OPTAIN

Optimal Strategies to Retain Water and Nutrients

D7.5: Training analysis

Identifying the needs and capacity of relevant target groups for tailoring the OPTAIN Learning Environment to their potential users' requirements

Authors: Natacha Amorsi, Sadika Bernard (OiEau)

Co-Authors: Natacha Jacquin (OiEau), Joseph Pronost, (OiEau), Benoît Fribourg-Blanc (OiEau), Jergus Semko (GWP CEE)

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Contributor(s)	Natacha Jacquin (OiEau), Joseph Pronost, (OiEau), Benoît Fribourg-Blanc (OiEau), Jergus Semko (GWP CEE)
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Related deliverables and milestones

D1.1 Stakeholder mapping report, covering the case studies (RHDVH, Feb. 2021); *with the description of the different profiles of the stakeholders involved in the 14 OPTAIN case studies*.

D7.2 Communication & Dissemination strategy (GWP-CEE, Apr. 2021), *with the identification of the different targeted audiences of OPTAIN.*

D7.4 Learning Environment development strategy (OiEau, month 54); *with the partners vision of the OPTAIN LE based on its multiple objectives, targets, benefits and development challenges*.

D7.6 Business model including exploitation plan for OPTAIN outcomes (OiEau, upcoming report in month 63), *will benefit from the online survey and interviews made to address the needs of the potential users of the OTPAIN LE.*

MS19 First version Learning Environment online (OiEau, Aug. 2022), *will benefit from the training analysis.*

MS21 Series of 3 regional events/dialogues (GWP-CEE, month 50).

MS22 OPTAIN summer school (GWP-CEE, month 30).

Summary

The 'training analysis' aims at identifying the needs and capacity of relevant target groups for tailoring the OPTAIN Learning Environment (LE) to their potential users' requirements.

The training analysis is an on-going and evolving process next to the development of the LE website. This report presents a first state of the art and the updated version of February 2025.

OPTAINs first training analysis focused on farmers, NGOs/associations, scientists, advisors/farmers' unions. Their profile was described in individual persona based on the information gathered in interviews and desk analysis. A preliminary illustration of the key relation (i.e. trust, co-creation/transfer or communication) among persona was illustrated on a stakeholder mapping highlighting three sectors (training, dissemination and raising awareness). This information was then used to elaborate a training matrix bringing together the core needs of each persona, their related sector and potential materials to be used for trainings. The recommendations to set the trainings were drawn based on a 360° framework[1] detailing 11 criteria to be taken into account and synthetic views for the targets, content, format, and transversal tips.

OPTAIN training stakeholders mapping

Advisors/Farmers' unions and NGOs/associations are the primary targets of OPTAIN training. As knowledge broker, they work at the interface with other stakeholders such as farmers. Scientists are the secondary target of the training. They are knowledge providers facing the huge challenge of co-creating the knowledge while providing demonstration of the multiple benefits of NSWRM and related themes. This leads to a change of the usual content and format of training. Indeed, the content should be scientific and community based (with experience sharing) and embedded in a trans-disciplinary approach. The format should offer the opportunities for learning experience through networking.

In the second phase of the training analysis, the stakeholder mapping has been expanded to include students as key personas. Their integration tailors the LE to future professionals and practitioners by enhancing structured training formats. It includes real-world case studies to bridge the gap between theory and implementation. Also, it provides opportunities for networking and career development to support them in their transition from education to professional practice. Furthermore, the stakeholder mapping will continue to evolve, expanding to include regional authorities and decision-makers, key actors who play a critical role in the governance, implementation and policy development of NSWRM. Their engagement will strengthen the practical application of knowledge and reinforce the decision-making processes within the LE.

[1] Theme, context and objectives, targets, positioning, content, format, analytics, technical requirement, economic analysis, organisational analysis and planning

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Abbreviations

CS	Case studies
DoA	Description of the Action
MARG	Multi-Actor Reference Group
NSWRM	Natural/Small Water Retention Measure
LE	Learning Environment
WP	Work Package

1. Introduction

This report is related to Work Package 7 (WP7) of OPTAIN, which is dedicated to dissemination, communication and Learning Environment. WP7 aims at an efficient and effective communication and dissemination of knowledge generated in the project using a variety of media and methods as appropriate for the different actors and target audiences of the project. One task of WP7 is to develop OPTAINs Learning Environment that will highlight all major improvements in the knowledge on NSWRM from a scientific but also actors' perspective. To ensure that the OPTAIN Learning Environment properly tackles stakeholders' needs, a training analysis has been undertaken, presented in this report.

*"Training is the process of learning the skills you need to do a particular job or activity"**

According to OPTAINs Description of the Action (DoA), the 'training analysis' (task 7.3) aims at identifying the needs and capacity of relevant target groups for tailoring the OPTAIN Learning Environment to their potential users' requirements. More precisely, the training analysis' objectives are to (i) align the research output of OPTAIN to the needs of stakeholders, researchers and other target audiences outside the case studies in order to facilitate uptake and impact, (ii) ensure that WP7 will develop and provide the most relevant support activities and (iii) to build a validation process of OPTAIN Learning environment. As explained in deliverable D7.4[2], the validation process aims at building a solid and suitable base for the Learning Environment by ensuring the co-creation, co-development and regular test of the platform with representatives of the potential users.

The overall aims of the training are to present stakeholders' profiles (that will be named persona hereafter) detailing their job and challenges, related constraints and benefits as well as their core needs. Then, the analysis draws a training-related stakeholders mapping based on three sectors[3] and specific types of relation. These materials have been used to highlight recommendations on the types of training related content, format, and tools.
The training analysis is an on-going process evolving next to the development of the Learning Environment (LE). This report presents an initial state of the art and the updated version produced in February 2025. One current challenge is to engage with potential users while the LE is under development.

Section 2 of the report focuses on the method used to deliver the training analysis. Section 3 details the personas profiles and present the farmers, NGOs, advisors/farmers' unions, scientists', and students ones. Section 4 describes a first picture of the OPTAIN stakeholders mapping in the light of the training services that will be provided by the LE. Section 5 focuses on recommendations for the organisation of OPTAIN trainings (continuous, on-site and on-line). Finally, the conclusion (section 6) opens up on recommendations for the development of the LE.

[2] D7.4 Learning Environment development strategy (OiEau, Aug. 2021); with the partners vision of the OPTAIN LE based on its multiple objectives, targets, benefits and development challenges

* Cambridge Dictionary, https://dictionary.cambridge.org/dictionary/english/training

[3] Sector A: training, sector B: dissemination and sector C: raising awareness

2. Method to elaborate the training analysis

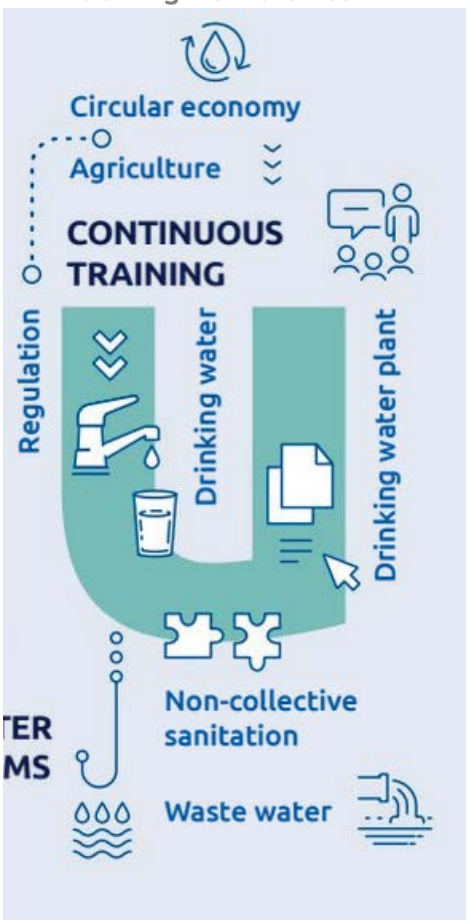
Closely related to the development strategy of the Learning Environment, the training analysis consists in identifying the training needs as well as understanding which tools and services related to the Learning environment can be tailored to tackle those needs.

The method explained in this section is adapted from the one deployed by OiEau as the first French private training centre dedicated to the water sector. The general settings of the method are presented in the first section. Section 2 focusses on OPTAIN approach.

2.1. Setting the scene

One of OiEau's pillars of activity is the training and educational engineering[4] in water's sector. The method established for OPTAINs Learning Environment benefits from OiEau's experience to promote know-how in the water and waste water sectors, to diffuse knowledge and to promote principles of good water management.

Figure 1 - OiEau continuous training main themes



Training analysis usually applies to organisations professionally dedicated to the knowledge transfer and training. Training involves a specific relation towards the trainees, with continuous exchange between the trainers and the trainees over a period of time and a regard on the progress of the trainees. Moreover, different levels of details can be applied to set a training analysis.

From the perspective of a sectorial training centre dedicated to the water sector, the profiles of the trainees are usually known as well as the professional skills required to implement specific tasks related to their job and it is quite easy to propose well adapted training sessions. In these conditions, to undertake a training analysis, a simple approach consists of engaging (i.e. meetings, interviews) with potential trainees and managers of these trainees and discuss their training needs to highlight how the training can help them in accomplishing their job.

Going one step further, the analysis can be widen to a whole professional sector. The targeted audience would then be asked not only to explain their own needs but to characterise the needs of their entire department. In that case, the first step is to set interviews and surveys. The second step consists of setting a workshop to contribute to the design of a training plan.

One transversal aim is to understand the gap between the current available skills of the potential trainees and the skills required to accomplish their tasks, which requires knowledge on both aspects.

[4] En 2019, OiEau welcomed more than 6000 trainees proposing 300 different certified trainings

In addition, a dynamic analysis takes into account the external drivers such as regulation (both on the technical and environmental requirements), markets condition and financial feasibility.
The training plan presents its objectives, content, targets, duration, planning, places and budget of the whole training program / project.

Specificities of OPTAINs training analysis and related challenges

In the case of OPTAIN, the specifications of the training analysis are narrowed to the use of the Learning Environment and on-site trainings, related to NSWRM and other themes such as hydrology, agriculture, environmental management, social skills, etc.

The potential end-users/trainees belong to a wide spectrum of stakeholders and socio-professional categories as described in annex 1.

One key challenge is to be able to provide a range of training materials and content tailored to the different levels of knowledge and skills of this wide variety of potential trainees.

2.2. OPTAIN approach

Key steps

The first step of OPTAINs approach consists of gathering the needs from the potential users of the Learning Environment. The value proposition approach ([d], [e]) (see Table 1) is used to better understand the tasks, related pain and gains. This task is based on primary information such as interviews and completed with desk analysis. The information is then collected in a persona template. At the end, one persona will be created for each target group of the Learning Environment.

The second step consists of translating the needs into training needs. A specific matrix has been elaborated for this. In addition, a desk research on existing on-line platforms aims at highlighting the specificities of OPTAINs Learning Environment.

Finally, the last step consists of recommending training support and materials the Learning Environment should propose to ensure those training needs are covered.

Both leads to recommendations on the training support and materials that will be put into place by OPTAIN and to recommendations on the structure of the Learning Environment it-self.

Source of information and interview's structure

As explained in the DoA, to identify the needs and capacity of relevant target groups the training analysis will use, over the years, primary and secondary information sources. Interviews and surveys will be used to gather information directly from the stakeholders. This information will be completed by desk analysis.

At that stage, the primary source of information is highly important for the training analysis. On one hand, it allows to gather accurate and current information directly from the potential users and trainees. On the other hand, it is a way of promoting OPTAINs Learning Environment through direct interaction with stakeholders. For this reason, we opted for an interview with open questions. The protocol is presented in annex 2.

Three main blocks of questions were prepared. The first block aims at characterising the job, related tasks, challenges and obstacles of stakeholders. The second block focuses on NSWRM. And the last block deals with OPTAINs Learning Environment[5].

Targets of the training analysis

The analysis targets two main audiences: (i) the actors involved in the project and the MARG, (ii) the stakeholders outside the direct scope of the project that have been identified in OPTAIN's communication and dissemination strategy.

The targets identified for the training analysis are based on the vision of the Learning Environment that was set by the partners during the first year of the project (see annex 1). The vision has a direct link with the WP1 stakeholders mapping and WP7 communication and dissemination strategy.

The main targets related to the potential users of the Learning Environment of the training analysis are: the cases studies and MARG related stakeholders such as farmers and advisors, institutional actors, aware end-users including researchers, and the public.

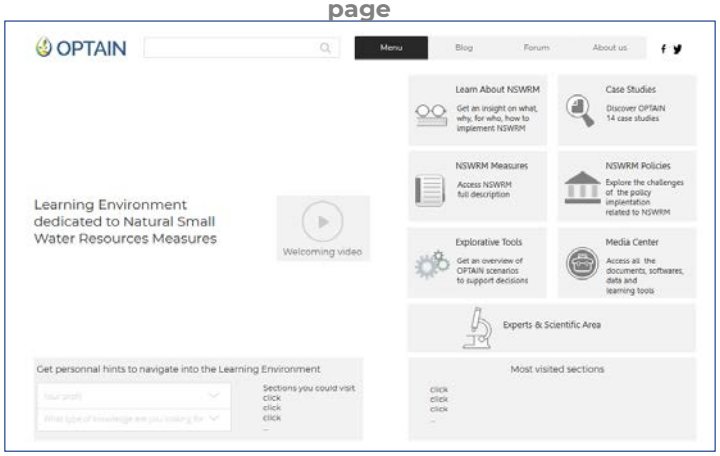
Targets profiles description: the personas

The analysis proposes to detail stakeholders' profiles in specific persona for each stakeholder. The aim is to illustrate their needs in a contextualised manner. Indeed, all the personas are based on a same template and gather the different fields of information[6]: professional tasks, objectives, main challenges, core needs, key motivation in OPTAIN, sources of information. The aim is to understand the daily tasks of each stakeholder profile, their difficulties in accessing knowledge related to NSWRM and related themes while taking into account their social, institutional, policy, economic and environmental contexts and challenges.

OPTAIN draft on-line platform

As mentioned previously, one challenge of the first training analysis is to refer to the Learning Environment despite the fact it is not accessible yet. In order to help the stakeholders grasping the general purpose and foreseen structure of the Learning Environment, the very first draft version[7] was developed and presented during the interviews to start gathering first feedbacks (see figure 2).

Figure 2 - OPTAIN Learning Environment - Draft home page



[5] In addition to the purpose of the training analysis, the interviews also aim at setting the scene for the elaboration of the business and exploitation plan (D7.6 OPTAIN Business model, M63). The first series of questions as well as the needs identified will help to set the demand side of OPTAIN value proposition.

[6] The online Smaply tool is being used to develop OPTAIN personas and stakeholder mapping

[7] The first on-line version of the Learning environment is available on: https://www.justinmind.com/usernote/tests/69612964/70012912/70395029/index.html

2.3. Main milestones

The development of the training analysis is aligned with the Learning Environment's one. The first phase of development targets the case studies stakeholders during the second year of the project. Specific interactions are foreseen with the CS leaders and CS representatives during OPTAINs InterVision meetings to set the approach to engage with local stakeholders.

In parallel, the training analysis has been open to additional targets outside the scope of the project (famers' unions, NGOs, scientists).

The training analysis benefits from the OPTAIN summer school, which was held in July 2023 in Prague, Czech Republic, and will also benefit from the three regional workshops planned in 2025.

3.Series of personas

3.1. First series of personas

Advisors/Farmers' unions, scientists, NGOs and farmer's personas are presented in this first version of the training analysis.

All the personas share the same template and are composed of the following categories:

- *Tasks*, describing their job
- *Objectives*, of their job and tasks
- *Main challenges*, faced to accomplish their job
- *Core needs*, faced to accomplish their job
- *Key motivation in OPTAIN*, to visit, use and get trained on the Learning Environment
- *Source of information*, used to find information on NSWRM and related themes

The information gathered to complete the personas mainly comes from the series of interviews which took place in April 2022 (see annex 2 for all the transcriptions).

A desk analysis was made to complete the information for farmers, who have not been yet interviewed. Nevertheless, as they represent the local/territorial implementation level of OPTAIN, it appeared highly important to draw their draft persona at an early stage.

The choice of the NGO was made as the person interviewed (see annex 2.7) manages an on-line platform (Natur'Adapt) dedicated to protected areas, gathering more than 500 managers and stakeholders across France. The interview had two key objectives (i) illustrate the link between protected area and NSWRM (ii) gather experience and feedbacks on the development of an on-line community platform.

Table 1: Source of information to describe OPTAIN personas

Profiles	Source(s) of information
Advisors – Farmers unions	• Interviews, see annex 2.2, 2.3, 2.4, 2.5, 2.6 • D1.1 Stakeholder mapping report • D7.2 Communication & Dissemination strategy • D7.4 Learning Environment development strategy
Scientists	• Interviews, see annex 2.1, 2.2, 2.3 • D1.1 Stakeholder mapping report • D7.2 Communication & Dissemination strategy • D7.4 Learning Environment development strategy
NGOs/Associations	• Interviews, see annex 2.7 • D1.1 Stakeholder mapping report • D7.2 Communication & Dissemination strategy • D7.4 Learning Environment development strategy
Farmers	• Desk analysis (see reference from [a], [b] and [c]) • Feedbacks from all the interviews, see annex 2 • D1.1 Stakeholder mapping report • D7.2 Communication & Dissemination strategy • D7.4 Learning Environment development strategy

3.1.1. Advisor/Farmers' union persona

The advisor/farmers' union is a key target of the OPTAIN Learning Environment and probably the most interested in the training.

The stakeholders of this persona represent the strongest link towards the farmers. Their relation with farmers is based on trust. They personally know farmers and have in their mission to support them both on administrative and skills levels. The administrative level deals with supporting farmers to fill forms to report on their activities or subscribe for regional funding for example. The skills levels deal with all the knowledge and know-how. Advisors need to remain able to provide the appropriate information and knowledge to farmers. To accomplish this task, they permanently need to get trained.

Table 2: Advisor/Farmers' union persona

Advisor/Farmers' union

SHORT NAME
ADV

KEY MOTIVATION IN OPTAIN
- Get knowledge on the full system of water retention, not only the agriculture part
- Access local knowledge and data to demonstrate and discuss with farmers
- Exchange
- Networking

SOURCE OF INFORMATION
- Collecting information from projects
- Recommendations from other countries
- Cooperation with Universities
- Network

OBJECTIVES
- Provide quality services to farmers
- Test and demonstrate practically
- Support farmers with administration
- Link farmers with experts
- Link farmers with authorities

TASKS
- Implement project with farmers
- Tracking new regulation
- Looking for the best tools, technology and policies
- Advice farmers

MAIN CHALLENGES
- Provide the best services and advices to farmers
- Do the link between recommendations and practical implementation
- Find the right language among the different stakeholders
- Get updated on new legislation
- Tracking innovation and expertise
- Build trust with farmers
- Be resilient to the economic situation

CORE NEEDS
- Get specific knowledge: i.e. more analysis on water, soils and measures' impact
- Access local and expert knowledge on measures and their impacts illustrated with figures, and related costs
- Train new advisors
- Social skills
- Scientific understanding

3.1.2. Scientist

Scientist's persona is illustrated without any distinction of scientific disciplines. Scientists are mainly knowledge provider and often need to involve local stakeholders to demonstrate their research. They would be mainly interested in the content and training materials that the Learning Environment would provide (to use it for their own purpose) rather than being trained themselves.

One high interest of this persona is to access feedbacks, lessons learnt (what went well in the implementation of NSWRM through all the technics, economic, social dimensions as much as what were the obstacles), sharing of experience as well as the networking.

Table 3: Scientist's persona

Scientist

SHORT NAME
SCI

KEY MOTIVATION IN OPTAIN
- Access the information
- Look at local data
- Share experiences (test, demonstration)
- Get specific examples of problem solving
- Get good practical solutions
- Networking

SOURCE OF INFORMATION
- NWRM platform for general information
- National websites
- Literature
- Knowledge acquired during studies and professional work (i.e. national and international projects)
- Knowledge exchange with farmers, scientists, advisors, colleagues, local and governmental administration, workshops, trainings, local water partnerships
- Social media

TASKS
- Research on different themes
- Test and demonstrate
- Discuss with farmers
- Inform policy

OBJECTIVES
- Implement research into practice for farmers and advisors
- Provide accurate data
- Produce tools and models
- Greater rate of measures' implementation
- Inform policy

MAIN CHALLENGES
- Tackle water issues management in agriculture
- Develop cooperation practice among stakeholders
- Support decision making
- Share common understanding of words among stakeholders
- Understand the shift in governance from the government intervention to the private funding
- Uptake and transfer of solutions to other places
- Embracing all the policy agendas (i.e. climate change, biodiversity)

CORE NEEDS
- Raise awareness on the catchment scale (up and down stream)
- Raise awareness on NWRM
- Show the strength of measures to support the evaluation of ecosystems services
- Get local data
- Monitor the cross sectorial impacts of measures
- Implement transdisciplinary work team to cover all the dimensions of the measures
- Develop strong models
- Gather experiences and impact stories: feedbacks from other research, studies: how the problem has been solved, what did not work and the reasons
- Assess trade-offs and benefits
- Adapt the subsidies and regulation patterns
- Assess the cost of implementation
- Understand the institutional issues for successful implementation
- Implement transdisciplinary research including social, economics sciences

3.1.3. NGO/Association

NGOs/associations are mission driven. As advisor, they have similar tasks than advisor/farmers' union such as remaining updated on the latest knowledge, on technics, political and regulation evolution. As facilitator, they target a wider audience composed of farmers, local/regional authorities, citizens, etc. they definitely represent a key interface towards citizens.

They also work as knowledge broker and are interested in the source of information/knowledge as well as being able to bring different stakeholders together to develop shared visions and mobilisation on environmental issues.

For these reasons, they would certainly be interested in the training materials and information displayed on the Learning Environment. Networking and experience sharing is considered as an important source of information. They could be also interested in getting trained if the topics are related to their mission.

Table 4: NGO/Association's persona

NGO/Association

SHORT NAME
NGO

KEY MOTIVATION IN OPTAIN
- Exchange of experience
- Access solutions that are illustrated and visually (i.e. maps)
- Networking

SOURCE OF INFORMATION
- Results from on-going activities
- Results from other demonstration projects
- Cooperation with other organisations and initiatives

TASKS
- Coordinate projects
- Implementing strategic actions including governance
- Raise awareness on environmental issues
- Advice stakeholders

OBJECTIVES
- Help stakeholders to change their practices towards nature
- Help managers to integrate climate change in their managements practices
- Test and demonstrate practically
- Network and bring stakeholders together
- Provide tools
- Support increase of competences
- Facilitate network

MAIN CHALLENGES
- Adaptation to climate change
- Find funding
- Set the time for stakeholders to develop common culture

CORE NEEDS
- Provide evidence based knowledge
- Create shared vision and common understanding
- Access to modelled data on maps
- Social skills
- Scientific understanding

3.1.4. Farmer

The Farmer's persona is elaborated from a desk review, the feedbacks from all the interviews (see annex 2) and the OPTAIN related documents[8]. Through OPTAINs MARG approach, the case study leaders are in direct contact with farmers and local stakeholders. The decision was made, in order to be coherent with the farmers' availability of time and the early stage of the Learning Environment development, to wait for the on-line version of the Learning Environment (August 2022) to start interviewing farmers. Farming is highly impacted by external drivers such as policies and economic/market conditions. The profession is under constant evolution, which brings farmers to develop resilience. Their needs would be more in terms of innovative know-how than knowledge it-self. The trust dimension and the lack of availability due to their activity are key in their relation with other stakeholders. Many interviewees stressed that farmers would be more interested in networking with other famers and exchange on their experience rather than following on-line training.

Table 5: Farmer's persona

Farmer

SHORT NAME
FAR

IMAGE

DRIVERS
- Public policies
- Market (local and inter.)
- Rural dynamics
- Innovations
- Food models (agroecological and local vs intensification and commodities)

OBJECTIVES
- Ensure the production
- Maintain wages
- Sale at a right price

SOURCE OF INFORMATION
- Farmers unions, advisors

TASKS
- Performing manual labour
- Performing maintenance on the farm
- Handling machinery
- Repairing faulty vehicles and machinery
- Managing farming activities
- Overseeing farmworkers
- Devising strategies for harvesting or breeding
- Liaising with clients

MAIN CHALLENGES
- Climate change impacts
- Economic balance
- Access subsidies
- Respect legislation
- Market risks i.e price volatility, sudden drop of products demand
- Employment prospect
- Implement collaborative work
- Health issues

CORE NEEDS
- Sharing experience
- Accessing new knowledge
- Developing know-how to be resilient to changes

KEY MOTIVATION IN OPTAIN
- Local knowledge
- Exchange with other stakeholders
- Best practice guidelines for measure implementation (e.g. the NSWRM catalogue)

[8] see table 1 for the source of information sued to elaborate the Farmer's persona

3.2. Simplified stakeholder mapping

The stakeholder mapping proposes a visual illustration of the relation among the different personas. The representation (see figure 4) is simplified to one relationship between personas. Three types of relationship are considered:

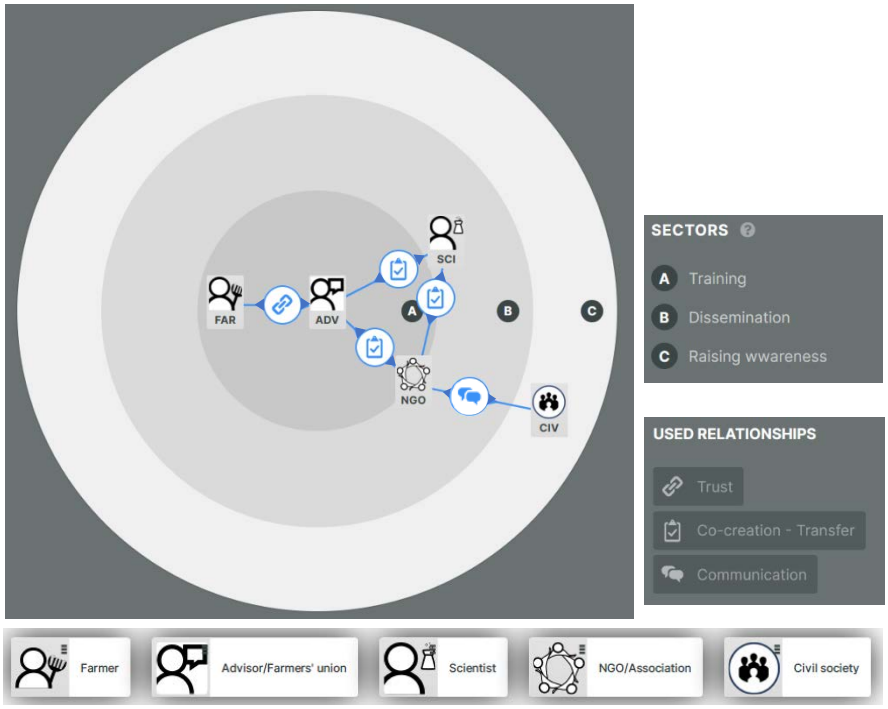
- Communication
- Co-creation / Transfer
- Trust

Figure 3: Stakeholder mapping: types of relationship

The three sectors correspond to the key Learning Environment objectives:

- Sector A corresponds to the training functionality of the Learning Environment that is closely linked to the transfer of knowledge dealing with the understanding of the different dimensions and multiple benefits of NSWRM and related themes, the decision support and implementation. The aim of the training is to build capacity. Sector A is driven towards the potential trainees of OPTAIN.
- Sector B corresponds to the dissemination objectives, which encompasses the evaluation and exploration of NSWRM effectiveness. It corresponds to the sector where the knowledge is either co-created within OPTAIN or made available from other sources. It supports the analysis and demonstration of the different dimensions of NSWRM and related themes that will be an input for OPTAIN training materials. Sector B is driven towards 'aware stakeholders' of OPTAIN issues, such as peer communities.
- Sector C corresponds to the raising awareness functionality of the Learning Environment where the information is made available from OPTAINs knowledge and other sources that will help reaching out stakeholders (such as the civil society representatives).

Figure 4 - OPTAIN simplified stakeholder mapping



The civil society entity has been added on the first version of OPTAIN's stakeholder mapping despite the persona is not yet finalised. This category of stakeholders has been mentioned in interviews and is also a key target of OPTAIN. As shown in figure 4, the sector of the persona is primarily raising awareness.

It seems important to highlight from the beginning of the training analysis, that despite the importance of the civil society as a targeted audience, the first step to be taken consists of raising awareness in OPTAIN issues.

The simplified stakeholder mapping shows at the centre the training sector (A), surrounded by the sector B about dissemination and the last sector C about raising awareness. Each sector can work separately. Nevertheless, in the training analysis, the raising awareness can represent the first step, followed by the dissemination to ensure the conditions of the training are well set.

One aim of OPTAIN is to provide stakeholders with the knowledge and evidence to support them in better understanding and implementing NSWRM and related themes.

Farmers represent the implementation level of innovative NSWRM approaches, but they are little available. In addition, they build their relation with other stakeholders based on trust, which requires to engage with them on a regular basis. The persona the closest to them with compatible availability and time criteria are NGOs/associations and advisors/Farmers' unions. Those two personas are key targets for OPTAIN. They are also at the interface with scientists and a very good relay towards the civil society.

3.3. Second series of personas

The second series of personas introduced in the updated version of D7.5 focuses on students. Using the same template and categories as the previous personas, this series integrated insights from MSc and PhD students.

3.3.1. Students

Students represent a key group of learners and future professionals and partitioners who require structured and accessible knowledge on NSWRM. They come from diverse academic backgrounds, including environmental sciences, water management, material science, engineering and communication. Their primary goal is to gain applied knowledge, enhance career prospects, and develop technical and interdisciplinary expertise in sustainable water management.

Despite their motivation, students face several challenges in engaging with NSWRM. One of the main difficulties is the complex technical terminology, which can be difficult to grasp without an engineering or scientific background. The lack of interactive and user-friendly learning tools often makes it challenging to fully understand and apply NSWRM concepts, while limited access to experts and networking opportunities restricts their ability to gain practical insights. Additionally, students struggle with finding real-world case studies and practical applications, making it harder to connect theoretical knowledge with implementation. The interdisciplinary nature of NSWRM, which involves hydrology, policy, economics, and environmental science, adds another layer of complexity, requiring an integrated approach to learning.

To address these challenges, students need a structured and progressive learning pathway that guides them step by step from fundamental concepts to advanced

NSWRM applications. They require interactive digital tools such as quizzes, maps, and simulations to facilitate hands-on learning. Moreover, networking opportunities with experts, researchers, and policymakers are essential to bridging the gap between academic knowledge and real-world application. The recognition of learning, through certifications or micro-credentials, would further validate their expertise and strengthen their career prospects. Access to real-world applications and lessons learned experiences would also help students better understand the practical aspects of NSWRM. Lastly, an intuitive and engaging LE platform incorporating AI-driven support would enhance accessibility and long-term engagement.

Table 6: Student's persona

Students — SHORT NAME: STU

KEY MOTIVATION IN OPTAIN
- Gaining practical knowledge on sustainable water management and climate adaptation.
- Understanding NSWRM in real-world applications
- Exploring interdisciplinary
- Enhancing career prospects and research opportunities

SOURCE OF INFORMATION
- Online platforms and open-access educational resources
- Social media
- Scientific publications and academic courses
- Conferences, summer schools, and expert discussions.

TASKS
- Learning about NSWRM.
- Conducting research and participating in projects.
- Developing communication materials
- Participating in conferences, and training workshops.

OBJECTIVES
- Develop technical and policy knowledge about NSWRM to apply in real-world projects.
- Gain access to case studies, hands-on experiences, and expert knowledge.
- Learn step-by-step methodologies for implementing NSWRM effectively.
- Explore career and research opportunities in climate adaptation

MAIN CHALLENGES
- Complex technical terminology and lack of beginner-friendly resources for students new to NSWRM.
- Lack of interactive or user-friendly tools for learning about NSWRM.
- Interdisciplinary complexity
- Limited access to expert networks and peer discussions to exchange knowledge.

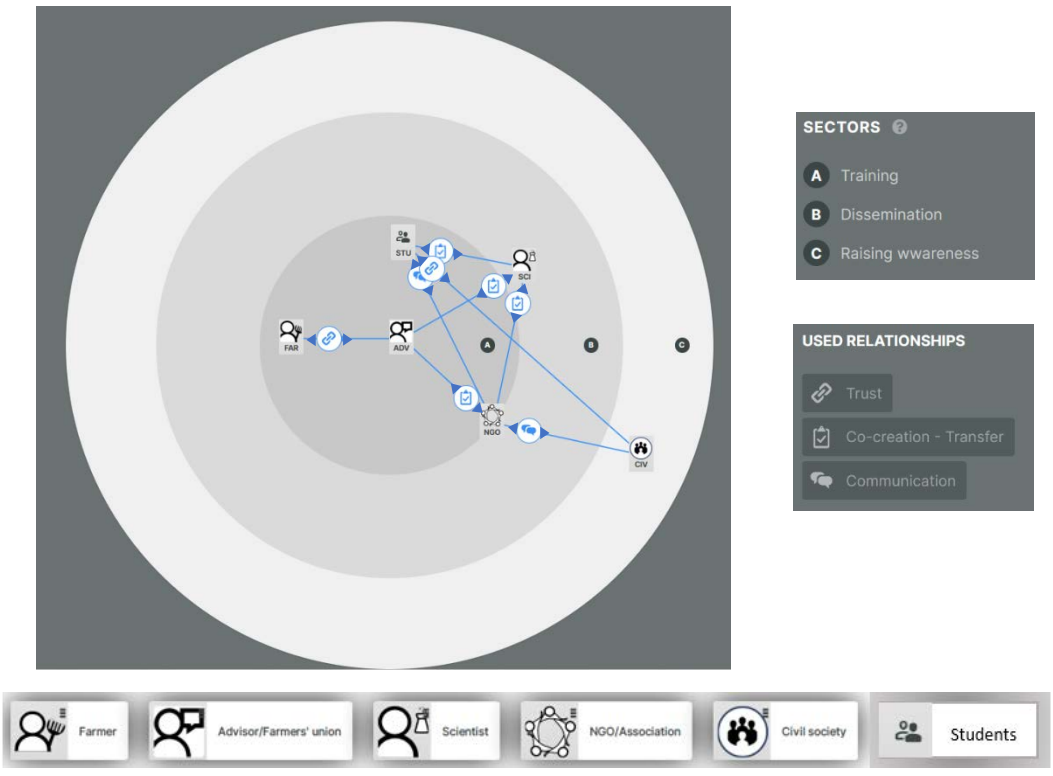
CORE NEEDS
- A user-friendly platform with interactive tools (practical examples, training modules, online course, interactive elements as quizzes, maps, and digital tools for testing NSWRM effectiveness)
- More real-world case studies and stakeholder engagement learning materials.
- Opportunities for networking with experts and researchers in the field.
- Incorporation of AI-powered support tools
- Recognition of learning through certificates and micro-credentials

3.4. Updated simplified stakeholder mapping

The updated stakeholder mapping includes the role of students (STU) within the OPTAIN LE and their interactions with identified actors. As learners and future practitioners. Their connections are structured through communication, co-creation, and trust, ensuring they have access to diverse learning opportunities.

- Students and Scientists - Co-creation & Transfer: A strong co-creation and transfer relationship fosters knowledge exchange, research collaboration, and mentorship. Scientists provide technical expertise, while students contribute through research projects.
- Students and NGOs - Communication: Communication plays a key role in interdisciplinary learning and public awareness initiatives. NGOs help students gain hands-on experience in the implementation of NSWRM strategies.
- Students and Civil Society- Trust: This connection represents students' role in disseminating knowledge to a broader audience, and contributing to public awareness efforts.

Figure 5: OPTAIN updated simplified stakeholder mapping



4. From the core needs to the training materials

The objective of this section is to link the core needs identified in each persona with the (training) materials developed by OPTAIN and start assessing if some materials could be missing. The training materials refer to the specific deliverables presenting OPTAIN knowledge in a tailored format according to the different targeted audience.

4.1. The core needs and training, dissemination, raising awareness materials matrix

In order to highlight which training materials and content should be prepared to tackle the core needs expressed by the stakeholders and consolidated in their persona, a matrix has been elaborated[9].

The core needs gathered in each persona does not necessarily relate to a training need. As shown in the stakeholders mapping and related sectors, some of the core needs can either relate to a dissemination or a raising awareness need. Nevertheless, all the materials that will be provided can be used in OPTAIN trainings.

Indeed, the three sectors of the stakeholders mapping[10] are interdependent under the training analysis' perspective. The materials, products and knowledge that OPTAIN will deliver to raise awareness, those that will be co-created in the dissemination sector, represent the potential content for OPTAIN's training.

The core needs of each persona have been listed and numbered. Then, their belongings to their key sector have been allocated. So, the appropriate training /dissemination/raising awareness materials could be assigned.

Table 7: Updated List of the training materials

1	Apps
2	E-books
3	MARG workshop
4	MOOC
5	Policy brief
6	Social innovation factsheet
7	Social media
8	Summer schools
9	Videos
10	Webinars
11	Quiz
12	Climate change and actor-based scenarios
13	Environmental and economic sustainability indicators
14	Blog/Forum
15	Feedback factsheet
16	Interactive case studies
17	Step-by-step guides
18	AI-driven learning tools
19	Live Q&A sessions with experts
20	Networking platform

The list of training materials mentioned in the DoA is composed of 11 items. 4 items have been added to cover all the core needs expressed by the whole personas. As shown in table 7, the first series of personas correspond to the Climate change and actor-based scenarios, Environmental and economic sustainability indicators, Blog-Forum, and Feedbacks factsheet. The Blog-Forum and Feedbacks factsheets are thought to tackle the pressing needs of networking for sharing experiences (on both aspects of what went well and not so much when implementing NSWRM for example). On the same path, core needs often refer to the access of evidence based knowledge that would be provided by the scenarios and indicators developed within OPTAIN activities.

The updated list of training materials now incorporates additional items to better align with the expressed needs of students: Interactive case studies, step-by-step guides, AI-

[9] The full matrix is available in annex 4

[10] Sector A: Training, sector B: Dissemination and sector C: raising awareness

driven learning tools, Live Q&A sessions with experts and networking platform. These additions reflect the students' demand for more interactive and applied learning materials ensuring that the training environment is engaging, accessible, and practical.

Finally, the matrix shows in which part of the Learning Environment the materials will be available.

Table 8 - OPTAIN core needs and training materials matrix

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?

The first column refers the persona. At the stage 4 personas are considered (Farmers, NGOs/Association, Scientists and Advisor/Farmers' Unions. The n° correspond to the one of the core needs. The following numbering has been used ADV n° for Advisor/Farmers' union, FAR n° for farmers, NGO n° for NGOs/Association and SCI n° for scientists)?

The third column refer to the related sector of the core need (training, dissemination or raising awareness). It links the core needs to the objective of the LE.

Then, the fourth column highlights which training materials (out of the list of 15, see table 6) can provide an answer to the core needs.

Finally, the last column highlights where the training materials will be available on the LE.

4.2. Advisor/Farmers' union matrix

Out of the 5 core needs of the Advisor/Farmers' union, 3 are related to the training sector of the stakeholder mapping, and two deal with the dissemination sector. Globally, this persona requires to be permanently updated on technological, economic, policy drivers that can influence farmers to provide them accurate advice.

Their training needs apply at their organisation scale towards new advisors to ensure the continuity of advice based on up-dated knowledge and know-how for farmers. The training expected content can be large (from social skills to scientific understanding) and deals with all the drivers influencing farmers' activities. Translated into OPTAIN's training offer, the following materials are envisaged: MARG workshop (how to implement MARG mechanism), which could cover the social skills needs, on-site training during the summer schools. On-line training could also fit their training needs with thematic webinars and the MOOC.

Climate change and actor-based scenarios, social innovation factsheet and Environmental and economic sustainability indicators are the materials tackling the two core needs related to the dissemination. The first two core needs of these persona (n°ADV1 and n°ADV2) are both related to the need of accessing evidence based information. The importance of measuring the impacts as well is very determinant in optimising the engagement with stakeholders and demonstrating the multiple dimensions of NSWRM.

Table 9: Advisor/Farmers' union matrix

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
Advisor/farmers' union	ADV.1	Get specific knowledge: i.e. more analysis on water, soils and measures' impact	B. Dissemination	Climate change and actor-based scenarios	Explorative tools
Advisor/farmers' union	ADV.2	Access local and expert knowledge on measures and their impacts illustrated with figures, and related costs	B. Dissemination	Social innovation factsheet	Media centre
				Environmental and economic sustainability indicators	Case studies
					NSWRM Measures
Advisor/farmers' union	ADV.3	Train new advisors	A. Training	MARG workshop	Learn about NSWRM
				Summer schools	Learn about NSWRM
				Webinars	Learn about NSWRM
				MOOC	Learn about NSWRM
				E-books	Learn about NSWRM
Advisor/farmers' union	ADV.4	Social skills	A. Training	MARG workshop	Learn about NSWRM
				Summer schools	Learn about NSWRM
				Webinars	Learn about NSWRM

Advisor/farmers' union	ADV.5	Scientific understanding	A. Training	MOOC	Learn about NSWRM
				Webinars	Learn about NSWRM

4.3. Scientist matrix

Out of the 13 core needs gathered from the scientist persona, 4 are training oriented, 7 are dissemination oriented and 2 are raising awareness oriented.

The training deals with different sciences such as environmental, technological, economics, policy and highlight two strong specificities. One specificity refers to the content, the training should be illustrated with evidence based information especially on the monitored/modelled impacts of the measures. The other specificity refers to the skills at request for the training. The emphasis is put on trans-disciplinary approaches combining the different sciences and avoiding a scientific silo approach.

The dissemination related needs strongly requires well sounded basis for all types of knowledge. Starting with local inputs, such as local data towards the multiple benefits of NSWRM and assessment of trade-offs. One specificity is the source of knowledge, which is requested to no longer be only science driven. The content of the training should also be co-created thanks to experience sharing and impact stories. For these reasons, the blog/forum and the feedbacks factsheets have been added to the list of the training materials.

SCI.1 and SCI.2 core needs are raising awareness oriented. The foreseen materials are the social media, video, Blog/Forum and indicators. All the materials with a high potential of vulgarisation can be considered here.

Table 10: Scientist matrix

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
Scientist	SCI.1	Raise awareness on the catchment scale (up and down stream)	C. Raising awareness	Social media	Learn about NSWRM
				Videos	Learn about NSWRM
				Quiz	Learn about NSWRM
				Environmental and economic sustainability indicators	Case studies
					Experts and scientific area
Scientist	SCI.2	Raise awareness on NWRM	C. Raising awareness	Social media	Blog / Forum
				Videos	Learn about NSWRM
				Blog/Forum	Blog / Forum
				Environmental and economic sustainability indicators	NSWRM Measures
					Experts and scientific area
Scientist	SCI.3	Show the strength of measures to support the evaluation of ecosystems services	B. Dissemination	Environmental and economic sustainability indicators	NSWRM Measures

				Climate change and actor-based scenarios	Explorative tools
					Experts and scientific area
Personas	**N°**	**Core needs**	**Related sector**	**Training materials**	**Where to find it in the LE?**
Scientist	SCI.4	Get local data	B. Dissemination	Environmental and economic sustainability indicators	Explorative tools
				Environmental and economic sustainability indicators	Case studies
					Experts and scientific area
Scientist	SCI.5	Monitor the cross sectorial impacts of measures	A. Training	Climate change and actor-based scenarios	Explorative tools
				Environmental and economic sustainability indicators	Case studies
				MOOC	Learn about NSWRM
				Apps	Learn about NSWRM
					Experts and scientific area
Scientist	SCI.6	Implement transdisciplinary work team to cover all the dimensions of the measures	A. Training	MARG workshop	Learn about NSWRM
					Experts and scientific area
Scientist	SCI.7	Develop strong models	B. Dissemination	Climate change and actor-based scenarios	Explorative tools
Scientist	SCI.8	Gather experiences and impact stories: feedbacks from other research, studies: how the problem has been solved, what did not work and the reasons	B. Dissemination	Blog/Forum	Blog / Forum
				Feedbacks factsheet	Media centre
				Webinars	Learn about NSWRM
					Experts and scientific area
Scientist	SCI.9	Assess trade-offs and benefits	B. Dissemination	Climate change and actor-based scenarios	Explorative tools
				Environmental and economic sustainability indicators	NSWRM Measures
					Experts and scientific area
Scientist	SCI.10	Adapt the subsidies and regulation patterns	B. Dissemination	Policy brief	NSWRM policies
Scientist	SCI.11	Assess the cost of implementation	B. Dissemination	Environmental and economic sustainability indicators	NSWRM Measures
					Experts and scientific area
Scientist	SCI.12	Understand the institutional issues for successful implementation	A. Training	Policy brief	NSWRM policies
				Webinars	Learn about NSWRM

				Summer schools	Learn about NSWRM
				Social media	Experts and scientific area
Personas	**N°**	**Core needs**	**Related sector**	**Training materials**	**Where to find it in the LE?**
Scientist	SCI.13	Implement transdisciplinary research including social, economics sciences	A. Training	Webinars	Learn about NSWRM
					Experts and scientific area

4.4. NGO/Association matrix

Out of the 5 cored needs of the NGO/Association's persona, 2 are training oriented, 2 are dissemination oriented and 11 is raising awareness oriented.

One training need (NGO.5) is directly related the scientific understanding. Working at the interface between science and society, getting regular up-dated scientific view on the latest development on NSWRM and related themes is highly important for this persona. Probably, as much than being able to engage with their stakeholders, which also requires social skills. The first need (NGO.5) deals with the content. The second need (NGO.4) deals with the manner. So far, in OPTAIN training offer, the MARG mechanism are the closest to social skills. The MOOC is the appropriate material to cover scientific understanding.

In the dissemination sector, evidence based information such as modelled data on map can be covered by the indicators and cases studies as well as the explorative scenarios, both under development by OPTAIN.

In relation with the social skills, the raising awareness related to the creation of a shared vision and common understanding (NGO2) requires regular exchanges among stakeholders and the ability of networking that could be provided by the Blog/Forum.

Table 11: NGO/Association matrix

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
NGO	NGO.1	Provide evidence based knowledge	B. Dissemination	Environmental and economic sustainability indicators	Case studies
					NSWRM Measures
				Climate change and actor-based scenarios	Explorative tools
NGO	NGO.2	Create shared vision and common understanding	C. Raising awareness	Blog/Forum	Blog / Forum
NGO	NGO.3	Access to modelled data on maps	B. Dissemination	Environmental and economic sustainability indicators	Case studies
				Climate change and actor-based scenarios	Explorative tools
NGO	NGO.4	Social skills	A. Training	MARG workshop	Learn about NSWRM
NGO	NGO.5	Scientific understanding	A. Training	MOOC	Learn about NSWRM
					Experts and scientific area

4.5. Farmers matrix

Based on the persona elaborated from desk analysis and feedbacks from other interviews, one core need of farmers could be related to training, one to the dissemination and one oriented to the special networking category.

The know-how appears to be more at stake than the knowledge it-self when it comes to the training of farmers. On site-training is probably more aligned with the farmers' persona. This could be provided by OPTAIN summer schools and regional workshops. In addition, the on-line materials can be made available via the MOOC, webinars and MARG workshop.

Social innovation factsheet, indicators and policy brief could be means for farmers to access new knowledge with tailored content materials.

Networking and relationship have been highlighted as the primary manner for famers to exchange. Sharing experience could be put into place through the Blog/Forum and feedbacks factsheets.

Table 12: Farmers matrix

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
Farmers	FAR.1	Sharing experience	Networking	Blog/Forum	Blog / Forum
				MARG workshop	Learn about NSWRM
				Feedbacks factsheet	Learn about NSWRM
Farmers	FAR.2	Accessing new knowledge	B. Dissemination	Social innovation factsheet	Learn about NSWRM
				Environmental and economic sustainability indicators	Case studies
				Policy brief	NSWRM policies
Farmers	FAR.3	Developing know-how to be resilient to changes	A. Training	MOOC	Learn about NSWRM
				Summer schools	Learn about NSWRM
				Webinars	Learn about NSWRM
				MARG workshop	Learn about NSWRM

4.6. Student matrix

Based on the student feedback, they require structured, accessible, and engaging learning pathways to effectively understand NSWRM. Their primary challenge is navigating complex technical terminology and applying theoretical knowledge in real-world contexts and application.

To address these needs, the OPTAIN LE should integrate interactive training tools, real-world case studies, networking opportunities, and experimental AI-driven support.

Table 13: Student Matrix

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
STU	STU.1	Access to structured, step-by-step learning on NSWRM	A. Training	Online courses, interactive modules	Learn about NSWRM Media Center
STU	STU.2	Understanding real-world applications of NSWRM	B. Dissemination	Case studies, expert videos	Case Studies Exploration
STU	STU.3	Networking opportunities	Networking	Webinars, forums	Experts and scientific area Blog / Forum
STU	STU.4	Beginner-friendly materials to introduce NSWRM	A. Training	Infographics, videos	Learn about NSWRM
STU	STU.5	Scientific understanding	A. Training	MOOC	Learn about NSWRM Experts and scientific area
STU	STU.6	Beginner-friendly materials to introduce NSWRM	A. Training	Infographics, videos	Learn about NSWRM
STU	STU.7	Simplified technical explanations	A. Training	Step-by-step guides, visual learning tools	Learn about NSWRM Case Studies Exploration
STU	STU.8	Exposure to interdisciplinary approaches	B. Dissemination	Engagement materials	Media Center
STU	STU.9	AI-driven and adaptive learning	A. Training	AI-driven tools, interactive platforms	Home
STU	STU.10	Access to mentors and expert guidance	Networking	Live Q&A sessions with experts	Experts and scientific area Blog / Forum
STU	STU.11	Real-world problem-solving case applications	B. Dissemination	Problem-solving exercises, decision-making simulations	Case Studies Exploration
STU	STU.12	Comparative policy analysis on NSWRM	C. Raising Awareness	Policy briefs, reports	Policies/ NSWRM

5. Recommendations

Before listing the general recommendations, we propose to set the scene of the recommendations by introducing the 360° framework for OPTAINs training. It consists of a list of questions/criteria to be addressed in order to set the training plan.

5.1. 360° framework for OPTAIN Training

The framework presented hereafter has been filled in with the information from the vision of the Learning Environment (see annex 1) and the information gathered from the interviews (see annex 2). Some of the answers also draw first recommendations in terms of on-line training for example.

The framework is composed of 11 blocks presented in the following sections.

5.1.1. Context and objectives

The ambition of OPTAINs Learning Environment is to provide an on-line platform that proposes permanent access to training materials. Indeed, the training is perceived as a pathway that can be taken at the pace of the potential users of the Learning Environment. The aim is to have self-access to training with regular updated knowledge and series of live-training with on-line and on-site trainings. Therefore, at that stage, the name of OPTAIN training is directly linked to the Learning Environment. Progressively, specific training actions will be put into place such as series of webinars, MOOC, e-books, etc. For each of them, a specific 360° framework will be built.

Table 14: OPTAIN training context and objectives

1. Theme of the training pathway	
What name for OPTAIN training?	OPTAIN Learning Environment
2. Context and objectives	
What is this project about?	NSWRM and related themes
What are the general objectives of this pathway (what are the expected outcomes of this pathway)	• Build capacity on the demonstration of NSWRM effectiveness • Allow an easy access the project results • Allow networking • Provide tailored content to each stakeholders
What are the constraints to be taken into account? (e.g. consistency with other schemes, availability of experts, available budget, learning culture etc.)	• The wide variety of the potential learners with very distinct profiles and state of knowledge • A comparative analysis of existing platform is under development
What are the pedagogical objectives: what concrete knowledge, skills or attitudes should learners have acquired by the end of the course?	• Provide evidence based of the multiple benefits of NSWRM • Involve stakeholders to share experience and feedbacks

5.1.2. Targets

In this report, we have explored four potential targets for OPTAIN training. More personas and analysis are to come to explore additional targets once, the on-line Learning Environment is available.

Table 15: OPTAIN training targets

3. Target	
Who are the targets of the training (direct and indirect)	• Advisor/Union's farmer • NGOs • Farmers • Scientist ***To come*** • Decision makers and managers • Land owner • Regional authorities • European Commission • Students
For each target there must be a proper course, or any target can do any course	The content must be tailored to the different state of knowledge and missions of the targets
Are there any secondary targets that may be following the route as observers? It is important to distinguish between them for statistical purposes	Not available yet
What is the estimated number of participants in the course? Will there be several "promos" (will the course be open without limit or will there be sessions to bring the community of learners together (1/01 to 31/03, then 1/04 to 31/06 etc.)?	Not decided yet
Where are they geographically located / what language do they speak?	• East part of Europe
When will the targets log in to take the training pathway?	To be decided if the on-line training should be logged
What is their working context and what are their organisational constraints	Not available yet
On which tools (fixed PC, laptop, tablet, smartphone, etc.) are the targets most likely to connect?	Not available yet
What might be the target audience's obstacles to the format or theme (negative preconceptions, fears, doubts, technical obstacles, etc.)?	• Identified so far: time availability and language of the training

5.1.3. Positioning and content

The positioning of the training refers to the audience's obstacles to follow the training. One key issue of OPTAIN is the language of the training as the projects involves 13 countries (Germany, Switzerland, Hungary, Poland, Slovenia, Lithuania, Italy, Norway, France, Czech Republic, Latvia, Sweden and Netherlands).

First recommendations on the content are proposed. But this will be further detailed when more project results are available.

Table 16: OPTAIN training positioning and content

4. Positioning	
Is there any other internal or external training on this or related topics?	• Not available yet, will be explored in OPTAIN D7.6 Business model including exploitation plan for OPTAIN outcomes
What does this one propose to do differently?	• Anticipate part of the training in native language • Plan the live training according to the time availability of potential trainees (i.e. avoid spring and summer for farmers
5. Content	
What are the pre-requisites to follow OPTAIN training path?	Not available yet
What topics will not be covered in OPTAIN training path?	Not available yet
What are the pillars or major themes to be addressed?	***Pre-selection of themes*** • Multiple benefits of NSWRM • Assessment of NSWRM • Monitoring of NSWRM • Transdisciplinary approach • MARG mechanisms • Social skills

5.1.4. Format

The format of the Learning Environment training will be multiple. A continuous access of knowledge will be possible on the platform. Specific on-line training session will be organized with a MOOC and series of webinars. Finally, case study workshops, the three regional workshops and one summer school offer the possibility to have on-site training.

Table 17: OPTAIN training format

6. Format	
Does the course include face-to-face sessions or will it be 100% distance learning?	Both are aimed to be arranged thanks to OPTAIN MARG mechanism and events that are planned
Do we need a strong social aspect (co-construction, community, teams, etc.)?	For some aspects yes, as the exchange of experience is a strong need expressed by the stakeholders analysed so far
Is an evaluation relevant?	Not decided yet
Is a gamified approach necessary / relevant?	Relevant
Is there a need for a strong synchronous dimension in the monitoring of the course?	Not decided yet
Is there a strong need for individual support?	Not foreseen
Does OPTAIN training path lead to certification? If so, what use is it to the participants?	No

Is there an upstream (diagnosis, self-assessment) or downstream (feedback, surprise reports, etc.) questionnaire?	It would be interesting to put it into place though quiz and questionnaires
Which animation and which objectives for the post-training phase?	To be decided

5.1.5. Analytics

The analytics offers the possibility to both assess the numbers of trainees and their progress.

Table 18: OPTAIN training analytics

7. Analytics	
What would be the quantitative indicators of success for this pathway?	To be decided
What would be the qualitative indicators of success of this pathway (verbatim, etc.)?	to be decided

5.1.6. Technical environment

The technical environment refers to the settings of the on-line trainings. These aspects will be considered later on, after the on-line Learning Environment is available and at when the content of the trainings is being set.

Table 19: OPTAIN training technical environment

8. Technical environment	
What equipment is used for the project (LMS, RSE, Wiki, SSO, workstations, navigation engines, mobiles and tablets, etc.)? Which versions? Which accounts?	To be decided
On which platform would the content be hosted? Which publisher? Which version?	Moodle is considered (see section 5.3 and references)
Which browsers does this platform support and which browser versions?	To be decided
Is it in responsive design?	To be decided
Does it allow offline monitoring?	To be decided
Does it offer social features? If so, which ones? ... and gamification?	To be decided
What is the hardware and software environment for learners to follow the course (computer compatible headset, browser, email software, professional smartphones, PC, etc.)? + How many learners have e-mail addresses?	To be decided
What constraints or recommendations should be taken into account (e.g. maximum bandwidth, preference for cloud or local solutions, etc.)	To be decided

5.1.7. Economic analysis

OPTAIN training will be free for the participants. One issue is to ensure the balance between the preparation of the training and the time allocated by the budget for partners to get involved in the creation of the training. No structure cost will be engaged for the on-line training as OiEau will use its MOODLE account if needed.

Table 20: OPTAIN training economic analysis

9. Economic analysis	
Target number of registrants/visitors?	To be decided
Number of certified persons targeted (who completely finish the course)	Not relevant
Estimated / available budget/resources	Mainly from OPTAIN partners allocated time

5.1.8. Organizational analysis

The organization analysis is highly important and will be addressed when the preparation of the training topics has started, both for the on-line and on site-trainings.

Table 21: OPTAIN training organizational analysis

10. Organisational analysis	
Who are the project contacts?	WP leaders, task leaders and CS leaders
Who is/are the pedagogical referent(s): who will lead the course and the community of learners?	To be decided
What is the envisaged workload for learners?	To be decided
Which internal stakeholders will be involved in this project (CIO, Internal Communication, Studio, experts, IRP, etc.)	To be decided
Who is responsible for implementing the communication strategy?	GWP CEE and OiEau
Who (internally or externally) will be responsible for the integration of content?	OiEau and partners in charge of topics
How will it be deployed? Will there be a pilot? Will the deployment be done in several stages?	To be decided

5.1.9. Planning

The continuous training started when the Learning Environment was available (Autumn 2025). Then, on-site trainings will take place starting with the regional workshops in 2023 and summer school in 2023.

Table 22: OPTAIN training planning

11. Planning	
What is the desired schedule? What will be the major milestones of the project?	• Continuous training made available on the Learning Environment (August 2022) • Three regional workshops: 2025 • One summer school: July 2023 in Prague, Czech Republic • During the last 18 months of the project for the Webinars • During the last year of the project MOOC • Updates of D7.4 Learning Environment development strategy • Update of this report at month 54

5.2. Learnings for WP7 regarding LE design and communication

5.2.1. Targets of the training

In the first version of the training analysis, the personas and the related mapping showed that the key targets of the training are the stakeholders working at the interface with farmers: Advisors/Farmers' union and NGOs/Association. They need to be trained to pass on the updated information, knowledge and probably more important know-how to farmers.

Due to their lack of availability and relation based on trust, which requires direct engagement, farmers are a secondary target. It will be probably difficult to reach them outside the scope of OPTAINs CS.

Scientists are key providers of new knowledge. As highlighted by the interviews, one core need of stakeholders is to access evidence based data, illustrated information that can support the interaction among stakeholders.

The updated stakeholder mapping in this version includes students as crucial target audience for training and capacity-building, acknowledging their role as future professionals, researchers, and practitioners. Students require structured, accessible, and engaging learning pathways that bridge the gap between theory and practice.

Recommendations

- As primary target, to ensure OPTAIN networking takes Advisors/Farmers' union and NGOs/Association into account, communication and dissemination activities of the project should have dedicated promotional campaigns addressed to these categories of stakeholders.
- As secondary targets, until the last 18 months of the project, farmers should be kept informed on the Learning Environment and training progress through the MARG mechanisms.
- As secondary target, scientists should be supported in providing tailored evidence-based materials that can be directly addressed to the other stakeholders and used as inputs for trainings. Specific OPTAIN materials correspond to these objectives: social innovation factsheet, policy brief and feedbacks factsheets.
- Students should be supported with interactive and career-relevant learning materials, including MOOCs, expert vides, live Q&A discussions, step-by-step guides, real-world case studies and networking opportunities. These resources will not only enhance their understanding of NSWRM but also equip them with the interdisciplinary skills and professional competencies needed to confidently step into their future careers.

5.2.2. Content of the training

One key challenge of OPTAIN training content is to provide evidence based knowledge while allowing exchange of experience, which represents a core need for the different personas. The demonstration of the multiple benefits and dimensions of NSWRM explained with concrete examples and based on exchange of experience is what seems missing today.

Recommendations

- The content should put the emphasis on the multiple benefits of NSWRM and address the different drivers (policy, regulation, economic, environmental) faced by the stakeholders.
- The source of the content should be both scientifically and community based, which requires to put into place networking activities such as blog/forum. In addition, the feedback factsheets are proposed to gather the lessons learnt as well as to explain the goods and the difficulties encountered in the process of NSWRM implementation and monitoring.
- The training topics should be clearly tailored to the different personas and adapted to the different formats

5.2.3. Formats of the training

Three training formats are considered:

- Online training with a series of webinars and a MOOC, that will be made available on the Learning Environment. Their related content will be elaborated from the third year of the project. A key related question to be addressed is the use of an on-line dedicated training platform, which would allow to have registered trainees. This type of dedicated on-line learning platform allows to use a series of analytics (i.e. number of connexion, number of training materials used) and offer possibilities to engage more easily with trainees.
  MOODLE[11] is considered to create OPTAIN on-line courses. Annex 4 shows some of the features proposed by this platform.
- Onsite training with dedicated events already planned: 3 regional workshops and one summer schools. The MARG series of workshops scheduled at the CS scale can also be considered as way to reach local stakeholders for the training phase of OPTAIN. The related materials used during these training will be made available on the Learning Environment.
- Continuous training corresponds to one objective of the Learning Environment. This training is organized through the settings of the different parts of the Learning Environment. The elaboration process has started with the deliverable D7.4 and will be further developed with the regular updates of the on-line platform.
  Interviews have also highlighted new ideas to access the content and to navigate in the Learning Environment, such as issues driven approach. In addition to the 7 blocks of information (see figure 1), a specific area with pre-determined issues such as flooding could be added on the home page.

Recommendations

- A 360° framework will be designed for each training format to tailor all their specificities to the different types of potential trainees.
- Each format should take into account the two main types of content (scientific and community based) to ensure a proper space for the co-creation as well as the experience sharing.

[11] MOODLE is a learning Management system that helps creating effective online teaching and learning experience in a collaborative, private environment (https://moodle.org/)

- The different formats should be designed in a way to support the networking activities among the participants.

5.2.4. Transversal recommendations and challenges

The transversal recommendations are the ones to be considered for each training activities mentioned above.

Languages of the trainings and materials

As already mentioned, 13 nationalities are involved in OPTAIN. The decision should be made during the elaboration process of the trainings on the languages to be used for the trainings as well as if translation should be envisaged.
The same applies to the trainings and dissemination materials. Key documents such as social innovation, policy briefs, and feedbacks brief should be translated. At least these documents should be made available in the languages that will be considered for the on-site and on-line trainings.

The role of the social media to engage, promote, support the training

Social media campaigns should be put into place at the different phases (elaboration, preparation, feedbacks) of the trainings. They can play a key role to disseminate and to create a space for stakeholders to share experience. The emphasis should also be put to have an OPTAIN social media campaign relayed towards partners' social networks in native languages.

Mobilization of transversal disciplines

In order to explain the dimensions at stake with NSWRM and related themes, all the relevant disciplines should be involved in the elaboration phase and during the trainings. The aspect has been mentioned many times in the interviews.

Finding the right balance between the training ambition, OPTAIN budget and resources

The 360° framework economic part will allow to clearly set the estimated budget for each training action. The budget is mainly addressed in terms of person-months that will be allocated to each action including the technical part (i.e. development of the learning environment and a MOOC), the preparation phase, the training itself and trainees' follow-up if envisaged. Costs to set the on-site trainings are also planned in OPTAIN budget.
Time availability and timing are also criteria to be considered both on the teaching and learning sides.
All these elements will be carefully balance to set the best time/resources/budget balance for the trainings.

6. Conclusion

OPTAINs first training analysis focused on farmers, NGOs/associations, scientists, advisor/farmers' unions. Their profile was described in individual persona based on the information gathered in interviews and desk analysis. A preliminary illustration of the key relations (i.e. trust, co-creation/transfer or communication) among persona was illustrated on a stakeholder mapping highlighting three sectors (training, dissemination and raising awareness). This information was then used to elaborate a training matrix bringing together the core needs of each persona, their related sector and potential materials to be used for trainings. The recommendations to set the trainings were draw based on a 360° framework[12] detailing 11 criteria to be taken into account and synthetic views for the targets, content, format, and transversal tips.

Advisor/farmers' unions and NGOs/associations are the primary targets of OPTAIN training. As knowledge broker, they work at the interface with other stakeholders such as farmers. Scientists are secondary target of the training. They are knowledge providers facing the huge challenge of co-creating the knowledge while providing demonstration of the multiple benefits of NSWRM and related themes. This leads to a change of the usual content and format of training. Indeed, the content should be scientific and community based (with experience sharing) and embedded in a trans-disciplinary approach. The format should offer the opportunities for learning experience through networking.

Building on this foundation, students (both MSc and PhD) have been introduced as a key learning group in the updated analysis. As future professionals and practitioners, they require structured, engaging, and career-oriented learning pathways to navigate NSWRM concepts and applications. Their primary challenges include complex technical terminology, interdisciplinary integration, and bridging theoretical knowledge with practical implementation. To support their learning, OPTAIN must provide interactive training tools, real-world case studies, and networking opportunities, enabling them to develop the skills necessary for professional growth and cross-sector collaboration.

The training analysis will continue with key target stakeholders including policymakers to further enrich training content and accessibility, ensuring that OPTAIN fosters a learning environment that supports diverse stakeholders.

[12] Theme, context and objectives, targets, positioning, content, format, analytics, technical requirement, economic analysis, organisational analysis and planning

7. References

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[c] European Commission, Directorate-General for Agriculture and Rural Development, Sloot, P., Lauwere, C., Zondag, M., et al., Needs of young farmers : report I of the pilot project : exchange programmes for young farmers, final, Publications Office, 2016, https://data.europa.eu/doi/10.2762/13075

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Annex 1: Interview protocol

a. **Presentation of the project**
b. **Objectives of the interview**
c. **Questions of the interview**
d. **Annex: Presentation of OPTAIN learning environment vision**

March 2022 – updated 11/04/2022

Contact: Natacha Amorsi, OiEau, n.amorsi@oieau.fr

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a. Presentation of OPTAIN

ABOUT OPTAIN

OPTAIN (EU-funded research and innovation project) proposes a social and scientific journey towards the increasing and better understanding of the multiple benefits of Natural/Small Water Retention Measures (NSWRM).

NSWRM in OPTAIN are small and multi-functional measures for the retention/management of water and nutrients in agriculture and hydro-morphology, small technical measures related to drainage infrastructures and measures positively affecting water use efficiency of the agricultural production.

OPTAIN will identify efficient NSWRM to better adapt to extreme events (floods, droughts) and reduce conflicts between agricultural water uses and other human and environmental demands in small catchments across Continental, Pannonian, and Boreal biogeographical regions of Europe in close cooperation with local actors.

Project outcomes will be elaborated from the current state of knowledge, the experience of stakeholders from 14 case studies, and innovative scientific modelling and optimization approaches.

Expected outcomes

b. Objectives of the interview

OPTAIN is developing an on-line learning environment. It is defined as the main dissemination and co-creation platform of OPTAIN gathering knowledge and resources on N(S)WRM. The partners' vision of the Learning Environment is presented in the annex.

The interview aims at better understanding potential users needs in terms of N(S)WRM knowledge and gather their first feedbacks on OPTAIN Learning Environment.

OPTAIN Learning Environment in a nutshell

OPTAIN Learning Environment simple demo version

A simple version of what could be OPTAIN Learning Environment has been prepared, so general feedbacks can be gathered. The version is available at:
https://www.justinmind.com/usernote/tests/69612964/70012912/70395029/index.html

c. Questions

Interview details

a. Date of the interview:

b. Name, family name of the interviewee:

c. Job title/function:

d. Organisation of the interviewee: RNF

e. Profile of the organisation:

f. Country:

Job characteristics

i. Could you describe your job (main tasks and activities)?

ii. What are the key outcomes and concrete benefits you want to achieve?

iii. What are the obstacles you may encounter doing your job?

Links with N(S)WRM

iv. What are your experiences with NSWRM? Could NSWRM play a role to support benefits and/or avoid obstacles related to your job?

v. Do you have a specific domain of interest (i.e. agriculture, forest, hydro-morphology, urban or other?)

vi. What are the competences and skills needed to implement N(S)WRM?

vii. What are your sources of N(S)WRM knowledge?

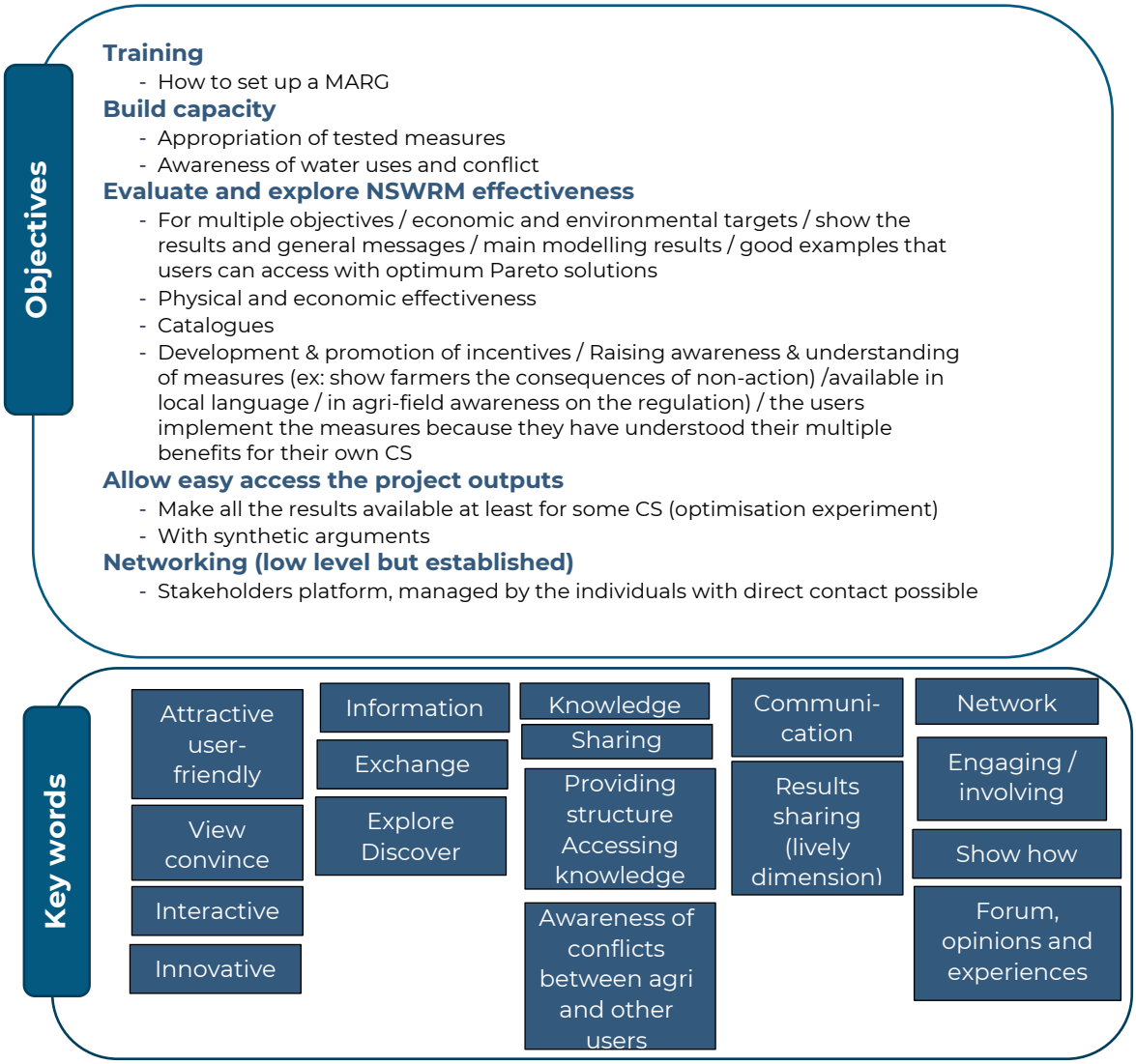
viii. What kind of (additional) knowledge on NSWRM would you like to have access to?

OPTAIN Learning Environment

ix. Would OPTAIN Learning Environment support the achievement of your daily and mid to long-term tasks?

x. What would be missing to ensure OPTAIN Learning Environment can improve knowledge regarding NSWRM / support your related decisions / support your presentations of specific problems (and their solution), etc.?

d. Presentation of OPTAIN learning environment vision



For who?

Target 1: Case studies & MARG

- Agri-advisors
- Regional authorities
- Local authorities
- Land users
- Farmers

Benefits

- Discuss with the MARG involved in the discussion making at the regional level, in measures implementation
- Easy access to OPTRAIN results:
  - show what we are doing for them to see / raise awareness
  - data & tools
  - with the support of MARG workshops
- To get the information first
  - Get them involved and provide visibility
- Show results of their CS to be used for discussion
  - Realise their contribution has a value
  - Finding the best combined measures/benefits
  - Improved understanding of problems that the farmers will be facing in the future
  - Set up their pilot
- See what is behind the solution best possible trade off (synergies)
  - How did we reach it, which implementation scheme
  - Scientific assessment to show what can be improved / achieved
- Convince on the project efficiency
  - Demonstration – show how
  - Update knowledge , resource findings

For who?

Target 2: Institutional

- European Commission
- Decision makers
  - Land users / land owners
- International and national planners
- Donors

Target 3: Aware end-users

- Scientific and modelling community

Target 4: Public

- School, environmental courses
- Civil society

Benefits

- Well report to the European Commission
- Provide arguments to the European Commission to internally convince within the different Directorates General on the multiple benefits of NSWRM (ex: DG Agri)
- Policy impact (EU agenda on water –agri policies)
  - Plan for the Water Framework Directive
- Show the added value
  - 14 CS results to be synthesised
  - Demonstrate the multi-functionalities of NSWRM to increase resilience and reduce costs
  - Convince on the relevance for managing, increasing the value of their properties
  - Show the balance between environmental and economic interests
  - Show the diversity across Europe (Climate change on water and agriculture, how different measures work differently in different places
- Support the decision support making process
  - Help to give ideas to the different target groups / discuss the results to stimulate the discussion on what can be tolerated
  - Identify preferred solutions at the bio-regional and catchment levels
- Understand better / give more based knowledge to implement certain measures
- Increase reliability of OPTAIN findings

Annex 2: Interviews transcription

Annex 2.1: Interview with Tatenda Lemann, UNIB, CS leader

Interview details

a. ***Date of the interview***: 01 April 2022
b. ***Name, family name of the interviewee***: Tatenda Lemann
c. ***Job title/function***:
d. ***Organisation of the interviewee***:
e. ***Profile of the organisation***:
f. ***Country***: Switzerland

Job characteristics

i. Could you describe your job (main tasks and activities)?

I'm working in the centre for development in the environment. We are looking to have a fuller picture of NRWM, not only focusing on the biophysical part, or the socio economic part, but to bring those together. The research need to include the impact of these measures to be aligned with the theory of change.

ii. What are the key outcomes and concrete benefits you want to achieve?

To find possible sustainable Land management solutions (e.g. NSWRM) for specific areas to reduce vulnerability to drought and other degradation drivers, without reducing productivity and income for land users. To show impacts of these solutions (on- and offsite)

iii. What are the obstacles you may encounter doing your job and related needs to overcome them?

The main obstacles are (i) language to communicate good practices across case studies (ii) Translation of important information (iii) Fears, high costs and needed efforts to introduce innovative solutions in a new watershed (iv) Need of information on impacts for all sustainability categories, good examples made by other land users, subsidies...

Links with N(S)WRM

iv. What are your experiences with NSWRM? Could NSWRM play a role to support benefits and/or avoid obstacles related to your job?

First of fall, it is important to realize that the definition of NSWRM is broader than many think that it is. It includes many technologies, which actually are widely implemented, but people are not aware that those are NWRM. This is one challenge of OPTAIN catalogue. As soon as you start showing what it is, people realise they implement it and can benefit from it.

v. Do you have a specific domain of NWRM interest (i.e. agriculture, forest, hydro-morphology, urban or other?)

Mainly agricultural measures, and hydro morphological measures as I'm working on those fields. I've been less involved in forest urban, and other NWRM fields.

Are the technical explanation enough for you or are you also interested in the economic, political dimensions, etc.?

All dimensions have to be respected. We also have to tie the three dimensions of sustainability involved in the whole process. It does not make sense to have a measure included if you do not include all its dimensions. And it helps to really show the strength of a measure and support the valuation of ecosystem services.

It is very easy to have the direct costs like this year we have so many fields. But looking at the other aspects, biodiversity or whatever, it is very difficult to have it in numbers. Then, it is difficult to communicate, understand also looking at differences between the short term and the long term. Looking at the impacts is very important, on and off site. Often, we are really much focusing on what is happening on the ground for the field and a bit less on what is happening downstream.

vi. What are your sources of N(S)WRM knowledge?

Social media such as Twitter and specific news from UNEP or IUCN and also local institutions. Social media offer the possibility to bring the information to a broader audience and re share. But I doubt that many farmers are following these media. It is challenging to really reach the people on the ground.

If I need just general information, NRWM platform helps getting an idea about the structures of the NWRM categories, the definition and so on

vii. What kind of (additional) knowledge on NSWRM would you like to have access to?

It is not only a question of what kind of knowledge do I need. I think it needs more than one person to really have a proper assessment or to somehow evaluate what should be implemented. Transdisciplinary approaches are needed. If I'm bringing more biophysical background, I can show very well what is happening on the ground. Then understanding the social economic part might be in the hands in somebody else. Nobody can cover everything. If the results are available from the different groups, then it helps me to decide.

Experiences, impact stories, from the ground are not easy to find, to share what is working as well what is not.

viii. What are the competences and skills needed to implement N(S)WRM?

For me, it is always a question to support the decisions that lead to implementation, for policymakers, for farmer associations or farmer themselves.

To make decision on the ground, broad knowledge is needed to assess trade-offs to see what the real impact is. Farmers may be very much economically driven to implement measures based on the subsidies they receive. The decision has to be taken at a higher level to change the whole subsidies, regulations pattern. At the same time, freedom somehow to take independent decision is important. Therefore, knowing the impacts is highly important especially in regards with the three dimensions of sustainability.

Accessing knowledge to make decision would be the first step, then how to implement would be the second one.

In addition to what we have, exchange of experiences is often missing. Farmers like listening to other farmers. We have that somewhere in our proposal, the cross exchange: going a bit beyond explaining how it works to actually show how it worked elsewhere, to prove it. In an interview with farmers, we were explained they know how to implement technology but they would like to know if it works. They would like to get in touch with farmers nearby to get their feedbacks and also comments on what went well and not.

OPTAIN Learning Environment

ix. Would OPTAIN Learning Environment support the achievement of your daily and mid to long-term tasks?

My daily activities are so diverse. NRWM is only a small part of it. The SLM[13] dimension is important. The learning environment would be helpful. I would go for information I can find quite easily. At that stage, I still don't know what I will get. For example, would the policies section be relevant for me, as I'm in Switzerland. The demo version is really helpful.

We may need to share common understanding of words, like what are actually tools. Would the explorative scenarios be a tool? Do we consider measures as solutions? For some people, those are all the same. I think it is crucial to be consistent there, to not mislead the users. Would the tools provide options and support to get the right measure to the right place? We are facing the same issue in another project developing a new drought and sand dust storm toolbox. We should have 10 tools providing possibilities to link you to. At the same time, there are tools like machineries, whatever working on the ground, or solutions.

The catalogue section of the LE should be composed of the catalogue a series of factsheets, what would be the difference?

The two would be linked together. The factsheets would be the PDF version of the results, and the catalogue itself would be more like a tool.

NRWM platform provides categories of measures, WOCAT presents the technologies themselves, case study examples, local implementation. In one NWRM category you have several WOCAT technologies.

There would many different possibilities to access the catalogue (geographical options, then threats maybe will be possibilities). Many entry points should be possible. This also works for the category access. On one hand, it would be nice to have the map with the case studies, where it is possible to access the different NSWMR and then the NWRM categories. But including everybody wishes from the beginning is very challenging.

x. What would be missing to ensure OPTAIN Learning Environement can improve knowledge regarding NSWRM / support your related decisions / support your presentations of specific problems (and their solution), etc.?

Information will also be available on the website (events and so on).

[13] Sustainable Land Management

Annex 2.2: Interview with Alistair McVittie, SRUC

Interview details

a. ***Date of the interview***: 01 April 2022,
b. ***Name, family name of the interviewee***: Alistair McVittie
c. ***Job title/function***: Environmental economist, engaged in research and education
d. ***Organisation of the interviewee***: SRUC, Scotland's Rural College
e. ***Profile of the organisation***: higher education institute. So we teach from college level up to postgraduate level, we also undertake research in the areas of agriculture and environment. And we also have a consultancy part, which does farmer advisory work and consultancy. So we cover sort of all the stages of agriculture from environment, from teaching to research to the implementation with actual land managers.
f. ***Country***: Scotland

Job characteristics

i. Could you describe your job (main tasks and activities, outcomes and benefits)?

I'm mostly working in research around environmental economics. Quite a lot of that is funded directly through Scottish Government and other sort of public sector clients. Recently, I have been involved in Arizona natural capital accounting, bringing an understanding of the broad range of environmental issues around land management, and trying to understand what the benefits of those are in terms of the wider society, to managers and on the trade-offs; in the context of OPTAIN, management of water versus production of crops, livestock, and other benefits (such as cultural services and climate change). On the education side, we run an MSc in ecological economics. So taking a lot of that research, applying it and passing it on through teaching.

A lot of it is focused on sustainable land use and encouraging that. The research generally tends to inform policy, but I guess something has shifted in recent years as there is a lot more interest in getting land managers and business sector involved in doing this for their own reasons. We are seeing a shift from government directly intervening in environmental issues to trying to get businesses to understand their benefits of environmental actions themselves. Looking at NWRM, part of that is bringing the understanding of the benefits for landowners and get them to implement NWRM, and what sort of evidence you might need (for example get the ecosystem markets working as well). So certainly in Scotland, we are seeing a shift, not just from the public sector paying for everything, to encouraging conservation, finance, ecological ecosystem markets. So those people who are investing in these kinds of actions as well, trying to get land owners and land managers to change their practices. They need a lot of evidence about how this works, how you can get these measures to be implemented and what the evidence is for their further benefits. So I think the evidence needs have changed, they are a lot more precise than they used to be. And that understanding some of the institutional arrangements as well, about how these can be successful implemented.

After NWRM project, I was involved in a project for DG Clima, which was updating one of their database. So we took a lot of the NWRM measures, but looked at the implementation, and what were the success factors or the barriers to success. It is not just how well does the measure work but how. How do you actually get people to implement it and make decisions that way.

ii. What are the obstacles you may encounter doing your job and related needs to overcome them?

I'm taking that kind of knowledge and trying to understand what it could mean for other people on land management. I guess the obstacles I come across are what I have just sort of described in terms of the context specificity of a lot of the examples. The wide range of information about not just the biophysical, but the economic, the social elements as well. Institutional elements are often missing. Understanding how you can take evidence from one case study, and how you can then apply it somewhere else is very challenging. I don't know how you get around that if it's just having a very broad suite of case studies. The need is getting evidence which is clickable across a much wider range of contexts.

Having that broad set of information is one of the issues. It is not just NWRM, but things that occur such as soil management. There is often a lack of economic implications for the land manager putting something in place or how it affects a farmer crop yields. For example, what are the costs of it to the farmer in terms of implementation?

Links with N(S)WRM

iii. Do you have a specific domain of NWRM interest (i.e. agriculture, forest, hydro-morphology, urban or other?)

Primarily agriculture, although we do look at land use in a wider sense. We also have targets for planting woodland, largely for carbon sequestration. We are interested in modelling, where should you put that woodland, for example, for flood management or water resources. There are big debates in Scotland about for example, the split of the river space in the north, which has a lot of distilleries. It has big problems with actual quantity of water with low flows and temperature issues for cooling during the summer. There is an interest in riparian planting, which would also benefits for the fish. I guess we are interested in everything. There is also a big agenda in Scotland for things like peatland restoration. Peatlands are basically working as sponge for water and holding it up and improving water quality as well. We are beginning to get a much more integrated view of land use. It is not just agriculture and forestry but also how you begin to get landowners to work together and, other institutions as well. How everything fits together for more integrated land management on land use. So the short answer is yes, agriculture, but we are having to think about everything.

iv. What are your sources of N(S)WRM knowledge?

I still use the NWRM platform. There is the EU adaptation website as well. It is quite good. Although that's got a lot of the NWRM information in it. My primary go to there is probably looking at specific case studies as well. I guess probably what's relevant to what I might be looking at if it is peatland or woodland. Also next week, we have got our students going to be directed towards the NWRM website for a class exercise. So you might hopefully see a spike in traffic.

v. What kind of (additional) knowledge on NSWRM would you like to have access to?

I guess it is firming up that sort of broader range of information. So not just how effective are measures in terms of water retention, but what the economics of it are, what the institutional issues might be about successful implementation. I guess also trying to link into other policy agendas as well. So you know, biodiversity losses are obviously a big thing at the moment with climate change. And that is where a lot of policy focus (and perhaps because) and private sector interest as well. It is getting a lot of information on

the co-benefits. Not just what it is doing in terms of water management, but what are biodiversity benefits in terms of habitat and climate change as well. So obviously, NWRM is very big in terms of adaptation. But is there a carbon market issue as well, which could be exploited? So I guess, it's being able to say this is good for water, and it also hits your biodiversity and your climate change objectives.

vi. What are the competences and skills needed to implement N(S)WRM?

Good question. I suppose from a researcher, I don't know about this skills, but actually understanding what the costs might be in the barriers to survive, why wouldn't they do better measuring? We often focus on what the benefits are. Often not so much on the barriers, a lot of it is costs, or it might be one of the issues we have with farmers as they are very conservative. They have an idea of what a good farmer is, and it is about having nice, neat fields, and, so on. And some of these environmental measures can be seen as messy and not the same as good farming. So it is understanding some of those social elements as well, and how those might have been overcome.

When we were doing a review of a lot of these case studies for the DG Clima project[14], one of the elements for success was when you had a trusted intermediary. Quite often, you had a land owner or a manager and a government agency. And because it is often seen in a sort of regulatory context, or compliance issue, then the landowners were often reluctant to put something in because they thought it would be a stick to beat them with or an issue really, they could get into regulatory problems. But if you had an intermediary who wasn't that government agency, and was sort of sitting in between them and the line managers, then there was often a lot more success because they became trusted. Again, that comes back to that, I guess, institutional arrangements of how things work.

OPTAIN Learning Environment

vii. How the information on N(S)WRM should be organised?

I suppose it would be useful to have information on the co-benefits quite often. Those are the sorts of things which aren't measured when people are doing assessments of their case studies. So I was going back to the people who are putting things in implementing measures to sort of measure a wider range and report in a wider range of what they're doing. But I guess, for a platform, when you're developing, is seeing that these are the sorts of fields we are interested in and then feeding that back to people who are actually generating the knowledge. ("can you please collect this as well, this is going to be useful"). And if anything, we highlight where the data gaps or the knowledge gaps are. This might not look good on your platform if there iss a blank, but understanding where those gaps are is useful. So you can then drive the research agenda.

viii. Would OPTAIN Learning Environment support the achievement of your daily and mid to long-term tasks?

It might be interesting to be able to filter. So you have a catalogue of measures. I could say I'm a land manager or an agency member in a particular region. And I might want to find, filter out to know the types of farming which we have (i.e. livestock versus arable). What sorts of measures might be appropriate for areas with more or less rainfall? I'm primarily interested in NWRM for flood management, or is it more about ensuring water flows or I don't have water quality issues. So perhaps somewhere you can sort of filter

[14] Ecofys (sustainable energy for everyone), Assessing Adaptation Knowledge in Europe: Ecosystem Based Adaptation, Final report, 2016

down the measures which could be appropriate for a particular area. I guess you are interested in the small water retention, so you are talking about very small scale in terms of an individual landowner or a small part of a catchment.

Would it be interesting to add something directly on the home page on the economic benefits?

I suppose the economic benefits are often very context specific. So if you take it away from the case study, then it is problematic. Possibly thinking about benefits in a sort of broader non-economic sense: looking at co-benefits such biodiversity, climate change; coming back to those other policy drivers and other elements, which people are interested in and may be able to get some form of funding for.

ix. **What would be missing to ensure OPTAIN Learning Environement can improve knowledge regarding NSWRM / support your related decisions / support your presentations of specific problems (and their solution), etc.?**

As a researcher, the sort of thing I'm often looking for is just access to where the information is. So I will probably be personally so coming in and finding case studies and then trying to extract that information. I'm probably very data focused (knowing that a lot of these measures are context specific, understanding what the broad range of costs or benefits might be, and also the biophysical impacts might be of interest.) Organizationally, colleagues who are working directly with farmers, as a sort of advisory capacity might be interested in more qualitative information as well about the things that work and the practicalities of implementation.

Annex 2.3: Interview with Dennis Collentine, SLU

Interview details

a. ***Date of the interview***: 08 April 2022,
b. ***Name, family name of the interviewee***: Dennis Collentine
c. ***Job title/function***: Researcher
d. ***Organisation of the interviewee***: Swedish University of Agricultural Sciences (SLU)
e. ***Profile of the organisation***: Academic
f. ***Country***: Sweden

Job characteristics

i. Could you describe your job (main tasks and activities, outcomes and benefits)?

Water policy, research and outreach

ii. What are the key outcomes and concrete benefits you want to achieve?

Greater rate of implementation of mitigation measures for improved management of water quality and quantity

iii. What are the obstacles you may encounter doing your job and related needs to overcome them?

Analysing and communicating the effect of measures to decision-makers

Links with N(S)WRM

iv. What are your experiences with NSWRM? Could NSWRM play a role to support benefits and/or avoid obstacles related to your job?

I do a lot of talking with policymakers and farmers and I talk about NWRM a lot. So a lot of projects I have been involved in and meetings, I use NWRM as far as communicating to stakeholders. I have been working a lot with flood management tool, which is related to water quality management. I do refer people to NWRM website quite often. It is a good place to get information and when they want to know more.

v. Do you have a specific domain of NWRM interest (i.e. agriculture, forest, hydro-morphology, urban or other?)

Primary agriculture. There are links to the others domains because I do this work with flood management. Then we get all the way into the urban management. And urban, upstream measures and downstream impacts. So there are impacts on the other parts. Agriculture is just one area where I know more about the measures, but the impacts are important both on hydro morphology and forestry. In Sweden, agriculture and forestry are often in the same catchment.

vi. What are your sources of N(S)WRM knowledge?

When we work on a local scale, we need better information at that scale. So, we use different tools on a local scale. But to provide reference for people to find a general description, the NWRM platform works just fine. When you are actually looking at a particular site, you need to have local knowledge such as models on hydrology. After the problem is identified, then looking at NWRM is one possibility. I know a similar type of website from England, a sustainable water management platform. There is a platform in Sweden partly dealing with NWRM but it is broader than that. It is used by the water authorities.

vii. What kind of (additional) knowledge on NSWRM would you like to have access to?

I think, if we look at the NWRM platform, the content is sufficient as it is, it doesn't need to have everything in it because the adjustments need to be on local conditions. This has to come from a local space. So I don't see any real need to extend, like the NWRM platform with more in it. It is an introduction, it allows people to see in general what these measures are, which is important. And when they use these measures, they really need to have a local catchment model to work with. The platform should not provide that. It is too local and too site specific.

I think the case studies are relevant. Maybe what could be interesting is a database that you fill with the effective measures. If you say that there is a wetland that is being constructed, what are the effects on nutrients reduction or something that is measurable? These types of feedbacks might be interesting to have in a database. Just to give an idea of what types of effects some of these measures are having, to address the difference between the expected effects and the actual effects at the local level. The case studies are good as people like reading the case studies and seeing what other people are doing in areas. So I think these descriptions of smaller catchments and what has been done helps people to understand what might be possible, and how they work. That part is good and could be extended with more examples of what has been done in small catchments.

viii. What are the competences and skills needed to implement N(S)WRM?

Raise awareness on measures is highly important such as the ability to look at a catchment and see where the good places would be to have different types of measures. It is probably the most important because we want to look at the entire catchment as a unit rather than just one place. It is difficult to find people who have that experience to look at an entire catchment and interlinks with hydrology. Everything is in the same hydrological system. What you do in one place affects something in the next place, especially the upstream downstream. Doing it in the right place where it has the best impact allows other benefits to come in. It is looking at the hydrological system, from what is happening on the land, with groundwater to all the way of a catchment. So everything has an impact of what happens in the catchment itself.

It is very rare that somebody has the wide amount of skills or competences. People often have a little piece of it. They know, one piece or another. And part of it is due to the way the management is set up. The political or government offices are still not catchment oriented.

What would be needed to facilitate the dialogue with farmers and policy makers?

I think the most important part is making us trying to raise catchment awareness. Most people don't know what their catchments look like. That are kind of weak models of catchment. I think this is the starting point. When you look at the catchment entirely, where are the problems, then you can start looking for the solutions. The first part is to become aware of where the problems are in the catchment to understand what should be worked out.

OPTAIN Learning Environment

ix. Feedbacks and what would be missing

The first thing I saw when I opened the demo version was its strong relation to OPTAIN. This could be less important. As time goes on, the LE will be used in the future when

OPTAIN no longer exists. It would be better if it is just a small acknowledgement, and not so prominent.

The platform could be problem oriented, rather than being catalogue oriented. For example, when somebody is looking at flooding, which is very immediate, the need is to easily pick and find which measures can mitigate flooding. The platform cold propose problem to be solved rather than a catalogue. The same with the case studies, trying to look at what are the problems, considering the measures as a support to find solutions. Around here, two villages have been discussing how to prevent flooding, what kind of measures can be used against flooding. This is the kind of stakeholders you wish to attract. The platform should become the place where you can explore, proposing different ways to reduce the impact of flooding or to mitigate flooding. And instead of looking at measures they would be looking at how the measures can be used.

On the start page, the content could be on the different types of problems that NSWRM can help with. Looking at eutrophication, flooding, or drinking water quality, just any problem. We can identify maybe five or six of them. Then you can enter into, and start looking at measures. It would help because when people are searching like on a Google, they might directly hit these problems. Often, when people start looking for information, they don't know where to look.

x. Additional information on the learning Environment?

Language is probably one of the most important things that could be extended, the information in different languages. A lot of local stakeholders really do not use English in a comfortable way. This would probably be the biggest improvement to access the information, having the LE available in two, three languages, not just the case studies.

Having a multiple languages platform would show the Commission that it is possible and they could support it. This would also help at the local level. When we are discussing with local stakeholders about modeling in a catchment, we could refer to the platform to show the different problems and the potential solutions. They could then visit the LE later on. That would be a really good way of getting information for farm advisors or catchment advisors to use and include NSWRM information in their own presentations. If this is something that might help them, then they will get interested.

A mixt of photographs, proposing visuals information, having interviews, real people sharing their experiences in front of the landscape (professional type of film) is important, and not just having text. We are working more with these kinds of things now, so it is possible to see what it looks like. It could be short videos, five or six minutes, with case studies. People would find it really easy to look at. We can't give all the information, but we can get people more interested in looking for more information.

The LE is at a preliminary stage. It is hard to highlight what is missing. When the platform has been developed, try it out with different people to find out how easy it is to move from one thing to another.

Annex 2.4: Interview with Rimas Magyla, LASS

Interview details

a. ***Date of the interview***: 13 April 2022,
b. ***Name, family name of the interviewee***: Rimas Magyla
c. ***Job title/function***:
d. ***Organisation of the interviewee***: Lithuanian Agricultural Advisory Service
e. ***Profile of the organisation***:
f. ***Country***: Lithuania

Job characteristics

i. Could you describe your job (main tasks and activities, outcomes and benefits)?

I'm working at the Lithuanian Agricultural Advisory Service, Head of Technology Department, and I'm involved with my colleague Christina in the OPTAIN project. We are working in this unit together with Klaipeda University. Our main task in that project is to work with the farmers and be like the link among farmers and activities executed by Klaipeda University such as modelling activities.

As an advisor service, we are covering all Lithuania. I'm a working in the central part and we have offices in all Lithuania districts. We are dealing with services that farmers need or are obliged to have. It is not just technological services as fertilizing plants, plant protection plans and others also bookkeeping, but also animal husbandry, all questions included in the frame of farm services.

We have several advisors. I'm agronomist and I'm taking care of services that local advisors use directly with the farmers. I'm not working with the farmers but I'm in charge of the existing services such as plant production. We are giving advices on fertilization of different kinds, organic, mineral fertilizers and making plants with soil samplings. So it will be possible to use fertilizer in plants. We have a laboratory that the farmers could go to get fast results of their samplings. There are other services. For example, when farmers use pesticides, they need to fill up papers to list the pesticides they use, when they use them and so on. Our plant protection advisors help farmers to fill that information in the system. There are also some other services to fill different papers that farmers need to show their activities to the government in order to get payment per hectare for example.

ii. What are the key outcomes and concrete benefits you want to achieve?

The main benefits for farmers, which is our main goal, is to provide them with the right services at the right time, quality services.

iii. What are the obstacles you may encounter doing your job and related needs to overcome them?

As others also give services to farmers, one challenge is to be the best in providing services and advises to farmers while building trust with farmers.

We have more than 14 plant production advisors. Another challenge is when advisors are leaving, the new ones need to be trained to work efficiently and serve farmers in the right way.

Remaining inform about the new laws, regulations and preparing the related tools even program is demanding. It is nearly an every year challenge we have to get ready for. It can be about fertilization, about using plant protection, about ecological farming. And

obviously, everything is dependent on the economic situation. When the price of production or products raise, farmers need advices.

Links with N(S)WRM

iv. What are your experiences with NSWRM? Could NSWRM play a role to support benefits and/or avoid obstacles related to your job?

Our experience is related to water resources and management. As advisor service, we have been working for some time in environmental projects concerning water quality, river quality. It is related to informational activities. We have had several projects since 1996 with the Swedish farmers union and the Swedish Agricultural University dealing with water quality. This was mainly agricultural advice service related to informational activities. We were working together with the Water Management Institute here in Lithuania. In cooperation, we also had a two years project with the Agricultural University concerning drainage systems. It was about how to make drainage system, to keep water, so water is available for crops. And now in OPTAIN, we are working again on water quality in Lithuania on Dotnuvele River Basin together with Klaipeda University.

Mainly when we are involved in such activities, we are mostly working on informational activities that we can use with farmers. For example, if we are working together with the Water Management Institute or agricultural university, they are doing scientific experiments in their specific areas observing all the circumstances, the measures and so on. And we are participating at the farm level. Our part of the job would be to measure the soil, the cropping system for example.

v. Do you have a specific domain of NWRM interest (i.e. agriculture, forest, hydro-morphology, urban or other?)

Agriculture is the key point but we are also interested in knowledge about the full system of water retention, the regulation, how to moderate the system; everything in line with the water retention management system. As well as the information about the results. With the results, it is possible to work with the farmers. The impact at the catchment scale is very important as well.

vi. What are the competences and skills needed to implement N(S)WRM?

An advisor needs to have the knowledge about the different water retention systems. He needs to have data about their impacts to provide better advice. So, he can talk to farmers and discuss what can be useful taking into account the farmers activities that can also influence the water retention system.

vii. What are your sources of N(S)WRM knowledge?

From our experience, we were working as I said in the project with agricultural university on certain activities and places in Lithuania. So, we were collecting information about nutrient leakage, about differences when the farmers use a regulated moderation system compared to not regulate. We are getting this information, we are getting results. Then, we are giving that information to farmers. For example, thanks to the project, many farmers were informed about the possibility to use a system of regulation, and they start using it in their farms.

We are getting information when we are doing practical things like in OPTAIN. We are getting more information from different countries about different kinds of water management at the farm level or at the catchment area.

viii. What kind of (additional) knowledge on NSWRM would you like to have access to?

Additional information on measures would deal with their impacts, getting the figures of impact for the different kinds of water retention systems. If we have a pound, for example, collecting water in a farm located in a hilly area, and catching the nutrients coming from the runoff in the area, that would be interesting to have the information on how much nutrients can be saved. It is good to have specific information about the impact to talk with farmers about the positive effects of the measure on the environment. And then it is easier for farmers to decide. Figures are concrete. The related costs are an important information as well to start making a decision.

Annex 2.5: Interview with Wiesława Kasperska-Wołowicz, Institute of Technology and Life Sciences, CS partner

Interview details

a. ***Date of the interview***: 14 April 2022
b. ***Name, family name of the interviewee***: Wiesława Kasperska-Wołowicz
c. ***Job title/function***: assistant professor
d. ***Organisation of the interviewee***: Institute of Technology and Life Sciences – National Research Institute
e. ***Profile of the organisation***: Research
f. ***Country***: Poland

Job characteristics

i. Could you describe your job (main tasks and activities)?

Research and expertise in agro meteorology and hydrology of small river catchments, crop growth and development monitoring and modelling in field scale, crop water needs assessment, agrometeorological data analysis

ii. What are the key outcomes and concrete benefits you want to achieve?

Implement the results of my work into practice for farmers and agricultural advisory services and entities dealing with water in agricultural areas. We try to develop specific solutions to support farmers' decisions and help solve the problems related to small retention measures, in particular irrigation and water saving practices. Our region suffers precipitation deficits.

iii. What are the obstacles you may encounter doing your job and related needs to overcome them?

Uncertainty, little number of people who knows problem of water management in agriculture (drainage and irrigation and small retention), to little people educated towards small retention problem in Poland.

Often (even when implementing projects), the problem to be solved comes from scientists, not interested persons (farmers, water companies, etc.); there is no practice (custom) of cooperation, farmers prefer to solve the problem individually, they are afraid to form producer groups. It is quite difficult to obtain different data from farmers and institutions serving / supporting farmers.

Links with N(S)WRM

iv. What are your experiences with NSWRM? Could NSWRM play a role to support benefits and/or avoid obstacles related to your job?

This experience is theoretical and practical. The works carried out within the INOMEL project (2018-2021, funding from National Centre for Research and Development[NCBR] in Poland) and the OPTAIN Project (2020-2025, HORIZON 2020). INOMEL – natural and technical methods to manage water resources in scale of small catchment, regulated outflow and inflow in agricultural land (grasslands and arable land), technical simple solutions to stop water outflow. Another experience: soil moisture, groundwater table depth and actual evapotranspiration measurements and mathematical modelling, lysimeter investigations; elaboration of programme on small water retention in Kujawsko-Pomorskie province in Poland (1996 and 2005).

v. Do you have a specific domain of NWRM interest (i.e. agriculture, forest, hydro-morphology, urban or other?)

Agriculture (water management, crop water needs, irrigation needs, water retention in soil (including meadows on hydrogenic/organic soils).

vi. What are your sources of N(S)WRM knowledge?

Literature, books, knowledge acquired during my study at University and my professional work; knowledge exchange with: farmers, scientists and researchers, advisors, colleagues practitioners, local and governmental administration; workshops, trainings, local water partnerships, own observation in the fields, work in national and international projects.

vii. What kind of (additional) knowledge on NSWRM would you like to have access to?

How the problem has been solved in other countries? For instance: the methods (solutions) leading to stop water outflow from the intensively and extensively used agricultural areas.

viii. What are the competences and skills needed to implement N(S)WRM?

Good knowledge (skills and education) on: water management in agriculture, water law act, administrative procedures (for instance to obtain water-legal permits), basic meteorological conditions, basic kinds of soil in the area of concern and neighbouring areas (including hydraulic/retention properties of soil, basic information on possible maximum duration (when and how long) of excessive moisture and minimum ground water table depth on organic soils with no impact on crop yield.

OPTAIN Learning Environment

ix. Would OPTAIN Learning Environment support the achievement of your daily and mid to long-term tasks?

Yes, for instance to learn how solutions from other countries transfer (implement) to Poland; activities under the project may constitute the basis for activities in the area of interest in Poland now. The problem of NSWRM is important and we need good practical solutions.

x. What would be missing to ensure OPTAIN Learning Environement can improve knowledge regarding NSWRM / support your related decisions / support your presentations of specific problems (and their solution), etc.?

Specific examples of problem solving; good idea is to make some parts of the OPTAIN platform available for stakeholders interested in; more attention to dissemination the project solutions to the practice (to practical users) should be paid by all of the project team.

Annex 2.6: Interview with Zanda Krukite, ZSA

Interview details

g. ***Date of the interview***:
h. ***Name, family name of the interviewee***: Zanda KRUKITE
i. ***Job title/function***:
j. ***Organisation of the interviewee***: Union farmers Latvia, ZSA
k. ***Profile of the organisation***:
l. ***Country***: Latvia

Job characteristics

xi. Could you describe your job (main tasks and activities, outcomes and benefits)?

I'm representing farmers' organization, farmers' parliament, in Latvia. This is farmers, NGO, around 900 farmers-members, which are really farmers, working for the profit, and then paying annual fees to be members of the organization.

I'm more involved in the implementation of different projects in the organization. I think for 15, 20 years, we have been working in different environmental projects, including indirect programs. We are currently involved in a quite big life program project focussing on water management and water quality issues. In Latvia, until recent years, we had mainly problems with too much precipitation. We have drainage systems on around 60% of our agricultural land. We have quite many streams, how nutrients from the fields and the forests are going to the Baltic Sea. This is the reason why we are tackling this issues and looking for the best tools, technologies and policies. The goal is to keep farmers working while preserving the environment. I'm involved in the Northeast part of the Life project as project coordinator in cooperation with experts from different fields.

The main outcome is related to the question of tracking recommendations, ideas and expectations; for example, what farmers must do on their fields to work more environmentally friendly. But in many cases, people who develop all these recommendations have not tested them practically. The outcomes from my side would be to test and demonstrate practically and then disseminate these tools, methods, solutions for water management. What is recommendation without practical implementation? In many cases, things are developed in the office with desk work, without bringing knowledge down to the local stakeholders, testing the knowledge practically on the field.

xii. What are the obstacles you may encounter doing your job and related needs to overcome them?

One challenge is to find the right language, how to express your ideas to one or two other parties. Our function is to be between farmers, decision makers and scientists. Usually these groups speak different languages. This is probably the key challenge to link them together, to help them to understand each other. It is about mutual understanding, in bi-directional way. It is often said that farmers do not understand policymakers neither the legal issues that can be so complicated. But they have to be understood as well.

Links with N(S)WRM

xiii. Do you have a specific domain of NWRM interest (i.e. agriculture, forest, hydro-morphology, urban or other?)

I would say that at this stage we are mainly focusing on agriculture measures. But for example, in the Life project, we have partners from other organizations in Latvia, which are also looking on these hydrological issues (such as the fish population) in the same rivers than us. It is good that other parties come in.

xiv. What are your sources of N(S)WRM knowledge?

As organization, we have implemented several demonstration projects in the farms, which required real investments. So it is real demonstration of NWRM. Now, there is also the ongoing Life project with water. We are now planning investments on the farm for the implementation of different retention measures, which will be used as demo sites for other farms. We have found that showing experiment on the field to demonstrate how these measures can work in our environment is the best education. This is why we are always trying through projects or through other finances to find a way to demonstrate. The demonstration scale is very important to discuss and help the decision process.

We have received quite a lot of recommendations from Scandinavian countries about retention measures. We have to test how they work in our environment because the climate is a little bit different. They are differences between conditions from where the recommendations were made. So we have to test first to see how they work and only then we can recommend to the wider public.

In addition to our projects, we have very close cooperation with the Latvian University of Life Sciences and Technologies. The University does the implementation test. We also have a good contact list with other countries, which helps to get the knowledge and the information about these measures.

There is no specific website, we search on the internet and we follow the projects. We also have handbooks developed by previous projects. So, there is a line of information, but we are always open to see the coming new tools, new measures and new possibilities. For example, one of the professor from the University of Life Sciences, started his PhD in the United States. He brought back some ideas and knowledge.

xv. What kind of (additional) knowledge on NSWRM would you like to have access to?

There are a lot of blank spaces where we still need more water analysis, soil analysis and more measurements on all ongoing processes. This could bring real background for discussions with for farmers, policy and decision makers. If we really see the results, we may find out that there is no need for some measures. Monitoring activities are really needed. I can share an example. Farmers were accused of polluting water, but the analysis revealed that the pollution came from factories.

Some Scandinavian countries in the Life project, have already measured water quality for decades, and they have made soil analysis. Of course, they have much wider database on all activities. In Latvia, we are just building it up.

In the end, it comes to have the information to evaluate the reality.

xvi. What are the competences and skills needed to implement N(S)WRM?

First of all, there is always the question about the financing, because these are additional costs for implementation and later on for the management. In many cases, nobody thinks over the long term action plan. For example, it can start with the establishment

of a two-steps ditcher. But after, there will also be the management part, which will be more expensive, and will probably require specific technologies, machinery to manage all these measures.

The specific knowledge is also needed such as on the water flows, then the pollution, what is in the water, and what are the leakages from the fields. That is why we are working with the University. People can help with modelling and calculations to assess the efficiency of particular measures. As an example, scientists can advise on the size of a wetlands to be built based on the nutrients load from a particular source.

It is more difficult to raise farmers' interest to introduce measures, to persuade them. Implementing measures can represent extra activity and finance. It depends on the farm and this is the most difficult to get farmers involved in these activities.

OPTAIN Learning Environment

xvii. What would be your needs for a learning platform?

The learning environment is empty at the moment. The structure looks good. It would be really good to follow up when you will fill it up and then we can see how it works. The language of the platform is key to have different countries to look at it. From our experience, learning tools and training materials are not meant for farmers. They will not go through this learning process themselves, especially if it is not in native language.. That is why, we are more focused on advisors as trainers, so they can use some materials from the platforms and from the web pages.

Annex 2.7: Interview with Anne-Cerise TISSOT, RNF

Interview details[15]

a. ***Date of the interview***: 15 April 2022
b. ***Name, family name of the interviewee***: Anne-Cerise TISSOT
c. ***Job title/function***: Project manager
d. ***Organisation of the interviewee***: Réserves Naturelles de France, RNF
e. ***Profile of the organisation***: NGO
f. ***Country***: France

Job characteristics

i. Could you describe your job (main tasks and activities, outcomes and benefits)?

RNF is the beneficiary-coordinator of the LIFE project Natur'Adapt, the necessary adaptation. RNF is the head of the network of natural reserves in France. As LIFE project manager, my work consists of coordinating the project, the (strategic) actions of the project, the partnerships, especially the governance, monitoring, evaluation and financing actions. Another important part of my work is the management, as we are a team of four permanent staff, who regularly take on interns, work-study students and fixed-term contracts.

Links with Nature Based Solutions

The aim is to help protected area managers to integrate climate change into their management practices. In fact, nature-based solutions are not the direct focus of our project. Protected areas are the focus of the project, when climate change impacts them and how they adapt to it. But we are on a sister theme. We are also trying to show, particularly through the actions we are carrying out such as the development of an argument, that protected areas are nature-based adaptation solutions for the territories. This is not the core of the project, but it is a subject that is regularly addressed.

What we are going to produce concretely is a sort of toolbox for managers. In this toolbox, we have a methodological guide that helps managers step by step to adapt to climate change at the scale of protected areas, particularly via a vulnerability diagnosis, a unit and an adaptation plan. This toolbox also includes online training on the issue of climate change. It is a COOP, it is like a MOOC but for professionals. We also have a host of other tools that will provide feedbacks, examples of adaptation approaches, scientific sheets and technical sheets on adaptation measures.

And then we also have this famous Natur'Adapt platform with the community, one of the important results of the project. It is really about networking beyond the tools and the increase in competence. It is really the platform that we use to animate this network. We need remote tools. There are nearly 900 people on the platform. The animation is done in sub-groups. Depending on the period, it is more this or that group that is active. And then, we also have a few actions that we don't put forward as much. They tend to be directed towards other stakeholders involved in the management of protected areas.

We have to help managers to network, but also promote contacts with the spheres in which they evolve, such as the legislative, technical and financial contexts. We therefore

[15] The interview was translated from French with the support of www.DeepL.com/Translator (free version)

have a whole range of actions to make administrative and technical recommendations or to set up a small group with potential financiers.

Finally, awareness-raising among the general public, we are currently working on a MOOC that will open in May. Registration is open and it will be launched on the 18 May, on the nature day. The MOOC is really intended to make everyone aware of the interrelated issues of climate change and nature protection. And to encourage people to take action, each in their own way.

In terms of impact

The idea behind it is rather to increase the skills of managers; the fact that they really integrate climate change into their management practices. Our objective for 2028, even though our project ends in 2023, is that 80% of nature reserve managers integrate climate change into their practices and that we gather the other main protected area networks in France.

ii. What are the obstacles you may encounter doing your job?

We had difficulties which are in fact linked to the project set-up. In the implementation of what was imagined, there were actions that were poorly articulated. For example, we had to set up training for managers at the same time as developing the methodological guide for carrying out a vulnerability diagnosis and an adaptation plan for protected areas. We didn't have the feedback from the experiment yet, and had to do the training.

The lack of resources is another source of difficulties.

There is a more specific difficulty due to the complexity of the subject. People need time to get used to it, to have a common culture and then be able to work together. The project is very much oriented towards experimentation and collective intelligence. There is a lot of participation and collaboration. This time of acculturation, of progress in sharing a common vision of adaptation to climate change, has not been anticipated at all, whereas things must be produced immediately.

The COVID has made it difficult to carry out all the actions on the ground, to mobilize the actors, which is an important part of our method. The idea of the diagnosis is that it should not be carried out by scientists in their corner. It is more a question of looking ahead and imagining how the protected areas will evolve under the effects of climate change. If it evolves, it is obviously the natural heritage of the species, the ecosystems that are affected. Human activities in and around the protected area will also evolve, such as agriculture, forestry, land use, tourism and leisure activities. The idea of the method is to go and see these actors to understand how they see the evolution and how all this will interact.

Link with N(S)WRM

iii. Links between protected areas and NWRM themes (i.e. agriculture, forest, hydro-morphology, urban or other?)

Protected catchment areas cut across all areas. They have open spaces where there is agriculture, notably quite a lot of grazing, a lot of managed and unmanaged forest areas. And then there are obviously also many aquatic species. It's multi-sectoral. Although it iss not very urban, there is some peri-urban. We tested the Soignes forest in Belgium, which is adjacent to Brussels and is the lung of Brussels where all the inhabitants of Brussels go for a walk.

iv. What are the competences and skills needed to implement N(S)WRM?

It is difficult to say because in fact there are different roles and jobs in protected areas. There is the conservator who is a bit of a conductor. His role is to define the management and objectives of the protected area: what is it? What are we going to do? How? Here, you need skills and knowledge that are naturalistic (we're still managing nature), and also skills in terms of human resources management, team management and organisation. You need to have a bit of a long-term vision. It's also the person who is going to have a lot of dialogue with the stakeholders. So you also need a lot of interpersonal skills.

The guards are another field job. They go to see if everything is going well, if the regulations are being respected. They meet the people who come to the protected area. They have a naturalist's skill set to observe what is happening in the protected area, as well as skills in raising awareness among the general public.

Then there are the facilitators who can be guards-animators. They have a role in environmental education which requires teaching skills. They organise outings and participatory work camps. They also necessarily have some naturalist skills.

Links with agriculture

The status of protected areas is very varied, from conventions to regulations. On the regulatory side, there may be prohibited activities in relation to what you want to protect. Practices that are harmful to the species and habitats you want to protect are prohibited. It may be a question of prohibiting mowing from such and such a date to allow the reproduction of a species. It is quite rare to be very restrictive measures on agriculture, but there may be some.

In regional parks and Natura 2000 areas, there are many agreements, financed or not, which allow for the negotiation of mowing practices or the reduction of certain inputs or the establishment of hedgerows, etc. There are tools such as environmental leases.

v. What are your sources of knowledge?

There are various types of knowledge, scientific knowledge, and knowledge from demonstration which is a bit more technical. This is what we are trying to do. In the project, we are more on the demonstration side.

Nevertheless, we have an action with Patrinet, which is a joint unit of the French Office of Biodiversity of the Natural History Museum. They work on scientific syntheses of the literature, on adaptation measures, on translocation, on ecological corridors and on free evolution.

Knowledge is multiple and in many places. There is also a resource center on adaptation to climate change which was set up two years ago. It covers a wide range of topics. We could not find our themes immediately. We are currently thinking about making a proposal to them to integrate more specifically the management of protected areas.

As part of the project, we are using PearlTree to develop our protected areas resource portal and have a place where we can more easily find information. It allows us to bring together the knowledge we produce and all the resources that can be useful to managers.

vi. What kind of (additional) knowledge would you like to have access to?

The information we lack today is modelled data on the evolution of species distribution in the face of climate change. Modelling is interesting for two reasons, for decision

support and for communication. Mapping is a very good communication tool. Mapping exists for forests and vines, for example. We can see that with the climatic conditions, we can make wine in Brittany, it's very telling. We don't have that for nature.

OPTAIN Learning Environment

A very brief presentation of the structure of the platform was given; the idea being to make its existence known and to come back to Anne-Cerise in the autumn of 2022.

Tips for developing a platform

It is not easy, but you really need to have a user approach, to put yourself in the shoes of potential users. When you start with a structure, it is then a little difficult to go back. Defining your entry point is very important for the future. Within the framework of Natur'Adapt, we work in groups, which makes access to the platform a little less intuitive. It is different from a website. It is really a platform for exchange. I think people have a bit of trouble at first. With a little help, users quickly find their way around. Take inspiration from what people are used to in order to facilitate their use of the new platform. It is not necessarily about trying to do something completely innovative in form.

Annex 3: Questionnaires of Students

N°	What is your academic level?	What is your field of study and main areas of focus?	What are your sources of information for learning about water management and NSWRM?	What challenges do you face in understanding or applying NSWRM concepts?	What are your expectations of the OPTAIN project's in terms of learning opportunities?	Do you have a specific domain of NWRM interest	What would be your needs for a learning environment platform?	Do you have any suggestions on how to make the learning platform more engaging and useful for students?	What additional knowledge or topics related to NSWRM would you like access to?
1	Msc	Communication and influence	I learn about water management and NSWRM through online platforms and social media.	I sometimes find NSWRM concepts complex due to technical terms and the need for practical examples. Applying them can also be challenging without real-case studies or hands-on experience.	I expect the OPTAIN project to provide clear explanations, practical case studies, and interactive learning tools to better understand and apply NSWRM concepts.	No, I don't have a specific interest in NWRM as it's not my field of work, but I'm always open to learning.	I would need a user-friendly platform with interactive case studies, practical examples, and clear training modules to make learning more engaging and accessible.	Adding interactive elements like quizzes, real-world case studies, and discussion forums could make the platform more engaging. Short videos and step-by-step guides would also help make the content more accessible and practical for students.	I would be interested in real-world applications and case studies to see how NSWRM is implemented in practice. Networking with experts could also be useful for gaining insights from professionals in the field.
2	Msc	Communication & Design	I'm in my final year of a Master's degree in communications, specializing in art direction and digital design. My main interests include creating visual identities and managing communication in European projects.	The main challenges include adapting NSWRM to diverse environments, engaging stakeholders effectively, ensuring interdisciplinary collaboration, and measuring long-term impacts.	I expect the OPTAIN project to provide insights into NSWRM and practical case studies to enhance knowledge on sustainable water management.	I'm mainly interested in agriculture and water management, but I'm still discovering the subject.	A platform with online courses, interactive case studies and practical tools would be ideal to better understand the subject.	Make the platform interactive with practical case studies, quizzes and explanatory videos to facilitate learning.	I'd like to have access to concrete examples, practical guides and the chance to talk to experts.
3	Msc	Applied foreign languages for intercultural management - languages and their field of application	Optain projects' partners and coordinators, social media (LinkedIn,etc), website, youtube videos, documents and ressources that are made available at the office	As a person that had no knowledge of water management or topic related to water before the start of my intership, I found it hard to understand on my own as there are a lot of technical and specific terms. it is important in my opinion to have access to learning resources	It is important to me to ensure the perennity of the project so that everything made possible in the field of Optain (ex demo cases/pillar sites) can be replicated to other sites worldwide. Sensibilisation of political leaders, citizens, engaged stakeholders and persons with power is also important.	Not really - According to my knowledge of NWRM, it is important to try to focus on every main important areas of daily life; ie agriculture for food, but also water as a basic need for drinking and preservation of nature in all its forms.	For me it is important to start with bases, even if it could be basic knowledge for people aware. It is important to provide a learning tool that is engaging and inclusive, offering a sort of "progressive" and "step by step" format, to learn each step at a time. The possibily of modules available one by one is something, from my personal experience, important to not burn the steps in the process of learning.	I personnally find it more interesting and attractive when a training platform is not only about readings but also with interactive images, the possibility of using interactive tools is also a good way, maybe with schemas that we could interact with to understand visually processess.	It could be great to first have access to ressources about demo cases, but also on replicate sites, if any. So that the platform would not be only about the project but also about its perennity, impact and heritage.
4	Msc	Climate Change and sustainable territorial development	I started learning about NWRM during a previous internship on European projects, and then I had an academic course on agroecology, which only touched on the subject superficially. The SMALL approach to it is a new one for me.	Mainly differences with NBS and sponge measures and their classification. Sometimes the terminology is very specific and scientific and the measurements and interpretation of the results can only be understood by experts in the field or engineers. Lack of user-friendly tools in most cases to apply and understand NWRM and NSWRM	To be able to assess which NSWRM is more appropriate for my case study specificity (if I have one) and to be able to learn and implement an NSWRM, be able to maintain it and see results and impacts in the short and long term. If I am not interested in implementing a measure, I would expect to be able to understand and recognise what a NSWRM is and to be able to disseminate this knowledge in my sphere of influence and in relation to my studies and further studies on local sustainable territorial development in areas affected by climate change.	I am interested in the urban and agricultural sectors. I think it would be difficult for a person at their first interaction with NWRM to identify their needs with the hydromorphological sector.	It makes me think of Coursera, an e-platform that works very well https://www.coursera.org/learn/elearning I attach a random course here. I attach a random course here. Video, summaries at the end and interactions, quiz (why not, we are here to learn).	Overview of OPTAIN I would suggest a video presentation rather than all this text in all 3 sections. I don't understand why there is a map in the Definition and Purpose of NSWRM section. I would suggest pictures of NSWRM and an interactive map or something like that. NSWRM objectives in water and nutrient management: too much text, I find it hard to concentrate. In general I found it more interesting when there were pictures, colours, schemes, map as in the case study section.	I would like to see videos with experts, like short pills, as well as expert contacts, technical guidelines and a real application in the making process. The way it is presented now makes me think it is theory, I will never be able to replicate it or do it from scratch. A support team, perhaps with a chat (can it be with AI?) would be appreciated.
5	Msc	Water and environment	I attended conferences, summer school. I also follow expert discussions on social media	One of my biggest challenges is linking the theoretical concepts I learn in class with real-world applications. The terminology is also quite complex, making it hard to grasp how different measures work in practice	to see more case studies and examples of how NSWRM is being implemented across different regions.	water management	An interactive knowledge hub that provides AI-driven personalized recommendations based on my learning progress. It would also be useful to have a space for discussion with experts	Incorporating live Q&A sessions with professionals and practitioners could make the platform feel more dynamic and engaging	
6	Msc	Civil Engineering	open-access educational platforms, I also follow YouTube and podcasts	A lot of the scientific papers use very technical jargon, which makes it difficult for newcomers to understand. It would help to have more beginner-friendly explanations	Access to mentorship programs where students can engage with industry professionals and researchers.	urban water management	learning materials, like short videos and interactive quizzes, instead of just long readings	step-by-step guides	Comparative analysis of NSWRM policies across different countries.
7	PhD	Water and environment	I participate in university research projects. I also take online courses and look for information on platforms	complexity of multidisciplinary, sometimes, collaboration between different fields feels overwhelming	Opportunities for hands-on training	I'm particularly interested in how NSWRM intersects with climate adaptation policies	interactive case studies	Short videos	I'd like to learn more about financial support for NSWRM projects, what kind of funding is available
8	PhD	Environmental management	websites, youtube, scientific papers	Jargon complexity and large classification of NBS	Access to lesson learned	interest in enhancing water resource management and broader aspects of water security.	networking	engaging learning materials	
9	PhD	Water management	Scientific literature, conferences	Application of NSWRM	Learn more about water management	interest in enhancing water resource management and broader aspects of water security.	networking	Networking with experts	/
10	PhD	Hydrology	Research projects, scientific literature	Complexity in modelling approaches	learn improved modelling tools	modelling	Advanced modelling tools	Data visualization tools	interactive platform
11	PhD	Material Science	Interviews, reports, publication	Understanding stakeholder perceptions	Best practices for effective stakeholder engagement	stakeholder engagement in NSWRM	Interactive learning	Short videos	Policy frameworks, videos with experts, webinars
12	PhD	Water and environment	Policy analysis, publication, research	Complexity in policy, interdisciplinary challenges	Understanding the role of NSWRM in policy	policy framework	Policy-focused training modules	Engagement with policymakers	Policy briefs and reports

Annex 4: OPTAIN training needs matrix

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
Advisor/farmers' union	ADV.1	Get specific knowledge: i.e. more analysis on water, soils and measures' impact	B. Dissemination	Climate change and actor-based scenarios	Explorative tools
Advisor/farmers' union	ADV.2	Access local and expert knowledge on measures and their impacts illustrated with figures, and related costs	B. Dissemination	Social innovation factsheet	Media centre
				Environmental and economic sustainability indicators	Case studies
					NSWRM Measures
Advisor/farmers' union	ADV.3	Train new advisors	A. Training	MARG workshop	Learn about NSWRM
				Summer schools	Learn about NSWRM
				Webinars	Learn about NSWRM
				MOOC	Learn about NSWRM
				E-books	Learn about NSWRM
Advisor/farmers' union	ADV.4	Social skills	A. Training	MARG workshop	Learn about NSWRM
				Summer schools	Learn about NSWRM
				Webinars	Learn about NSWRM
Advisor/farmers' union	ADV.5	Scientific understanding	A. Training	MOOC	Learn about NSWRM
				Webinars	Learn about NSWRM
Scientist	SCI.1	Raise awareness on the catchment scale (up and down stream)	C. Raising awareness	Social media	Learn about NSWRM
				Videos	Learn about NSWRM
				Quiz	Learn about NSWRM
				Environmental and economic sustainability indicators	Case studies
					Experts and scientific area
Scientist	SCI.2	Raise awareness on NWRM	C. Raising awareness	Social media	Blog / Forum
				Videos	Learn about NSWRM

				Blog/Forum	Blog / Forum
				Environmental and economic sustainability indicators	NSWRM Measures
					Experts and scientific area
Personas	**N°**	**Core needs**	**Related sector**	**Training materials**	**Where to find it in the LE?**
Scientist	SCI.3	Show the strength of measures to support the evaluation of ecosystems services	B. Dissemination	Environmental and economic sustainability indicators	NSWRM Measures
				Climate change and actor-based scenarios	Explorative tools
					Experts and scientific area
Scientist	SCI.4	Get local data	B. Dissemination	Environmental and economic sustainability indicators	Explorative tools
				Environmental and economic sustainability indicators	Case studies
					Experts and scientific area
Scientist	SCI.5	Monitor the cross sectorial impacts of measures	A. Training	Climate change and actor-based scenarios	Explorative tools
				Environmental and economic sustainability indicators	Case studies
				MOOC	Learn about NSWRM
				Apps	Learn about NSWRM
					Experts and scientific area
Scientist	SCI.6	Implement transdisciplinary work team to cover all the dimensions of the measures	A. Training	MARG workshop	Learn about NSWRM
					Experts and scientific area
Scientist	SCI.7	Develop strong models	B. Dissemination	Climate change and actor-based scenarios	Explorative tools
Scientist	SCI.8	Gather experiences and impact stories: feedbacks from other research, studies: how the problem has been solved, what did not work and the reasons	B. Dissemination	Blog/Forum	Blog / Forum
				Feedbacks factsheet	Media center
				Webinars	Learn about NSWRM
					Experts and scientific area

Scientist	SCI.9	Assess trade-offs and benefits	B. Dissemination	Climate change and actor-based scenarios	Explorative tools
				Environmental and economic sustainability indicators	NSWRM Measures
					Experts and scientific area

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
Scientist	SCI.10	Adapt the subsidies and regulation patterns	B. Dissemination	Policy brief	NSWRM policies
Scientist	SCI.11	Assess the cost of implementation	B. Dissemination	Environmental and economic sustainability indicators	NSWRM Measures
					Experts and scientific area
Scientist	SCI.12	Understand the institutional issues for successful implementation	A. Training	Policy brief	NSWRM policies
				Webinars	Learn about NSWRM
				Summer schools	Learn about NSWRM
				Social media	Experts and scientific area
Scientist	SCI.13	Implement transdisciplinary research including social, economics sciences	A. Training	Webinars	Learn about NSWRM
					Experts and scientific area
NGO	NGO. 1	Provide evidence based knowledge	B. Dissemination	Environmental and economic sustainability indicators	Case studies
					NSWRM Measures
				Climate change and actor-based scenarios	Explorative tools
NGO	NGO. 2	Create shared vision and common understanding	C. Raising awareness	Blog/Forum	Blog / Forum
NGO	NGO. 3	Access to modelled data on maps	B. Dissemination	Environmental and economic sustainability indicators	Case studies
				Climate change and actor-based scenarios	Explorative tools
NGO	NGO. 4	Social skills	A. Training	MARG workshop	Learn about NSWRM
NGO	NGO. 5	Scientistic understanding	A. Training	MOOC	Learn about NSWRM

					Experts and scientific area
Farmers	FAR.1	Sharing experience	Networking	Blog/Forum	Blog / Forum
				MARG workshop	Learn about NSWRM
				Feedbacks factsheet	Learn about NSWRM

Personas	N°	Core needs	Related sector	Training materials	Where to find it in the LE?
Farmers	FAR.2	Accessing new knowledge	B. Dissemination	Social innovation factsheet	Learn about NSWRM
				Environmental and economic sustainability indicators	Case studies
				Policy brief	NSWRM policies
Farmers	FAR.3	Developing know-how to be resilient to changes	A. Training	MOOC	Learn about NSWRM
				Summer schools	Learn about NSWRM
				Webinars	Learn about NSWRM
				MARG workshop	Learn about NSWRM
STU	STU.1	Access to structured, step-by-step learning on NSWRM	A. Training	Online courses, interactive modules	Learn about NSWRM Media Center
STU	STU.2	Understanding real-world applications of NSWRM	B. Dissemination	Case studies, expert videos	Case Studies Exploration
STU	STU.3	Networking opportunities	Networking	Webinars, forums	Experts and scientific area Blog / Forum
STU	STU.4	Beginner-friendly materials to introduce NSWRM	A. Training	Infographics, videos	Learn about NSWRM
STU	STU.5	Scientific understanding	A. Training	MOOC	Learn about NSWRM Experts and scientific area
STU	STU.6	Beginner-friendly materials to introduce NSWRM	A. Training	Infographics, videos	Learn about NSWRM
STU	STU.7	Simplified technical explanations	A. Training	Step-by-step guides, visual learning tools	Learn about NSWRM Case Studies Exploration
STU	STU.8	Exposure to interdisciplinary approaches	B. Dissemination	Engagement materials	Media Center
STU	STU.9	AI-driven and adaptive learning	A. Training	AI-driven tools, interactive platforms	Home
STU	STU.10	Access to mentors and expert guidance	Networking	Live Q&A sessions with experts	Experts and scientific area Blog / Forum
STU	STU.11	Real-world problem-solving case applications	B. Dissemination	Problem-solving exercises, decision-making simulations	Case Studies Exploration
STU	STU.12	Comparative policy analysis on NSWRM	C. Raising Awareness	Policy briefs, reports	Policies/ NSWRM

Annex 5: MOODLE functionalities

The following picture provides an illustrative insight of the functionalities offered by MOODLE. English presentation of each items are available on: https://docs.moodle.org/400/en/Features