



Demonstration of Sustainable Hydropower Refurbishment

D8.1 DEC Master Plan



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1. Background of ReHydro

ReHydro is a research project funded by the HORIZON EUROPE Programme of the European Commission coordinated by SINTEF. Its aim is to demonstrate how European hydropower can be refurbished and modernized to play a leading role in the future power system, while adhering to sustainability requirements and societal needs in the context of climate change. By implementing a suite of monitoring and digital tools (performance, cavitation, machine health) at demonstration sites, ReHydro aims to improve hydropower efficiency. Innovative concepts such as retrofitting with pumped hydro and hybridization will prepare hydropower for future markets.

Within the framework of the project, several solutions such as a new, fish-friendly turbine design and monitoring tools will be tested on five main demonstration sites, while four more sites will be used to showcase specific project activities. These sites, which are owned and provided by ALPIQ, CNR, EDF, EDP, and Lyse, play a crucial role in delivering on the goals of the project. Furthermore, ReHydro's exploitable results are expected to create 700-1150 new jobs in the manufacturing industry, leading to an increase of 275 mill. Euros in the global market.

Sub-objectives:

- To improve the flexibility of the existing European hydropower fleet, ensuring suitability for current and future power markets through hybridization for a 5% revenue increase (Key Performance Indicator (KPI)1.1), extending the operating range to 20–120% (KPI1.2), and retrofitting with pumping systems to reduce flood spill volumes by 20% (KPI1.3), while improving sediment transport through turbines by 5% (KPI1.4).
- To implement and demonstrate five digital solutions (KPI2.1) and three advanced control systems (KPI2.2), progressing the application of predictive maintenance and inclusion of new environmental constraints, thereby contributing to a 2% performance increase (KPI2.3).
- To improve and ensure environmental sustainability and biodiversity conservation in hydropower refurbishment by developing new turbines that decrease eel mortality during downstream migration by 10% (KPI3.1), implementing well-established (environmental flow) and state-of-the-art (eDNA) methods to reduce biodiversity loss and increase taxon richness by 5% (KPI3.2), and demonstrating how the proposed solutions improve aquatic habitat suitability by at least 10% (KPI3.3).
- To identify European market needs in three different scenarios for future energy system development (KPI4.1), enabling European hydropower to select optimal refurbishment solutions.
- To use hydropower plant refurbishment to provide non-energy services to society by reducing peak flood values by 5–10% (KPI5.1), improving drought management and biodiversity by increasing guaranteed environmental flow by 8–12% during low-water periods (KPI5.2), reducing non-navigable days during extreme events by 15–20% (KPI5.3), and raising awareness of recreational interests by 30% among local stakeholders (KPI5.4).
- To prepare the European hydropower industry for export by creating eight new market products (KPI6.1) and attracting more qualified personnel to the industry by creating 50 new jobs per year (KPI6.2).
- To provide an overview of the benefits of modernization for industry and policymakers through three key documents (KPI7.1) and six software tools (KPI7.2) that highlight the project's key conclusions, describe their alignment with the EU long-term climate

strategy, and identify key barriers to the large-scale implementation of modern, sustainable hydropower.

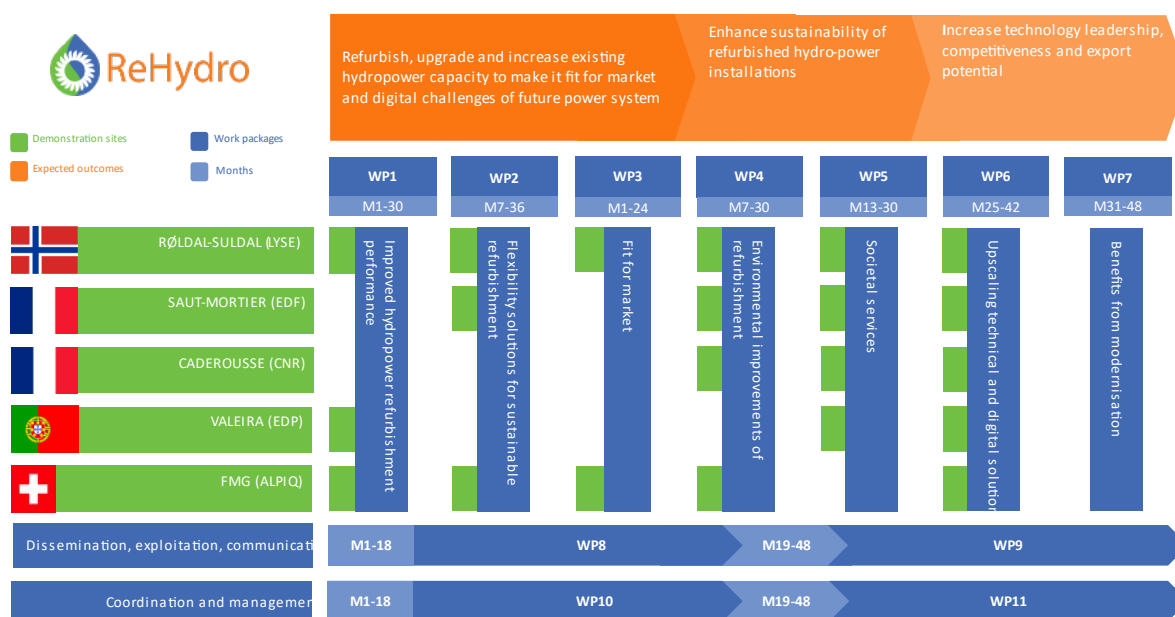


Figure 1. Planned progression of the project and Work Packages in relation to each other and demonstration sites.

2. Executive Summary

The dissemination, exploitation, and communication (DEC) master plan is a deliverable of ReHydro, funded under the European Union's HORIZON EUROPE research and innovation programme under grant agreement no. 101147310 and involving all partners in ReHydro.

The document keeps the communication, dissemination, and exploitation strategies of the project up to date and includes details of the actors involved, actions, tools and channels, materials, performance metrics, and agreed-upon procedures. This will include internal guidelines for the different communication and dissemination activities planned and their timetable, who the partners responsible for each activity are, what tools and channels are available for communication and dissemination and what key results are planned to be exploited.

Work Package (WP) 8 is a transversal work package integrating the results of all the WPs for the dissemination, exploitation, and communication process. It will ensure that the outputs and learnings arising from all the activities of the project are visible to the wider audience and can be learned from and implemented on a European scale.

More specifically, in terms of dissemination and communication, we will:

- Propose a communication and dissemination policy and define the objectives of the actions.
- Identify the target audience for each objective or main result.
- List the communication and dissemination channels to be used for project promotion.
- Present a schedule of the communication and dissemination actions throughout the project duration.
- Define and monitor a series of Key Performance Indicators (KPIs) to assess the success of the implementation (e.g., number of publications, size of the audience reached, number of visits to the website, engagement on social media, feedback received from audiences at conferences and update the plan according to the evolution of the project.

In terms of maximising key results, the DEC master plan will:

- Outline the methodology that will be used to identify ReHydro's exploitable and communicable outputs.
- Identify relevant (target/end) users, suitable transfer activities, and intellectual property (IP) management.
- Identify framework conditions and other factors influencing the exploitation and best ways in which to communicate the project's results.
- Identify measures to ensure ReHydro's longevity and legacy.

The document is drafted by VGBE (WP8 leader), with inputs from all partners. To achieve a greater impact, all partners have the responsibility in line with the Grant Agreement (Article 29), to participate in the communication activities, dissemination of the project results and exploitation as well as promotion of the key exploitable results.

The DEC master plan is an evolving document that will be updated throughout the project. The first draft will be finished after 6 months, the updates will be presented at (M18) and (M46).

3. Specifications and terminology

The basis of ReHydro is a structured knowledge management process, implemented from the beginning of the project, which manages the dissemination, communication, and exploitation in accordance with the European Commission (EC) definitions.

Knowledge transfer and exploitation of results requires several steps including identifying exploitation mechanisms and activities. It focuses on identified end-users to ensure impact and uptake of the results. ReHydro will integrate diverse activities along the project lifetime to enhance the dissemination and exploitation strategy, maximize the expected impact and boost the project sustainability for the continuation of the project after European Union (EU)-funding. The geographic coverage of the project also provides the foundation for much broader engagement, and ultimately for the basis upon which to work towards the long-term implementation of the project findings.

According to the EC grant agreement as well as the specifications for HORIZON research projects, the participants agree to:

- Promote the action and its results, by providing targeted information to multiple audiences (including the media and the public), in a strategic and effective manner and possibly engaging in a two-way Exchange.
- Disseminate results — as soon as possible — through appropriate means, including in scientific publications.
- Ensure Open Access (free of charge, online access for any user) to all peer-reviewed scientific publications relating to its results.
- Take measures aiming to ensure maximising use of the results — up to four years after the end of the project – by using them in further research activities; developing, creating or marketing a product or process; creating and providing a service, or using them in standardisation activities.
- Acknowledge EU funding in all communication, dissemination and exploitation activities (including IPR protection and standards) as well as on all equipment, infrastructure and major results financed by the action by using the wording and criteria specified in the Grant Agreement.
- Additionally, ReHydro will work to establish close links to relevant communication teams within the EC to showcase the results of the project through EC channels.
- The consortium partners commit to following the EC guidelines on communication and will therefore include in all dissemination and communication of results:
 - (i) The sentence: ‘This project has received funding from the European Union’s HORIZON EUROPE research and innovation program under grant agreement No 101147310.’ on any of the publications that will be created under the scope of the project.
 - (ii) A disclaimer stating that any communication or publication related to the action, made by the beneficiaries jointly or individually in any form and using any means reflects only the author’s view and that the Commission is not responsible for any use that may be made of the information it contains.
 - (iii) The EU emblem.

The communication, dissemination, and exploitation activities and processes will be managed and coordinated by the DEC Committee, which will manage and monitor the implementation process of the DEC strategy and act as the main contact for external organizations (media, related projects and groups, European initiatives, etc.).

The DEC Committee consists of several persons from VGBE, including the WP leader, as well as at least one person from SINTEF and IHA.

This group ensures that decisions can be made in a targeted manner. As VGBE, SINTEF and IHA have relations with the various project partners, they can ensure that the interests of all partners are represented. The DEC Committee can also review, and support publications proposed by the partners.

Crucially, partners will work together to develop a meaningful communication and dissemination plan that reaches local, regional and European sectors. This will also draw on the experience and possible synergies with the marketing and communication departments of the partners. Interactive participation from the partners will significantly increase the impact of the dissemination and communication activities of the project during the project's lifetime.

In addition, dedicated processes will be developed to efficiently organise external communication, content creation for the website, social media work, review of communication and dissemination materials, and information and reporting on participation in events.

4. Target Groups

Targeting information to the audience according to the objectives of dissemination, exploitation, and communication, as well as providing information through the appropriate channels, is crucial to a successful DEC strategy. For this purpose, all relevant target audiences must be identified in advance.

4.1. Identification of Target Groups

Within the framework of the project, different strategies and implementation plans are to be developed to reach the respective Target Groups (TGs) depending on the DEC activity carried out in each case. Therefore, a stakeholder mapping approach is valuable to identify and analyse key TGs, such as individuals, groups, organizations, companies, and communities that have a legitimate interest in or are affected by ReHydro.

Figure 2 shows a TG mapping approach so that the appropriate audiences can be addressed specifically depending on the DEC activities:

1. **Identify the purpose:** Clearly define the purpose of the TG mapping process to identify and engage groups involved in the communication, dissemination, and exploitation of ReHydro.
2. **Define relevant Target Groups:** Create a list of potential TGs who have an interest or influence in the dissemination of hydropower solutions. These groups can include government agencies, energy regulatory bodies, local communities, environmental organizations, indigenous groups, power companies, investors, local businesses, academia, and the media.
3. **Categorize Target Groups:** Categorize TGs based on their level of interest and influence in hydropower solutions. This categorization will help prioritize TGs for engagement. They can be classified into primary TGs (those directly affected), secondary TGs (indirectly affected), and tertiary TGs (those with a general interest).
4. **Conduct Target Group analysis:** Conduct a thorough analysis of the interests, concerns and expectations of all TGs in relation to the outcomes of ReHydro. Consider potential benefits and risks, socio-economic impacts, environmental concerns and potential conflicts of interest, and assess the influence and power of each TG. This analysis will provide information on the likely support for or opposition to the DEC activities.
5. **Build alliances and partnerships:** Identify opportunities for building alliances and partnerships with influential TGs who share a common interest in promoting hydropower solutions. Collaborate with TGs who can provide technical expertise, financial resources, or advocacy support to ensure successful dissemination.



Figure 2. Target Group mapping approach.

6. **Determine engagement strategies:** Based on the TG analysis and impact assessment, develop tailored strategies on the most effective communication channels to reach each TG. Monitor and evaluate the effectiveness of engagement activities and adjust as necessary.
7. **Review and update:** Periodically review and update the TG mapping process to incorporate new TGs or changes in their interests and influence. Continuously adapt engagement strategies to meet evolving TGs needs and expectations.

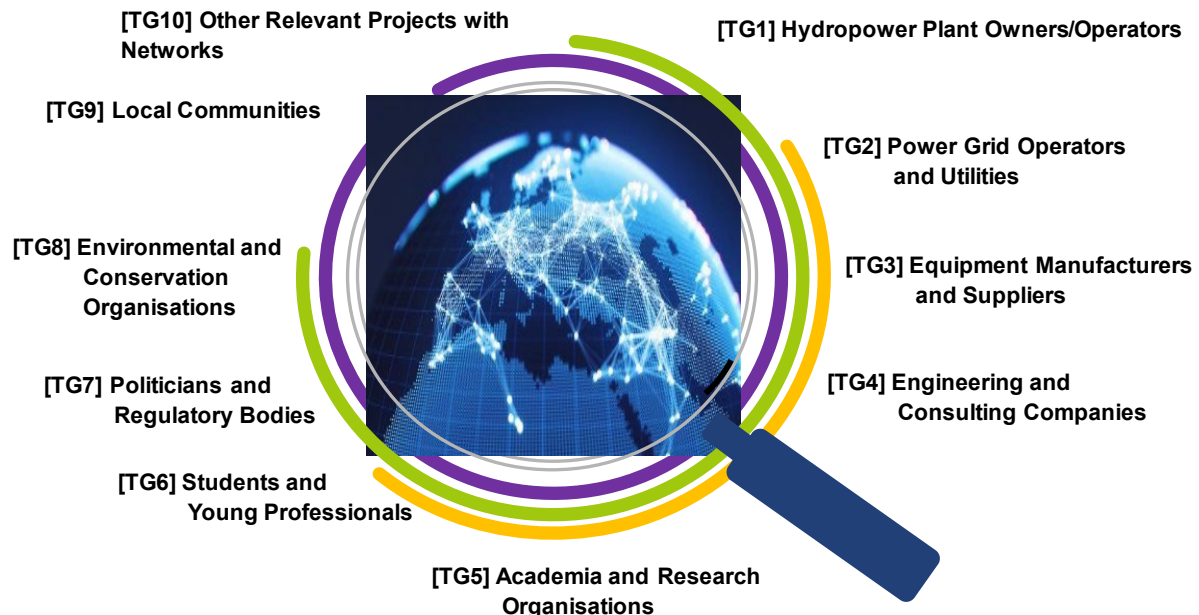


Figure 3. Visualisation of the Target Groups.

Table 1. Target Groups.

TG	Target Group	Examples
TG1	Hydropower Plant Owners/Operators	Owners and operators of existing hydropower plants are a primary target audience. They are interested in improving the performance, reliability, and efficiency of their aging infrastructure through refurbishment. These can be public or private entities that own and operate hydropower facilities.
TG2	Power Grid Operators and Utilities	Electric utility companies that rely on hydropower for electricity generation can benefit from refurbishment solutions. They may own or purchase power from hydropower plants and seek ways to optimize their operations and extend the lifespan of their assets.
TG3	Equipment Manufacturers and Suppliers	Manufacturers and suppliers of hydropower equipment play a crucial role in providing refurbishment solutions. They target hydropower plant owners/operators by offering specialized equipment, components, and services that enhance the performance and efficiency of existing facilities.

TG	Target Group	Examples
TG4	Engineering and Consulting Firms	Engineering and consulting firms specializing in the hydropower sector can act as intermediaries in disseminating refurbishment solutions. They provide technical expertise and guidance to plant owners/operators, helping them evaluate the feasibility and benefits of refurbishment projects.
TG5	Academia and Research Organisations	This audience comprises professors, researchers, and scholars specializing in fields such as civil engineering, electrical engineering, environmental science, and renewable energy. They are interested in cutting-edge research, technological advancements, and best practices related to hydropower refurbishment. Dissemination efforts target them through conferences, journals, workshops, and research collaborations. Academic and research organizations participate in international collaboration networks focused on energy and sustainability. These networks provide platforms for knowledge exchange, joint research projects, and sharing best practices in hydropower refurbishment. Dissemination efforts aim to engage with global experts and leverage international expertise.
TG6	Students and Young Professionals	Given existing workforce and recruitment gaps at the early stages of hydropower careers, students and young professionals and particularly women in these groups represent a dynamic and innovative target group. Especially those specializing in environmental science, engineering and renewable energy, whether they are still studying or are early-career professionals, are interesting for ReHydro. By leveraging their skills and enthusiasm, ReHydro can benefit from innovative solutions and up-to-date technical capabilities.
TG7	Politicians, Authorities and Regulatory Bodies	Politicians, authorities and regulatory bodies at European, national and regional levels responsible for energy policy, environmental regulations, and infrastructure development play a crucial role in the dissemination of refurbishment solutions. They can provide guidance, incentives, or regulations that promote refurbishment activities in the hydropower sector.
TG8	Environmental and Conservation Organisations	Environmental and conservation organizations are important stakeholders in the hydropower sector, and their involvement in refurbishment projects can help ensure sustainable and environmentally friendly practices. Dissemination activities aim to engage with these organizations, sharing research findings, and best practices that promote environmental conservation and mitigate any negative impacts of refurbishment activities.

TG	Target Group	Examples
TG9	Local Communities	Another part of the general public is communities that are impacted by ReHydro activities. Their needs (social, geological, etc.) must be respected to ensure a positive opinion of ReHydro and to align with the project's goals of sustainability. They can also offer unique expertise and input regarding social aspects of the project's impact. The goal is to raise awareness, educate, and engage them in understanding and supporting hydropower refurbishment.
TG10	Other Relevant Projects with Networks	Research projects focused on hydropower often involve multidisciplinary teams of researchers, engineers, and technicians. Dissemination efforts target these project teams to share findings, methodologies, and technological advancements within the research community.

4.2. Establishing a Target Group distribution list

Establishing a TG distribution list to share news, information and announcements related to the project activities as well as for planned surveys is a preferred way to engage with the interested audience and keep them informed.

The initial recipients' list will be created and administered by VGBE, based on desk research and existing networks including those of the partners. This list will be fed by a sign-up form on the website, the existing contact list of partners and the consortium's participation in other EU initiatives, events, fairs, workshops, etc. The list will be continuously updated during the project, therefore anyone who is interested will be able to subscribe/unsubscribe to the recipients' list via the project website's newsletter, according to GDPR rules.

5. Communication plan

5.1. Meaning of the term “communication” in this framework

Communication is a strategically planned process that starts at the outset of the project and continues throughout its entire lifetime. It is aimed at promoting ReHydro and its results. It requires strategic and targeted measures for communicating about (i) ReHydro and (ii) its results to a multitude of audiences, including the public, and possibly engaging in a two-way exchange. Activities used for communication purposes are for example a public website, social media, or a newsletter. Dissemination and communication activities and tools can intersect.

5.2. Objectives of the communication plan

ReHydro’s communication activities will support the delivery of the projects sub objectives through indirect and direct engagement with ReHydro’s target groups. All partners will take action to convey the objectives and progress of the project as well as events and activities to the target audiences in a clear and easy-to-understand way. Specific aims of the ReHydro’s communication plan are:

- Ensure visibility and awareness of the project.
- Drive maximum attendance and engagement rate at ReHydro events and activities.
- Support the dissemination goals to reach and surpass dissemination KPIs.
- Support market/industrial readiness of the project results.

All partners contribute to the ongoing communication activities, e.g., by providing content for the designated communication channels and using the tools and channels at their disposal.

5.3. Communication strategy

Communication is a measure that supports the awareness activities of a project, and it improves the likelihood that the project will meet its goals and may enhance the quality of the project as a process, as well as enlarge the circle of people that may benefit from the results. The communication strategy and activities follow principles and best practices successfully tested by the partners and in line with the EC Guidelines (see Chapter 3) for successful dissemination and communication.

The main purpose of ReHydro’s communication strategy is to establish a systematic approach for the communication activities that support the goals of the project. Figure 4 provides an overview of the sequence and structure of the planning. Altogether, the communication strategy defines the goals and objectives, the Target Groups, develops the appropriate



Figure 4. Strategic communication steps.

messages for each group, and selects the appropriate media and communication channels to deliver the messages. Finally, the effectiveness of the undertaken communication measures will be measured through KPIs. The strategy will serve as a guideline and overall approach for the ReHydro partners' communication activities.

The communication plan of ReHydro will be managed by the Project Management Team (PMT). The PMT will ensure that all members of the consortium will be involved in communication activities. Each partner will make use of its communication tools and channels, networks and collaboration with the goal of reaching the stakeholders of the project and building the ReHydro community. The partners must provide all the relevant information and feedback on a regular basis from the start of the project.

6. Visual guidelines and identity

The project branding will help all partners to communicate about the project in a uniform, consistent, and professional manner. It includes the project logo, general design rules and colours, and templates for Word and PowerPoint documents. The visual identity has been introduced and established by the PMT in preparation of the project. It serves to visually represent its goals and values, those being:

- Collaboration
 - As ReHydro is a HORIZON EUROPE project, more than 20 partners from seven European countries are involved. The project encourages positive and fruitful partnerships.
- Innovation
 - ReHydro aims to demonstrate how European hydropower can take on a leading role in the future power system through refurbishment and modernisation with newly developed technologies.
- Sustainability
 - For the European hydropower industry to be fit for a power market that is putting more focus on the protection and preservation of nature and biodiversity, ReHydro pays special attention to being environmentally conscious.
- Transparency
 - As a research project, maintaining openness and accountability in all operations, communications, and publications is vital to ensure future use of the project results.

7. Project name and logo

ReHydro is the branding name of the project which means: “Demonstration of Sustainable **Hydropower Refurbishment**”. The full title should be included after a colon when it is first mentioned in a document, after which only the branding name will be used (ex. ReHydro: Demonstration of Sustainable Hydropower Refurbishment). The project acronym “ReHydro” should be written with a capital R and H as this is the official project abbreviation.



Figure 5. ReHydro logo.

The brand proposal for ReHydro is energy, therefore the strokes of the logo are expressed in diagonal and vertical lines. The joints are rounded to create harmony between the letters and show an absence of aggressiveness since ReHydro is a Research & Development (R&D) project that searches for welfare and progress in Europe. The graphic image is created in the shape of a waterdrop to represent both the water that plays a central role in hydropower and ReHydro’s dedication to sustainability. The green and blue colours going down its middle in waves represent a river. The white shape in its middle forms a turbine, which is also a symbol for hydropower as well as a representation of one of the project goals: The development of a new, eel-friendly turbine design optimized for the retrofit of large Kaplan turbines. “ReHydro”, the name of the project, is prominently displayed to the right.

The waterdrop image can also be used on its own when necessary, or above the name.

The logo colours have been chosen to create a balance between harmonious, visual design and meaning. Blue and green stand for nature and water, combining to show sustainability and eco-friendliness. White has been chosen as a neutral connection between the colours, while orange serves as an immediate eye-catcher.

To sum up, the ReHydro logo conveys a modern, positive and versatile image that embodies the project’s attributes.

7.1. Communication tools and channels

7.1.1. Website

ReHydro's website serves as a comprehensive and professional information hub and media centre for those interested in finding out more about the project. It serves as the primary platform for disseminating information and acts as the go-to resource.

The domain is: <https://www.rehydro.eu/>

The website's structure is designed to ensure structured and intuitive access to information. The main categories have been deliberately arranged to provide users with a clear overview of the project.

The website follows a strategic approach, ensuring that messages are carefully crafted and effectively communicated through digital marketing strategies. Therefore, the continuous maintenance of the website, regular publication of project news and updates, and the provision of progress reports and investigation results are of utmost importance.

The website follows the structure below:

- **Home:** The homepage is intended as a landing page where the visitor gets a general overview of the project, including its objectives and partners. They are also referred to the latest news, can find a few sentences on the demonstration sites, and can sign up for the newsletter. The website also contains all the links to social media.
- **Demonstration Sites:** In this section, the visitor gets all the information about the demonstration sites that contribute to the project's success. The general purpose of the demonstration sites is explained, and a dedicated page for each site offers a more in-depth look into them, including photos, specific objectives, and technical data.
- **Partners:** This category is dedicated to the project partners and the projects ReHydro collaborates with. Each is briefly introduced to the visitor and their websites are linked.
- **Knowledge Hub:** The category was deliberately chosen to include all publications in a structured way. This includes promotional and informational material, scientific publications and explanatory videos.
- **News & Events:** This category contains an overview of all news and events organized by ReHydro as well as external events that ReHydro partners participate in to introduce ReHydro and explain its results. The visitor can also sign up for the newsletter.

Furthermore, the following aspects are considered when creating the website:

- **Social network links:** The information hosted on ReHydro's website will be shared on its social media channels in a way to increase visits and attract newcomers to the project.
- **Reference to HORIZON fund:** Appropriate acknowledgement and reference to the European Union's HORIZON EUROPE Framework Programme and disclaimer excluding European Commission responsibility.
- **Privacy Policy:** The Privacy Policy, together with the Terms and Conditions, have been included on the ReHydro website and set for the general rules and policies governing the visitors' use of the website.

7.1.2. Social media channels

The use of social media channels offers numerous advantages to attract attention and generate increased interest. Social media channels are used to achieve increased connectivity, greater reach, targeted dissemination of information, customer loyalty and brand building, among other things.

Partners must participate by using the hashtag **#ReHydro** in relevant posts and by sharing/liking news about the project and its publications.

By producing content that the audience will want to see and share about the project, the audience will become engaged advocates for ReHydro and will be able to increase the project's global impact. The content produced by ReHydro will be available in various formats such as SlideShare project presentations, website blog posts, infographics and videos to match the viewing preferences of our target audience.

ReHydro's main social media channel will be the biggest business network in the world, **LinkedIn**. Creating a LinkedIn page for ReHydro to share posts related to the project will establish the

project's public image on a global scale as a reputable and trustworthy project. As LinkedIn profiles and pages rely on their networks to effectively share their content, ReHydro's LinkedIn strategy will utilise the existing profiles of the project partners. The project partners will use their personal profiles and company pages to share posts from ReHydro's page with their sizable networks, thus driving traffic to the ReHydro LinkedIn page and other connected channels such as the website. This strategy also allows for an effective tracking of different posts' reception and performance, giving the opportunity to adjust future content as needed.

The LinkedIn page will be managed by VGBE. As an integral part of ReHydro's communication strategy, it will be kept active and filled with relevant content throughout the four years the project is officially set to last, as well as at least one additional year to showcase the project's results being put into action. After this, the page will remain online for at least another two years.

LinkedIn is an effective tool for nurturing referral relationships. The credentials for LinkedIn will be as follows:

LinkedIn handle: @ReHydro

URL: <https://www.linkedin.com/company/rehydroprojecteu/>

YouTube will play a minor role, as a minimum of 5 videos about ReHydro are planned for the duration of the project. ReHydro consortium members will upload videos to a ReHydro YouTube channel. The production of videos will occur mostly during the later stages of the project when work on physical demonstrators and prototypes begins.

YouTube will also be used to post recordings of webinars and host any kind of video to be linked to on the website.

7.1.3. Other tools and channels

The **media and journalists** can be key agents in transmitting information about the project to other stakeholders and the general public. They are highly influential and can have a positive impact on improving outcomes, raising awareness and providing information to a wide audience. Relationships with media will be established by VGBE and the collaboration of the rest of the partners.

This task will be accomplished at European, national and regional levels in the following way:

- VGBE will prepare the press releases on the ReHydro milestones and other identified opportunities to communicate with partners.
- The press release will be published on the ReHydro website and disseminated on social media with the support and involvement of the partners.
- The impact will be monitored and included in the press clipping (visible on the ReHydro website) and in the report on dissemination and communication activities.

The European platform of news CORDIS WIRE will also be used to distribute news releases and posts generated for the website.

A **shared e-mail address** to use for newsletter distribution will be established.

7.2. Communication materials

In order to effectively broadcast the messages of the project at events and promote the project on social media channels and websites, different communication materials are planned.

According to the communication plan (see Chapter 5), numerous communication materials will be developed to promote ReHydro and can be previously reviewed by the PMT. Partners must inform with enough time in advance if they need some of these materials for participation in events or other requirements. Each partner is responsible for the creation of scientific and research publications/communications devoted to dissemination (previously reviewed by the rest of the partners).

7.2.1. General presentation

A general PowerPoint presentation in English is prepared to introduce ReHydro. The content will include the main task, the consortium, the objectives and the expected/achieved results of the project (All TGs).

7.2.2. Leaflet

A leaflet will be used to attract attention, convey information concisely, raise awareness on a topic and elevate perception. They are designed to be eye-catching, visually appealing, concise and easy to distribute, making them a popular medium for conveying information to a wide audience (TG1-4, TG8-9).

7.2.3. Factsheet

Factsheets provide essential and factual information in a clear and concise form. They are versatile documents used for the communication of information, public relations, media relations, marketing and educational purposes. Factsheets play an important role in presenting accurate information and enabling effective communication with different audiences (All TGs).

7.2.4. Infographics

Infographics are visual presentations of information that use the elements of design to display content. Infographics communicate complex messages to viewers in a way that enhances their comprehension. Images are often an extension of the content of a written article, but infographics convey a self-contained message or principle. Infographics will be created throughout the duration of the project to promote and explain concepts to our various TGs (All TGs).

7.2.5. Brochure

A brochure explaining the project serves to showcase the main objectives and information about ReHydro. They can be done in both print and digital to spread the word about the project and reach more people in the process (TG1-4, TG8-9).

7.2.6. Roll-Ups

Roll-ups for participation in events will be developed for the whole project to avoid one-shot production and waste (TG1-3, TG6, TG8-10).

7.2.7. Newsletters & Mailings

An online newsletter will be produced and disseminated, presenting the results achieved, upcoming activities and events, news from similar initiatives and news in the relevant scientific fields. The frequency of issues of the newsletter will depend on the volume and importance of the news to be presented, the aim is to publish at least 3 a year. News items will be sourced from the project website, thus increasing the number of visitors in this way.

Mailings with invitations to relevant workshops and webinars, consultations and other information will be sent to interested parties who have signed up via ReHydro's website (TG1-6, TG9-10).

7.2.8. Press releases

To disseminate information about the project, press releases are planned to share news, progress and ongoing results of the project with the media. These will then also be communicated to local communication agencies through our partners (All TGs).

7.2.9. Posters

Posters introducing ReHydro as a whole as well as the individual demonstration sites will be created to be used as supporting presentation material. They will also be left in relevant places (e.g., at demonstration sites, at info boards at universities) to spread awareness of ReHydro. (TG.5-6, TG8-9).

7.3. Messages to be communicated

The motif behind all communication and dissemination actions will be the following key messages from the individual WPs in Table 2.

Table 2. Messages to be communicated.

Objective	Audience	Message	Channels
Improve flexibility of the existing European hydropower fleet	TG1-4, TG7-10	Upgrading and optimizing hydropower facilities can lead to increased energy generation without the need for new infrastructure.	Events/Speeches, Publications, Newsletters
Improve and ensure environmental sustainability and biodiversity conservation	TG1-2, TG7-9	Sustainable refurbishment includes improving water management practices, such as flow regulation and reservoir operations, to ensure minimal impact on our downstream ecosystems and maintain a stable water supply and aims to minimize the environmental impact.	Events/Speeches, Publications, Webinars
Encourage collaboration between stakeholders in hydropower	TG1, TG5-8	Successful sustainable refurbishment requires collaboration between public and private stakeholders, including government agencies, local communities, energy companies, and environmental organizations.	Events/Speeches, Publications, social media, Newsletters
Attract more qualified personnel to the hydropower sector	TG6-7, TG9	Refurbishing hydropower plants can create job opportunities, boost local economies, and as a result can improve the overall well-being of communities.	Events/Speeches, social media, Publications, Local Media

7.4. Communication actions and timeline

To maximize the impact of ReHydro, networking activities for presenting the project to potential stakeholders are planned for the entire project lifetime. The PMT will oversee the communication efforts until the end of the project by:

- Reviewing the consortium partners' communication capabilities
- Ensuring that all consortium partners contribute to communication actions

■ Assessing the results

Table 3 shows the planned communication actions and their responsibilities for implementation. The timeline of the various communication actions is shown in Annex 1: Timeline of the Communication Activities.

Table 3. Planned communication actions and responsibilities for implementation.

CDE actions L ... Leaders C ... Contributors	1 SINTEF	2 VGBE	3 EDF	4 EDP	4.1 EDPL	5 CNR	6 LYSE	7 GE	8 ANDRITZ	9 VOITH	10 INTOTO	11 ENGIE	12 INRAE	13 NINA	13 HM	15 SGRID	16 AKSO	16.1 AKER	17 ALPIQ	18 AND_CH	19 EPFL	20 HES-SO	21 HEX	22 IHA
COMMUNICATION ACTIONS																								
Visual identity																								
Project logo and visual identity	C	L																						
Template for presentations	C	L																						
Template for deliverables	L																							
Website																								
Website creation	C	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Website management		L																						
Posts for social media																								
Outlining the social media strategy	C	L																						C
Social media channels management		L																						
Providing social media content	C	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
General Presentation																								
Creation of a general presentation	L	C																						
Videos																								
Creation of Videos		L																						C
Leaflet																								
Creation of Leaflet	C	L																						
Infographic																								
Creation of Infographic		L																						
Brochure																								
Creation of Brochure	C	L																						C
Roll up																								
Creation of roll up	C	L																						C
Posters																								
Creation of posters	C	L																						C
Press releases																								
Creation of press releases	C	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Newsletters																								
Creation of newsletters	C	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Partner communication																								
Website	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Newsletter	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Social media	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Events	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

7.5. Open access to scientific publications

The ReHydro partners are committed to publishing scientific publications in open access. The policy that will be implemented by the project will give priority to the “Green” model with the requirement to fix the embargo to 6 months after the first date of publication, as required by the EC. However, when not applicable, the publication policy of the consortium will be to pay the fees to make the scientific publications free of access. The costs related to paying the “Gold” open access for several publications have been integrated into the budget of the project.

The platform Sherpa/Romeo (<http://www.sherpa.ac.uk/romeo/index.php>) will be used to have a summary of permissions that are normally given as part of each publisher's copyright transfer agreement.

Further to this and whenever necessary, the addendum to the publication agreement provided by the EC will be used. This is an instrument that, if accepted by the editor, modifies the publisher's agreement, and allows the researcher to keep key rights to the articles. The Coordinator will support the researchers with these administrative issues related to the communication with the publishers.

In addition, the consortium will consider submitting papers to Open Research Europe, the new open access publishing platform for the publication of research stemming from HORIZON EUROPE funding. This will be discussed by the project partners and decided on a case-by-case basis.

Publications funded by the project will be uploaded to some specific Bibliographic social networks such as <http://www.citeulike.org>, <http://www.mendeley.com> or <http://www.bibsonomy.org> no later than six months after its original date of publication. This will guarantee open and free access to them.

All publications and accompanying data will be stored in the online project community to be created on Zenodo. All uploads will thus be directly indexed in OpenAIRE.

7.6. Open access to scientific data

The project will collect relevant research data, that will be managed according to the Data Management Plan (D10.3). In accordance with the rules of the Open Research Data Pilot of which ReHydro is a part, for each research dataset, the ReHydro partners will carefully study the possibility and pertinence to make them findable, accessible, interoperable and reusable (F.A.I.R.). Data will be shared in accordance with recognized standards used in the research field, to maximize the opportunities for data linkage and interoperability. Sufficient metadata will be provided to enable the datasets to be used by others. Generally, the data being produced will be shared and made accessible for verification and re-use, according to the provisions foreseen in the Consortium Agreement (CA). Access to specific data may be restricted under limited circumstances (e.g., for national security, to protect personal data and where the relevant new know-how acquired in the project is protected in order not to endanger the exploitation of the project's results). The first version of the Data Management Plan (D10.3) will be delivered in October 2024.

8. Dissemination plan

8.1. Meaning of the term “dissemination” in this framework

Dissemination is the public disclosure of the project results by any appropriate means (other than resulting from protection or exploiting the results), including scientific publication in any medium. It is the process of promotion and awareness-raising right from the beginning of a project. It makes research results known to various groups (e.g., research peers, industry and other commercial actors, professional organisations, policymakers) in a targeted way, enabling them to use the results in their own work. This process must be planned and organised at the beginning of each project. Activities used for dissemination purposes are for example a public website, press releases, publications, and attendance at events. Dissemination and communication activities and tools can intersect.

8.2. Objectives of the dissemination plan

The objective of the dissemination plan is to identify and organize the activities to be performed to maximize the influence/impact of the project’s results. To ensure the widest possible dissemination of the project’s results and to increase its impact and outreach, ReHydro dissemination objectives have been set around four pillars:

- Raise awareness and openly demonstrate clear economic, social, and environmental benefits of utilizing ReHydro solutions.
- Inform, inspire, and educate all stakeholders by making the project results available to all.
- Engage with stakeholders to discuss the results, to receive input and feedback, and to form collaborations.
- Sustain the results after the end of the project and contribute to science.

8.3. Dissemination strategy

The dissemination strategy and activities follow principles and best practices successfully tested by the partners and in line with the EC Guidelines (see Chapter 3) for successful dissemination. The focal point of the ReHydro overall dissemination strategy is beyond the definition of the objectives, the identification and mapping of TGs (whom to disseminate to) and understanding of their needs and characteristics to tailor clear and concise messages (what to disseminate) to the different TGs. This also ensures the use of the most appropriate and efficient dissemination channels and communication tools and drives the development of proper material per TG (how to disseminate). It further defines a time plan (when to disseminate), based on which 3 phases are introduced, with



Figure 6. Strategic dissemination steps.

specific objectives and target focuses per phase, assisting all project partners in implementing dissemination objectives and activities throughout the project implementation. Focusing on reaching a wider audience beyond the main targeted stakeholders of the project, the DEC will outline liaison and networking activities with other EC projects, initiatives and networks that will further enhance the dissemination range and impact.

The PMT will coordinate the dissemination plan of ReHydro and its activities with the involvement of all the members of the consortium. Each partner will make use of its tools and channels, networks and collaboration with the goal of reaching the stakeholders of the project and building the ReHydro community. The partners must provide all the relevant information and feedback as well to complete the dissemination reports on a regular basis over the course of the project.

8.4. Dissemination Target Groups

The consortium has identified several Target Groups that have an interest or are going to be affected by ReHydro. These will be targeted by different dissemination actions and networking activities. The TGs will be refined throughout the lifetime of the project in relation to the various activities developed within the different work packages.

The identified Target Groups for dissemination is presented in Chapter 4.

8.5. Dissemination tools and channels

Dissemination tools and channels play a crucial role in spreading information, ideas, and messages to a wide audience. It's important to consider the TGs, the nature of the information being disseminated, and the desired outcomes when selecting the appropriate tools and channels for dissemination. Combining multiple tools and channels can maximize reach and engagement, ensuring effective dissemination of information.

8.5.1. Presence at key events

International conferences, congresses, workshops, exhibitions and fairs are some of the most effective dissemination and communication measures to reach the different TGs.

The participation of the partners in such events will increase the visibility of ReHydro and promote contact with the TGs and other European projects. Project results will be communicated and disseminated at relevant European events/trade fairs to present their main added value to a potential end-user portfolio.

The strategy for participation in events is implemented on three different levels:

- Through the participation of each partner in the usual events of the sector.
- Participation in presentations of the project at pre-selected events organised by the EC and other key institutions/organisations.
- Events organised and promoted by ReHydro in cooperation with other initiatives and organisations to achieve synergy effects.

8.5.2. Training workshops on tools

Organize training workshops for hydropower plant operators and engineers as well as researchers to familiarize them with the innovative solutions ReHydro develops, especially with the developed tools. Provide hands-on demonstrations, practical examples, and interactive sessions to ensure a deeper understanding and encourage adoption.

8.5.3. Final workshop

A final workshop, free of charge for all interested participants, will enable all results to be presented and discussed. The benefits of each subject-specific WP will be presented by a representative. The final event could also be integrated into a large hydropower event as an independent sub-event to raise awareness even further.

8.5.4. Magazines and scientific journals

ReHydro will produce a considerable number of research results to be disseminated in different important scientific journals. Therefore, especially the academic partners will make great efforts to publish scientific papers in worldwide recognized scientific journals with a high impact index. However, the scientific knowledge gained within the project will also be published as much as possible in open access scientific journals and magazines.

All partners are responsible for identifying publication opportunities and taking all necessary steps to ensure publication of project-relevant activities and results. Each partner is encouraged and aims to publish high-quality papers, articles and presentations.

All publications must indicate the EU contribution and the grant agreement number 101147310.

8.5.5. Collaborations with other projects

Collaboration with other projects enables professional exchange and serves as capacity network building for communication and dissemination activities. In addition, informal liaisons and information sharing through the existing contacts and other projects of the consortium partners will support the wider diffusion of ReHydro.

Table 4. Collaboration with other projects.

Project	Description / ReHydro ´s activity
ETIP Hydropower	ETIP HYDROPOWER brings together representatives from industry, academia, research centres, civil society and associations to monitor and track the research activities for the hydropower sector and underline the importance of hydropower in the energy transition.
ReHydro's activity:	ReHydro is being presented during webinars organized by ETIP Hydropower.
PanEuropean Network for Sustainable Hydropower (PEN@Hydro)	The main objective of this Action is to establish a Pan-European network for sustainable, digitalized Hydropower contributing to the Clean Energy Transition (CET). This network should be made up of a united network of researchers, engineers, scholars, and other stakeholders, such as representatives from industry, policy and civil society, to facilitate close collaboration among European research groups through projects supporting sustainable hydropower.
ReHydro's activity:	ReHydro features PEN@Hydro on the project website and is featured on theirs in return.
D-HYDROFLEX	The D-HYDROFLEX project will advance excellence in research on digital technology for hydropower, paving the way towards more efficient, more sustainable, and more competitive hydropower plants in modern power markets.
ReHydro's activity:	ReHydro features D-HYDROFLEX on the project website and is featured on theirs in return.
Di-Hydro	Di-Hydro will develop smart devices and pro-active intelligent algorithms that utilize data acquired from static, dynamic, and alternative sources (e.g., satellites) to predict the operational and maintenance-related behaviour of standalone HP plants and clusters. The project will integrate such algorithms into digital twins that can fully interoperate with such hydropower plants/clusters, ultimately creating an intelligent, fully reproducible decision-making tool for the optimal coordination of green power generation from such plants/clusters (based on the expected market demand and the intended business strategy of their owners).
ReHydro's activity:	ReHydro features Di-Hydro on the project website and is featured on theirs in return.
iAMP-Hydro	The iAMP-Hydro project will improve the digital operation of existing plants through the development of 6 expected results which will collectively form iAMP ´s novel intelligent Asset Management Platform.
ReHydro's activity:	ReHydro features iAMP-Hydro on the project website and is featured on theirs in return.
STORE2HYDRO	STORE2HYDRO aims to develop novel long-term electricity storage technologies for flexible hydropower
ReHydro's activity:	ReHydro features STORE2HYDRO on the project website and is featured on theirs in return.

8.5.6. Networking with other organisations

The integration and use of the networks of other organisations play a crucial role in building a network community that is helpful for the project. Focusing on reaching a wider audience beyond the main TGs of the project. The DEC will outline liaison and networking activities with other organisations, initiatives and networks that will further enhance the dissemination range and impact. International and national associations as well as research organisations and companies with a wide network should be considered.

Table 5. Networking with other organisations.

Organisation	Description
International Hydropower Association (IHA)	The International Hydropower Association (IHA) is a non-profit membership organisation and the global voice for sustainable hydropower. IHA is also a partner of the ReHydro project
European Renewable Energies Federation (EREF)	EREF is the European federation of national renewable energy associations from across EU Member States, representing all renewable energy sectors and is the platform for small hydropower associations.
EU Hydropower Alliance	The alliance aims to recognize and promote the many benefits of hydropower, including its ability to compensate for the variability of intermittent renewables such as wind and solar through its flexibility and storage capacity. The alliance is cooperating with Eurelectric regarding advocacy. The 10 members represent a total installed hydropower capacity of over 110 GW.
European Energy Research Association (EERA)	EERA catalyses European energy research for a climate-neutral society by 2050 and coordinates its activities through 18 Joint Programmes – one of them is JP Hydropower - that provide world-leading scientific expertise on three pillars: low-carbon technologies, materials, and systems' topics.
VGBE Technical Competence Center “Hydro Power” (TCC)	VGBE runs the TCC “Hydro Power” with active participation by over 250 experts from 68 operators representing more than 100 GW and 24 equipment manufacturers and suppliers.
International Energy Agency (IEA)	IEA Technology Cooperation Programme on Hydropower is a working group of International Energy Agency member countries and others who have a common interest in advancing hydropower worldwide.
Clean Energy Ministerial (CEM) Hydropower Initiative	This initiative aims to advance sustainable hydropower development globally by promoting policies, practices, and technology solutions that enhance the sector's sustainability.
Renewable Energy Policy Network for the 21st Century (REN21)	REN21 is a global network that brings together governments, NGOs, industry representatives, and other stakeholders to promote renewable energy. Their work includes reports, policy recommendations, and cooperation initiatives encompassing various renewable energy sources, including hydropower.

8.6. Results to be disseminated

The various WPs generate a variety of results that are to be made available to the respective corresponding TGs. The responsibility to perform the dissemination activities envisioned in this dissemination plan lies within the whole consortium. Each partner is required to think about

which results are valid for publication and must take action to find the right channels. The general policy for dissemination includes the following points:

- Each member is encouraged to make proposals for results to be disseminated.
- The general idea must be proposed to the dissemination task leader, the corresponding work package leader from the work package that has generated the result and PMT; a decision on whether the result will be published will be taken together.
- Each partner should look for synergies with other partners to encourage joint activities.
- The partners are encouraged to notify the PMT about interesting dissemination opportunities they know of, even when they don't have results to publish themselves.
- The individual contributions (e.g., written papers, articles, demonstrators) need to be presented to the PMT at least on a conceptual level at least one month before the submission.

8.7. Dissemination planning instruments

A list of tools to be used as a guide for the different activities to be carried out supports the structured process. It proposes multiple steps, which come with each specific activity and suggests deadlines for each activity. These guidelines can be adapted to each individual activity since various factors can result in varying steps and deadlines.

Table 6 includes a listing of the key results for dissemination activities. The key results will be considered in different actions.

Table 6. Key results from the work packages.

WP	WP name	Key result
WP1	Improved hydropower refurbishment performance	<ul style="list-style-type: none"> Development of technologies to monitor continuously online turbine performance Development of technologies monitoring vibration and erosion due to cavitation or sediments Development of virtual powerplants monitoring and controlling technical and environmental parameters
WP2	Flexibility solutions for sustainable refurbishment	<ul style="list-style-type: none"> Benefits of hybridisation with batteries are demonstrated Benefits of refurbishing with a new pumping system are demonstrated Benefits of advanced control systems are demonstrated Monitoring and control of hydropower plants via digital twins are improved
WP3	Fit for market	<ul style="list-style-type: none"> Delivering a business outlook identifying future flexibility needs, the role of hydropower in Europe towards 2030/50, and how the European market design enables that role Delivering a prototype of a multi-market tool that calculates multiple revenue streams Delivering flexibility metrics to add to the decision basis for the comparison of refurbishment options
WP4	Environmental improvements of refurbishment	<ul style="list-style-type: none"> Best practice methodology and technology for environmental sustainability are refined and demonstrated Environmentally sustainable refurbishment of hydropower plants
WP5	Societal services	<ul style="list-style-type: none"> Contribution of refurbishment to maintaining or producing societal benefits is demonstrated Contribution of refurbishment to climate mitigation and adaptation is demonstrated Benefits to society through a life cycle perspective are demonstrated
WP6	Upscaling technical and digital solutions	<ul style="list-style-type: none"> Applicability of existing and newly developed solutions to other demonstration sites is demonstrated Development of a decision support tool that accounts for indicators of sustainability
WP7	Benefits from modernisation	<ul style="list-style-type: none"> Key outputs and results are identified, guidelines on technological, environmental, social and economic aspects of modernization projects are provided Alignments between the deployment of technologies and EU-established long-term objectives for future development of the energy sector as well as gaps in existing markets and regulations limiting the adoption of solutions from ReHydro are identified

8.8. Dissemination actions and timeline

To maximize the impact of ReHydro, networking activities for presenting project results to the TGs are planned for the entire project lifetime. The DEC Committee and the PMT will oversee the dissemination efforts until the end of the project by:

- Reviewing the consortium members dissemination capabilities.
- Ensuring that all consortium members contribute to dissemination activities.
- Assessing the results.

Consortium members may lead (organize and plan) or contribute to dissemination actions as seen in Table 7.

Table 7. Planned communication actions and responsibilities for implementation.

CDE actions L ... Leaders C ... Contributors	1 SINTEF	2 VGBE	3 EDF	4 EDP	4.1 EDPL	5 CNR	6 LYSE	7 GE	8 ANDRITZ	9 VOITH	10 INTOTO	11 ENGIE	12 INRAE	13 NINA	13 HM	15 SGRID	16 AKSO	16.1 AKER	17 ALPIQ	18 AND_CH	19 EPFL	20 HES-SO	21 HEX	22 IHA
DISSEMINATION ACTIONS																								
Publications																								
Journal publications	C	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Magazine articles	C	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
vgbe PTS		L																						
Conference publications	C	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Events and workshops																								
Presentation at external events																								
vgbe Expert Event "Digitalisation in Hydropower 2024"		L																						
Schweizer Wasserwirtschaftsverband																								
ViennaHydro2024	L																							
vgbe Expert Event "Digitalisation in Hydropower 2025"		L																						
Hydropower Balkans																								
HydroES																								
vgbe Expert Event "Digitalisation in Hydropower 2026"		L																						
ViennaHydro2025	L																							
Training workshops on tools																								
Training Workshop Tool 1																								
Training Workshop Tool 2																								
Training Workshop Tool 3																								
Final event																								
Event "Solutions for sustainable refurbishments in hydropower"	L	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

8.9. Monitor and evaluate impact of dissemination actions

Regular evaluation of dissemination activities and measurement of their impact on awareness, adoption and implementation of the innovative solutions will be evaluated. Collected feedback from stakeholders and lessons learned from implementations are used to refine and improve the dissemination plan and future activities.

The measurement of effectiveness of the dissemination actions is shown in Table 8.

Table 8. Measurement of effectiveness via KPIs.

Task	Description	Tracked KPI
Visual identity	Develop visual identity	Creation of the branding Creation of the templates
Website	Develop a public user-friendly research project website	Num. of visitors Num. of site access annually Num. of downloads per month
Social media	Using LinkedIn to disseminate messages	Num. of followers Num. of posts
Journals and Magazines	Development of scientific articles and papers for targeted dissemination	Num. of publications in journals and magazines
Webinars	Holding of open webinar events to disseminate research project results and aid in exploitation	Num. of organized webinars Num. of participants
Videos	Creation of videos showcasing ReHydro results	Num. of views Num. of videos
External events	Participation in external events	Num. of lectures given
Newsletters	Curation of a newsletter with relevant information about the progress of ReHydro	Num. of newsletters

9. Exploitation plan

9.1. Meaning of the term “exploitation” in this framework

Knowledge transfer and exploitation of results requires several steps including identifying exploitation mechanisms and activities. It focuses on identified End Users to ensure impact and uptake of the results. ReHydro will integrate diverse activities along the project lifetime to enhance the dissemination and exploitation strategy, maximize the expected impact and boost the project sustainability for the continuation of the project after EU funding. The geographic coverage of the project also provides the foundation for a much broader engagement, and ultimately for the basis upon which to work towards the long-term sustainability of the project findings.

9.2. Objectives of the exploitation plan

The objective is to define a strategy for the exploitation of the results of the project activities. Results are understood to be both intellectual results such as methodologies, working methods, analyses and findings from demonstration projects as well as products and technologies that can be reused.

In all cases, it is possible to foresee an adequate path of exploitation of the results within the partnership and outside the project (after the end of the project) in the form of a commercial product. In all cases, it is possible to foresee an appropriate way to use the results within the partnership and outside the project (after completion of the project) in the form of the most effective re-use.

To ensure that ReHydro maximises its impact using results, the project will apply a proven methodology for knowledge management and transfer for exploitation. In the following section, relevant terms will be explained.

Knowledge Management is the process of identifying, capturing, organising, analysing, and storing knowledge to ensure its availability to be transferred effectively to specific and relevant users.

Knowledge Outputs (KOs) refer to a unit of knowledge generated from a scientific project. This is not restricted to groundbreaking or original discoveries; it can also encompass new methodologies, processes, adaptations, insights, or alternative applications of existing knowledge or expertise. Typically, such knowledge might be referenced as a small part of a published paper, potentially three to five years after the approach is pioneered in a research project.

Knowledge Transfer (KT) is the overall process of moving knowledge from knowledge sources to targeted potential users, focusing the research being conducted on the wider needs of society and industry. KT consists of a range of activities that aim to capture and transmit knowledge, skills, and competencies from those who generate them to those who will transform them into added-value outcomes, thus maximizing impact. It can include commercial and non-commercial activities such as research collaborations, licensing, spin-off creation, researcher mobility, and publications. The ultimate end benefit of successful KT is the application and influence of knowledge on targeted groups with greater impact (short and long term) across academia, industry, and society. This methodology focuses on capturing all the project's Knowledge Outputs

(KOs) and, through a series of collections and prioritisation, identifying the Key Exploitable Results (KERs).

Key Exploitable Results (KERs) are defined as the tangible or intangible outcomes of a project, including data, knowledge, and information, regardless of their form or nature, which have been deemed to be of high priority for project transfer actions. ReHydro is not implying any sort of value judgement between KOs and KERs. Rather, the project is simply using this distinction to allow knowledge that has the most direct impact on the project or is most feasibly transferrable by the project, to be prioritised when assigning resources for transfer. By focusing on identifying KERs and transferring them when they have been assessed as having potential application and impact, it is possible to fast-track them, providing a faster impact on target- and end-users external to the project.

End User(s) are the individual(s) who are identified as being in a position where they could feasibly apply a given unit of knowledge (KO/KER) and by so doing create the desired eventual impact of that knowledge. The KO/KER may need to evolve to reach the end user.

Target User(s) are individual(s) (organisations should be avoided where possible as specificity is crucial), whose position makes them a potential stepping-stone needed for a KO/KER to progress towards an identified End User and eventual impact. Target Users are individuals with a specific mandate or responsibilities relevant to the specific KO/KER being evaluated. Target Users should not merely be potential users of knowledge but should be individuals whose application of the knowledge is likely to advance it down the knowledge transfer pathway. There can be any number of Target Users in a knowledge transfer pathway.

A Knowledge Transfer Plan (KTP) is an analysed stepwise plan for achieving the identified eventual impact of any piece of knowledge, regardless of whether this impact is achievable in the short, medium, or long term. In ReHydro these will be applied to all assessed KERs. The KTP identifies the end-user capable of producing the desired eventual impact and outlines a specific series of transfer activities to intermediate target users that provide a feasible plan to reach them.

Eventual Impact is the ultimate end benefit of the application of the knowledge (KO/KER). It is defined as an overall enhanced situation, generally for society but it can also be research or industry specific. Eventual impacts can be the adoption of new technologies, products or innovations identified and refined within the project or a change in protocols.

All captured knowledge will be assessed and recorded in line with the CA, respecting privacy and Intellectual Property Rights (IPR) requirements. This approach is essential to avoid unforeseen delays or obstacles related to confidentiality or competitiveness and to provide partners with the security they need to allow them to be transparent in their findings, enabling the project to quickly identify opportunities for the KERs. The objective is to ensure the fastest route for new knowledge to where it can add value and create impact.

9.3. Exploitation strategy and Target Groups

ReHydro's exploitation strategy will pave the way for future use of the results obtained, considering a sustainable industrial dissemination strategy aligned with a sound business plan. Based on a structured knowledge management and transfer methodology for exploitation, the

developed methodology is applied to each exploitable outcome and considers the following points in different phases:

- **Identification of KERs:** To identify and prioritize valuable outcomes or findings that can be further utilized or capitalized on.
- **Evolution of business and innovation potential:** Analysis of the identified KERs about business and innovation perspective to estimate the exploitation potential.
- **Business model generation:** Tailor business models for the results with high exploitation potential or presentation of the added value in case of implementation to specify exploitation plans more precisely.
- **IPR analysis and knowledge management:** Knowledge management encompasses processes, strategies and technologies for the creation, storage, sharing and effective use of knowledge and tools, considering the IPRs.
- **Marketing and promotion strategy:** Develop a marketing and promotion strategy to create awareness about the KERs and to foster knowledge sharing and collaboration within the hydropower industry.
- **Individual exploitation plan:** Preparation of individual exploitation plans for each identified KER, considering synergies within the consortium and other stakeholders.
- **Monitoring and evaluation:** Establish a monitoring and evaluation framework to track the progress and impact of the exploitation activities.

9.4. Knowledge management and transfer for ReHydro

The knowledge management strategy (KMS) and knowledge transfer of KERs are integrated into the project through WP8 and WP9. The KMS is based on regularly collecting project KOs/KERs through structured questionnaires and interviews with partners responsible for developing the results. Collected and analysed results will be assessed based on criteria related to their innovation capacity, relevance to the sector and adherence to the project, call objectives and expected impact by the DEC Committee and the PMT.

All outputs collected will be analysed, with support from all partners, to identify KERs with potential for market uptake and to determine any IP protection requirements. For the identified KERs, KTPs will be created, detailing customised transfer activities for the Target and End User(s). Review and input to ensure ReHydro innovations are in line with the latest market needs and expectations will be the responsibility of the Project Coordinator's and VGBE's Exploitation efforts. The PMT will support the KER owners in planning the implementation of KTPs (identifying relevant TGs, events, etc.) and dissemination activities needed for transfer. This customised approach will increase the likelihood that:

- KERs will be transferred and exploited successfully, and the result will be applied.
- there is an increased potential for impact from the transfer.
- it is possible to measure and demonstrate the impact of the transfer.

There will be a periodical review organised at each general assembly meeting of the consortium partners reviewing the results created by each partner. Questionnaires will be sent to all partners to assess the knowledge created and their opinions on the potential exploitation plan to adopt

and how to protect the knowledge. All partners should be aware of IP policy and the code of practice concerning the management of IP as stated by the recommendation from the EC.

An internal special workshop will be organised to deal with exploitation and the protection of results. This workshop will be a topic during the second general assembly meeting. KERs will be showcased on the EC's HORIZON Results Platform and presented to the consortium (webinar/one-day seminar), outlining the actions required to fulfil their market potential. These outcomes will also be included in the final version of the DEC master plan.

The knowledge management and transfer methodology consist of the following three overall phases and is further described in detail below:

- **Collect and Understand**
- **Validate and Analyse**
- **Transfer and Exploit**

The exploitation plan with the individual KTPs will be managed and updated by the DEC Committee and the PMT.

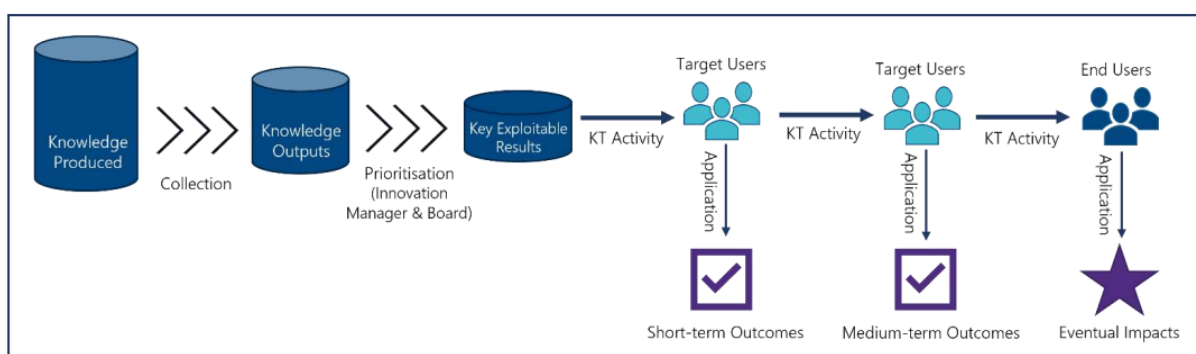


Figure 7. ReHydro full knowledge pathway and methodology.

9.4.1. Collect and Understand

Phase 1: Capturing of KOs in an internal KO Questionnaire (KOQ)

Effective KT relies on careful identification and description of KOs to ensure that all key information is provided which will result in effective transfer (Figure 8). Quality control measures will be performed to ensure that the KOs can be clearly understood by others, including those who may not be experts in the relevant disciplines. Each partner will treat information from other partners as confidential unless otherwise stated and not disclose it to other parties unless the information is publicly available. All beneficiaries need to note that KOs are not only the final results of research, but they can also be part of the methodology to obtain the final result, which could be an innovation for the whole research area.

This phase aims to understand the positioning of a KO to more efficiently carry out impactful KT activities. It intends to help clarify how the KO could be beneficial to different Target and End Users. This step identifies potential applications, Target and End Users and the eventual impact of a KO. The KOs will be collected in a KOQ.

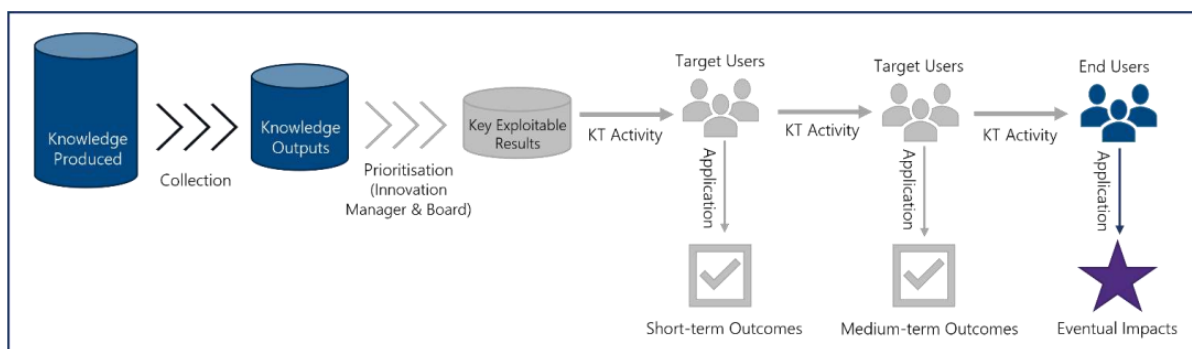


Figure 8. Knowledge Transfer Methodology: Collect and understand.

It should be noted that KOs, especially those collected early in the project, are likely to continue to develop throughout ReHydro. Collected knowledge will be periodically reviewed within the updates of the DEC master plan and relevant partners will be asked to provide updates if applicable. The protocol for this is illustrated below:

1. VGBE sends the KOQ to ReHydro Task Leaders, who will be requested to complete it and update it as necessary.
 - If the Task Leader thinks another partner is better suited to provide the requested information, then they should send it on to the relevant person(s).
2. Task Leaders should send VGBE the completed KOQ.
3. For all identified KOs from the questionnaire, VGBE will arrange an interview with the KO owner(s) to better understand the knowledge collected and brainstorm potential uses and users of the KO.
4. After the interview, the KO owner(s) will receive a draft of the KO to check for accuracy following the discussion.
5. KO owner(s) are requested to respond with any corrections or suggested additions/edits promptly. In particular, this review should focus on:
 - If the title of the KO(s) is sufficiently informative.
 - If the description of the KO(s) is sufficiently comprehensive for a non-expert to adequately understand the nature of the KO and to determine its possible application.
 - If the potential end-users of the KO, as well as the potential application by each of these end-users, is reasonable/desirable and if there are any other potential end-users.
 - If the KO(s) is publicly available or is subject to IPR protection, which would affect transfer potential.
6. Once the interviewee is satisfied with the accuracy of their KOs they will be marked as “confirmed” in the KOQ.
7. Once confirmed, an IP review will be carried out. This involves:
 - The DEC Board will review each KO to determine whether it will require an IP assessment.

- If an IP assessment is deemed necessary, the generating partner will be asked to complete an IP Assessment Form. Assessment Forms will be reviewed Innovation Manager and appropriate board member(s) who will guide as necessary until all relevant parties believe sufficient IP protection rules have been applied to the further dissemination, communication, and exploitation of the KO.
8. Once the IP assessment is completed, or if an IP assessment is not deemed necessary, KOs will advance to the validation and analysis stage.

9.4.2. Analyse and Validate

Phase 2: The collected KOs are reviewed and assessed for potential application and impact.

Once understood and assessed for IP, KOs go through an internal due diligence process, whereby a more thorough evaluation of the KO and its applicability and readiness for transfer will be investigated (Figure 9). The due diligence will be undertaken so that any factors that could affect the transfer potential (confidentiality, competition, IPR) of the KO and ultimately the uptake and impact of the knowledge can be identified. Following the due diligence, KOs will be prioritised and those with the potential to have an impact will go through to the next step. An essential step in the ReHydro knowledge management and transfer methodology is the identification of KO applications, potential impact and respective End Users (e.g., applications could be in various areas and sectors not just the one in the research area of the project) for each KO which has been assessed as having high potential application and impact.

Important aspects are prioritisation of high potential KOs and profiling target and End Users to gain valuable data to inform successful individual exploitation plans. This is not a ranking of their importance but rather a method to help ReHydro identify where to focus transfer and exploitation efforts. For those prioritised, appointed expert groups will attempt to identify potential Target Users whose application of the knowledge would be of benefit in transferring it towards its eventual impact.

Those KOs that are validated and deemed to be of priority for the project will be re-labelled as KERs and progress to the third phase. Any KO that is not made a KER will continue to be periodically reviewed and any remaining at the end of the project will still be captured as evidence of impactful research for final reporting. The identification of Target Users in the analysis stage is critical to laying the groundwork for transfer and exploitation plans in the third phase. The exercises in this phase may also serve to identify potential Target Groups worth connecting with, even in cases where the knowledge may not yet be ready for transfer.

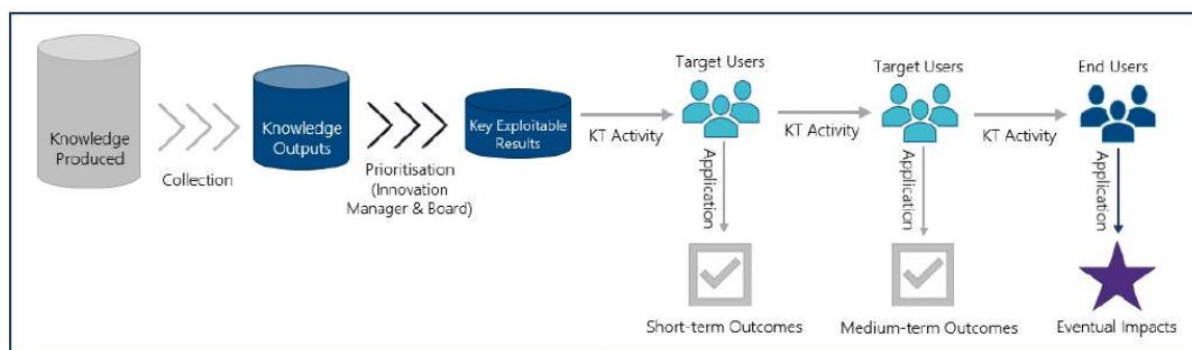


Figure 9. Knowledge Transfer Methodology: Analyse and validate.

The protocol for this phase is as such:

1. At periodic intervals, VGBE will organise KO and KER “expert analysis meetings”.
 - a. The frequency and makeup of these meetings will be determined in collaboration with the Project Coordinator as well as based on the current status of knowledge collection and management in the project.
2. The expert analysis meetings will carry out a thorough examination and evaluation of the KOs (collected so far) and their applicability and readiness for transfer. Particular attention will be paid to:
 - a. Identification of all likely Target and End Users. We encourage partners to be as specific as possible and innovative when determining potential End Users.
 - b. It is important to consider the following when profiling Target and End Users:
 1. Understand the user’s mandate or responsibilities.
 2. Consider their background knowledge, attitude and practice about the issue.
 3. Understand their knowledge needs.
 4. Understand what and who may influence their decisions.
 5. Be aware of their preferred sources of information and knowledge.
 - c. Identification of associated application and impact potential.
3. Assessing the Technology Readiness Level (TRL) could inform the development of an appropriate KO pathway, where KO requires further research, validation or scale-up.
4. Participants in these meetings will be asked to:
 - a. Confirm the accuracy and feasibility of transfer both within and beyond the project (but as a direct result of the project) for each presented KO, to the best of their understanding.
 - b. Assign to each KO a ranking to determine whether it should be prioritised as a KER based on its current status.
 - c. Discuss and identify potential Target Users to whom the knowledge should be transferred to progress it towards its eventual impact.

5. After each expert analysis meeting, VGBE will revise the KOQ to identify any progression of knowledge (such as a KO being changed to a KER).
6. If any questions emerge from the expert analysis meeting, VGBE will reach out to the relevant KO owners to attempt to provide an answer.

9.4.3. Transfer and Exploit

Phase 3: KT activities are carried out and reported on, whilst measuring the impact of both the activity and the application of the knowledge by the user(s).

For each KER, a KTP will be developed. Implementing an efficient KTP that is tailor-made to the needs and capacities of specific Target and End Users (profiled in phase 2) will maximize the chance of successful transfer resulting in uptake and application. The key to success is achieved through fully understanding the Target and End User and developing the KTP around them. There are several steps included in the KTP, and there are different routes it can go down to reach its eventual impact. KTPs are the accumulation of numerous KT activities as represented in Figure 10.

The individual partner within ReHydro best positioned to conduct the transfer will be identified and this phase will attempt to clearly describe how the impact of ReHydro's KERs will be measured, even after the project has ended. KERs will be showcased on the EC's HORIZON Results Platform outlining the actions required to fulfil their market potential.

The work carried out in this phase will not only be important for accurately reporting the full breadth of impact of the project to the EC, but it will also assist all partners in carrying out exploitation activities. Not every KTP will be able to be reasonably executed during the lifetime of the project, but by delivering clear plans, the knowledge management methodology will help to establish how exploitation actions within the project will feed into the overall impact of the project as a whole and help achieve the societal goals of ReHydro.

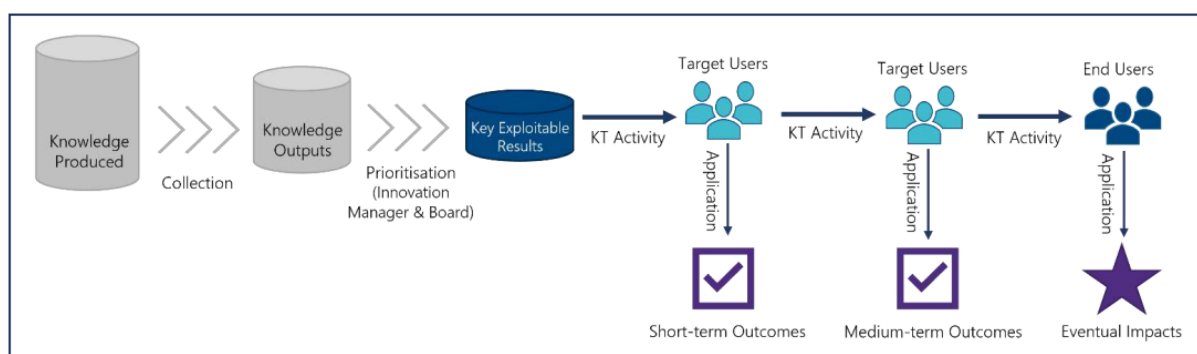


Figure 10. Knowledge Transfer Methodology: Transfer and Exploit.

The protocol for this phase is as such:

For any knowledge that has been determined to be a KER:

1. VGBE will collaborate with the Task Leader and the owner(s) of a KER to develop an individual exploitation plan for each KER. In particular, this effort will focus on the following considerations regarding the first Target User(s) in the plan:

- a. Building on the impact potential identified in the validation and analysis step ensures that a concise and compelling narrative for the opportunity/business case is developed.
 - b. The technical level of the Target User; the depth of information needed; and the style of the language most effective for communicating with them.
 - c. The background knowledge of the Target User.
 - d. Any preconceived ideas that the Target User may have relating to the area of interest.
 - e. Ways in which to relate the knowledge to examples with which the Target User is familiar, or ones they can easily envisage.
 - f. The level of evidence or validation that the Target User requires.
2. VGBE will be responsible for drafting these plans, which will then be provided to the PMT, Project Coordinator and generating partner(s).
3. Once a KTP has been drafted and reviewed, it will be open for feedback from the rest of the consortium.
4. VGBE will work with all relevant partners to assist where possible in the translation of KTPs into exploitation activities to engage with the appropriate Target and End Users. The nature of these exploitation activities will be highly dependent on the KER, the Target User, the transferring partner, the timeline, the resources available and other variable considerations. The exploitation activities themselves may be carried out within a range of externally focused tasks.

9.5. Exploitation timeline

The exploitation methodology will be implemented during the 4 years of ReHydro, intensifying the efforts dedicated as soon as the results are developed and become technologically mature. This scenario is expected to occur in the last year of the project.

10. List of acronyms

Acronym	Meaning
CA	Consortium Agreement
DEC	Dissemination, exploitation, communication
DMP	Data Management Plan
EC	European Commission
EU	European Union
F.A.I.R.	Findability, Accessibility, Interoperability, Reusability
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
KO	Knowledge Output
KOQ	Knowledge Output Questionnaire
KER	Key Exploitable Results
KT	Knowledge Transfer
KTP	Knowledge Transfer Plan
M	Month
PMT	Project Management Team
R&D	Research & Development
TG	Target Group
TRL	Technology Readiness Level
WP	Work Package

11. Annex

11.1. Annex 1: Timeline of the Communication Activities

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