MINING exhibition and public engagement program. More specifically, NEMO will use its websites, newsletter, social media channels and online science platform NEMOkennislink.nl. Combined, NEMO channels will be able to reach more than 25,000 Dutch citizens online during 2022.

NEMO will exhibit the WATER-MINING modular exhibition at the Studio location in Amsterdam, De Studio - NEMO Science Museum. Throughout 2022, NEMO will host a new temporary exhibition on energy and sustainable development. The WATER-MINING modular exhibition will be presented during parts of this exhibition and mentioned in the broader yearlong promotional activities. Visitors of the NEMO Studio will be able to visit the WATER-MINING expo.

SciCo is planning to exhibit the WATER-MINING modular exhibition at a central location in Nicosia, the capital of Cyprus. The initial plan is to host it at the Nicosia Water Board, which also hosts the national water museum and is open to schools and the general public. Alternatively, the exhibition can be hosted at the University of Cyprus. The WATER-MINING modular exhibition will be presented and promoted by all participating organizations via available communication channels (social media, website, newsletters, etc.) and should reach at least a minimum of 600 visitors.

The Parque de las Ciencias will exhibit the WATER-MINING modular exhibition in Granada (Andalusia, Spain). This exhibition will coincide with a 1,000 m^2 exhibition about biomimicry, produced as part of a cooperation project with three partners who have significant experience in promoting scientific education through exhibitions (Tekniska, Stockholm, Sweden; Dasa, Dortmund, Germany; Technisches Museum Wien, Austria). Accordingly, a large number of visitors is expected. From experience, visitors of any main exhibition in the museum visit the other areas of the Parque de las Ciencias, so the potential audience for the WATER-MINING modular exhibition is around 430,000 persons/year (pre-COVID-19 pandemic numbers: 250,000 visitors during 2020). Moreover, the WATER-MINING modular exhibition will be mentioned on the organization's website, in newsletters and via social media channels.

As another method for education and building awareness, NEMO and partners from WP7 have already arranged contacts and will coordinate the use and development of augmented reality (AR) tools for application in citizen engagement. The goal is to develop the tools in coordination with the other partners so that the tools will complement or add to the overall visitor experience of the WATER-MINING modular exhibitions.

2.4. Stakeholder Monitoring

2.4.1. Evaluation of Communities of Practice

At the end of each CoP meeting, the participating stakeholders will be asked to complete an evaluation form, elaborating on the perceived CoP environment, the meeting's effectiveness, the level of increased understanding and the success in creating applicable outcomes. This evaluation form is provided in Annex 3 of D2.1. The feedback gathered via these forms will not only be used to improve future CoP meetings but will also be used for future updates of this SCP, possibly highlighting changes that can be made to the WATER-MINING communication and engagement methods. Additionally, it will feed into a report on best practices for stakeholders' engagement (D2.3).

As mentioned earlier in this chapter, the LLs will be evaluated by ENoLL based on several key indicators in the following six common attribute areas:

- active user involvement
- multi-method approach
- multi-stakeholder participation
- orchestration
- real-life setting
- co-creation

The resulting assessment will be included in the deliverable "D2.4 Evaluation report of two Living Labs" (ENoLL, lead institution) and will provide recommendations to improve future stakeholder engagement beyond the realm of WATER-MINING.

Similar to the CoP meetings and LLs, all stakeholder engagement activities should include an evaluation component to help the partners assess the effectiveness of the different WATER-MINING activities. This also includes internal project coordination of stakeholder activities (see Section 4.4.1).

2.4.2. Success of Stakeholder Engagement

In addition to the evaluation by the stakeholders themselves, the success of stakeholder engagement can also be monitored by different key performance indicators (KPIs). WATER-MINING has defined several of these, which can be used as a benchmark for the different stakeholder engagement activities. They are listed in Table 2-3.

Table 2-3. KPIs for stakeholder engagement within the CoPs.

Key Performance Indicator	Quantifiable Target
Number of stakeholders included in each CoP at the end	>75% of identified stakeholders
Number of workshops in each CoP	18
Stakeholders' moral values and concerns that are translated to performance indicators	>50%

The success of WATER-MINING stakeholder engagement activities can also be measured by their interest in contributing to the project. While this parameter is more difficult to determine, it can be measured through their likelihood to advocate or speak positively about WATER-MINING as a result of the contact (see Section 5.2), their level of participation in the CoP meetings (potentially assessed through the CoP evaluation form) or their engagement beyond the lifetime of WATER-MINING (potentially assessed through future EU projects). For future iterations of the SCP, the WATER-MINING consortium will need to elaborate on and define the measures for determining stakeholder engagement success.

3. What to Communicate

3.1. Value of the Project

WATER-MINING aims to address the challenge posed by a growing water demand in conjunction with a decreasing sustainable water supply by exploring alternative water sources. Through its six case studies, the EU-level project aims to develop innovative solutions for sustainable water management, exploiting opportunities with urban and industrial wastewater and seawater desalination. The six case studies will involve lab- and pilot-scale installations to demonstrate the potential of these innovative solutions to operate in real-world environments. The homepage of the WATER-MINING website (https://watermining.eu/) lists the project's nine objectives. The objectives cover themes from the development of new technology to recover specific resources to the involvement of key stakeholders and the public.

The value of the project, succinctly explained in a so-called 'golden paragraph', is also specific to the individual target audiences. Different audiences will be interested in the aspects of WATER-MINING that are the most relevant to their business, knowledge area or level of involvement/influence. This should be kept in mind when communicating with different target groups. The project's value and objectives should be tailored to each individual conversation. The following sections provides some ideas to accomplish this. The local language should also be taken into consideration.

3.2. Key Messages

There are several key messages that can be shared for WATER-MINING, which can be tailored to specific target groups and updated based on the current project phase and outputs. The messages should be succinct and communicate what the audience should take away or remember. In order to draft key messages, think about the interests and areas of expertise of the desired target audience and reflect on what information would be most valuable to them.

The Communication & Dissemination Guidelines provide some initial key messages that can be shared. These messages were developed at the beginning of the project and should be updated to include results and conclusions. This document provides key messages for four main target groups: general public, industry and businesses, public authorities and administrative bodies and stakeholder networks. Further, Table 2-1 in Section 2.2.2 of this document briefly summarizes the key themes for the six identified stakeholder groups: 1) academic/scientific community; 2) business community, industry; 3) regulators, authorities (international, local), 4) operators, 5) suppliers; and 6) the general public. These ideas can be used as inspiration for the WATER-MINING partners to create outreach campaigns and draft initial contact emails.

As another resource for drafting key messages, NEMO and ECSITE conducted a first and preliminary consultation round with consortium partners inquiring about topics such as what key messages should be used in citizen engagement activities in the WATER-MINING project. NEMO and ECSITE will

establish a more defined and focused theme scope in the fall of 2021. However, recurring topics or key messages for the general public identified during the first session include: *the importance of water in a circular economy, impact of water on one's personal life, water supply and demand, and ethics or societal impact*.

3.3. Key Concepts

When communicating among different groups that span industry, politics, academia and the public, it is important to ensure that specific terms related to the project are being used correctly and consistently. The major topics of WATER-MINING include several terms and phrases inherent to the project's objectives, which should be used similarly across all communications with project partners and stakeholders. In an attempt to aid the WATER-MINING partners in employing a coherent communication strategy, this document defines a few of these terms below. Note that this is not an exhaustive list and there may be other terms which lack a clear definition within the project that should be added to the SCP during subsequent updates. The terms below were defined with the help of the WATER-MINING subject-matter experts and through the review of several sources (Arup & Antea Group, 2019; EPA, 2021; WateReuse Association, 2021)

1. Circular economy & circularity
   Circular economy refers to a system where resources are used more efficiently, resources are kept in use for longer, and by-products and waste from processes are recovered and recycled, either for internal or external use. *Circularity* is a term used to refer to circular economy (circular) systems. These systems can either be closed loop or include the end-use utilisation of recycled resources by an external application.

2. Reuse, recycling, recovery
   Reuse refers to a resource (i.e., water, material) that has been appropriately treated to be used again for a specific purpose. For example, wastewater is often treated to be reused as non-potable water in the agricultural sector. *Recycling* refers to the process where a resource stream from an operation is recycled within the operation itself, such as with zero liquid discharge. *Recovery* includes reuse and recycling, but can also refer to the recovery of energy, such as from waste heat processes.

3. Regenerated water, reclaimed water
   These terms are interchangeable, but *regenerated water* is less commonly used, while *reclaimed water* is used more often. *Reclaimed water* characterizes water that has been treated from a wastewater stream via reusing or recycling for use in a specific manner. *Regenerated water* should not be used within the WATER-MINING project.

4. Communication Channels, Tools & Activities

4.1. Online and Social Media Presence

4.1.1. Project Website

The website at http://www.watermining.eu is the main digital tool to promote WATER-MINING's goals and results to the project's stakeholder groups. The website has been designed to provide beneficial information for all target groups, interested parties, as well as the WATER-MINING consortium. The website contains both a public and a partner-only area, maximizing its effectiveness as a tool and resource for all involved parties. The public area of the website:

- Explains the project's objectives and the separation of the activities by work packages and tasks,
- Presents the six case studies and two living labs,
- Provides the latest news and event updates related to the WATER-MINING community,
- Provides access to the WATER-MINING documents that are available for download, such as deliverables, press releases and/or scientific reports,
- Serves as a database for newsletters, images and videos related to the project, as well as materials that can be used for communication (i.e. media kit, leaflets, posters),
- Provides information about the project partners and related projects (sister projects),
- Links to the project's social media accounts (Twitter and LinkedIn) and YouTube channel,
- Links to the project's internal web repository and to the WATER-MINING marketplace platform will provide a clear explanation of the benefits and limitations of the methodologies developed and facilitate the transferring of these methodologies and products to the market for future commercial purposes.

It is important to note that the website is not only an external-facing repository for interested parties and stakeholders, but also a resource for the entire WATER-MINING consortium. The information listed above can be used for presentations and communication activities as well as for project status updates.

The partner's area of the website includes various forms with which partners can upload content and report on their activities (see Chapter 5). Information entered into the forms can also be used for the required reporting to the European Commission and for monitoring the project's progress in relation to the established key performance indicators. Partners should enter any relevant information pertaining to publications, upcoming and past events, and any material that could be used for social media posts and outreach (i.e. news articles, interviews, project activities, etc.).

The website was first published during the third month of the project, but is continuously updated by the Task 11.2 leader, REVOLVE, with support from DECHEMA e.V. and Water Europe. The website is kept up to date through contributions from and cooperation with all WATER-MINING partners.

Deliverable 11.2 Website Development is available on the project website and provides more information about and screenshots of the different sections.

4.1.2. Project Social Networking

In addition to the project website, it is important to use social networking channels to engage and communicate with a wider audience. Social media channels are powerful tools to disseminate to a broad range of interested parties and provide consistent updates on the project's progress and successes in short, easy-to-digest posts. WATER-MINING will use Twitter and LinkedIn accounts to reach out to our identified stakeholders. Water Europe is in charge of creating posts and gathering any needed input from the project partners.

An internally-created Social Media Strategy Proposal from Task 11.2 contains a social media plan, outlining the timing and content areas for social media posts. The Communication & Dissemination Guidelines list required and suggested hashtags to use for social media posts, as well as WATER-MINING social media templates which can be used. Partners can use these documents as resources when creating their own social media posts about the WATER-MINING project.

4.1.2.1. Twitter

Twitter is a very powerful tool to engage with stakeholders by disseminating timely news and initiating stimulating posts. For this reason, the WATER-MINING Twitter account (@watermining) is used to achieve two main objectives:

- Inform the WATER-MINING Twitter community of the project's developments and updates
- Engage with stakeholder groups and target audiences for each of the WATER-MINING case studies and living labs by interacting with them and presenting them with opportunities to get further involved into the project.

All the identified WATER-MINING stakeholder groups will be reached through the Twitter account, especially EU policy makers, public authorities, researchers, local communities and authorities, water institutions and networks, citizens and the general public. The key messages that are communicated through Twitter are:

- The importance of the vital role of water for our society and circular economy.
- The significant impact that the WATER-MINING's innovative methods will have on society, benefiting every citizen.
- The importance of the different strategies used for the implementation of the project, involving six different sector-specific case studies which reflect the needs of different water users.
- The day-to-day developments of the project, including news, events and opportunities from the WATER-MINING consortium that could further the stakeholder groups' involvement.

4.1.2.2. LinkedIn

The WATER-MINING LinkedIn page (WATER-MINING H2020) has been established as an important means to connect with the consortium partners and their staff involved in the project, as well as to engage with all stakeholder groups. In particular, LinkedIn can effectively connect the WATER-MINING project with the business community, experts, consultants, industry representatives, SMEs and other relevant networks related to wastewater management, urban desalinization, and urban and industrial water reuse. Through the LinkedIn page, followers can receive updates on the project's progress and on the opportunities the project can offer them. More specifically, by following the WATER-MINING LinkedIn page, our community can acquire knowledge about:

- Webinars, events or other opportunities where they can learn more on the vital role water plays for our society and the importance of circular economy and circular water management strategies.
- How they can benefit from the business opportunities and the different circular economy business models within the wastewater cycle presented by WATER-MINING.
- How they can keep up to date with the EU institutions' updates and policy developments.

4.1.2.3. YouTube

REVOLVE has created a dedicated video (WATER-MINING H2020) channel on YouTube that is currently organised into four playlists but will be expanded over time depending on the content produced. The four playlists are as follows:

- **Kick-Off Meeting:** This playlist contains 23 videos extracted from the recordings of all the partner presentations during the WATER-MINING kick-off meeting in October 2020. All videos can be found here.
- **Case Studies**: This playlist currently contains six videos, each one presenting a case study from the WATER-MINING project. All videos include subtitles in the local language of the case study location. All case study videos can be found here.
- **Event Presentations**: This playlist currently contains one video of a presentation by Phillip Wilfert from TU Delft which he gave during the 5th IWA Conference 2021. The video can be found here.
- **Interviews**: This playlist includes an interview of Peter Van Wingerden, founder of the Floating Farm, which is the location of one WATER-MINING Living Lab. The video can be found here.

In addition to the abovementioned videos, REVOLVE will create three explanatory project videos at different times throughout the project duration (M12, M24, M42). The three videos will be no longer than ten minutes in length each and will each have its own specific focus and communication objective in order to reach as many target groups as possible. The videos should address three main topics: 1) general project aims and objectives; 2) innovations in the three categories of sea-, urban-, and industrial-mining; and 3) dissemination and exploitation perspectives that address specific stakeholder groups, such as the general public, policymakers/regulators, and potential users and investors. For the first video, REVOLVE currently creates a documentary style video summarising the

main elements of the project with different chapters, making it appealing and accessible to our target audiences. All WATER-MINING videos will be published on the project's YouTube channel.

4.1.3. Project Releases & Other Materials

In addition to the project website and social media channels, WATER-MINING will also develop promotional materials to explain the project and provide updates to the WATER-MINING community. The purpose of these materials is to convey more detailed information about project updates than can be provided via social media or website posts.

The WATER-MINING leaflet is available for download from the project website and is a six-page PDF document that includes the WATER-MINING "golden paragraph", the definitions of sea, urban and industrial mining, the nine project objectives, the locations and objectives of the six project case studies, and the logos of all 39 consortium partners. This leaflet was developed with the intention of sharing this with stakeholders and the WATER-MINING community via email. Since WATER-MINING includes a large component of stakeholder engagement, it was important to develop a short description that could be sent via email as a way to initially introduce the project and capture the attention of stakeholders.

To further increase the outreach of the project, annual WATER-MINING newsletters will be developed and distributed. The newsletters are an important tool to communicate the project's progress, reaching all the targeted stakeholder groups from the general public and citizens to researchers, policy makers and the business community. With four newsletters scheduled to be released throughout the project, the newsletters aim to summarise and give an overview of all the project's main highlights. In particular, the envisioned format of the newsletter has three main sections that will provide readers with a 360-degree update of what is happening in the project. The first section of the project will focus on the most important past activities and highlights of the year, the second section on the most recent/current activities and the third section on what the recipients can anticipate from us in the near future. At the end of the newsletter, an agenda of upcoming WATER-MINING related events will be featured. The indicated structure of the newsletter will always be adjusted to the news objective decided for each edition of the newsletters, and thus it may take different forms to respond adequately to the project's news and the readers' needs.

4.1.4. Partner Outreach Channels

A major component of online and social media activity is the engagement among and between social media accounts. The WATER-MINING social media accounts are run and continuously updated by the Task 11.2 leaders, but the effectiveness and reach of these posts can be increased by the WATER-MINING partners sharing and engaging with the posts using their own social media channels (Table 4-1). While the goal is to grow the number of followers for the WATER-MINING accounts, the existing networks of the 38 project partners provide an already available and extensive audience. Through sharing the WATER-MINING social media posts on their own accounts, the project partners can expand

the reach of project-related news and activity, communicate to a broader group of stakeholders (potentially also reaching niche, local stakeholders) and gather interest and support from new target groups.

Table 4-1. List of WATER-MINING consortium members' websites and social media accounts.

Partner	Twitter	LinkedIn	YouTube
1-TECHNISCHE UNIVERSITEIT DELFT	@TNWTUDelft	N/A	N/A
2-SEALEAU BV	N/A	SEALEAU B.V.	N/A
3-KWR WATER B.V.	@KWR_Water	KWR Water Research Institute	N/A
4-FUNDACIO EURECAT	@Eurecat_news	Eurecat - Technology Centre of Catalonia	N/A
5-NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA	@ntua	N/A	Εθνικό Μετσόβιο Πολυτεχνείο - NTUA
6-S.EL.I.S. LAMPEDUSA SPA	N/A	N/A	N/A
7-CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT	@psaciemat	Plataforma Solar de Almería - CIEMAT	N/A
8-DECHEMA GESELLSCHAFT FUER CHEMISCHE TECHNIK UND BIOTECHNOLOGIE E.V.	@DECHEMA	DECHEMA	DECHEMA
9-BRUNEL UNIVERSITY LONDON	@bruneluni	Brunel University London	N/A
10-THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	@aberdeenuni	University of Aberdeen	University of Aberdeen
11-WATER EUROPE	@H2OEU	Water Europe	N/A
12-RESOLUTION RESEARCH NEDERLAND BV - HEXION	N/A	Hexion Inc.	N/A
13-UNIVERSITA DEGLI STUDI DI PALERMO - UNIPA	@unipa_it	Università degli Studi di Palermo	N/A
14-STICHTING WETSUS, EUROPEAN CENTRE OF EXCELLENCE FOR SUSTAINABLE WATER TECHNOLOGY	@wetsus	Wetsus, European Centre of Excellence for Sustainable Water Technology	N/A
15-INSTITUTE OF ENVIRONMENTAL SCIENCE AND TECHNOLOGY OF THE UNIVERSITAT AUTÒNOMA DE BARCELONA (ICTA-UAB)	@ICTA_UAB	N/A	N/A

Partner	Twitter	LinkedIn	YouTube
16-STICHTING JOINT IMPLEMENTATION NETWORK (JIN)	N/A	JIN Climate and Sustainability	N/A
17-ACSA OBRAS E INFRAESTRUCTURAS SAU - ACSA-SORIGUE	@sorigue_	Sorigué	N/A
18-INSTITUTE OF COMMUNICATIONS & COMPUTER SYSTEMS (ICCS)	@ISENSE_GROUP	ISenseGroup/ICCS	I-SENSE research group of ICCS
19-ROYAL HASKONINGDHV NEDERLAND BV	@Nereda_RHDHV	Nereda wastewater treatment technology	N/A
20-KVT TECHNOLOGY (KANZLER VERFAHRENSTECHNIK GMBH)	N/A	kvt.technology	N/A
21-LARNACA SEWERAGE AND DRAINAGE BOARD	N/A	N/A	N/A
22-STICHTING NATIONAAL CENTRUM VOOR WETENSCHAPS- EN TECHNOLOGIECOMMUNICATIE (NEMO Science Museum)	@NEMOamsterdam	NEMO	N/A
23-ACCIONA AGUA SA	@ACCIONA	ACCIONA	ACCIONA
24-UNIVERSIDAD DE SANTIAGO DE COMPOSTELA - USC	@icedeUSC @DeinUSC	Mestrado en Desenvolvemento Económico e Innovación	N/A
25-JERUSALEM INSTITUTE FOR ISRAELI STUDIES	מכון ירושלים | Jerusalem Institute	Jerusalem Institute for Policy Research | מכון ירושלים למחקרי מדיניות	Jerusalem Institute for Policy Research
26-AGUAS DO ALGARVE SA	N/A	N/A	Águas do Algarve
27-REVOLVE / REV	@RevolveMediaCo	REVOLVE	REVOLVE
28-EUROPEAN NETWORK OF LIVING LABS IVZW - ENOLL	@openlivinglabs	ENoLL (European Network of Living Labs)	N/A
29-WATER & ENERGY INTELLIGENCE BV	N/A	N/A	N/A
30-LENNTECH BV	N/A	Lenntech Water Treatment Solutions	N/A
31-TITAN SALT BV	N/A	Titan Salt	N/A
32-ASSOCIATION EUROPEENNE DES EXPOSITIONS SCIENTIFIQUES TECHNIQUES ET INDUSTRIELLES	Ecsite	Ecsite, the European network of science centres and museums	Ecsite Executive Office
33-SOFINTER SPA	N/A	Sofinter	N/A
34-THE VASANTDADA SUGAR INSTITUTE - VSI	N/A	N/A	N/A

Partner	Twitter	LinkedIn	YouTube
35-THERMOSOL ATMOLEVITES ANONIMI ETAIREIA	N/A	N/A	N/A
36-NOURYON INDUSTRIAL CHEMICALS B.V. - NOBIAN	N/A	Nobian	N/A
37-FLOATING FARM HOLDING BV	@FloatingFarmNL	Floating Farm Rotterdam | LinkedIn	N/A
38-MADISI LTD	N/A	N/A	N/A

In addition to communicating project news and updates through social media, the WATER-MINING partners are also encouraged to use their own organisation websites, newsletters, leaflets and reports to promote the project. One easy and recommended strategy to increase the number of project followers is to share the link to the WATER-MINING online newsletter. The online subscription page (https://watermining.eu/) allows visitors to sign up for the project newsletters, which are published annually, but also brings them to the project's webpage, where they can find all the available information and project links. By directing interested parties to the newsletter sign-up page, partners can thus increase the outreach through two means – growing the number of newsletter subscribers and increasing traffic to the project website.

Partners can use their communication channels (Table 4-2) to share the website link and newsletter subscription by posting a short blurb in their own organisational newsletters, brochures or public reports. REVOLVE and Water Europe can provide assistance to the partners in drafting a statement that can be included in these outlets. Further, the information in Chapter 3 "What to Communicate" can help partners identify major themes or topics they want to share. The Communication & Dissemination Guidelines can also be useful to partners in helping them draft short blurbs about WATER-MINING. The guidelines also specify the use of required logos and outline the major themes. It is recommended to use the individual partner communication channels to also share project results or findings, especially as these pertain to the individual company.

Table 4-2. List of available communication channels from the WATER-MINING partners.

Partner Website	Newsletter	Leaflets, Brochures, other Printed Material	Public Documents or Reports
1-TECHNISCHE UNIVERSITEIT DELFT	x*		
2-SEALEAU BV			
3-KWR WATER B.V.	x		
4-FUNDACIO EURECAT	x	x	
5-NATIONAL TECHNICAL UNIVERSITY OF ATHENS - NTUA		x	x
6-S.EL.I.S. LAMPEDUSA SPA			
7-CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT	x	x	x

Partner Website	Newsletter	Leaflets, Brochures, other Printed Material	Public Documents or Reports
8-DECHEMA GESELLSCHAFT FUER CHEMISCHE TECHNIK UND BIOTECHNOLOGIE E.V.	x		
9-BRUNEL UNIVERSITY LONDON			
10-THE UNIVERSITY COURT OF THE UNIVERSITY OF ABERDEEN	x		
11-WATER EUROPE	x		
12-RESOLUTION RESEARCH NEDERLAND BV - HEXION			x
13-UNIVERSITA DEGLI STUDI DI PALERMO - UNIPA	x		
14-STICHTING WETSUS, EUROPEAN CENTRE OF EXCELLENCE FOR SUSTAINABLE WATER TECHNOLOGY	x		
15-INSTITUTE OF ENVIRONMENTAL SCIENCE AND TECHNOLOGY OF THE UNIVERSITAT AUTÒNOMA DE BARCELONA (ICTA-UAB)	x	x	x
16-STICHTING JOINT IMPLEMENTATION NETWORK (JIN)			
17-ACSA OBRAS E INFRAESTRUCTURAS SAU - ACSA-SORIGUE	x		x
18-INSTITUTE OF COMMUNICATIONS & COMPUTER SYSTEMS (ICCS)	x		
19-ROYAL HASKONINGDHV NEDERLAND BV	x		
20-KVT TECHNOLOGY (KANZLER VERFAHRENSTECHNIK GMBH)		x	
21-LARNACA SEWERAGE AND DRAINAGE BOARD			
22-STICHTING NATIONAAL CENTRUM VOOR WETENSCHAPS- EN TECHNOLOGIECOMMUNICATIE (NEMO Science Museum)	x*	x	x
23-ACCIONA AGUA SA			
24-UNIVERSIDAD DE SANTIAGO DE COMPOSTELA - USC		x	x
25-JERUSALEM INSTITUTE FOR ISRAELI STUDIES			
26-AGUAS DO ALGARVE SA	x	x	x
27-REVOLVE / REV	x		
28-EUROPEAN NETWORK OF LIVING LABS IVZW - ENOLL	x		

Partner Website	Newsletter	Leaflets, Brochures, other Printed Material	Public Documents or Reports
29-WATER & ENERGY INTELLIGENCE BV			
30-LENNTECH BV		x	
31-TITAN SALT BV			
32-ASSOCIATION EUROPEENNE DES EXPOSITIONS SCIENTIFIQUES TECHNIQUES ET INDUSTRIELLES			
33-SOFINTER SPA			
34-THE VASANTDADA SUGAR INSTITUTE - VSI			x
35-THERMOSOL ATMOLEVITES ANONIMI ETAIREIA			
36-NOURYON INDUSTRIAL CHEMICALS B.V. - NOBIAN			
37-FLOATING FARM HOLDING BV			
38-MADISI LTD	x*	x	

* The organisation publishes a newsletter, but cannot include WATER-MINING content.

4.2. Market-related, Scientific & Public Communication

A key goal of a research project's communication and dissemination activities is to bridge the gap between science, policy, and society. In this way, research findings and outputs can be introduced to the public sphere and implemented to bring about change or improvement in existing processes. As the goal of WATER-MINING is to develop innovative solutions to improve water management using circular economy approaches, a major component of project-related outreach must be to convey these solutions to relevant stakeholder groups. The aim of the following communication channels is to translate the technical findings into interesting sector-specific information for societal groups, politicians, policy makers, regulators, and potential users and investors.

Market-Related Communication

Several of the of WATER-MINING objectives pertain to developing new sustainable methods for water management and demonstrating their effectiveness. The goal is to bring the technologies developed through the six case studies to the awareness of stakeholders, to implement these technologies in real-life environments and to encourage their commercialization. To achieve this, WATER-MINING will develop factsheets tailored to specific stakeholder groups in order to share information about the project and the innovative technologies in a manner that is easy to understand and that is relevant for the specific group. Complementing the factsheets and accompanying the planed layman's report, a set of three electronic briefing papers to more technical stakeholders will be provided.

Further, several work packages within WATER-MINING deal specifically with stakeholder engagement and communication. The Communities of Practice (CoPs) will provide useful opportunities to interact directly with stakeholders and receive feedback that will help promote the uptake and implementation of the WATER-MINING results and technologies. During these meetings, the case

study owners and facilitators will lead discussions about the technologies, gathering feedback and opinions from those in the field. A large part of the CoP meetings, and stakeholder engagement in general within WATER-MINING, is to gather input on market opportunities. To this end, several of the identified stakeholders who will take part in the CoP meetings are major market players. Additionally, the information gathered through the market mapping activities (T9.4) can also lead to market-related communication materials.

Scientific Communication

One of the most common ways to communicate about research projects and results is through publishing articles in scientific journals or magazines. The WATER-MINING partners are encouraged to write scientific articles on their work and findings to share the outcomes within the scientific community. This communication channel allows partners to share more about the technical aspects of their research with other experts in the field, which can then help to broaden the field of knowledge. It is therefore preferred to publish in open-source peer-reviewed journals so that the results can easily be shared among interested parties. In addition to scientific journals, partners can also share technical information and results via conference proceedings (i.e. presentations, papers, posters; see Section 4.4) or public reports.

Public Communication

It is also important to communicate project information and results to the general public, which includes communities, media, students, etc. The key here is that information shared to the public must be understandable since the key goals of communicating with the public are to inform, educate or call to action. The public can serve as a significant catalyst for change by organising and demanding for new regulations, placing pressure on local politicians and businesses, influencing school curriculum and further developing ideas that are appropriate for their local community. The WATER-MINING project therefore plans to use several different means to communicate with the public.

TU Delft, in close collaboration with the project partners, will prepare a Layman's reports with two main objectives: 1) to inform non-technical parties and 2) to provide recommendations for future research in social engagement, gender issues and public acceptance in circular water systems. The layman's report is due in Month 36 as D11.7, with more than 25 copies being distributed at relevant events. These layman's reports will be published in specialised media and newsletters in order to reach all the networks of the project's partners.

WATER-MINING will also write and publish several press releases to share project updates and communicate major findings and outputs. These are posted on the WATER-MINING website and are written by TU DELFT, DECHEMA, REVOLVE or any other project partner. Press releases can, for example, announce WATER-MINING events or feature new project innovations or achievements. They will be featured on the WATER-MINING website and will be distributed via DECHEMA press channels. Project partners will be encouraged to also distribute them via their press channels and networks.

So far, WATER-MINING published three press releases on the project start and Kick-off meeting, introducing the key goals of the project. Further press releases are planned, bringing news to the attention of stakeholders and the general public.

Additionally, REVOLVE is leading the development of two editorial pieces, which will be released in 2021, and a photo essay to be released in 2022. These two mediums provide additional outlets for communication with stakeholders and interested parties. The editorials and photo essay will be posted on the project website.

- Editorials:
  - Interview style article with technical representative of the project (e.g. REVOLVE interview with EURECAT)
  - Circular wastewater management article with a focus on urban wastewater (e.g. Mediterranean case study)
- Photo essay:
  - Nature-based solutions for wastewater management

Partner-Identified Publication Outlets

As stated earlier, the partners are all encouraged the publish project updates and findings via their own communication channels and initiative. To help facilitate this, the partners identified various publications that can be used to distribute information and updates about the WATER-MINING project. These media outlets or publications have different target audiences and should therefore be used to share different content, tailored to the respective audience. As seen in Table 4-3, the available publications also include market-related ones and those that target the non-scientific community, achieving a broad outreach. The list also includes outlets in different local languages, which is a component of communications that needs to be kept in mind for this project. Information should be shared/distributed in the local language as much as possible in order to reach the greatest number of stakeholders and target groups.

Table 4-3. Publication platforms which can be used to share WATER-MIINING information and results.

Name of Journal / Publication	Language	Target Audience	Comments
All India Distillers' Association (AIDA) Bulletin	English	Distillery business sector	
Algemeen dagblad	Dutch	Society	Print
Aquatech	English		Online
CHEManager	German	Management in chemical and pharmaceutical industry	Print + online
CORDIS	English	Society	Online platform
Cyprus Mail	English	Society mainly living in Cyprus	Online newspaper
Energías Renovables	Spanish	Renewable energy sector	Print + online
FuturEnviro	Spanish, English	Professionals and technicians related to environmental sector in Spain and Latin America	Print + online
H2O	Dutch	Water professionals in entire value chain	Print + online

Name of Journal / Publication	Language	Target Audience	Comments
iAgua	Spanish	Water industry, environmental sector	Online
Industria Química	Spanish	Chemical industry	Online
IWA Publishing journals, e.g. Water Reuse, Water & Policy, Water Science & Technology	English	Water professionals in industry and research	Print + online
Marler Zeitung	German	Society mainly living in Germany	Online newspaper
NEMO Kennislink.nl (NEMO`s journalistic science platform)	Dutch	General public	Online; 3 million annual visitors
Oil and Gas Innovation	English	Oil & Gas sector	online
Retema	Spanish	Professionals and technicians related to environmental industry in Spain and Latin America	Print + online
REVOLVE magazine	English	General audience about topics of water, energy, mobility, ecosystems and circular economy	Print + online
Revista Iberoamericana del Agua (RIBAGUA)	Spanish	Water industry, academic/research	Online
Smart Water Magazine	English		
Tecnoaqua	Spanish	Water industry	
Telegraaf	Dutch	Society	Print
Water Europe Projects Publication	English	EU policy makers, scientists	Print + online

To date, WATER-MINING has been featured in multiple articles, demonstrating the availability of this communication channel and its wide reach. These twelve articles are listed on the WATER-MINING website and include four pieces in Spanish, four in English, three in German and one piece in Portuguese.

4.3. Communication in Different Languages

As WATER-MINING is an international research project, comprised of partners from 12 different countries both within and outside the European Union, the communication strategies need to take local languages into account. The different spoken languages need to be considered in both written and verbal communication activities.

The WATER-MINING newsletters, published in English, will be translated into several different languages by some of the project partners. This will ensure that the newsletters can be distributed within local stakeholder groups and that the main project messages will be understood and comprehended by the target audiences. REVOLVE will translate original articles written by the communications team and the main WATER-MINING brochure into Spanish. DECHEMA will translate

these into German. These same partners will translate the script of the main WATER-MINING YouTube videos and provide subtitles. All other written and published material, produced by the WATER-MINING partners as part of their own work packages and tasks, will not be translated but will be published in the language most suitable for the respective target audience.

The international nature of the project also has to be taken into account during meetings and engagement with stakeholders. The CoP meetings, part of WP2, will be planned and conducted by the six case study owners with the help of the Autonomous University of Barcelona (UAB, WP2 leader). These meetings will be held in English, but the meeting facilitators should consider and implement various strategies to ensure equal understanding and participation by all involved stakeholders. This is not only beneficial for the stakeholders themselves as they will gain more information, but it is also beneficial for the WATER-MINING project and its objectives, as the better understanding of the stakeholders will lead to their increased participation. Therefore, WATER-MINING will be able to gain valuable insights, which may have otherwise been missed due to inadequate communication in the local language.

4.4. Engagement in Thematic Initiatives & Events

4.4.1. Project Internal Events

In order to manage the different communication efforts and coordinate the different stakeholder engagement activities, the WATER-MINING project plans and hosts various internal meetings and workshops. Each has their own specific goal and objective in terms of project management and are led by different partners, depending on the topic and goal of the internal event. TU Delft organises bi-monthly Executive Board (EB) meetings, which consist of the Management Team members and the WP leaders. The purpose of these meetings is to provide project updates using the bi-monthly reports and to address any outstanding issues. Each WP leader organises his or her own WP-specific meetings, which normally occur once or twice a month and include all the partners involved in each WP. These meetings more specifically discuss current tasks and upcoming deliverables. As several of the WATER-MINING WPs overlap with one another, in terms of activities/tasks and stakeholder outreach and engagement, there are monthly transversal WP meetings and stakeholder engagement coordination meetings, hosted by the WP2 and WP11 leaders, respectively. The transversal WP meetings include leaders from WPs 2, 8, 9, 10 and 11 and the case study owners (WPs 2-6). The stakeholder engagement meetings include partners from WPs and tasks that pertain to stakeholder identification and outreach: WPs 1, 2, 4 and 7-11.

In addition, workshops and explanatory meetings are scheduled as needed by task leads to address any specific topics. For example, NEMO and ECSITE organized a public engagement co-creation workshop in June 2021 to begin gathering ideas for the Citizen Engagement Workshop, and JIN hosted several internal meetings pertaining to the market mapping activity.

4.4.2. External Events

The members of the WATER-MINING consortium will attend different conferences, workshops and presentations related to water resource management, circular economy, wastewater treatment, sustainability and desalination where they will be able to represent the project and host project-specific presentations or informational booths. Table 4-4 below represents possible external events where WATER-MINING could be represented by members of the consortium. The leaders of WP11 are available to help partners in preparing presentations or other conference activities, if needed. Further, there is a WATER-MINING presentation template which can serve as a guideline and a project leaflet, which can be printed and handed out to conference attendees.

Table 4-4. External events where WATER-MINING could be represented by members of the consortium.

Event Name	Date	Potential Activity
Floating Farm Tour groups	All year long	Presentation, attendance, networking
European Cost Action Workshops	Monthly	Presentation, WG5, interactive sessions
8th International Conference on Sustainable Solid Waste Management	23-26.06.2021	Keynote
All India Distillers' Association (AIDA) events		Presentation, attendance
AQUA≈360	31.08-02.09.2021	Presentation, organizing & Scientific Committee
ICT4Water annual event		Presentation
Water Knowledge Europe 2021	Autumn 2021	Presentation, attendance
4th IWA Resource Recovery Conference 2021	05-08.09.2021	Keynote
IWA World Water Congress & Exhibition 2021	05-10.09.2021	Presentation, workshop
Digital Living Lab Days	06-10.09.2021	Shared workshop with other water projects
KWR Webinars		Presentation and networking
International Conference on Polygeneration 2021	4-6.10.2021	Presentation
Wetsus Annual Congress	4-5.10.2021	Presentation, attendance, networking
SDEWES Conference Dubrovnik	10.-15.10.2021	Presentation, attendance, networking
Aquatech Amsterdam, International Waterweek	2-5.11.2021	Presentation, attendance, networking
EDS Conference	21-25.11.2021	Oral presentation & networking
Industrietage Wassertechnik	22.-23. November 2021	Presentation, poster, networking

Event Name	Date	Potential Activity
ENEG 2021	23-26.11.2021	Presentation
AEDyR online events	2021-2022	Presentation, attendance, networking
NEMO expo on energy and sustainability	2022, duration 8 months	Presentation and networking, Context for WATER-MINING modular exhibition showcasing
XIII AEDyR International Congress	2022	Presentation, attendance, networking
The Sugar Technologists' Association of India	March 2022	Presentation, attendance
ACHEMA	04-08.04.2022	Exhibitor, presentation
IFAT 2022	30.05.-03.06.2022	Exhibitor, presentation attendance with a booth, networking
Nanofiltration Conference	27-30.06.2022	Presentation
IWA World Water Congress & Exhibition	11-15.09.2022	Presentation, attendance, networking
Industrial Water 2022 Conference	November 2022	Presentation, attendance, special session or satellite event
IWA Biofilms 2022	December 2022	Presentation, attendance, networking
Industrietage Wassertechnik	November 2023	Presentation, poster, networking

4.4.3. Networks & Associations

The WATER-MINING consortium members are also likely involved in thematically relevant networks or associations that could be interested in becoming involved in the WATER-MINING project or that could be used to expand the outreach of the project's communication activities and maximise the impact of the project's results and outcomes.

Table 4-5. Thematically relevant networks and associations related to WATER-MINING.

Network / Association	Target Audience
All India Distillers' Association (AIDA)	Industry, researchers and academia
Catalan Water Partnership (CWP)	Industry, researchers and academia
European COST (Cooperation in Science & Technology) Actions	Industry, researchers and academia
CRETUS (Cross-disciplinary Research Center in Environmental Technologies)	Industry, researchers and academia
CWP (Catalan Water Partnership)	Industry, public entities, researchers, academia
Dutch Regional Water Authorities	Industry, researchers, society, academia
Dutch Water Network – Koninklijk Nederlands Waternetwerk (KNW)	Industry, professionals

Network / Association	Target Audience
ENOLL (European Network of Living Labs)	Industry, researchers and academia
European Sustainable Phosphorus Platform	Industry, utilities, researchers, policymakers
ICT4Water Cluster	Researchers, industry, public entities
IWA + IWA Specialist groups, IWA Small Water and Wastewater Systems Specialist Group,	Industry, researchers and academia
NL-GUTS (Netherlands Group of Users of Technology for Separation)	Industry, academia
Research Network on Innovation (RNI)	Research and Academia
Spanish Association of Desalination and Reuse (AEDyR)	Industry, researchers and academia
Spanish Association of Water Supply and Sanitation (AEAS)	Industry, researchers and academia
Spanish water technology platform (PTEA)	Researchers, academia, industry, public entities
Solar Power and Chemical Energy Systems (SolarPACES)	Industry, researchers and academia
Technical committee of the CONAMA circular economy working group	Industry, researchers and academia
WaterForce	Industry, professionals
Waternet	Users of water utilities in Amsterdam
Watershare	Experts related to water management
Water Alliance	Industry, researchers and academia
Water Europe (WE)	Industry, researchers and academia
WETSUS	Industry, researchers and academia
World Water Quality Alliance (WWQA)	Industry, public entities, researchers, academia

4.5. Networking and Cooperation with related European Projects

Collaborating with other European or equally national projects and initiatives provides a valuable opportunity to exchange ideas, findings and approaches, often leading to new insights in research and technology development. It is crucial to use this collaboration for communication and dissemination purposes as well in order to inform each other about ongoing activities, capitalize on overlapping target audiences and to pave the way for further engagements. For these reasons, the cooperation between European projects within the same call and those within a specific topic area is strongly encouraged by the European Commission (EC).

European projects often assemble leading experts from science and industry and identify stakeholders that pertain to the project's specific topic area. This outreach and engagement helps to develop solutions or recommendations that fit within the current landscape and to further the dissemination and impact of the project results. Thus, it is beneficial for WATER-MINING to expand the project's network and cooperate with other EC funded projects. To accomplish this, WATER-MINING seeks to establish a network of related projects.

The Horizon 2020 call, "Building a water-smart economy and society," is comprised of five funded projects, including WATER-MINING: B-WaterSmart, WIDER-UPTAKE, REWAISE and ULTIMATE. A close

collaboration with these 'sister' projects is envisaged throughout the course of the project. Each project attended a joint kick-off meeting organized by EASME where all projects introduced themselves. Project delegates discussed "innovation at the demonstration plants" and "stakeholder engagement and dissemination" in break-out groups. Many synergies and ideas to maximise impact have already been identified.

Coordinators of all five projects conduct quarterly meetings to discuss ongoing topics. Communication leaders have also established contact and have joined forces by crosslinking the projects' social media channels, referencing the sister projects on the project websites and inviting partners of the "sister projects" to join events. Meetings for the communication leaders are also planned to align dissemination activities and events. A group name and logo representing the alliance of the five "sister projects" have been developed and are currently being finalised.

Furthermore, WATER-MINING has established collaboration with other European projects, including:

- SEA4VALUE: develop technologies for the recovery of brine and other resources (metals and minerals) from seawater desalination
- ZeroBrine: develop technological solutions and business models to enhance the recovery of minerals from industrial processes for their reuse in other sectors
- LIFEproETV: build awareness about the value of ETV and enhance the development of the ETV EU programme

Making use of partners' networks, further projects have been identified. The potential for future collaboration will be explored:

- BRINEMINING
- nextGen
- iWAYS
- SOLWARIS
- SFERA III
- eeres4water
- Hydrousa
- BL2F
- DEEP PURPLE
- RECAP

5. Monitoring

An important aspect of communication and dissemination activities is to monitor the effectiveness and success of these activities, to ensure that the correct audiences are being reached and appropriate and relevant messages are being communicated. In the WATER-MINING project, there are two main ways with which this is monitored. First, there are several key performance indicators (KPIs) against which the consortium can compare to track which goals have been achieved and how active the communication efforts have been (Table 5-1). Along these lines, there are also metrics and statistics from online engagement that can be tracked and measured to assess engagement. Secondly, we can measure the impact of the listed communication activities to determine if the activities are achieving the desired effect. The following sections outline the communication and dissemination KPIs, the WATER-MINING reporting procedure and the impact assessment metrics.

5.1. Measuring Performance

Table 5-1. Established key performance indicators (KPIs) for specific dissemination and communication tools/activities. Each tool is intended to reach the identified target audiences.

Tool	Key Performance Indicator	Target Audience			
		Providers	Enablers	End-Users	Public
Dissemination					
Website (D11.2)	25,000 visits over 4-year project duration	x	x	x	x
Factsheets (Subtask 11.3.2)	Produce 9 factsheets that reach more than 15,000 people	x	x	x	x
Press releases (Subtask 11.3.2)	Publish 15 press releases, leading to the publication of at least 50 articles on websites or in the press or specialised publications	x	x	x	x
Videos (D11.5)	3 explanatory videos will be created	x	x	x	x
Videos (D11.5)	3 videos will accumulate at least 8,000 views cumulatively	x	x	x	x
Scientific publications	Publish more than 20 peer-reviewed papers throughout the project duration	x		x	
Other targeted publications	Publish & distribute more than 25 Layman's reports by the end of the project		x	x	
Communication					
Social media	Social media posts cumulatively reach over 40,000 people	x	x	x	x

Tool	Key Performance Indicator	Target Audience			
		Providers	Enablers	End-Users	Public
Participation in events	The project is represented at more than 70 relevant events	x	x	x	
Project events	Project events are attended by more than 500 people in total	x	x	x	
Living labs	At least 5 OpenLivingLab days are organised in Spain and the Netherlands	x	x	x	x
Living labs	Engagement of local/regional technical/non-technical stakeholders linked to Living Labs by sector-specific roll-out events – 3 events per sector				
Networking	One "Water Projects Europe" event will be organised with all CE-SC5-04-2019 sister projects in close collaboration with EASME	x	x	x	
Conferences	2 Young Water Professional exchange sessions are organised as part of consortia meetings				

WATER-MINING uses the following outputs and factors to measure progress, achieve results and create impact. The method used to track these outputs and factors are given in brackets ([]).

Networks

- Number of contacts: visitors, event participants, calls, emails, web inbounds, etc. [counting]
- If applicable, percentage of newcomers [survey, desk analysis]

Events

- Number attendees: physical and online [counting]
- If applicable, percentage of target audience [counting] and percentage of first-time attendees [survey]
- Indirect audience reach – media reach of event [audited circulation and audiences, analytics]

Publications

- Number of readers / listeners of the publication [web analytics, OP orders]
- If applicable, percentage of target audience and percentage of specific demographic groups [desk analysis]
- Percentage of publications produced in more than one language [counting]

Media Relations

- Number of online views of media releases [web analytics]
- Number of journalists in media events organized by the EC [counting]

Social Media

- Number of follower/fans/subscribers [social media metrics]

- Number of posts[3] [social media metrics]

Videos/photos

- Number of views, embeds and downloads [YouTube account, web analytics, social media metrics, global counting]
- Number of unique visitors to the video page [YouTube account, website analytics]

Websites

- Number of visits [web analytics]
- Number of visitors identified by browsers [web analytics]
- Number of page views [web analytics]

Newsletters

- Number of subscribers [counting]

Integrated Communication Campaigns

- Reach: Number of contacts made during the campaign [audited circulation and audiences, analytics]
- If applicable, percentage of target audience [desk analysis]

5.2. Reporting tools

To facilitate accurate monitoring of all communication and dissemination activities and the required reporting, several online forms have been created and are hosted in the partner's area of the WATER-MINING website. These should be used by the partners to provide information regarding communication and dissemination activities. The online forms are designed according to the European Commission Communication Networks Indicators. Any information provided by the partners can be downloaded into a Microsoft Excel Spreadsheet to enable WATER-MINING to efficiently report to the EC, per the EC reporting requirements, and to determine the project's progress against the communication KPIs (see Table 5-1). The four forms are explained below:

1. **Social media content suggestions**
   WATER-MINING partners can enter any information they would like to be shared via social media (Twitter and LinkedIn). The partners can add website links, pictures or documents. Please use this form often. Even "small" news, like an internal meeting or updates from a case study can also make for a nice tweet alongside an image! Examples for content also include interviews, site visits, etc.
2. **Publications**
   This form can be used to report any publication, such as peer-reviewed publications, newspaper articles, non-scientific articles, press releases, online posts, etc. This is information requested by the EC. All fields in the form only need to be completed if partners are reporting a peer-reviewed publication.

[3] The number of posts is the activity indicator used to calculate other performance indicators,

3. **Upcoming events**
   This form can be used to let the WATER-MINING consortium know about upcoming events that the partner is either attending on behalf of WATER-MINING or organizing. This also includes presentations or workshops. Information on the partner's specific contribution should be provided. Events can be announced via www.watermining.eu and social media.
4. **Past events**
   This form needs to be filled out after a partner attended an event on behalf of WATER-MINING. All fields must be filled in, including an estimate of the number of event participants. This is information requested by the EC.

All quantitative data regarding communication and dissemination activity conducted by the project partners (see Section 0) is collected via a Google data studio dashboard created by REVOLVE, which is monitored continuously with input from the website's Google Analytics. The dashboard can be found here. REVOLVE creates a quarterly "Impact Report", which summarises the various monitoring outputs: website visits, video views, social media followers, social media posts, number of clicks, etc. These reports are saved on the WATER-MINING SurfDrive data management system.

5.3. Monitoring & Assessment

The results and impact of communication and dissemination activities are measured both qualitatively and quantitatively. Quantitative data based on the reporting factors stated in Section 5.1 provides information on the potential results and impact for each activity. This assessment of the impact can help to determine if the communication activities are successful or if changes need to be made. The following factors are used by WATER-MINING to assess the impact, and therefore the success, of all communication activities. The method used to track these outputs and factors are given in brackets ([]).

Media relations

- Percentage of media items published in tier(s) 1-6 in a sample of EC related media coverage [media monitoring]
- Number of readers having a more positive opinion about water reuse as a result of a publication [media monitoring]
- Likelihood to advocate or speak positively about WATER-MINING as a result of the article, interview, etc

Website

- Conversion rate: downloads, registrations, forms completed, etc. [web analytics]
- Overall usefulness of the site and/or page [survey]
- Number of return visitors [web analytics]
- Number of visitors with a more positive opinion about water reuse as a result of the web visit [survey]

- Number of visitors with a more positive opinion of the EU as a result of the web visit [survey or monitor the “share this content” button and/or user jumps to the social media icons in the website footer]

Social media

Twitter

- Number of impressions received

LinkedIn

- Engagement rate percentage [number of new followers per month, number of likes and comments per post]

Based on the results from the analysis of the aforementioned factors, the WATER-MINING project, in particular the WP11 communication leaders, will make the necessary changes and update the Strategic Communication Plan in order to reach the greatest number of stakeholders and target groups as possible.

6. References

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