WATERAGRI

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Workshop 1 Report

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WP 1: Farming Community Engagement

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Abstract:	An early engagement workshop was organized in Month 9 of the WATERAGRI project to provide internal and external stakeholders with a general overview of the WATERAGRI project and obtain their feedback. This document presents the planning, execution and results of this workshop.

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Table of contents

List of Tables

List of Figures

List of Abbreviations and Acronyms	
BOS I	Breakout Session I
BOS II	Breakout Session II
GDPR	General Data Protection Regulation
MCQ	Multiple choice Question
WP	Work Package
WS	Workshop

WATERAGRI

Executive Summary

Purpose

Under conditions of a growing world population and worsening climate change, ensuring sustainable agricultural production is a grand challenge. The WATERGAGRI project aims to address this challenge by re-introducing and enhancing sustainable solutions for water retention and nutrient recycling which will be developed and tested across 10 case study sites in Europe namely Austria, Germany, Hungary, Finland (I and II), France, Italy, Poland, Sweden, and Switzerland.

The WATERAGRI project started in May 2020 and is planned to be completed over a period of 48 months. An early engagement workshop was planned in the initial stages of the project to (a) provide (internal and) external stakeholders with a general understanding of the WATERAGRI project, its goals, methods, and intended knowledge generation modalities and (b) obtain stakeholders' feedback on these. This report presents the planning, execution, and results of this workshop referred to as Workshop 1 across the report.

Methodology

Although initially planned to be a physical meeting, the WATERAGRI workshop 1 was conducted in a semi-virtual setup. Project members and stakeholders from eight case studies (leaving out Finland I and Finland II) participated in the workshop. An initial list of relevant stakeholders was developed with the help of project members in each case study and invitations were sent out to these stakeholders. The workshop was setup as an online Zoom meeting and the participating case studies were encouraged to combine this with a local physical meeting. Participants across all case studies joined the online meeting on Zoom; the Austrian case study organized a physical meeting with its stakeholders in the second half of the workshop and the Swedish case study undertook a field visit to the dam construction site of Gårdstånga Nygård. In total about 70 participants attended the workshop.

Before the start of the workshop, participants were asked to fill an entry survey to elicit their background and expectations from the workshop. The workshop started with a plenary session where a brief overview of the WATERAGRI project was presented. This was followed by the presentations by solution providers to highlight and showcase the project's sustainable solutions. The presentations by solution providers were designed in the Pecha Kucha format (https://www.pechakucha.com/). In this format, presentation slides are created using rich images instead of long texts, jargon and complex graphs. This was done to ensure that stakeholders from different backgrounds can understand the somewhat 'technical' solutions. These presentations were pre-recorded to strictly abide by time limitations and ensure subtitles could be pre-added to the presentations for easy understanding.

The introductory presentations in the plenary session lasted for about 2 hours after which the participants dived into two breakout sessions of 50 minutes each. To achieve this, the main Zoom

meeting was split into 8 smaller breakout rooms, each dedicated to a participating case study and their associated stakeholders. Discussions in each breakout room were facilitated by and reported upon by a pre-assigned moderator and rapporteur. The moderators and facilitators used a virtual collaboration tool called MURAL (https://www.mural.co/) in their breakout rooms to document participants' responses. Throughout the sessions, the MURAL workspace was shared via a shared screen so that participants could follow or clarify the reporting of their responses. After the end of a breakout session, the rapporteur reported back to the plenary session summarizing the key insights from the discussion.

Breakout Session I was aimed at getting a better understanding of participants' issues and expectations. The discussion in this session was structured around three main topics: Issues, Solutions, and Expectations. Participants shared their key water management issues of concern, their preferred solutions for solving these issues and their expectations from the WATERAGRI project to address their issues. The next session, Breakout Session II, was aimed at identifying new stakeholders and understanding how stakeholders (both new and pre-identified) could best be engaged with the WATERAGRI project activities in the future. To deduce this, a stakeholder mapping exercise was undertaken where all identified stakeholders were placed on a 2x2 matrix with one axis representing the *interest* of the stakeholder in the WATERAGRI project activities while the other axis representing the *power or influence* of the stakeholder to support or block the project's objectives. The position of the stakeholder on the interest-influence matrix gives an indication about the kind of engagement strategy that could be adopted for them ranging from communicating generally for keeping a stakeholder informed to actively engaging with them. Reporting of Breakout Session II discussions back to the plenary marked the end of the workshop after which the participants were asked to fill an exit survey to evaluate the workshop.

Results

Results of the entry survey revealed that most participants attended the workshop meeting with the expectation of knowing more about the WATERAGRI project. They indicated that their main interest in the project relates to the implementation of solutions. Participants were also open to the semi-virtual format and felt that this format helps saves time and resources. In the plenary session, 10 pre-recorded presentations were played: a) one on the project overview, b) 8 Pecha Kucha presentations showcasing different WATERAGRI solutions, and c) one on farming community engagement. Participants were encouraged to engage with the project members via Zoom chat; no questions were received on the chat.

In Breakout Session I, participants mentioned about 30+ issues across case studies, with three issues being raised most frequently by participants: lack of (or inconsistent) availability of water, poor water quality, and excessive (or arbitrary) use of fertilisers. To address these water management issues, participants found constructed wetlands (by ULUND), water retainer product (by BZN), and serious game (by TUDELFT) as most promising. Participants also shared their expectations from the WATERAGRI project and frequently mentioned that they expect knowledge and information sharing, ideas and solutions to solve water problems, and the development of low-cost solutions. These findings have implications for future engagement strategy with stakeholders and criteria to be kept in mind while developing project solutions.

Breakout Session II discussions led to the identification of 62 new stakeholders. Participants classified all stakeholders (identified prior to and during the workshop) into five categories: Policymakers, Local water management organizations, Farmers or farm managers, Agricultural chambers or farmer's associations, and Others. The stakeholder mapping activity resulted in commonalities in the placement of stakeholder categories across case studies. Participants mostly perceived policymakers as having high power and varying levels of interest whereas farmers/farm managers and local water organizations were perceived as stakeholders with high interest and varying levels of power. These commonalities indicate that in the future, policymakers should be engaged actively and consulted in the project's decisions as they have a perceived high influence on the attainment of WATERAGRI's goals. Future engagement with farmers and local water organizations should make use of their high interest in the project by involving them in project activities either by consulting them on their area of interest and engaging them in decision-making. The remaining stakeholder categories (agricultural chambers or farmer's associations and 'others') were placed all across the matrix and hence, future engagement with these categories should be done on a case by case basis.

The workshop was evaluated using an exit survey. In total, 23 respondents filled in the survey and rated the workshop management highly positively. In general, participants expected more engagement with farmers and wished for more focus on science and farm practices rather than a focus on solution providers in the plenary session. Nonetheless, participants expressed their interest in specific WATERAGRI solutions through the exit survey; a good opportunity for solutions providers to follow-up and initiate collaborations and knowledge sharing.

Conclusions

WATERAGRI workshop 1 was organized and conducted successfully with encouraging feedback from the participants. About 70+ diverse stakeholders ranging from local farmers to representatives of municipalities and local water organizations, researchers, and journalists attended the workshop. The structured discussions that ensued amongst them during the workshop revealed that participants differ in their issues, preferences for solutions, and expectations. These should be taken into account while developing technical solutions to address their issues e.g. cost-effectiveness was repeatedly mentioned as an expectation and research effort should be aligned to meet this expectation. 62 new stakeholders relevant to the project were identified in the workshop. Future engagement strategies should take these findings into account and engage these stakeholders during upcoming meetings and project workshops. Lastly, project partners leading communication tasks are encouraged to tailor their communication strategy based on stakeholders' influence and interest as identified during the workshop to ensure maximum engagement.

1 Introduction

1.1 Motivation

Ensuring sustainable agricultural production that can feed growing populations and withstand future climate change is a grand challenge. To achieve this, the WATERGAGRI project aims to re-introduce and enhance sustainable solutions for water retention and nutrient recycling. By re-introducing nature-based solutions such as integrated constructed wetlands, bio-inspired drainage systems and sustainable flood retention basins in the agricultural landscape, the project aims to achieve better retention of both nutrients and water (*WATERAGRI*, n.d.). In the WATERAGRI project, several water retention and nutrient recycling solutions will be developed and tested in 10 case study sites across Europe namely Austria, Germany, Hungary, Finland (I and II), France, Italy, Poland, Sweden, and Switzerland.

> *"The WATERAGRI project is about researching the new frontiers in integrated water resources management of small agricultural catchments to improve both European agricultural production and the status of local ecosystems. "*

Prof. Miklas Scholz

WATERAGRI Project Coordinator

The project consists of nine work packages; each further divided into several tasks. This report focuses on Work Package 1 (WP1) that aims to effectively engage with farming communities and related stakeholders to identify their needs and concerns and improve their understanding. WP1 also aims to ensure engagement of stakeholders throughout and beyond the project. In addition to that, effective engagement will be ensured by developing a serious game to increase awareness of WATERAGRI solutions and highlight complex trade-offs involved in agricultural decision making. Workshop 1 was organized to identify stakeholders relevant to the project and engage with them both to showcase the potential of the WATERAGRI project and understand the needs and concerns of the stakeholders.

1.2 Report layout

This report consists of 4 chapters. Chapter 1 provides the background of the WATERAGRI project. Chapter 2 introduces the objectives of the WATERAGRI Workshop 1 and presents the methodology followed in designing the workshop and collecting data from the participants. Chapter 3 presents key results of the workshop, notably, discussions that ensued in the two breakout sessions and the results from the entry and exit surveys. Finally, Chapter 4 presents the key takeaways from the workshop along with the lessons learnt and next steps.

2   Methodology

2.1 Workshop agenda

Aim and objective

The aim of the workshop was to identify and engage early with a wide range of WATERAGRI stakeholders in multiple countries. Specific objectives of the workshop are as follows:

1. **to provide (internal and) external stakeholders with a general understanding of the WATERAGRI project**, its goals, methods, and intended knowledge generation modalities;
2. **to obtain initial stakeholders' feedback.**

Agenda design and selection of invitees

At the WP1 meeting held on 12th June 2020 it was decided that, given the circumstances, the workshop should focus on providing the stakeholders with information about the project and obtaining their early feedback and buy-in. The tentative agenda for Workshop 1 was formulated based on these objectives and revised based on case study owners needs and feedback. The overall agenda of the meeting can be found in Appendix A.

The early engagement workshop was carried out with consortium members and a set of initially identified primary stakeholder under Task 1.1 "Engaging and mapping farming communities". OULU facilitated the process of collecting names and contacts of potential invitees from case studies by conducting individual one hour talks in June/July 2020 with case study owners on the specific case study needs and prompting them to think of stakeholders along the following categories:

a) farmer(s) where WATERAGRI interventions are to be carried out,
b) water management or water related authorities,
c) agricultural chambers, agricultural organization or agriculturally related entities,
d) environmental protection entities,
e) national and local policy makers,
f) media.

This process resulted in a list of 71 invitees for all case studies (Appendix C). Invitations were sent via email by OULU in late July 2020 and a reminder sent by early September 2020 to a revised and extended list of invitees (Appendix A). Case study owners were in charge of following-up on the invitations in local language. A final request for registration to the Zoom meeting to all invitees was sent via email on 21 September 2020 (in all languages) and reminders sent on 29 September and 2 October 2020 (in English only). A total of 89 participants were registered by the beginning of the workshop of which 41 were non-consortium members (Appendix C). 38% of the registered participants were female.

2.2 Workshop technical setup

In principle the workshop was intended as a face-to-face workshop to be hosted by Gårdstånga Nygård in Lund, Sweden, hosting stakeholders from the other 9 case studies in month 3 of the project. However, given the COVID-19 pandemic, travel and physical meetings have been largely

WATERAGRI

restricted by European governments; thus, the meeting was conducted in virtual/ semi- virtual mode.

Virtual mode setup

The workshop was set-up using Zoom (see Figure 1), a cloud-based video-conferencing tool (*Zoom*, n.d.) which provided for break out rooms to allow for discussions to be held in the local languages of the case studies. The presentations of the plenary session were pre-recorded to abide by time restrictions and to ensure that subtitles can be added to all presentations in advance for better understanding. Presenters were asked to use Pecha Kucha, a format that emphasises on visual elements and reduces the amount of spoken and written text. The pre-recorded presentations were equipped with English script and subtitles were added to the videos allowing for a better understanding by non-native English speakers. Scripts were translated into all case study languages and provided to case study owners for their distribution to participants as needed.
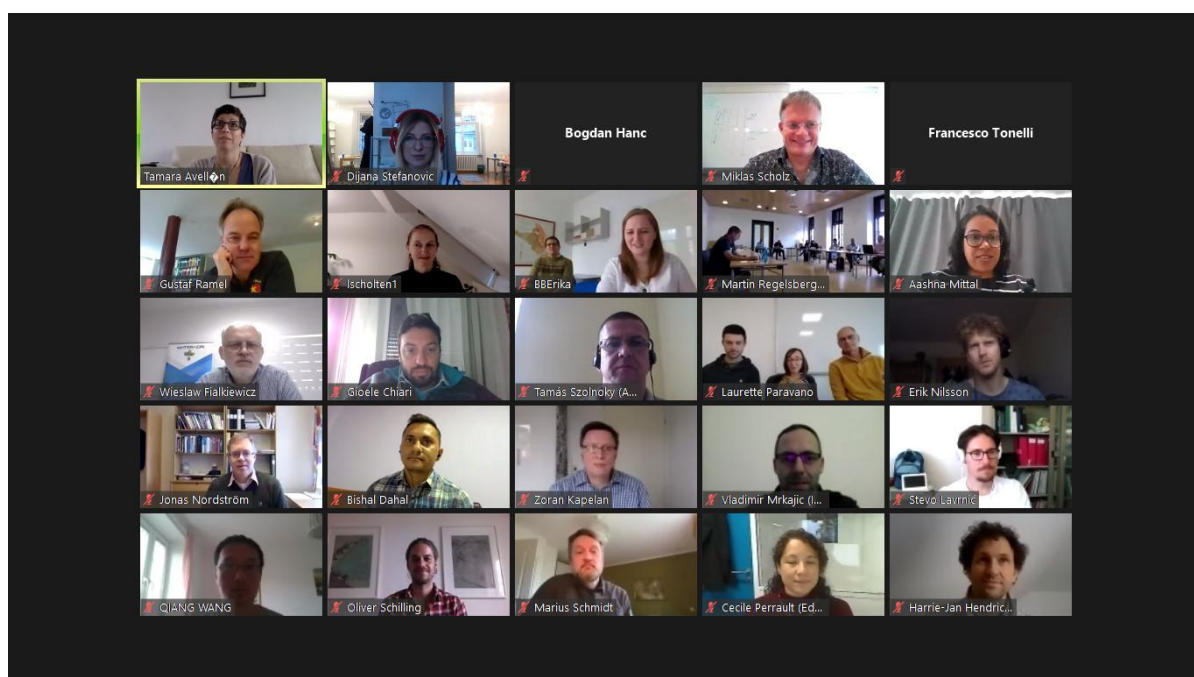
Figure 1: Virtual set-up of workshop on Zoom

Semi-virtual mode setup

Case study owners were responsible for designing local meetings as per the possibilities of the respective COVID-19 pandemic restrictions. As such the case study stakeholders could participate (a) entirely remotely through their own device to the Zoom meeting (e.g. Italy, Germany, Hungary, Switzerland[1]), (b) through the device provided by the case study owner in a shared physical space (with other stakeholders) (e.g. Austria), (c) in a mix of both, where some stakeholders shared the physical space provided by the local host and others attended remotely (e.g. France, Sweden, Poland). In some cases, the case study owners also organized an additional field trip to the case study implementation site (see the example of Austria in Figure 2).

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[1] In the case of Switzerland, the meeting was designed as an all virtual set-up. However, all stakeholders cancelled their participation shortly before the meeting.

Figure 2: Semi-virtual set-up of the workshop in Austria

2.3 Workshop sessions

2.3.1 Plenary Session

The aim of the plenary session was to present an overview of the WATERAGRI project and present solutions being developed by the project members. For this, pre-recorded presentations were chosen as the preferred format to stick to time restrictions and ensure subtitles are added to the presentations so that they are easy to understand. In total, 10 presentations were prepared: one for presenting the project overview, 8 for presenting WATERAGRI solutions and one for explaining how the farming community and other stakeholders can engage with the WATERAGRI project.

The Workshop was expected to be attended by external stakeholders from different educational backgrounds. Since presentations by solution providers may get quite technical, precautions were taken to make the presentations easy to understand. The key idea was to present WATERAGRI solutions in laymen terms. To achieve this, the presentations were recorded in the Pecha Kucha format: a visual storytelling method that uses simple images rather than jargon, long texts, and complex graphs (*PechaKucha*, n.d.). Using this format, each WATERAGRI solution presentation was made with 15 image-rich slides and a pre-recorded voiceover. All solution providers were given instructions on how to prepare these presentations and consultations hours were organized to provide them feedback and address their queries (see Appendix B). English subtitles were embedded to these presentations later on and the option of choosing subtitles in local languages were also added to the presentations so that participants may watch them in their preferred language. Due to shortage of time, explicit Q&A time was not planned after each presentation but Zoom chat was to be used as the medium to ask (and reply to) questions that arise during the presentations.

2.3.2 Breakout Sessions

Two breakout sessions of 50 minutes each were organized during WS1 to allow for brainstorming and collaboration in smaller groups. The main virtual meeting session was divided into 8 smaller breakout rooms, one each for the 8 participating countries with respective case studies: Austria, France, Germany, Hungary, Italy, Poland, Sweden, and Switzerland. To increase engagement with local stakeholders, the discussions in the breakout rooms were conducted using local languages. Participants who registered with associated case study areas were assigned to the breakout rooms based on their respective case studies while 'neutral' participants (with no affiliation to a case study) were assigned to the breakout groups based on the language they spoke.

The breakout sessions were led by pre-assigned moderators and all sessions also had pre-assigned rapporteurs. The task of the moderator was to facilitate the discussion while the rapporteur was in-charge of documenting the responses of participants and summarizing the results to the plenary session. An online digital workspace – MURAL (*MURAL*, n.d.) was used for virtual collaboration among participants. One 'mural' was created for each of the case studies (8) and for each of the break-out sessions (2) leading to a total of 16 murals for the entire workshop. Throughout the sessions, the MURAL workspace was shared via shared screen so that participants could follow or clarify the reporting of their responses.

Facilitation plays an important role in workshops and encourages participants to engage more effectively in discussions. Due to the complex set-up of the (semi-)virtual break-out rooms where interaction was to be done in local languages it became clear that case study owners would have to take on the role of facilitators (or moderators) in these. Since not all case study owners had had extensive experience facilitating multi-actor workshops, OULU and TUDELFT designed and conducted a mini-training on facilitation. This was carried out online on 9 September 2020 with the respective case study moderators. The main areas covered included:

- Dos and Don'ts of facilitation.
- The requirements for virtual/ semi- virtual setup.
- The use of Zoom (*Zoom*, n.d.) and MURAL (*MURAL*, n.d.) for gathering input from participants.

Moderators and facilitators were provided instructions on how to use the MURAL portal and facilitate their breakout groups (see Appendix B for the instruction manual). Facilitators were not mandated to use the MURAL portal. They were given the flexibility to choose a format for virtual or offline collaboration based on their convenience.

The aim, design, and facilitation process of the two breakout rooms are described in the following sections.

2.3.2.1 Breakout Session I: Setting the scene

The aim of Breakout Session I (BOS I) was to initiate in-depth discussions with stakeholders about their needs and expectations from the project. To achieve this, the discussion was divided into 4 sections each with its own guiding question. These sections are described below:

1. Section 1: Issues
    - Guiding question: What do you think is the problem that needs to be solved?
2. Section 2: Solutions
    - Guiding question: What are potential solutions to the problem?
3. Section 3: Expectations
    - Guiding question: What are your expectations from the WATERAGRI project and how can the project contribute to solving your problem?
4. Section 4: Other issues
    - Guiding question: Do you have any other issues of concern?

Figure 3 shows the design of BOS I MURAL workspace.

Issues (10 min.)
What do you think is the issue that needs to be solved?

Solutions (10 min.)
What are potential solutions to the problem?

Expectations (10 min.)
What are your expectations from the WATERAGRI project? How can the project contribute to solve the problem?

Other issues (10 min.)

Figure 3: Breakout Session 1 design in MURAL.

The session started with the moderator introducing the aim and structure of the exercise. For each section, the moderator introduced the question and gave about 2 minutes to the participants to formulate their answers. Participants then shared their responses with the group in a round-robin fashion. Rapporteurs documented these responses on sticky notes. Roughly, 10 minutes were assigned for discussion about each section. After completing the 4 sections, the rapporteur reported back to the plenary session summarizing the key problems, solutions, and expectations using the MURAL workspace if possible.

2.3.2.2 Breakout Session II: Identifying and mapping stakeholders

Breakout Session II (BOS II) aimed at classifying and mapping stakeholders and identifying strategies to engage stakeholders with WATERAGRI project activities in the future. The specific objectives of this session were to:

- Expand the stakeholder list for each case study;
- Classify stakeholders by influence and interest with regards to achieving case study objectives;
- Discuss potential ways in which stakeholders would like to be engaged in the future

To achieve this, similar to Breakout Session I, this session was also divided into 4 sections:

1. Section 1: Identifying further stakeholders
2. Section 2: Classifying stakeholders
3. Section 3 Mapping stakeholders
4. Section 4: Parking lot

Figure 4 shows the design of BOS II MURAL workspace. The session started with providing participants with a pre-defined list of stakeholders compiled from the list of WS1 invitees (represented by square sticky notes in Section 1 of Figure 4). The participants were then asked to

identify additional stakeholders relevant to their case study. The names of these stakeholders were added to Section 1 on circular sticky notes to differentiate them from the initial list of stakeholders.
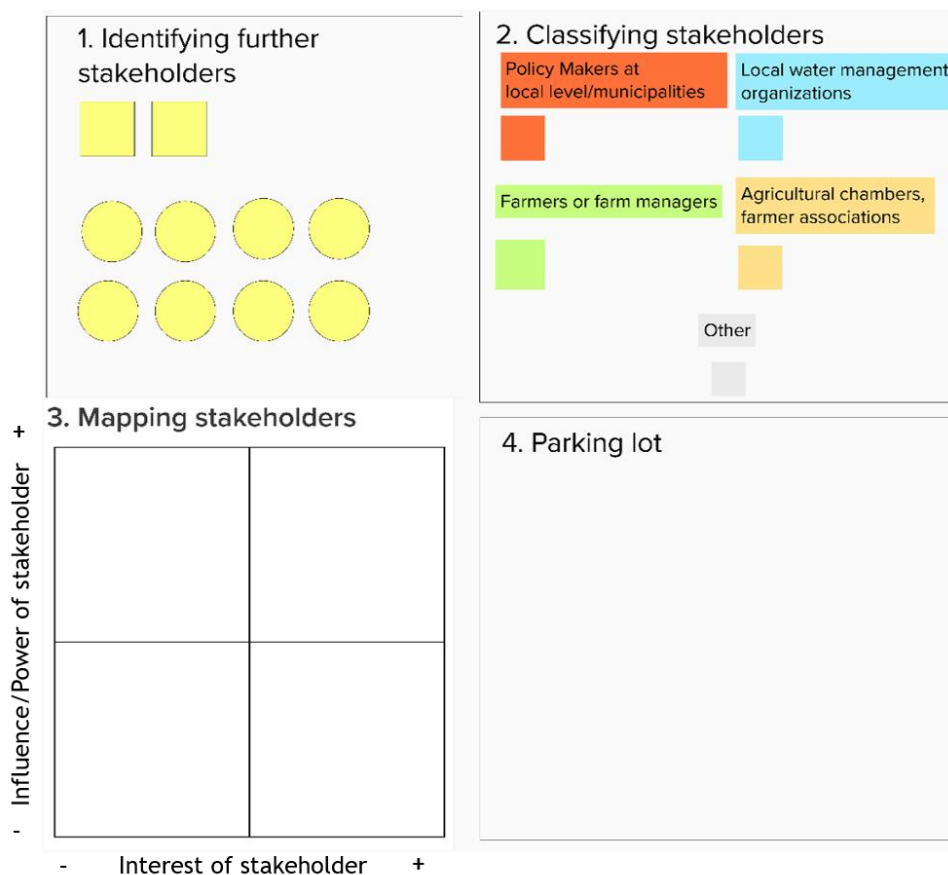
Figure 4: Breakout Session 2 workspace design in MURAL

Next, the participants moved to Section 2 where they classified all stakeholders identified in Section 1 based on a reduced set of 5 categories[2]: Policy Makers, Local water management organizations, Farmers or farm managers, Agricultural Chambers or Farmers Associations, and Others. To visualize different categories easily, the colour of a stakeholder's sticky note was changed to the colour of their respective category.

The participants then moved to Section 3 where they discussed the placement of each stakeholders on the Influence-Interest matrix (see Figure 5). This matrix contains four quadrants that helps classify which stakeholders to engage closely and which stakeholders to put minimum effort in. It also helps determine the preferred communication style with the stakeholder depending on where they belong in the Influence-Interest matrix e.g. stakeholders who have high interest and high power are key players and they should be actively involved in key decisions and engaged on a regular basis.

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[2] The WATERAGRI Stakeholder register identified 22 different stakeholder categories. For the sake of this workshop the number of categories was significantly reduced to make the most use of the limited amount of time.
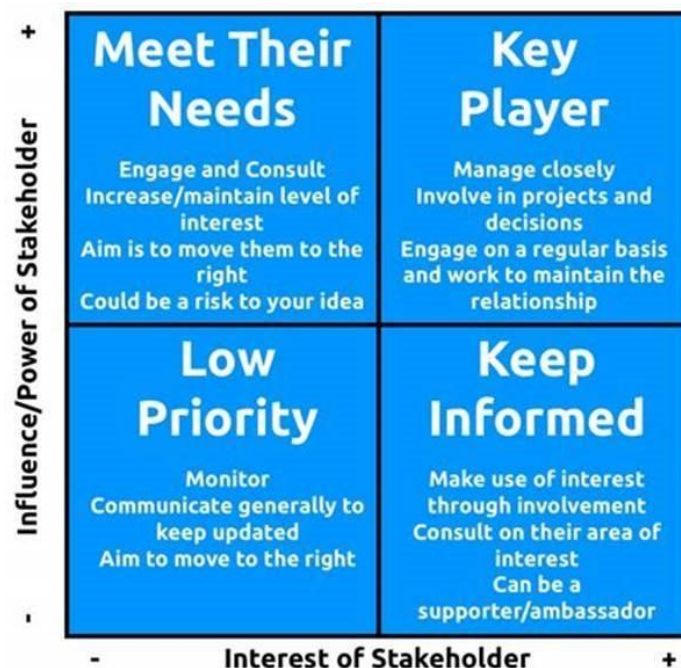
Figure 5: Influence Interest matrix. Source: Revolution Learning and Development Ltd (n.d.)

Stakeholders who could not be adequately classified or placed on the Interest-Influence matrix were placed in Section 4 to be discussed later. The session ended with the rapporteur summarizing the new stakeholders identified along with their positions on the influence-interest matrix and reporting it to the plenary.

2.4 Workshop surveys

In general, surveys in workshops assist to acquire general information, assess the level of understanding and overall evaluation. Surveys conducted prior to the workshop help to identify the type of stakeholder, their attitude, their perception and their expectation about the workshop whereas the post surveys help to determine the level of understanding, obtain feedback and provide opportunity for future improvements.

Two surveys were conducted, one prior to the workshop (Entry Survey) and another after the completion of the workshop (Exit Survey). The surveys were designed and conducted using Google forms and the collected data and information were stored and processed according to the European General Data Protection Regulation (GDPR).

2.4.1 Entry Survey

Participants were asked to fill in the entry survey prior to the workshop and during the registration phase. The entry survey questions were designed to get information from the participants in terms of knowledge, opinion and behaviour-based information. The questions focused on the level of awareness of the WATERAGRI project, the level of knowledge relevant to the project (e.g. climate change, sustainability), the expectations towards this workshop and the perception on the (semi-)virtual set-up. The entry survey questions are listed in Appendix D.

2.4.2 Exit Survey

After the completion of the workshop the exit survey was conducted with the aim of obtaining the information about the effectiveness of the workshop, getting feedback and recommendations for improvement. The questionnaire was designed on the basis of Kirkpatrick model including reaction, learning, behaviour and result (Smidt et al., 2009). For the general evaluation of the workshop Likert scale questions (questions containing 5 or 7 response options) (Nemoto & Beglar, 2014) were designed that measured the degree of satisfaction of the participants with the workshop.

The exit survey questions covered aspects on the nature of the participants (e.g. stakeholder category, gender), the workshop management and the workshop solutions, information on missing participants, and further feedback on future improvements. The questionnaire for the exit survey is in Appendix D.

3 Results and Discussion

This section presents the results of Workshop 1 in the order of their occurrence. The results of the entry survey highlight the background and expectations of the participants coming in to the workshop. Next, we present the results from the plenary session where WATERAGRI partners presented their solutions. The summary and analysis of discussions in the Breakout Sessions are presented next followed by the results of the exit survey.

3.1 Entry survey

In order to elicit the response of the participants prior to workshop, an entry survey form was provided to the stakeholders along with the registration link. From the 89 registered participants, 39 responded to the entry survey (44% of the total participants). The result of the responses is summarised below.

Participants

The entry survey shows a diverse group of stakeholders including university researchers (6), participants from the agriculture sectors (7), marketing agencies (6), river authorities (3), and many more. The majority of participants were from the agricultural sector and university researchers whereas the respondents from environmental groups and river authorities were low in numbers.

Results on Opinion Based Information

The level of awareness was fairly equally distributed amongst being supportive (33%), being unaware (26%), being neutral (23%) and leading (18%) (Figure 6). None were resistant. The focus of future work should lay on the stakeholders in the bottom half of the chart (unaware and neutral) to increase their level of awareness and invite them to become supportive or even leading.
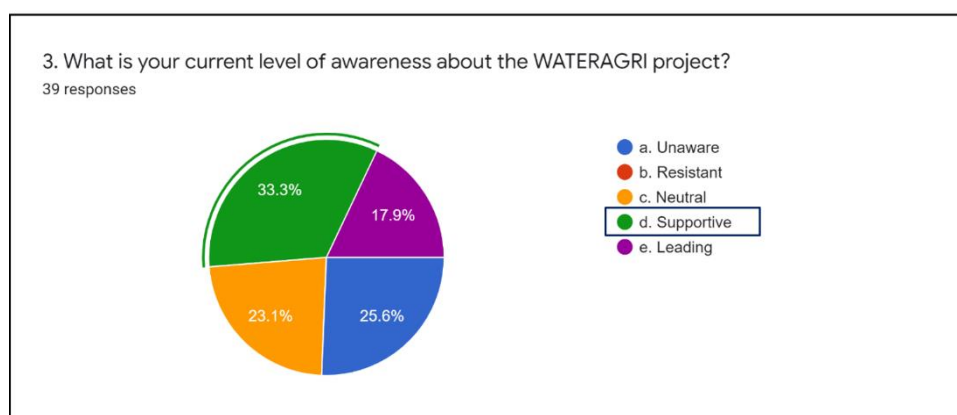
Figure 6: Level of awareness about the WATERAGRI project

Respondents' interest in the content of the workshop has also been assessed. More than half of the respondents were interested in the implementation of solutions followed by their interest in research (Figure 7). Very few participants were curious to know about the current situation and the way forward.
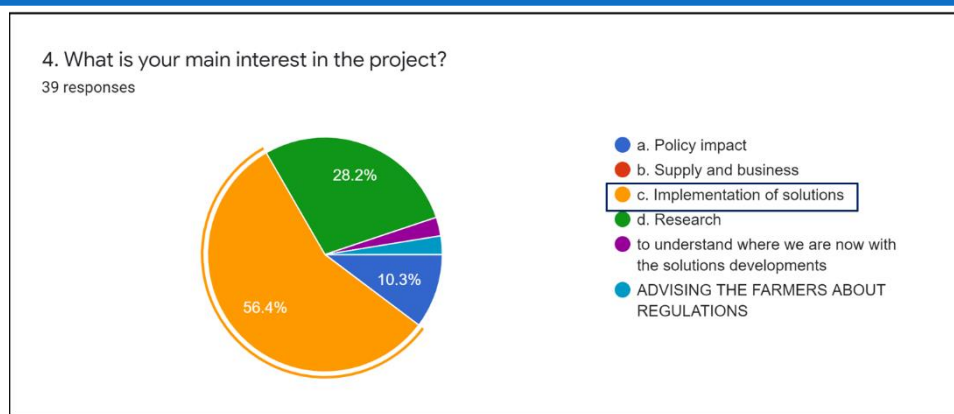
Figure 7: Interest of Participants in the WATERARGI project

Result on knowledge-based information

A majority of 22 of the 39 respondents agreed that sustainability is a highly important matter and few respondents were not aware of the issues of sustainability (Figure 8: Participant's experience with sustainability). 2 respondents were not aware of the sustainability issues, an aspect that was hopefully changed through this workshop.
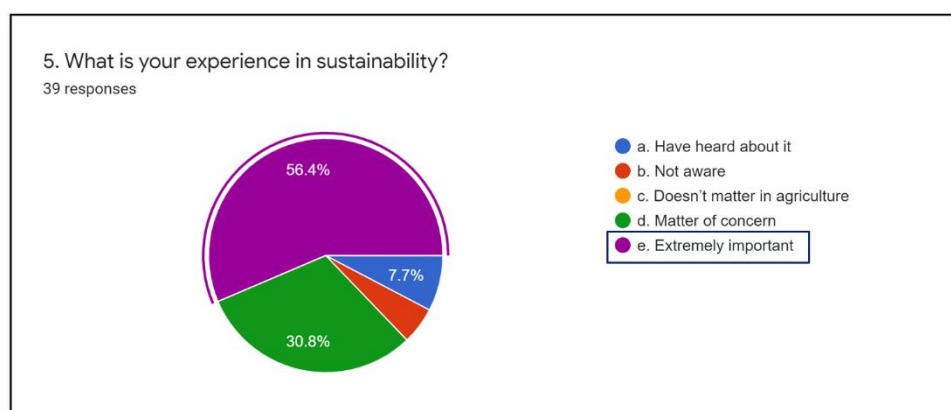
Figure 8: Participant's experience with sustainability

Similarly, a majority of 22 respondents considered climate change to be a sensitive issue (Figure 9: Participant's perspective on climate change). A few participants did not consider climate change to be a matter of concern.
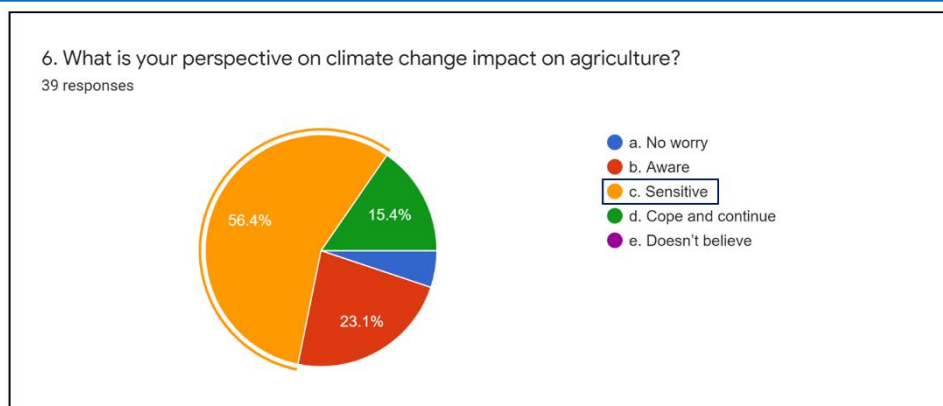
Figure 9: Participant's perspective on climate change

These responses show that sustainability and response to climate change should not be a stand-alone agenda, but an overarching strategy which affects all project action and responsibilities.

Results from general responses

The results about respondents' level of expectation are presented in Figure 10, which shows the diversity of responses. The majority of respondents were enthusiastic and wanted to hear more about the project, and very few respondents had no prior expectation from the workshop. About half of the respondents had a rather neutral attitude (e.g. might be helpful, just to share/listen views).
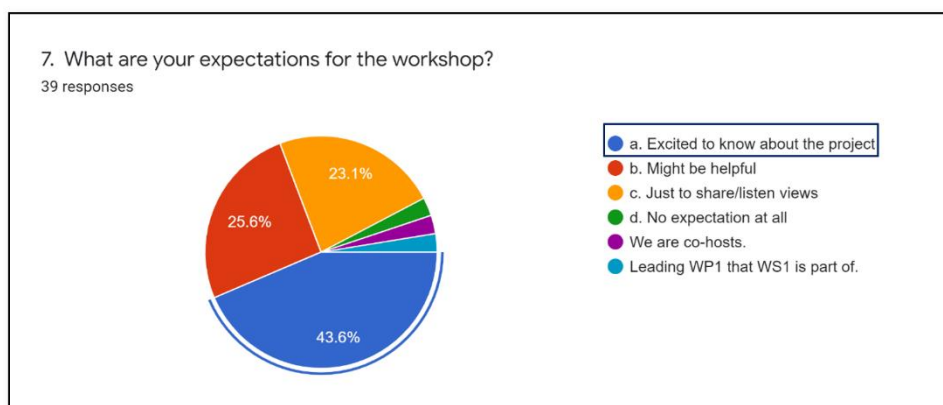
Figure 10: Participant's expectations from the workshop

One of the considerations of the workshop was the issue of the virtual setup due to COVID-19 pandemic. Most of the respondents felt this mode saves time and resources although some participants find physical workshops to be more functional (Figure 11).

9. What is your perception about the semi-virtual/virtual setup of the workshop?
39 responses

- a. New Normal
- b. Saves time and resources
- c. Might not be effective
- d. Would be more effective on physical environment
- e. No comments

25.6%
15.4%
46.2%
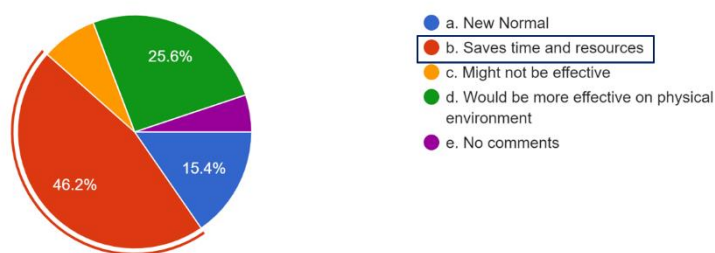
Figure 11: Participant's perception about Semi-virtual/Virtual Setup

With respect to participants views and insights on their specific interest in the workshop, mixed responses were obtained (Figure 12) with a majority interested in sustainable agricultural technologies and solutions. Some of the respondents were also interested to know about the brief introduction of the project.

Figure 12: Specific things that participants wanted to learn from the workshop.

Overall, the responses of the respondents to the entry survey shows the positive attitude of the participants. Most of the respondents seemed enthusiastic about the project and wanted to gain more knowledge about it. The diversity of the respondents was an asset for the workshop to get more input, feedback and suggestions. The level of awareness demands the clear need to promote the WATERAGRI project and its solutions to different stakeholders as visualized in the expectation of the respondents.

3.2 Plenary session

The plenary session started after the participants filled the entry surveys. The main-host welcomed the participants followed by a quick round of introductions. Then 10 pre-recorded presentations were played in the plenary session, starting with the project overview, followed by Pecha Kucha presentations from solution providers, ending with the presentation on farming community engagement.

Only English subtitles were added to the presentations in the plenary session. Some facilitators, e.g. in Poland, interpreted the presentations on spot to ensure their participants understood the content of the presentations. These presentations along with the subtitles in the local languages were uploaded on YouTube to enable participants to re-watch them later in their local languages.

The YouTube links to the presentations (in the order of presenting) are as follows:

1. WATERAGRI project overview presentation by Miklas Scholz:
   https://youtu.be/B00tG_MHtYM
2. Presentations by solution providers:
   1) Water decision support system by AGRICOLUS: https://youtu.be/lNXIb8f1fFA
   2) Biochar for water retention by Alchemia Nova (ALCN):
      https://youtu.be/6LtD0pbzEkc
   3) Water retainer product by Bay Zoltan Non-profit Ltd. (BZN):
      https://youtu.be/deYYM59qUwc
   4) Microfluidics by EDEN Tech: https://youtu.be/wsID5CxsMio
   5) Farm constructed wetlands by Lund University (ULUND):
      https://youtu.be/TpemgfRuCaE
   6) Dewaterability estimation test apparatus by University of Salford (USAL):
      https://youtu.be/h2TxSo3v6D0
   7) Bio-based nutrient collecting membranes by VTT Technical Research Centre of Finland Ltd (VTT): https://youtu.be/reKEXsD1lXU
   8) Remote sensing pipeline by Vultus AB (VULTUS): https://youtu.be/_A8gKIDvi5o
3. Farming Community Engagement by Adriano Battilani: https://youtu.be/so-2pLY4_M4

Figure 13 illustrates one of the presentations in action during the plenary session.
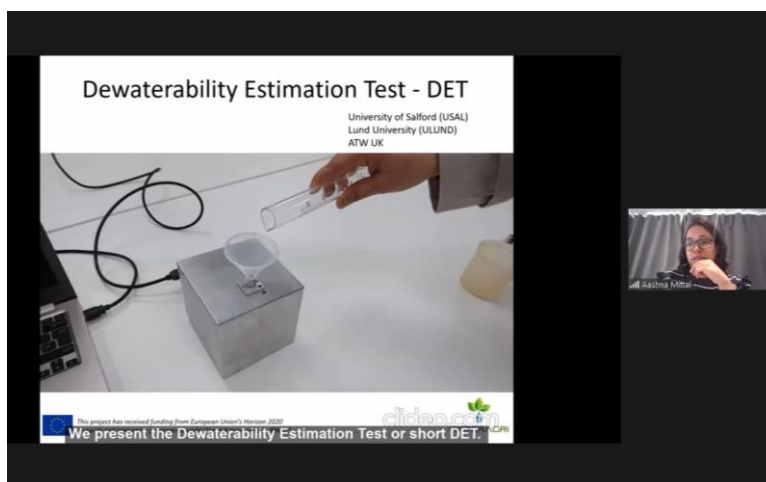
Figure 13: Pecha Kucha presentation of the DET solution during the plenary session

No questions were received on the chat while the presentation videos were being played. However, participants conveyed their interest in specific solutions through the exit survey. The results of the survey can be found in Section 3.5.

3.3 Break-out Session I

This section describes the results of BOS I across all case studies. The breakout session helped initiate a discussion on the issues faced by stakeholders, the potential of solutions proposed by the WATERAGRI project to address those issues, and the expectations of stakeholders from the WATERAGRI project. One case study – Switzerland did not participate in this session since no local stakeholders relevant to the case study attended the workshop. The summary of results from the other case studies can be found in Table 1. The filled MURAL workspaces or notes of each case study can be found in Appendix E.

Table 1: Summary of results from Breakout Session 1

Case study	Issues	Solutions	Expectations	Other issues
Austria	• Uneven water availability • Water distribution • Arbitrary use of fertilisers • Lack of cooperation and long-term measures • Nutrient imbalance	• Exchange and sharing of knowledge • Improving fertilizer management • Slowing down water runoff • Soil improvement for better infiltration and humus formation • Exploring alternative crops • Implementation of long-term measures	• Reference and tools for farmers • Ideas to solve water distribution problems • Knowledge about new technologies • Fertilizer optimization solutions	• Unwanted capture of pesticides • Comparing organic vs conventional farming • Fear among farmers about collection of problematic data that may impact their image and compliance with new regulations
France	• Clean water (including nutrients and pesticides) • Nutrient recycling • Water needs and irrigation	• Bio-char for water retention • Water retainer product • Constructed wetlands • Microfluidics • Serious games • Agronomy	• Information on solutions	• Many and diverse stakeholders (serious game could be a potential solution)
Germany	• Drought stress • Nitrate concentrations in groundwater	• Real-time modelling and data assimilation • Water retainer product		
Hungary	• Retaining water on sandy sites • Implementation of agro-tech and crop rotation • Education of irrigation experts • Extremities in climate and soil conditions • Scales of water management • Poor implementation • Poor water quality • Uneven water availability	• Water retainer product • Decision support system • National Irrigation Strategy • Monitoring, forecasting and remote sensing on national scale • Wider map scaling • Reaching more farmers • Small water retention technologies • Alternate ways to utilize water – treated sewage, surface water reservoirs or reuse of water used in agriculture.	• Complex/integrated approaches: local to regional • Knowledge transfer • Data sharing – monitoring results, remote sensing databases and forecasting systems • Sharing of results and outcomes • Improvement of sustainability through water and energy saving tech	• Machine supply for implementation of irrigation
Poland	• Regulation of rights to land	• Constructed wetlands	• Technical advice	• Screening of European funds

	• Excess water in parts of farmlands • Need for irrigation in other parts of farm (water availability) • Dysfunctional drainage system • Excess nutrients in surface water • Nutrient recover not implemented	• Education • Buffer stripes along water courses • Retention of water in dyes • Stakeholder coordination at local level	• Inexpensive technologies • Cooperation among local stakeholders	• Local partnership for Water- Polish initiative
Italy	• Poor water quality for irrigation due to entry of wastewater into irrigation canals • Excessive use of fertilizers by farmers • Lack of water availability • Limited surface area to implement tech that improves irrigation water quality	• Separation of irrigation and wastewater canals • Accounting irrigation water quality in overall farm nutrient budget • Use of treated wastewater as an alternative water and fertilizer source • Constructed wetlands	• Integration of systems that improve water quality and store water (e.g. constructed wetlands) • Low cost solutions • Development of nutrient recovery technologies • Knowledge sharing • Use of waste as a resource	
Sweden	• Lack of water • Farmers perceived as 'polluters' • Cost effectiveness of solutions • When and how much should farmers irrigate?	• Increase water efficiency • Change in crop patterns • Serious game to understand tradeoffs among solutions • Soil amendments to reduce water demand • Remote sensing to monitor soil and plants	• Finding right solutions • Effective handling of water to improve crop yields • Sharing of science and proven experience • Presentation of cost- effective well researched solutions	• Need of forecasting models for drought • Coordinating timing of fertilizers with respect to rain

WATERAGRI

A few commonalities in issues, solutions and expectations emerge from Table 1. These are described below.

Three issues were raised most frequently across all case studies:

- Lack of (or inconsistent) availability of water
- Poor water quality
- Excessive or arbitrary use of fertilisers

Out of the seven case studies who participated in the Breakout Session, five (Austria, Hungary, Italy, Sweden and Poland) mentioned water availability as a key issue; e.g. Austria faces inconsistent distribution of water throughout the year. This year, there was no rainfall during the first half of the year which is generally the growing season and too much precipitation in the second half of the year when the crop is to be harvested. Another common problem that came up was poor quality of irrigation water which was mentioned by three case studies – France, Hungary and Italy; e.g. in Italy the quality of irrigation water is deteriorated due to entry of wastewater from sewer overflows, agricultural drainage and livestock into irrigation canals. Lastly, excessive use of fertilisers was reported as an issue by the Austrian and Italian case studies. In Italy, farmers are not aware that irrigation water may already contain nutrients and therefore they overuse fertilisers on their fields. Other issues reported during BOS I were specific to different case study contexts; e.g. in Germany farmers are concerned about high concentrations of nitrates in groundwater while in France, recycling nutrients to reduce losses and water pollution is a case specific concern.

The results of the entry survey revealed that participants were interested in gaining further information about new sustainable technologies and solutions. BOS I helped discuss further the specific technologies that can address participant's issues. Solutions that were mentioned frequently across case studies were:

- Constructed wetlands
- Water retainer product
- Serious game

Participants in four case studies – France, Hungary, Italy and Poland considered constructed wetlands as a promising solution. This preference aligns with their concern of poor water quality for irrigation. Wetlands are effective in removing pollutants from water and hence, can address water quality concerns. Participants in Hungary and Italy also expressed interest in solutions that treat sewage and other wastewater, and constructed wetlands can be used as a low-cost solution to treat wastewater. Participants in three case studies – France, Hungary and Germany expressed interest in the water retainer product which is an organic soil conditioner that helps reduce evaporation, regulate the water balance and stop water seepage deeper into the soil. This solution can also be used to meet the requirements of the Swedish and Austrian case study for a solution that improves the soil to reduce water demand. Lastly, participants in Sweden and France showed interest in serious games as a solution to understand trade-offs among solutions and deal with challenges faced in managing multiple and diverse stakeholders. Other solutions discussed during the session were specific to the case study sites; e.g. preference for remote sensing solutions in Sweden to monitor plant and soil health.

From the results of the entry survey, it is evident that most participants joined the workshop with the expectation of knowing more about the project while being concerned about sustainability and climate change issues. Through the discussions in BOS I participants further elaborated on their specific expectations from the WATERAGRI project to address their issues. Frequently mentioned expectations were:

- Knowledge and information sharing
- Ideas and solutions to solve water problems and improve sustainability
- Low cost solutions

All case studies mentioned knowledge sharing and information on new solutions as their key expectation from the project. Hence, future communication efforts should focus on keeping participants informed about the development process and experimental results of solutions. Another common expectation mentioned by participants from four case studies was the development of water-saving and nutrient-recovery solutions that can solve their water management issues and improve agricultural sustainability. They also expect these solutions to be inexpensive. This is an important aspect that should be taken into account while developing solutions throughout the course of the project.

3.4 Break-out session II

This section describes the results of BOS II across all case studies. BOS II helped identify new stakeholders in each case study and classify them according to their role. Further, the stakeholders identified were mapped on an interest-influence matrix to identify an engagement strategy that aligns with their position on the matrix. Table 2 summarises the number of new stakeholders identified across all case studies along with the categories of these stakeholders. Detailed stakeholder maps from each case study can be found in Appendix E.

Table 2: Number of new stakeholders identified for each category across all case studies

	Policy Makers	Local water management organizations	Farmers or farm managers	Agricultural chambers/farmer's associations	Others	Total
Austria	0	3	0	0	2	**5**
France	0	3	0	1	0	**4**
Germany	5	2	0	1	4	**12**
Hungary	4	5	1	1	2	**13**
Italy	1	1	0	0	0	**2**
Poland	4	1	1	0	2	**8**
Sweden	3	0	1	1	4	**9**
Switzerland	1	1	1	1	5	**9**
TOTAL	**18**	**16**	**4**	**5**	**19**	**62**

From Table 2, it is clear that the snowballing method used to identify new stakeholders in BOS II was successful in identifying new stakeholders. In total, 62 new stakeholders were identified across all case studies. Participants identified new stakeholders across all categories with policy makers and local water management organizations being the categories with the most additions. Some of the stakeholders mentioned are as follows:

- **Policymakers**: EU, local municipalities, Ministries, and Environmental agencies
- **Local water management organizations**: Water treatment clusters, irrigation associations, and local water councils

- **Farmers or farm managers**: Organic or conventional farm owners
- **Agricultural chambers or farmer's associations:** Agricultural boards, Union of agricultural property owners, and agricultural chambers
- **Others**: Federal agencies, media, industry, citizens, non-governmental organizations, banks, researchers and universities, suppliers of seeds and agricultural equipment.

After identifying new stakeholders, participants placed all stakeholders (identified prior to the workshop and during the workshop) on the Interest-Influence matrix. Note that not all stakeholders could be successfully placed on the matrix during the breakout session due to limitations of time and adequate information about a stakeholder's interest and power. Figure 14 exemplifies the results of the mapping exercise from one case study[3]. Stakeholder maps from other case studies can be found in Appendix E.
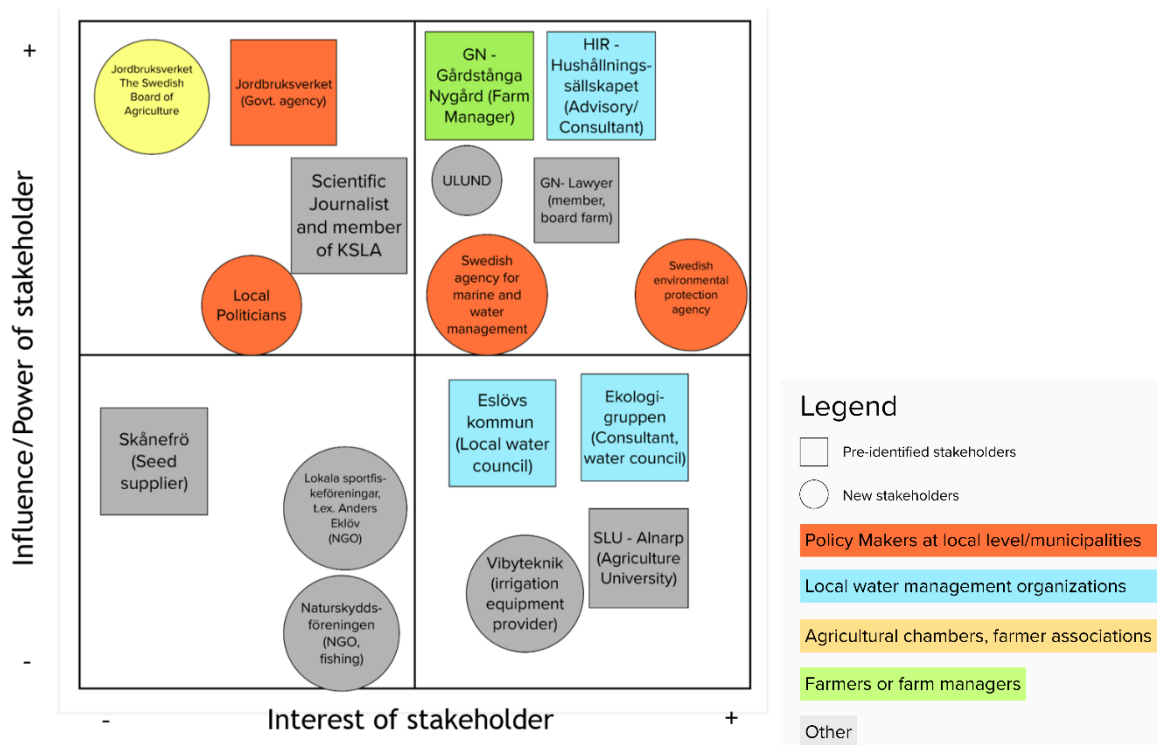
Figure 14: Example of a stakeholder map from Breakout Session II exercise

Table 3 summarizes the results of the stakeholder mapping exercise across all case studies. The placement of individual stakeholders is consolidated based on their categories to draw inferences on the placement of different stakeholder categories on the Influence-Interest matrix.

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[3] Note that the stakeholder mapping is based solely on the perspective of workshop participants and may not represent the real-world situation.

Table 3: Stakeholder mapping results: interest and influence levels of stakeholder categories

	Policy Makers		Water organizations		Agricultural chambers or Farmer's associations		Farmers or Farm Managers		Others	
	Interest	Power	Interest	Power	Interest	Power	Interest	Power	Interest	Power
Austria	Low	Low	High	Low	Low-high	Low-high	High	High	Low	Low
France	Low	High	High	High	Low-high	Low	Low-high	Low	High	Low
Germany	Low-high	High	High	Low-high	High	Low-high	High	Low-high	Low-high	Low-high
Hungary	Low-high	Low-high	High	Low-high	High	Low	Low	Low-high	Low-high	Low-high
Italy	High	High	High	High	High	Low	High	Low	Low	Low
Poland	Low-high	Low-high	Low-high	Low-high	Low	Low	High	High	High	Low-high
Sweden	Low-high	High	High	Low-high	Low	High	High	High	Low-high	Low-high
Switzerland	Low-high	High	High	HIgh	High	High	High	High	Low-high	Low-high

A few commonalities emerge from

Table 3. In five out of eight case studies, policymakers were only placed in the upper half of the interest-influence matrix which implies they are perceived as stakeholders with high power but varying levels of interest. In seven out of eight case studies, local water management organizations were placed on the right-hand side of the influence-interest matrix which implies that these organizations are perceived to have high interest but varying levels of power. Contrary to this trend, the Polish case study perceived one water organization as having low interest and low power. Agricultural chambers and farmer's associations were placed all over the Influence-Interest matrix; participants in case studies Hungary and Italy placed these stakeholders in the high interest-low power quadrant, those in Poland placed them in low interest and low power quadrant while participants in Switzerland placed them in high power and high interest quadrant. Farmers were perceived to be stakeholders with high interest and varying levels of power. Six out of eight case studies perceived farmers to have interest and either low or high power. Lastly, there was no clear consensus on where the 'Others' category belongs on the Interest-Influence matrix. They were placed all over the matrix with varying levels of interest and influence. This also implies that the category was too broad to encompass all other stakeholders than the other 4 categories. Further iterations of stakeholder mapping should allow for adding more categories such as media, researchers, and NGOs among others.

The commonalities identified above have implications for future engagement strategies to be adopted. It is evident that policy makers have high power to realise or block the goals of the WATERAGRI project. Hence, they should be engaged actively and consulted in the project's decisions. For example, in Poland, the Ministry of Agriculture was identified as the most powerful institution. However, it should be noted that they did not respond to the invitation to participate. Hence, it is important to keep the Ministry informed and attempts should be made to increase their interest in the project through more targeted communication and consultation. Similarly, water organizations and farmers/farm managers were predominantly perceived to be stakeholders with high interest but varying levels of power. Therefore, future engagement should make use of their interest by involving them in project activities either by consulting them on their area of interest or communicating with them on a regular basis to maintain their relationship with the project. A generic strategy for other stakeholder categories is difficult to formulate hence agricultural chambers and other stakeholders like media, NGOs, and researchers should be engaged on a case to case basis depending on their placement on the Interest-Influence matrix.

Lastly, it should be noted that this is a snapshot in time of the perception of the participants in this beginning phase of the project. Perception will change over time and this exercise needs to be repeated throughout the lifetime of the project.

3.5 Exit survey

After the workshop, all participants were surveyed to follow up on the results of the workshop, measure the usefulness and success of the event and determine the scope for improvement. 23 participants completed the exit survey – a response rate of around 26%. This low response rate is to be expected when surveys are not filled in in-person during the workshop. The survey's finding on performance, satisfaction level, content clarity and overall feedback and recommendations are summarized below.

Participants

The workshop counted with a diverse set of participants including consortium members (43.5%), researchers (8.6%), farmer association (13%), local water management organizations (8.7%) and many more. There was inclusive representation of all the relevant stakeholders from different sectors although the gender proportion as illustrated in Figure 15 needs to be considered for future considerations as the female participants were only 21% as compared to 38% of the registered participants.
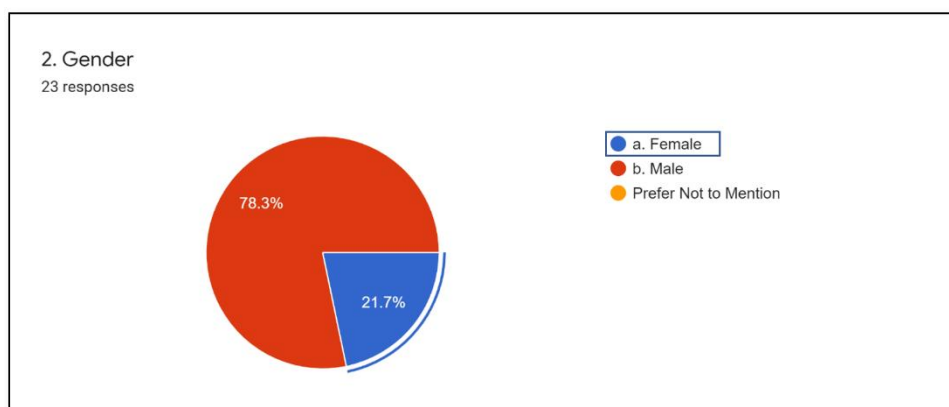
Figure 15: Proportion of male to female respondents

Workshop Satisfaction

The majority of the respondents expressed their high degree of satisfaction on management, objective and time allocation of the workshop as presented in Figure 16. However, participants were not as strongly satisfied with respect to having their concerns addressed. The open feedback questions at the end of the survey give an indication that participants expected more evidence-based answers to water and nutrient management in agriculture.
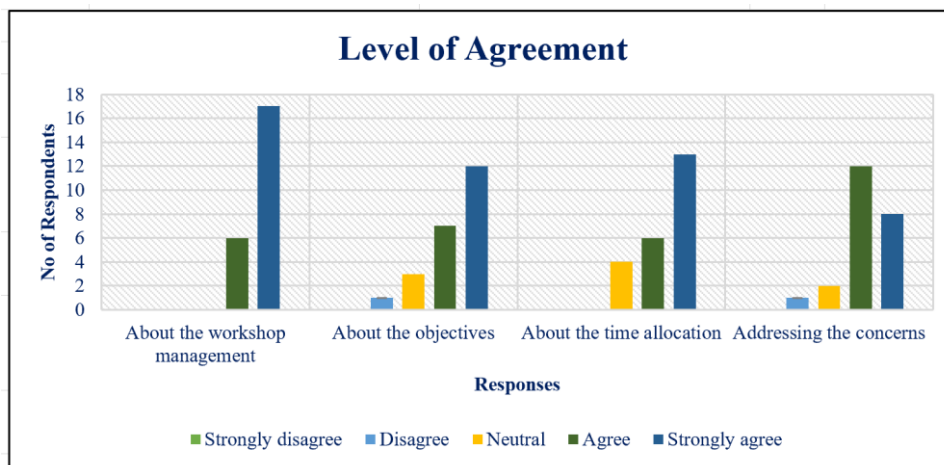
Figure 16: Participant's level of agreement on different aspect of the workshop

Workshop outcome:

The outcome of the workshop was evaluated by considering the perception on the content of the workshop. This was assessed by the change in level of awareness, mode of engagement, interest in solutions and identifying potential additional stakeholders. Workshop attendees were asked to provide their awareness level about the project; the results are presented in Figure 17. Although, the result showed that all respondents were now aware of the project (from 26 % in the entry survey to 0% unaware) it has to be noted that the respondents of the entry and exit survey do not necessary match and overlap. The results also revealed that the number of neutral participants had drastically decreased to 4.3% from 23.1% in the entry survey. Overall, these results provide a strong indication that objective (1) of the workshop - to provide (internal and) external stakeholders with a general understanding of the WATERAGRI project - was accomplished.
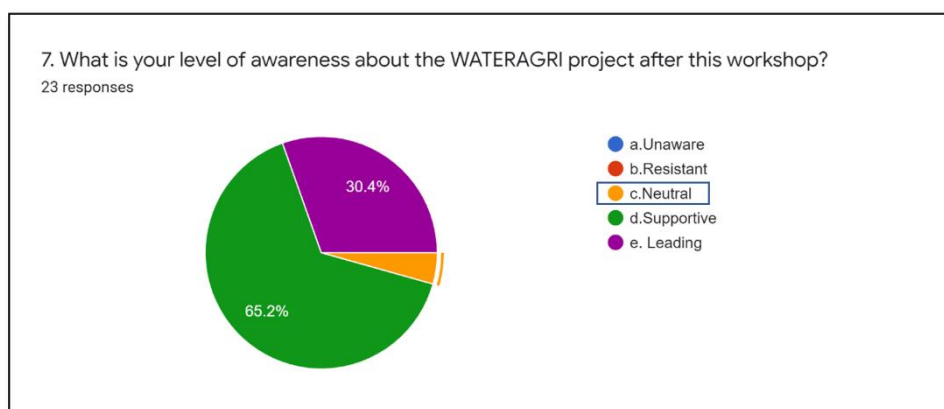
Figure 17: Participant's level of awareness after the workshop

One important insight of the workshop was to get connected with the stakeholders, for this the respondents were requested to provide their preferred mode of communication. Figure 18 indicates that all participants were interested in further communication and engagement. Most participants are interested in subscribing to the project newsletter, whereas few want to be linked through social media networking. Some of the participants want to be linked via both modes of communication. These are important elements to keep in mind for WATERAGRI WP9 'Communication'.
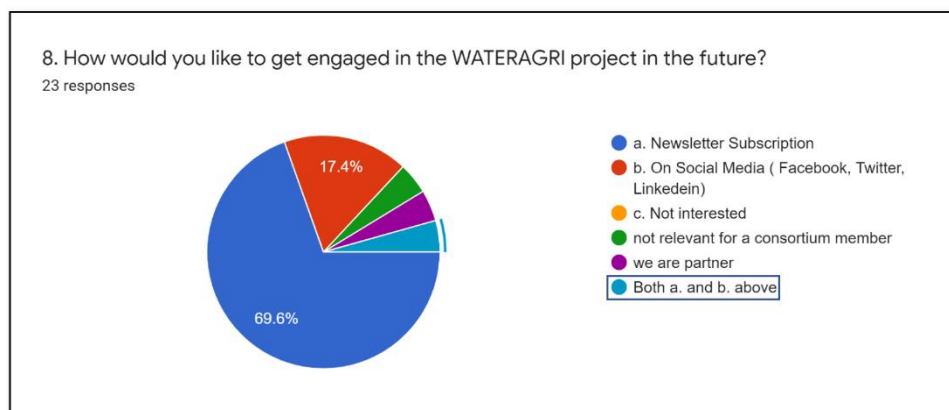
Figure 18: Preferred mode of engagement with the WATERAGRI project

Workshop participants were also asked to choose the solution that they considered to be the most interesting among the conferred solutions of the plenary session. The responses received were recorded as follows:

1. Farm constructed wetlands by ULUND (30.4%)
2. Irrigation management and agrometeorological monitoring solutions by AGRICOLUS (17.4%)
3. Water retainer product by BZN (8.7%)
4. Combination of Farm constructed wetland by ULUND and Remote sensing pipeline by VULTUS (8.7%)
5. The interest on the rest of the solutions was 1%.

These results confirm the discussions of BOR I. An open ended question was also asked to elicit interest in solutions and their combinations. In addition to the solutions mentioned above, participants also expressed interest in solutions such as precision irrigation system, tracer methods, dewaterability estimation test apparatus, a combination of farm constructed wetlands, water retainer product and biochar, among many others. Detailed responses to this question can be found in Appendix F.

Stakeholders were also asked if they agreed to be contacted by the solution provider of their most liked solution. The majority of respondents (almost 65%) agreed to provide their contact detail but unfortunately, they missed to provide their contact information below. Due to the anonymous nature of the survey it is not possible to link the response to a contact making this question obsolete. Hence, for future workshops this information needs to be collected through different means.

Attendees were further asked to provide suggestions about additional participants who were missing in the workshop but may be of relevance to the project. The list obtained from the respondents is as follows:

- WP Hungary
- Syndicat des Eaux Puisaye Forterre
- Landwirtschaftskammer

- HBLFA Raumberg-Gumpenstein (Project "Steirerteich"), Government of Styria (Department 14)
- Water management and agricultural companies
- More farmers
- Stakeholders of our case study
- Regional and Local authorities
- HUT - Länsstyrelsen i Skåne
- Irrigation companies (e.g., Bauer), advisory company HIR Skåne (Marcus Willert)
- Policy makers
- EU representatives to underline the importance of the problems we are trying to solve.
- The Institute of Soil Science and Plant Cultivation (IUNG) in Pulawy
- Grundwasserschutz
- KÖRÖS-AQUA Ltd.; Aquarex '96 Ltd.; Plantor Ltd.
- Reinke irrigation
- Ag policy makers, innovation network (in Sweden Agtech 2030)
- Farming consultant, banking sector

These responses correlate with those from the discussion in BOS II, but are much less detailed. This question may have felt redundant to participants given the extensive discussions carried out on this in BOS II.

Overall evaluation of the workshop:

Participants were asked to provide their likes, feedback and suggestions on how future workshops could be improved. The majority of the respondents (43%) in the entry survey were willing to know about the project and in exit survey they firmly stated that the workshop was very useful and was able to meet their expectation. Furthermore, many agreed that the workshop was better than expected or that it met their expectation. Some attendees felt that there should be engagement of more farmers and also a stronger focus on science and farm practice which could be considered in future workshops.

Selected comments about the expectations are:

Better than expected. Haven't been in contact with this project earlier.

The workshop met my expectations.

I was expecting more farmer engagement.

Partially. My expectations were also aimed to drought and alternatively measures to grow arable crops.

To evaluate the setup and the content of the workshop participants were asked on what they liked the most. The majority of the responses were about the interaction, active participation and organization of the workshop. Furthermore, many agreed that the group work in the breakout session was fruitful, useful and satisfactory.

Selected comments about what the participants liked about the workshop's setup and content and provided below:

Groups by countries

Tools used in the split rooms

Joint work leading to interesting solutions

Positive attitude and effectiveness

Active Participation

Well organization, good video presentations

*The flexibility. In Austria we could adapt it. It worked very well and we got a
good feedback from the stakeholders.*

In order to address the objective of the workshop, participants were asked to provide feedback and suggestion on the overall performance of the workshop and provide space for future improvements. The majority of the respondents firmly stated that they had no further comments and that the workshop was well organized. Few quotes received from survey respondents are shown below:

Good Arrangements

I have no comments, thank you for organizing the meeting

I´m looking forward to further meetings with the group.

We got good ideas to proceed.

I was missing WATERAGRI branding

Brief discussions after presentations would be beneficial.

The early engagement workshop was conducted with the objectives to provide general understanding of the WATERAGRI project and obtain stakeholders' feedback. The responses from the exit survey indicate that both those objectives seem to have been met successfully.

4   Conclusions

4.1   Summary of key messages

The WATERAGRI Workshop 1 was organized and conducted successfully, in spite of the COVID-19 pandemic and the resulting deviations from the original plan of conducting the workshop in-person into a semi-virtual format. The workshop was attended by about 70 participants from 8+ countries. These participants formed a diverse group of stakeholders including local farmers, representatives of municipalities, journalists and publishers, researchers, and representatives from local irrigation and water associations.

During the workshop, participants were provided an overview of the WATERAGRI project and introduced to 8 WATERAGRI solutions. This information was received well by the participants. At the same time, participants were given the opportunity to provide their own inputs and useful information about their issues, perceived solutions and from the WATERAGRI project was gathered this way. It is clear from the BOS I discussion and the exit survey that participants have different expectations from the project ranging from knowledge sharing to development of low-cost solutions that addresses their water management issues. It is also clear that project solutions need to be tailored to stakeholder's local needs. As evident from BOS I discussions, stakeholders face issues which are specific to the case study area and these should be taken into account while developing project solutions.

Participants also helped identify 62 new stakeholders they thought were relevant for the WATERAGRI project. Validation and consolidation with further additional meetings are needed for case study areas with low participants (Germany and Switzerland) to ensure important stakeholders are not overlooked. Future engagement strategies should be tailored to the type of stakeholders based on the Influence-Interest matrix mapped during BOS II of the workshop. The WATERAGRI consortium needs to find a way to engage more closely with farmers and key decision and policy makers in the agricultural sector and ensure that other stakeholders such as media, agricultural chambers and water organizations are informed about the progress of the project in an adequate and timely manner.

4.2   Lessons learnt

The WATERAGRI workshop was planned and implemented in uncertain times due to the COVID-19 pandemic. Looking back at the process, setup and content of the workshop, this section puts forward a few learnings for organizing similar project workshops.

The workshop setup could have been improved by allocating more time for discussion around WATERAGRI solutions in the agenda. Based on the feedback received from participants during the exit survey, they thought that brief discussions after the presentations would have been beneficial. However, participants seemed to enjoy the interaction in breakout groups and appreciated the use of MURAL tool for collaboration. As virtual interactions are becoming more frequent, the use of breakout discussions and virtual collaboration tools can be carried forward to upcoming project events. Participants also suggested shorter (half-day) but more frequent

meetings compared to one day-long meeting. Future WATERAGRI workshops can be planned to be conducted over a couple of days with shorter sessions on each day.

At the process level, one key learning is that organizing virtual or semi-virtual workshops requires immense preparation and planning beforehand. Worst-case scenarios and backups need to be thought of and prepared for well in advance to avoid any hiccups in a virtual setting e.g. it is important to ensure co-hosts are assigned in a Zoom meeting so that dedicated personnel can answer the chat, ensure everyone except the speaker is muted, and admit incoming participants. Backup presenters (for playing videos) need to be assigned to ensure continuity if the presenter goes offline. Coordination poses another big challenge in a virtual environment as it is no longer possible to have quick side-conversations and adapt to changing circumstances during the workshop. The organization of the workshop required coordination among the co-hosts and facilitators of each breakout session to ensure a similar process is followed by all. Extra training sessions and meetings were required before the workshop to discuss the workshop implementation.

Lastly, at the content level, the execution and planning of the workshop could have been improved to provide more details to both the participants and the facilitators regarding the Breakout Session discussions. Participants were not clear about the aim of the breakout sessions before diving into the discussions. More explanation about the breakout groups could have been given in the plenary to set the stage for the breakout sessions. Some facilitators also struggled with explaining the theory behind stakeholder mapping and the Influence-Interest matrix. They were not sure about the point of view from which the actors should be placed on the matrix, i.e. whether they should adopt the project perspective or the perspective of local problems. More clarity and reading material could have been provided on the theory of stakeholder mapping prior to the workshop.

4.3 Future work

WATERAGRI Workshop 1 was successful in understanding the concerns and expectations of stakeholders who attended the workshop and identifying new stakeholders. Future work should focus on engaging these additional stakeholders through local meetings with project partners or upcoming project workshops. The participants expressed their interest in specific WATERAGRI solutions through the exit survey. Solutions providers would have ideally followed-up with the participants who expressed interest in their solutions to initiate collaborations and knowledge sharing. Since this method did not provide the intended results (i.e. contacts) other ways to increase the reach and impact of WATERAGRI research and innovation need to be sought.

Furthermore, project partners such as INOSENS who are leading Work Package 9 on "Communication" should communicate with stakeholders in the future based on the engagement strategy most relevant to them (identified during the workshop based on the influence and interest of a stakeholder). Looking back at the solutions proposed/preferred by stakeholders in BOS I, it is important to realize that some solutions may be 'wishful' and lie outside the scope of the WATERAGRI project. This can be expected when working with multi-disciplinary groups. Future engagement with stakeholders should attempt to align stakeholders' expectations with the scope of the WATERAGRI project.

5 References

MURAL. (n.d.). Retrieved October 19, 2020, from https://www.mural.co/

Nemoto, T., & Beglar, D. (2014). Likert-scale questionnaires. *JALT 2013 Conference Proceedings*, 1–8. https://jalt-publications.org/files/pdf-article/jalt2013_001.pdf

PechaKucha. (n.d.). Retrieved October 18, 2020, from https://www.pechakucha.com/about

Revolution Learning and Development Ltd. (n.d.). *Stakeholder Analysis – The Power/Interest Grid*. Retrieved October 19, 2020, from https://www.revolutionlearning.co.uk/stakeholder-analysis-the-powerinterest-grid/

Smidt, A., Balandin, S., Sigafoos, J., & Reed, V. A. (2009). The Kirkpatrick model: A useful tool for evaluating training outcomes. In *Journal of Intellectual and Developmental Disability*. https://doi.org/10.1080/13668250903093125

WATERAGRI. (n.d.). Retrieved August 24, 2020, from https://wateragri.eu/

Zoom. (n.d.). Retrieved October 19, 2020, from https://zoom.us/

6   Appendices

6.1   Appendix A

6.1.1   Workshop Agenda

When	What	Who
9:00 – 9:15	Registration (coffee, tea)	Case owners
	Welcome to workshop & short introduction at each location	Tamara Avellán Case owners
09:45 -10:00	Presentation of the WATERAGRI project	Miklas Scholz
10:00 – 10:40	5 min pitches to introduce WATERAGRI solutions	Solution Owners
10:40 -11:00	Coffee break	
11:00 – 11:15	Farming community engagement	Adriano Battilani
11:15 – 12:15	Break-out groups I: In-depth discussions with solution owners	CS owners or designated moderator
12:15 – 12:45	Report back from break-out groups I	Pre-assigned rapporteur
12:45 – 13:45	Lunch	
13:45 – 14:30	Break-out groups II: 1) Further completion of stakeholder register for their case study area 2) Classify stakeholders by power/interest with regard to achieving the case study objectives. 3) 3) Come up with ways in which you as a stakeholder would like to be engaged.	Tamara Avellan, Lisa Scholten + PhD(s) + case study owners
14:30 – 14:50	Break-out group report back	Pre-assigned rapporteur
14:50 – 15:00	Wrap-up	Miklas Scholz

6.1.2 Invitation Letter

Dr. rer. nat. Tamara Avellán (Ms)

WATERAGRI Senior Researcher
https://wateragri.eu/

University of Oulu
Water resources and
environmental engineering
https://www.oulu.fi/water/

tamara.avellan@oulu.fi

3rd August 2020

Invitation to the 1st WATERAGRI Consultation Workshop –
Early engagement workshop

Dear NAME,

We herewith cordially invite you to the 1st WATERAGRI Consultation Workshop - Early engagement workshop on **5 October 2020**. This workshop will be conducted as a hybrid meeting where the central meeting will be virtually hosted by Gårdstånga Nygård in Lund, Sweden, whilst allowing for physical meetings at the other nine case study locations.

WATERAGRI aims to re-introduce and enhance **sustainable solutions for water retention** and **nutrient recycling** to enable agricultural production that can sustain growing populations and cope with present and future climate change challenges. WATERAGRI will develop **traditional drainage and irrigation solutions** and **re-introduce nature-based solutions** such as integrated constructed wetlands, bio-inspired drainage systems and sustainable flood retention basins in the agricultural landscape, leading to **better retention of both water and nutrients**. WATERAGRI will test these solutions in ten case studies distributed across three climatic zones in Europe.

The main aim of this early engagement workshop is to (a) provide (internal and) external **stakeholders with a general understanding of the WATERAGRI project**, its goals, methods, and intended knowledge generation modalities and (b) **obtain stakeholders' feedback** on these. The agenda is strucutred in a manner as to allow for information sharing in a virtual plenary and for break-out discussions by case study location.

For further information about how to reach your local host please contact:

- Austria   Martin Regelsberger martin@regelsberger.at
- Finland   Björn Klöve bjorn.klove@oulu.fi //Hannu Marttila hannu.marttila@oulu.fi
- France   Raymond Reau raymond.reau@inrae.fr //Laurette Paravano l.paravano@yonne.chambagri.fr
- Germany   Harrie-Jan Hendricks Franssen h.hendricks-franssen@fz-juelich.de
- Hungary   Attila Nagy   attilanagy@agr.unideb.hu
- Italy   Attilio Toscano attilio.toscano@unibo.it //Adriano Battilani battilani@consorziocer.it
- Poland   Wieslaw Fialkiewicz wieslaw.fialkiewicz@upwr.edu.pl
- Sweden   Gustaf Ramel gustaf.ramel@gardstanga.se
- Switzerland   Philip Brunner philip.brunner@unine.ch //Oliver Schilling oliver.schilling@unine.ch

We are looking forward to e-meet you!

With very kind regards,

Tamara Avellán

Annex: Suggested Workshop Agenda

When	What	Who
9:00 – 9:30	*Registration (coffee, tea)*	Case owners
9:30 – 10:00	Welcome to workshop & short introduction at each location	Tamara Avellán Case studies
10:00 -10:15	Presentation of the WATERAGRI project	Miklas Scholz
10:15 – 10:45	5 min pitches to introduce WATERAGRI solutions	Solution Providers
10:45 -11:00	*Coffee*	--
11:00 – 11:15	Farming community engagement	Adriano Battilani
11:15 – 12:15	Break-out groups I: In-depth discussions with solution providers	Solution providers pertinent to each case
12:15 – 12:45	Report back from break-out groups I	Participant from group (or solution provider or pre-assigned rapporteur)
12:45 – 13:45	*Lunch*	
13:45 – 14:30	Break-out groups II: 1) Further completion of stakeholder register for their case study area 2) Classify stakeholders by power/interest with regard to achieving the case study objectives 3) Come up with ways in which you as a stakeholder would like to be engaged.	Case study owners
14:30 – 14:50	Break-out group report back	Case study owners (or predefined rapporteur)
14:50 – 15:00	Wrap-up and Closing	Miklas Scholz
Afternoon	Field visit (optional)	Organized by each case study individually

6.2 Appendix B

6.2.1 Guidelines on preparing Pecha Kucha presentations

For the upcoming WATERAGRI workshop 1, solution providers are required to prepare a 5-minute presentation. Since the workshop is targeted at external stakeholders from different backgrounds, the presentation must explain the key ideas in layman terms. To ensure this, please follow the Pecha Kucha style for preparing and delivering your presentation.

What is Pecha Kucha?

Pecha Kucha is a method of visual storytelling. This method focuses on the use of images to create meaningful and concise presentations. The rules for creating a Pecha Kucha presentation are simple: 20 slides, 20 seconds per slide, connected seamlessly with a narration [1]. For the purpose of Workshop 1, the presentation will include 15 slides; 20 seconds per slide making it a total of 5 minutes. These presentations will be pre-recorded with a voiceover narration.

Guidelines for creating your Pecha Kucha presentation [1,2,3]

- **Convey a story:** Tell a story through your presentation instead of using dry facts and figures. Decide on the most important thing that you want your audience to remember and once you figure that out your talking points and images will revolve around that.
- **Prepare an outline:** Write an outline to plan the structure of your presentation and the big ideas of each slide.
- **Keep slide text to a minimum:** Minimize the use of text on your slides. The audience will not be able to process more than a few words on each slide, so don't include any more than that. Instead, focus on using relevant images.
- **Use relevant images:** Instead of using lengthy texts on slides, convey your story through images. Use high quality images. Beware to not cram too many images on your slides; less is more. Some websites where you can find free images are:
    - Flickr (After you search for a keyword in Flickr, change the "Any license" field to "All creative commons" to filter free images).
    - Unsplash
    - Pixabay
    - FreeRange
    - Pexels
- **Practice:** Timing is key in a Pecha Kucha presentation since the presenter has no control on the progression of slides; the slides advance every 20 seconds. Practice to ensure that your speech is in perfect sync with the timing of the slides.

For more information on what makes a great Pecha Kucha presentation, watch a meta Pecha Kucha video here, i.e., a Pecha Kucha about a Pecha Kucha. A few good examples of Pecha Kuchas are (press Ctrl + click to open the videos):

- Ecology as a Model for Agriculture
- Finding Fibonacci
- Please believe these days will pass

You can browse for more sample presentations at https://www.pechakucha.com/categories.

Preparing and recording your presentation

1. Use the attached presentation template to prepare your slide content (The template settings already advance slides every 20 seconds)
2. Use the attached word template to prepare your transcript (Please beware to not cram too many words in your transcript; this will a) ensure you don't run through your ideas and keep the audience engaged b) ease out translation of the transcript).
3. Next, record your voiceover narration. Please follow these instructions on recording voiceover narration in PowerPoint: https://www.howtogeek.com/449836/how-to-record-voiceover-narration-in-powerpoint/
4. Save your presentation as a PowerPoint **and** a MPEG-4 video (see image below)
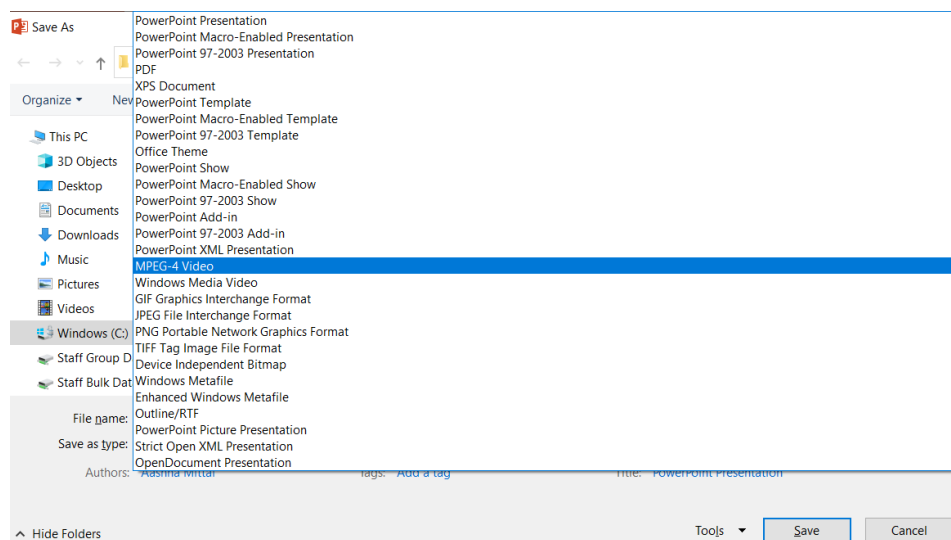
5. Upload the following files to the WATERARGI MS Teams folder: WP1 >> Task 1.1 >> Workshop1 >> Pecha Kucha Presentations >> Name Solution Provider by 15th September 2020:
   a. Word Transcript file
   b. Pecha Kucha presentation (PowerPoint file)
   c. Pecha Kucha presentation (MPEG-4 file)

Support

Consultation hours will be conducted on 1st and 2nd September 2020 by INOSENS and TUDELFT to discuss technical issues in preparing the Pecha Kucha presentation and provide feedback on visuals. Please book a slot here: https://doodle.com/poll/kxmmxmgkx9wi6eau

References

[1]https://wabisabilearning.com/blogs/technology-integration/how-to-make-great-presentations-with-pecha-kucha

[2] https://www.ethos3.com/2018/05/give-great-pecha-kucha-talk/

[3] http://downloads.atlasti.com/docs/conference/guidelines/PechaKucha_Guidelines_2015.pdf

6.2.2 Instructions manual on using MURAL for facilitation of Breakout Sessions

MURAL basics

MURAL is an online platform that allows virtual collaboration. "MURAL enables innovative teams to think and collaborate visually to solve important problems. People benefit from MURAL's speed and ease of use in creating diagrams, which are popular in design thinking and agile methodologies, as well as tools to facilitate more impactful meetings and workshops." (www.MURAL.co)

1. **How to create an account on MURAL?**

To create your MURAL account, follow the steps below:

- Visit https://app.mural.co/signup?email=
- Fill in your details (example form shown in Figure 1)

Figure 1: Sign up image

- Once you have filled the form, you will receive an email to activate your account. Click on the activation link in the email and you are all set to use MURAL.

2. Navigating MURAL

This 15-minute video series provides a brief introduction to the MURAL platform and its features:https://www.youtube.com/watch?v=mBFFpsy-RUo&list=PLDZa1OFNww6MPz6QwASaF8fFEQGeiJadL&index=1

For Workshop 1 facilitation, moderators will need to know only basic functionality to navigate the MURAL workspace. This is captured in Figure 2.
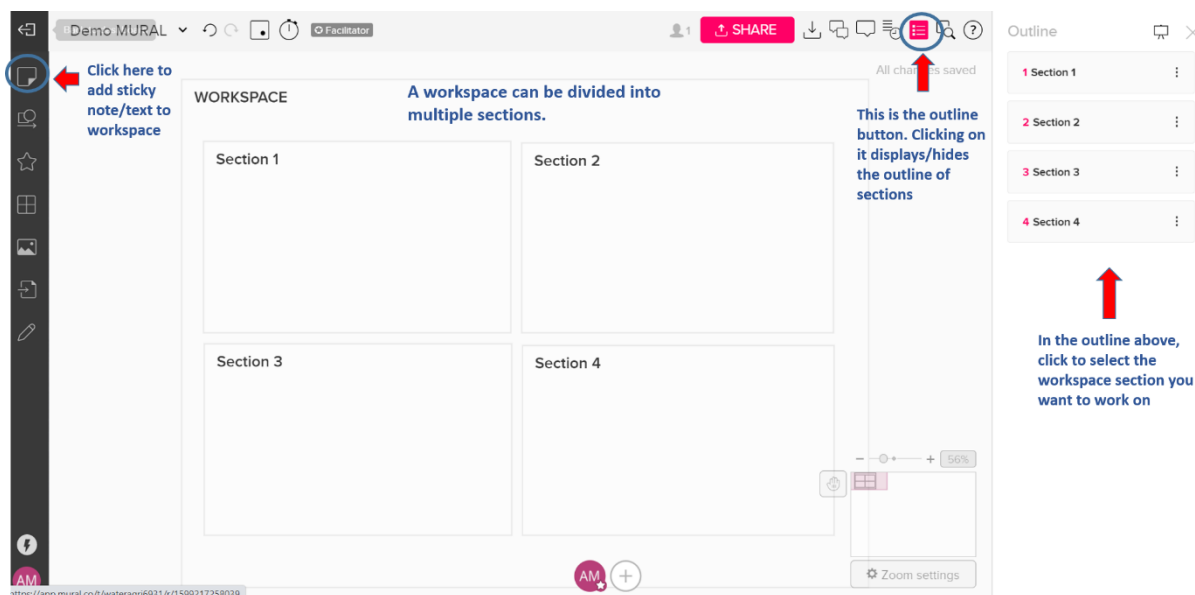
Figure 2: Basic MURAL functions

- To zoom in and out of the workspace use the scroll button of your mouse. You can also click anywhere on the screen and drag it until you reach the workspace area you wish to work on.

- To zoom into a particular section, click on the section name in the outline on the right toolbar. If the outline is not visible, click on the outline button (in the upper toolbar) to make it visible.

- To add a sticky note or text to the workspace, click the icon in the left toolbar as shown in Figure 3. Drag and drop the stick note of your choice to the MURAL workspace
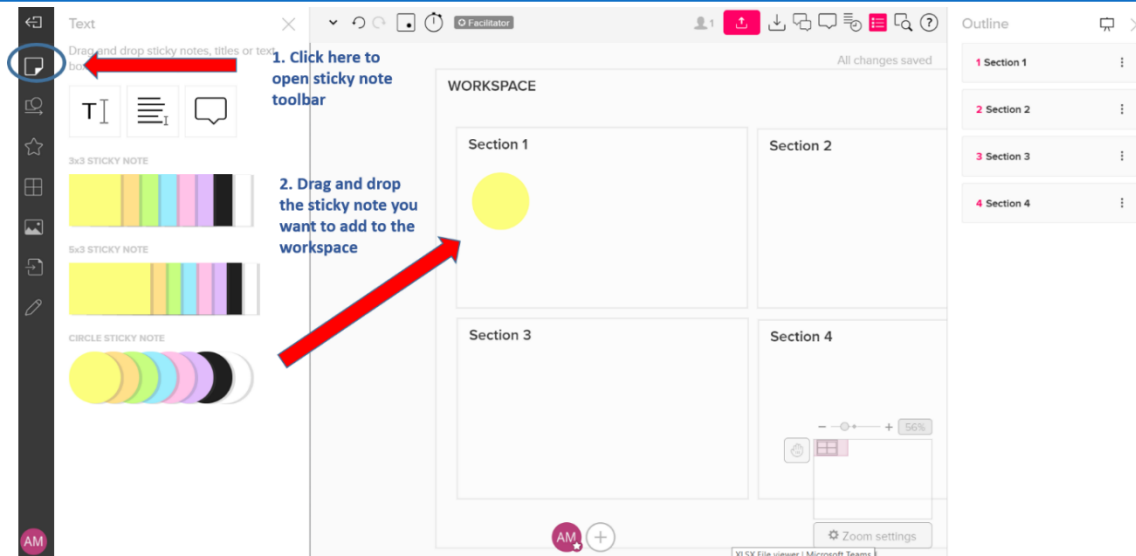
Figure 3: Adding a sticky note in MURAL

3. Using MURAL for Facilitating Breakout Group 1 (BOR1) session

BOR1 aims to conduct in-depth discussions with stakeholders about their local needs.

To start this session, first open the Open the BOR1 mural sheet. The link to the case study sheet is provided in the Teams Excel file. This MURAL sheet consists of 4 sections as marked in Figure 4

1. Section 1: Problems
2. Section 2: Solutions
3. Section 3: Expectations
4. Section 4: Other Issues
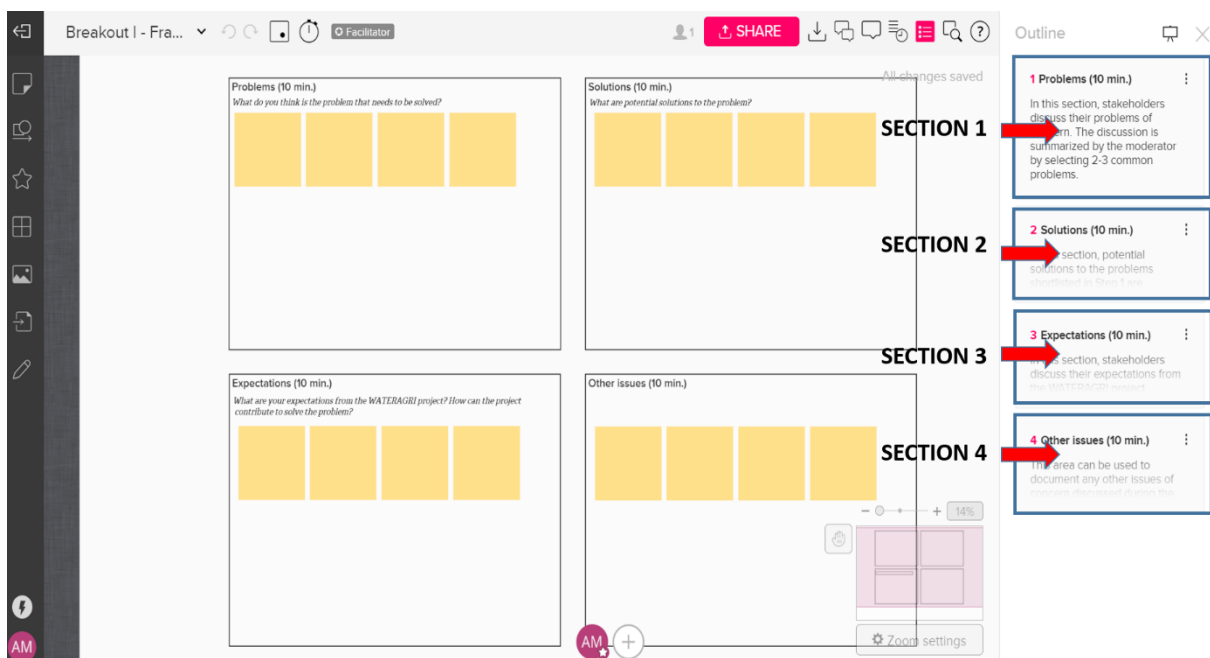
Figure 4: BOR1 workspace

Steps to be followed:

1. Step 1: Problems (10 minutes)

Click on Section 1 - "Problems" in the outline so that the worksheet zooms into it (see Figure 5). Then discuss "What do you think is the problem that needs to be solved?" with the participants for 10 minutes. The discussion should be summarized by the moderator by selecting 2-3 common problems to be discussed further in next steps.
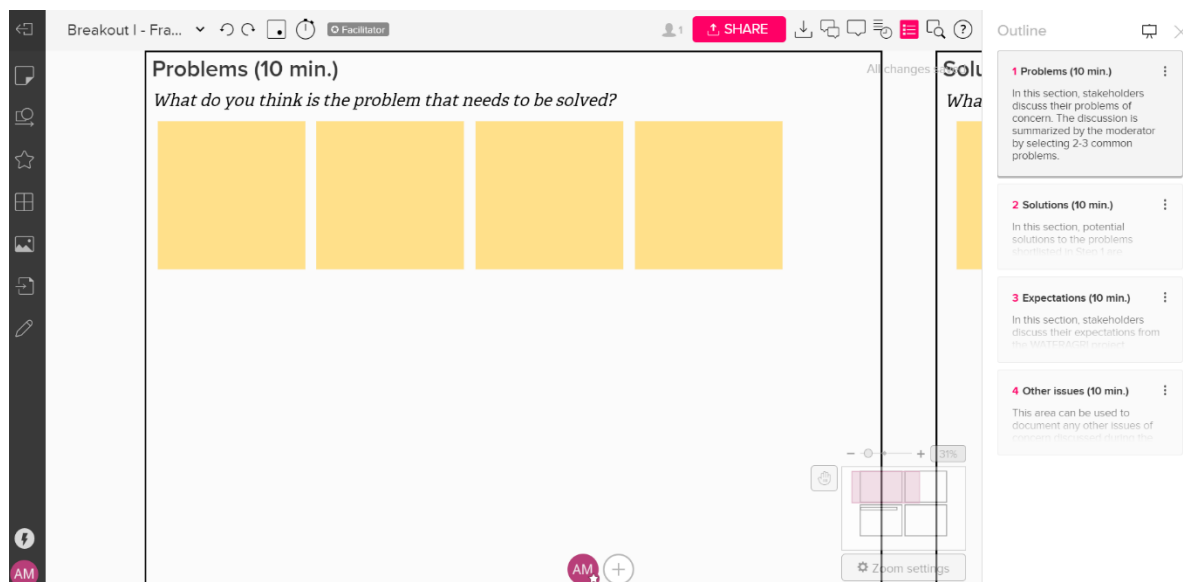
Figure 5: Zoomed in section 1 of BOR1

2. Step 2: Solutions (10 minutes)

Click on Section 2 - "Solutions" in the outline so that the worksheet zooms into it. Then discuss "What are potential solutions to the problem?" with the participants for 10 minutes.

3. Step 3: Expectations (10 minutes)

Click on Section 3 - "Expectations" in the outline so that the worksheet zooms into it. Then discuss "What are your expectations from the WATERAGRI project? How can the project contribute to solve the problem?" with the participants for 10 minutes.

4. Step 4: Other Issues (10 minutes)

Click on Section 4 - "Other Issues" in the outline so that the worksheet zooms into it. This section can be used for an open-ended discussion on issues/questions important to participants.

Guidelines for each step:

1. Rapporteur must share their screen with all participants in the breakout room
2. Moderator should ask the question and give 2 minutes to participants to formulate their answers
3. Participants should then share their responses with the group one by one
4. Rapporteur must add participant's response on a sticky note provided in the sections. If the sticky notes are not enough, just copy paste an existing sticky note and change its text or add a new sticky note.
5. Moderator may ask follow-up questions

At the end of the session, the rapporteur must report to the plenary summarizing the key problems, solutions, and expectations using the MURAL page

4. Using MURAL for Facilitating Breakout Group 2 (BOR2) session

BOR2 aims to:

1. Further complete stakeholder list for each case study
2. Classify stakeholders by influence and interest with regard to achieving case study objectives
3. Come up with ways in which you as a stakeholder would like to be engaged

To start this session, first open the Open the BOR2 mural sheet. The link to the case study sheet is provided in the Teams Excel file. This MURAL sheet consists of 4 sections as marked in Figure 6.

1. Section 1: Identifying stakeholders
2. Section 2: Classifying stakeholders
3. Section 3: Mapping stakeholders
4. Section 4: Parking lot
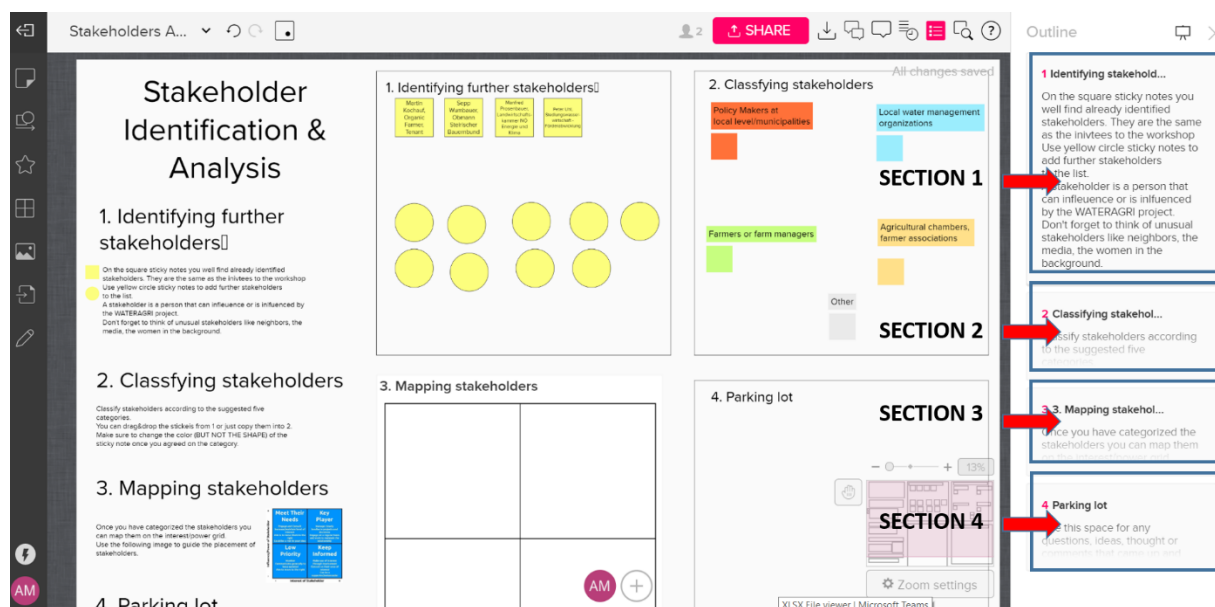
Figure 6: BOR2 workspace

Steps to be followed:

1. Identifying stakeholders (10 minutes)
    Click on Section 1 - "Identifying stakeholders" in the outline so that the worksheet zooms into it. On the square sticky notes you will find stakeholders already identified (they are the same as invitees of the workshop). Discuss new stakeholders that can be added within the group and add their names to yellow **circular** sticky notes.

2. Classifying stakeholders (10 minutes)
    - Classify all stakeholders in Step 1 into the 5 suggested categories. To do this drag and drop sticky notes from Section 1 to categories in Section 2.

- o For <u>new stakeholders identified</u>, ask stakeholders who suggested their names to categorize them.
- Change the colour of sticky note from yellow to category colour. DO NOT change the shape of the sticky note.
- Save a picture of this section using Print Screen before moving ahead.

3. Mapping stakeholders (20 minutes)
- Once the stakeholders are categorized, drag and drop them to the Power Interest matrix in Section 3. Use the blue "Influence Interest" image as a guide to place stakeholders.
- For <u>new stakeholders identified</u>, ask stakeholders who suggested their names to categorize them and place them in the Power-Interest matrix.

Guidelines for each step:

- Rapporteur must share their screen with all participants in the breakout room
- Moderator should introduce the task and give 2 minutes to stakeholders to prepare their responses
- Participants should then share their responses with the group one by one
- While doing steps 1-3, use Section 4: Parking lot as the space for any questions, ideas, thoughts or comments that come up but could not be answered or discussed full.

At the end of the session, the rapporteur must report to the plenary summarizing the new stakeholders identified, and position of stakeholders in the influence-interest matrix.

6.3 Appendix C

6.3.1 List of invitees

No.	Name of stakeholder	Organization
1	Ádám Kövesdi	MAGTÁR Ltd.
2	Adrian Tschachtli	-
3	Alessandro Ghetti	ANBI ER
4	Attilio Toscano	Università di Bologna
5	Benoit Leprun	Leader of the farmers into another territory
6	Bruno Landolf	-
7	Carl-Adam von Arnold	Jordberga
8	Christoffer Bonthron	Jordberga
9	Csaba Harangi	Hungarian Water Treatment Cluster
10	Daniel Weber	-
11	Dr. Csaba Bozán	National Agricultural Research and Innovation Centre, Research Institute of Irrigation and Water Management
12	Dr. Mária Oncsik	Hungarian Irrigation Association
13	Dr. Tóth Csaba	T-Markt Ltd.
14	Emilio Caporossi	Hera
15	Emma Hjelm	Jordbruksverket
16	Fernanda Moroni	Autorità di bacino distrettuale del fiume Po
17	Ferrané Claudine	INRAE
18	Francesco Tonelli	Consorzio di Bonifica Burana
19	Iwona Dyba	farmer.pl
20	Jacek Jemioła	Dolnośląski Urząd Wojewódzki Wydział Nieruchomości, Rolnictwa i Środowiska
21	Jakob Etter	-
22	Jonas Johansson	Eslövs kommun
23	Józef Puciłowski	Gospodarstwo Rolne Lubnów Józef Puciłowski
24	Kaspar Reinhard	-
25	Katarzyna Ambryszewska	Centrum Doradztwa Rolniczego w Brwinowie
26	Lalu Robin	Agricultural Chamber of Yonne
27	Lennart Wikström	KSLA - and various Agriculture magazines
28	Loris Canovi	IREN

29	Magdalena Salińska	Agencja Restrukturyzacji i Modernizacji Rolnictwa, Oddział dolnośląski
30	Małgorzata Felińska	Przedsiębiorca rolny
31	Małgorzata Verset	Krajowa Rada Izb Rolniczych - Biuro w Brukseli
32	Manfred Prosenbauer	Landwirtschaftskammer NÖ Energie und Klima (Chamber of Agriculture Upper Austria energy and climate)
33	Marco Deserti	Regione Emilia Romagna
34	Marcus Willert	HIR - Hushållningssällskapet
35	Marek Baryłko	Dolnośląski Związek Dzierżawców i Wlaścicieli Nieruchomości Rolnych we Wrocławiu
36	Marek Tarnacki	Dolnośląski Ośrodek Doradztwa Rolniczego we Wrocławiu
37	Marianne Ramel	DLA Piper
38	Marius Schmidt	Forschungszentru Julich GmbH
39	Mariusz Adynkiewicz - Piragas	Environemtal Rersearch Department Wrocław
40	Mariusz Olejnik	Federacja Związków Pracodawców-Dzierżawców i Właścicieli Rolnych
41	Mariusz Przybylski	Regionalny Zarząd Gospodarki Wodnej we Wrocławiu
42	Markus Ith	-
43	Martin Freund	-
44	Martin Kallsäby	GN - Gårdstånga Nygård
45	Martin Kochauf	Organic Farmer, Tenant
46	Massimiliano Costa	Comune di Ravenna
47	Michele Solmi	Consorzio di Bonifica Renana
48	Paravano Laurette	Agricultural Chamber of Yonne
49	Patrizia Vitali	Arpae
50	Peter Sylwan	KSLA - Royal Association of Agriculture and Forestry
51	Peter Thomet	-
52	Peter Uhl	Siedlungswasserwirtschaft - Förderabwicklung
53	Petra Schocker-Fackel	-
54	Pierre-Alain Sydler	-
55	Przemysław Daca	Krajowy Zarząd Gospodarki Wodnej w Warszawie
56	Przemysław Ligenza	Instytut Meteorologii i Gospodarki Wodnej Państwowy Instytut Badawczy
57	Reinhold Fichtner	Landwirtschaftskammer Nordrhein-Westfalen
58	Renoux Guillaume	Leader of the farmers into the territory

59	Rolf Weingartner	-
60	Ryszard Zarudzki	Kujawsko-Pomorski Osrodek Doradztwa Rolniczego w Minikowie
61	Sarah Magrini	Coldiretti
62	Sepp Wumbauer	Obmann Steirischer Bauernbund (Chairman of the Styrian Farmers' Association)
63	Sven-Erik Svensson	SLU - Alnarp (Agriculture University)
64	Sven-Olof Bernhoff	Skånefrö
65	Tette Alström	Ekologigruppen
66	To whom it may concern	Ministerstwo Rolnictwa i Rozwoju Wsi
67	Tomasz Kopera	Lodzki Osrodek Doradztwa z siebdziba w Bratosewicach
68	Ulrika Dyrlund Martinsson	HIR - Hushållningssällskapet
69	Waldemar Kulaszka	Wojewódzki Inspektorat Ochrony Środowiska we Wrocławiu
70	Wieslaw Orzedowski	Lubelski Osrodek Doradtzwa Rolniczego w Konskowoli
71	Wiktor Szmulewicz	Krajowa Rada Izb Rolniczych

6.3.2 Registered Zoom participants

S.N.	Name of Participants	Organization	S.N.	Name of Participants	Organization
1	Aashna Mittal	TU Delft	46	Judit Palatinus	
2	Adam Kovesdi	MAGTÁR Ltd	47	Justyna Chodorowska-Konieczna	
3	Adriano Battilani	Irrigants d'Europe	48	kajari.balazs	
4	Akos Koos		49	Karolina Kucharska	
5	Alba Canet Marti	BOKU	50	Katalin Kalai	
6	Alexey Khakalo		51	Katarzyna Ambryszewska	CDR Brwinów
7	Anna Ulicka		52	Katarzyna Nowak	
8	Attila Nagy	UNIBO	53	Katarzyna Tupta-Wdowikowska	
9	Attilio Toscano	Università di Bologna	54	Kornel Mateffy	
10	BBErika	UNIDEB	55	Laurette Paravano	
11	Benoit Pierre		56	Lennart Wikström	KSLA - and various Agriculture magazines

12	Bishal Dahal	University of Oulu	57	Lisa Scholten	TU Delft
13	Bogdan Hanc		58	Magdalena Maria	
14	Bogusław Kiedrowski		59	Magnus Persson	
15	Bogusława Jesionek		60	Małgorzata Felińska	Przedsiębiorca rolny
16	Bożena Reniuszek		61	Małgorzata Szychowska	
17	Carla Zampighi		62	Marcus Willert	HIR - Hushållningssällskapet
18	Cecile Perrault		63	Maria Birone Oncsik	
19	Cédric CHEKEM		64	Marius Schmidt	
20	Csaba Bozán		65	Martin Regelsberger	
21	Csaba Haranghy		66	Martyna Próchniak	
22	Csaba Toth		67	Michele Solmi	Consorzio di Bonifica Renana
23	Daniel Weber		68	Miklas Scholz	
24	Diego Guidotti	Agricolus	69	Milana Sekulic	
25	Dijana Stefanovic		70	Mona Arnold	
26	Elena Fanti		71	Nora Hatvani	
27	Erik Nilsson		72	Oliver Schilling	
28	Erika Bódi		73	Peter Sylwan	
29	Fernanda Moroni		74	QIANG WANG	
30	Francesco Avolio		75	Raymond Reau	
31	Francesco Tonelli	Consorzio di Bonifica Burana	76	Renata Sandor	
32	Francesco Tornatore		77	Roberta Menezes	
33	Giampaolo Sarno		78	Sebastian Lammerich	
34	Gioele Chiari		79	Sebastian Puculek	
35	Giuseppe Mancuso		80	Stevo Lavrnić	
36	Grzegorz Kulczycki		81	Suhad Almuktar	
37	Gustaf Ramel	Gårdstånga Nygård	82	Tamara Tokarczyk	

38	Harrie-Jan Hendricks-Franssen	Forschungszentrum Jülich GmbH	83	Tamás Szolnoky	AGROGEO
39	Ines Kantauer	Alchemia Nova	84	Tette Alström	Ekologigruppen
40	János Tamás	UNIDEB	85	Vladimir Mrkajic	INOSENS
41	János Tamás		86	Wieslaw Fialkiewicz	
42	Jerzy Koronczok		87	Wiwiina Szalińska	
43	Jolanta Dąbrowska		88	Yu (Wayne) Wang	
44	Jonas Johansson	Eslövs kommun	89	Zoran Kapelan	TU Delft
45	Jonas Nordström				

6.4 Appendix D

6.4.1 Entry Survey

1. Name of Stakeholder:

2. Organization (Name and Address):

3. What is your current level of awareness about the WATERAGRI project?

     a. Unaware

     b. Resistant

     c. Neutral

     d. Supportive

     e. Leading

4. What is your main interest in the project?

     a. Policy impact

     b. Supply and business

     c. Implementation of solutions

     d. Research

     e. Others

5. What is your experience in sustainability?

     a. Have heard about it

     b. Not aware.

     c. Doesn't matter in agriculture.

     d. Matter of concern

     e. Extremely important

6. What is your perspective on climate change impact on agriculture?

     a. No worry

     b. Aware

     c. Sensitive

     d. Cope and continue

     e. Doesn't believe

7. What are your expectations for the workshop?

     a. Excited to know about the project

     b. Might be helpful

     c. Just to share/listen views

     d. No expectation at all

     e. Others

8. What is the one specific thing that you would like to take away from the workshop?

9. What is your perception about the semi-virtual/virtual setup of the workshop?

     a. New Normal

b. Saves time and resources
c. Might not be effective
d. Would be more effective on physical environment
e. No comments

6.4.2 Exit Survey

1. Type of Stakeholder
2. Gender
   a. Female
   b. Male
   c. Prefer not to mention
3. The workshop was well managed
   a. Consortium member
   b. Policy maker at local/national level
   c. Local water management organization
   d. Farmers or farm managers
   e. Agricultural chambers/farmer association
   f. Others
4. The objectives of the workshop were clear
   1. Strongly disagree……………………………………………………. 5. strongly agree
5. The allocated time was sufficient to express my views
   1. Strongly disagree……………………………………………………. 5. strongly agree
6. The workshop addressed my concerns
   1. Strongly disagree……………………………………………………. 5. strongly agree
7. What is your level of awareness about the WATERAGRI project after this workshop?
   a. Unaware
   b. Resistant
   c. Neutral
   d. Supportive
   e. Leading
8. How would you like to get engaged in the WATERAGRI project in the future?
   a. Newsletter Subscription
   b. On Social Media (Facebook, Twitter, LinkedIn)
   c. Not interested
   d. d. Others
9. Among the provided solutions which one(s) are you most interested in?
   a. Farm constructed wetlands for water retention
   b. Remote sensing pipeline
   c. Irrigation management and agrometeorological monitoring solutions
   d. Precision irrigation system
   e. Enhanced water retainer product and concept
   f. Bio-char for water retention
   g. Tracer methods
   h. Dewaterability estimation test apparatus
   i. Combination of above ("like a and b") or None (Please specify in Others)
   j. Others
10. If you are interested in any of the solutions you can provide us with your contact information so that the respective solution providers can contact you.

    a. Yes, I agree to provide my contact information (Please provide contact detail on others)

    b. No, I do not agree.

    c. Others

11. Which further stakeholders/actors do you think should be involved in the WATERAGRI project?

12. Was the workshop different from your expectations? If so, how?

13. What did you like most about this workshop?

14. Do you have any further feedback or suggestion?

6.5 Appendix E

6.5.1 BOS I Results

1. **Austria**

Problems (10 min.)
What do you think is the problem that needs to be solved?

uneven availability of water	distribution of water	arbitrary use of fertilizer	lack of cooperation
lack of long-term measures	nutrient balance		

Solutions (10 min.)
What are potential solutions to the problem?

| exchange, sharing knowledge	improving fertilizer management	slow down the water runoff	good soil structure for infiltration
alternative crops	soil improvement, humus formation	implementation of long-term measures with holistic approach	

Expectations (10 min.)
What are your expectations from the WATERAGRI project? How can the project contribute to solve the problem?

References or even tools for farmers	ideas to solve the water distribution problem	sharing knowledge of new technologies	fertilizer optimization

Other issues (10 min.)

unwanted capture of pesticides	consideration of soil conditions	comparison organic and conventional	fear of farmers

2. **France**
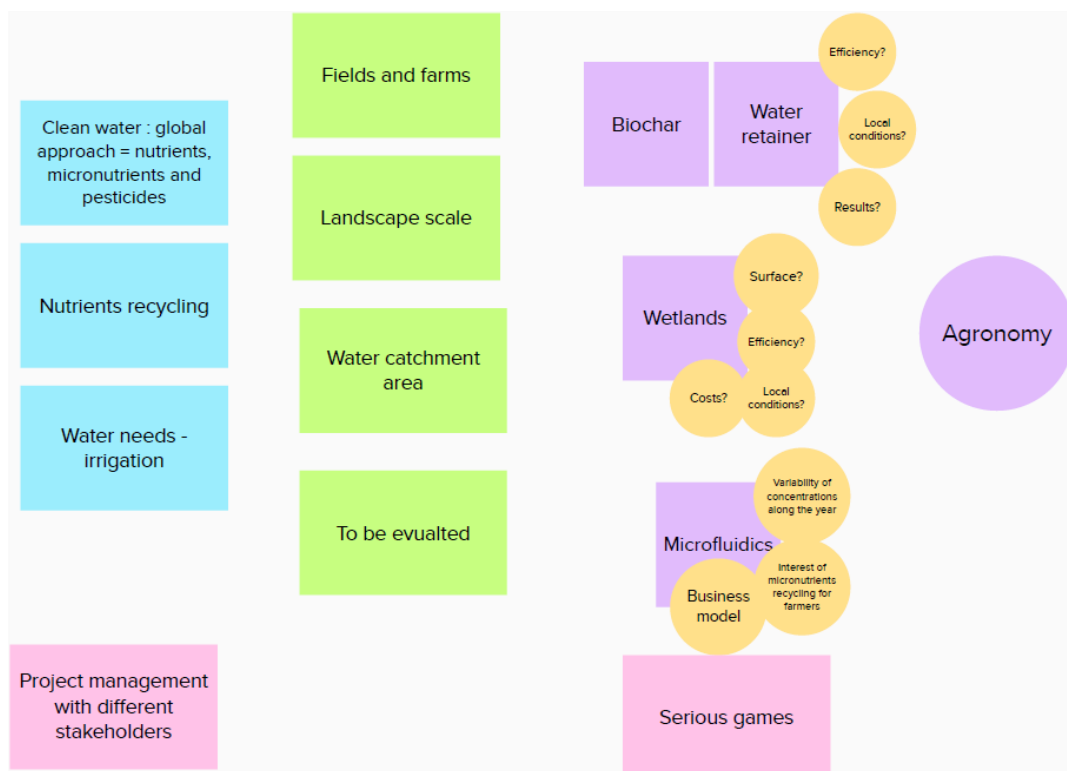
3. Germany

Summary of BOS I:

The first discussion hour focused on identifying the problems at the German site (Selhausen) and what will be done in the context of WATERAGRI:

- **Drought stress and irrigation**. In spite of increasing drought stress, farmers only irrigate rarely at the Selhausen site. This is related to the fact that the soils have high capillary rise and are not much affected by low soil moisture contents, in spite of reduced precipitation in summer. Another reason is that mainly winter wheat, maize and barley are cultivated at the Selhausen site and hardly potatoes and vegetables. However, it became apparent from Mr. Lammerich that in the North-Rhine-Westphalia region farmers are concerned about the increasing severity of droughts, and that production losses are larger than at the Selhausen site. For example, in the region of Euskirchen an irrigation commission is formed to advice on the amounts of water which can be extracted for irrigation purposes by the different farmers and other land owners. The technology we develop (real-time scheduling of irrigation) is therefore of interest for the region and the farmers there. Application at the Selhausen site is unlikely. We will contact therefore also other parties in the context of the WATERAGRI-project outside the Selhausen area, in the region of North-Rhine-Westphalia.
- **Nitrate concentrations in groundwater**. Another environmental problem affecting the Selhausen site and larger parts of the state of North-Rhine-Westphalia is the nitrate concentration in groundwater. Nitrate concentrations are often above the set legal limit, so that the water cannot be used directly for drinking water purposes. The farmers are increasingly confronted with stricter regulation, in order to reduce nitrate concentrations. It is therefore important for them to monitor the impact of fertilization on nitrate concentration, while maintaining crop yield. We will evaluate whether it is possible to monitor the impact of fertilization management on nitrate leaching.
- **Real-time modelling and data assimilation**. We will perform real-time simulations of the integrated terrestrial system for the Selhausen site, including soil, groundwater, and crop growth. It is concluded that farmers are interested in such information, especially concerning soil moisture content and the prediction of the evolution of soil moisture content and its impact on crop growth and crop yield. Also, the nutrient status of soils, including expected nitrate leakage to the groundwater, is of interest. We will intensify contact with the most interested farmers, and organize a meeting, to present our developments.
- **Water retainer**. Farmers will not be in favour of large-scale application of the water retainer product, developed by the project partner (BZN) in Hungary, at their lands. This is also related to the fact that drought stress for the Selhausen site is still quite limited. However, farmers might be willing to allow applications for small areas of their fields, for example of size 10mx10m. We will be in closer contact with farmers to evaluate this possibility.

4. Hungary

Problems (10 min.)
What do you think is the problem that needs to be solved?

water retention on sandy sites	impelmentation of agrotechnics and crop rotation	education of irrigation experts	low ratio of irrigated lands (2%)
extremities in climatic conditions and soil	scales of water management (complexity in spatial planning)	good ideas but poor implementation	water quality problems
soil water hold capacity of the sites, water gathering problems	available water resources		

Solutions (10 min.)
What are potential solutions to the problem?

water retainer product	decision support system, expert advices (farming consultation)	wateragri project partner experiences -> knowledge transfer	national strategy (National Irrigation Strategy)
monitoring, forecasting, remote sensing, data share on national scale	wider map scaling	more demonstration farms/sites with higher visibility, reaching of farmers	monitoring and local water qualitiy imporvement practices
small water retention technoligies: excess water retention (Hungarian problem)	alternative water utilization 1: surface water reservoirs or treated sewage	alternative water utilization 2: recycle of used water in agriculture	

Expectations (10 min.)
What are your expectations from the WATERAGRI project? How can the project contribute to solve the problem?

complex/integrated approaches: local to regional	knowledge transfer (international examples)	data sharing 1 (monitoring results, RS datasets)	data sharing 2 (forecasting systems)
share of the results and outcomes	improve sustainability (water and energy savings by technologies and applications)	air quality and conditions	

Other issues (10 min.)

implementations for irrigation (machinery supplier side)

5. Italy

Problems (10 min.)
What do you think is the problem that needs to be solved?

Wastewater (e.g. sewer overflow, agricultural drainage water, livestock wastewater) enters irrigation canals and hence affects the irrigation water quality (indirect wastewater reuse)	Farmers are not aware that irrigation water might already contain certain nutrient concentration, and therefore they might overuse fertilisers. However, this waters might contain also different contaminats (e.g. CEC).
Water availability is not always enough to satisfy all the user needs	Surface area available is not always big enough to enable applying all the technologies that might improve irrigational water quality

Solutions (10 min.)
What are potential solutions to the problem?

Separate irrigation canals from those that receive wastewater	Overall farm nutrient budget should take into account irrigation water quality	Treated wastewater reuse as an alternative water source and as an additional fertiliser

Expectations (10 min.)
What are your expectations from the WATERAGRI project? How can the project contribute to solve the problem?

Integrate systems that improve water quality and the systems that store irrigation water (e.g. constructed wetlands)	Lower different costs associated with solutions that might be applied and improve their efficiency	Develop new technologies for nutrient recovery that might be used in irrigation
Cooperation with international partners and knowledge and experience sharing	Waste can be considered as a new resource (nutrients, energy etc)	

Other issues (10 min.)

WATERAGRI

6. Poland

Problems (10 min.)
What do you think is the problem that needs to be solved?

Legal regulation of rights to the land	Part of the land has excess water - natural wetland not managed	Need for irrigation in other part of the farm	Existing drainage system does not work
Nutrient recovery is not implemented	Need of Technical advice	The area is often flooded	Excess of nutrients in surface water

Solutions (10 min.)
What are potential solutions to the problem?

Irrigation is under question, lack of water source	Constructed wetland	Education	Buffer stripes along water courses
Retention of water in dykes	Stakeholder's coordination at local level to constuctively solve existing problemes		

Expectations (10 min.)
What are your expectations from the WATERAGRI project? How can the project contribute to solve the problem?

Technologies should not be expensive	Support (advice) to solve problems	Cooperation between local stakeholders

Other issues (10 min.)

European funds screening (transitional period)	Local Partnership for Water - Polish initiative

7. Sweden

Problems (10 min.)
What do you think is the problem that needs to be solved?

Lack of water. Change in rain pattern (April May june are drier). Reuse of water and nutrients.	Change perception as a 'polluter'.	Costs vs benefits. Long-term viability of farm.
Should we irrigate and when should we irrigate?	Which irrigation is most sufficient and cost-effective? Variation of soil types across fields	Measure potential water stress before the plant changes its growth strategy. Precision.

Solutions (10 min.)
What are potential solutions to the problem?

Find extra water supply. Efficient use of water. Changing crop pattern	Soil ammendments to reduce water demand, monitoring plant and soil using remote sensing or in-place.	Remote sensing - evidence to detect pollution and water stress. Added value: economically efficient, high resolution at a field-scale
Serious games; understand tradeoffs and potential impact of solutions		

Expectations (10 min.)
What are your expectations from the WATERAGRI project? How can the project contribute to solve the problem?

Finding right solutions: BZN, EDEN Tech, ALCN	Science and proven experience make things work better	Solutions represent good eploitable assets in business and scientific terms
More effective handling of water, higher yields to cope with water stress situations.		

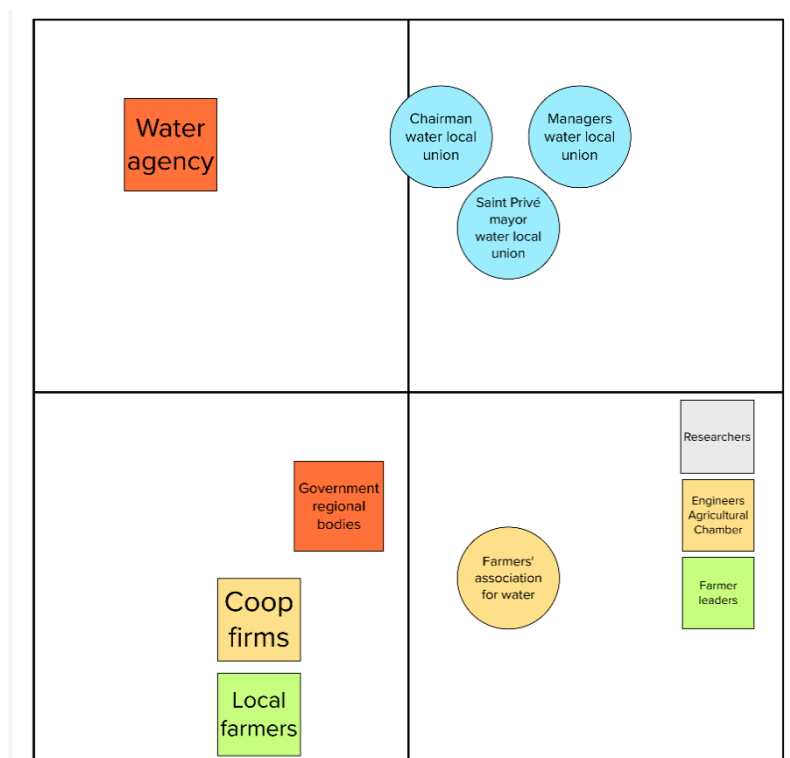**Other issues (10 min.)**

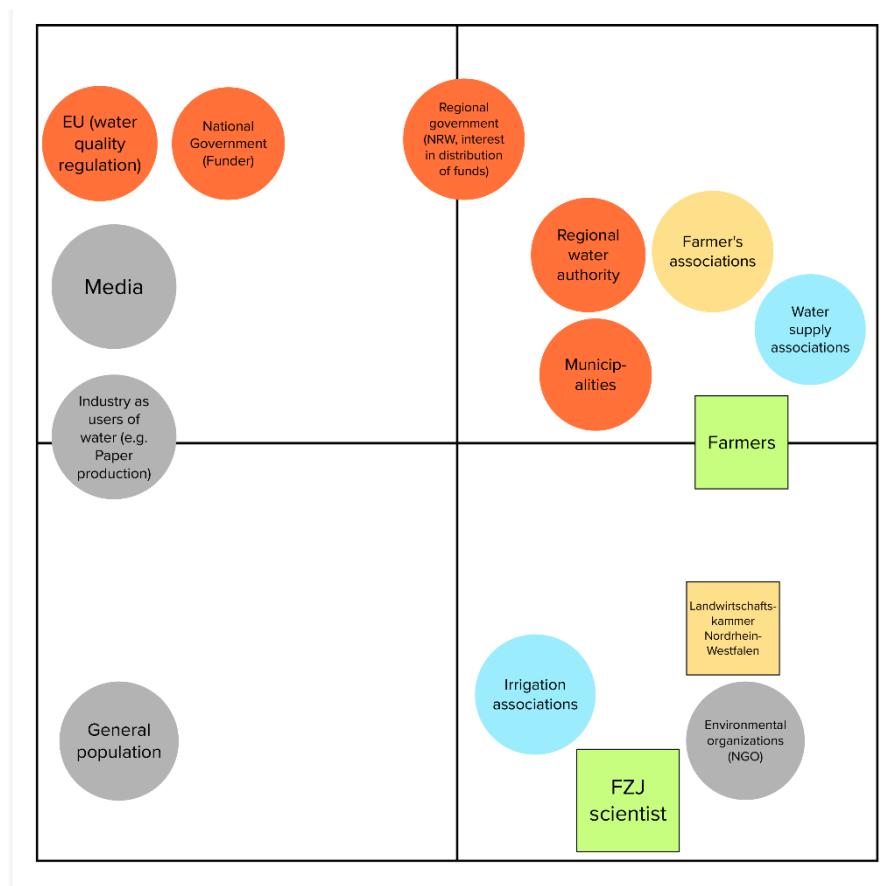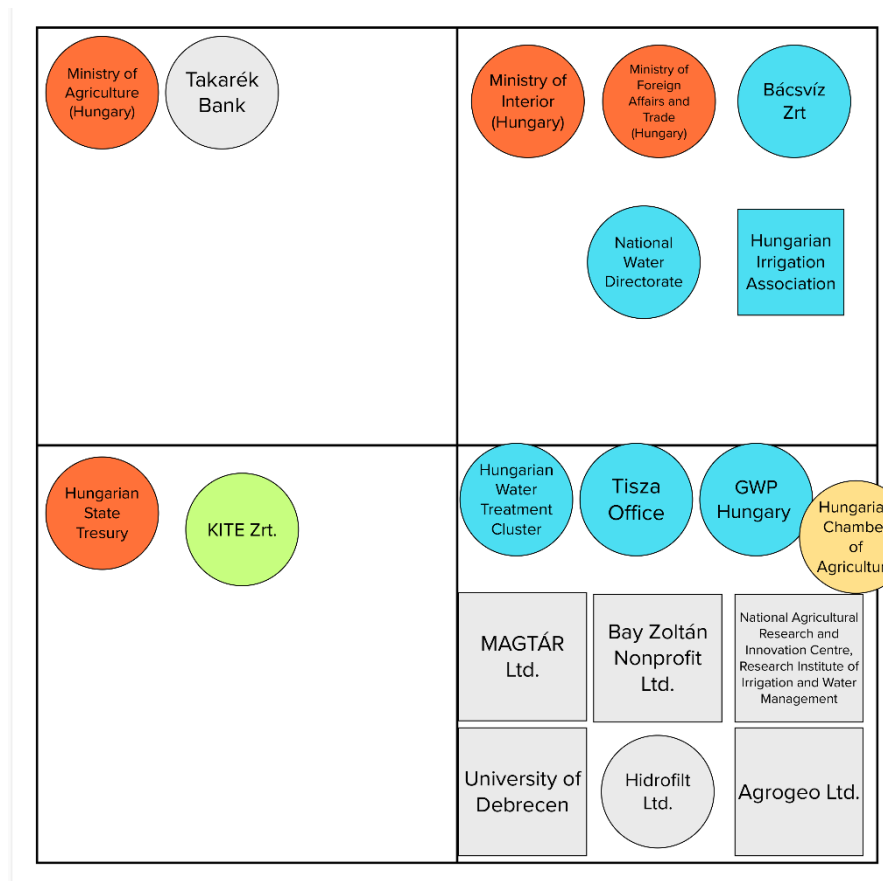|		
Need of fororecasting models for drought. Currently, Swedish Met can only predict 36 hours in advance.	Constraints: Not allowed to put fertilizers before 1st March and on winter soil.	Timing between adding fertilizers and rains (if rain is delayed, potential for fertilizers to remain unabsorbed).

6.5.2 BOS II results
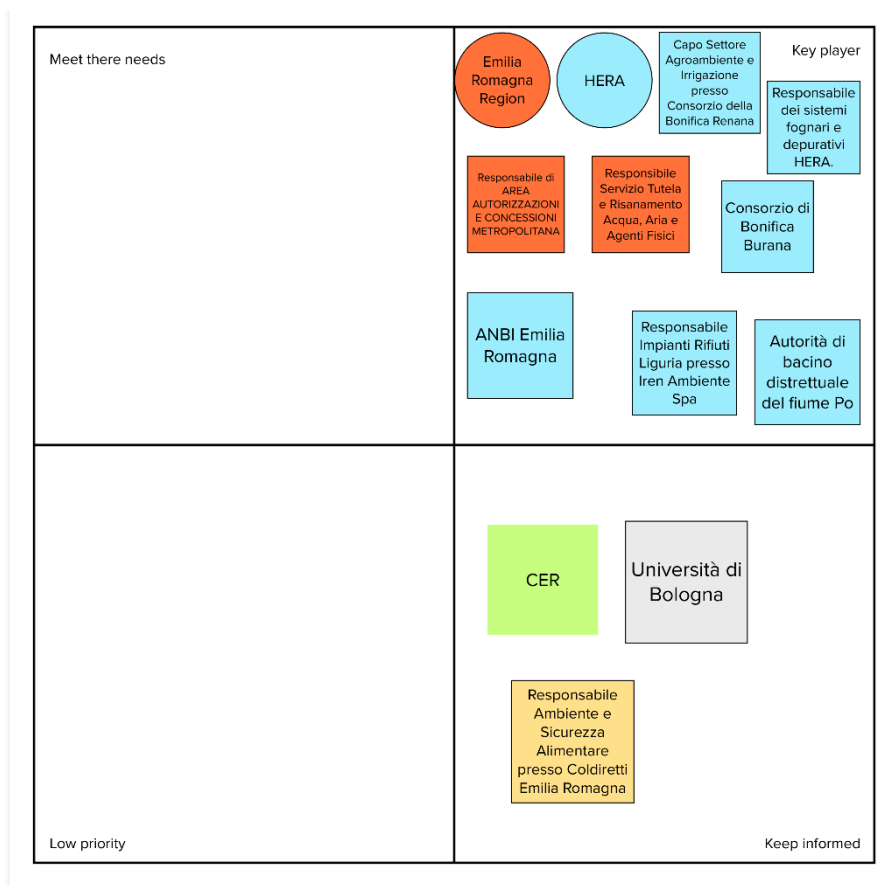
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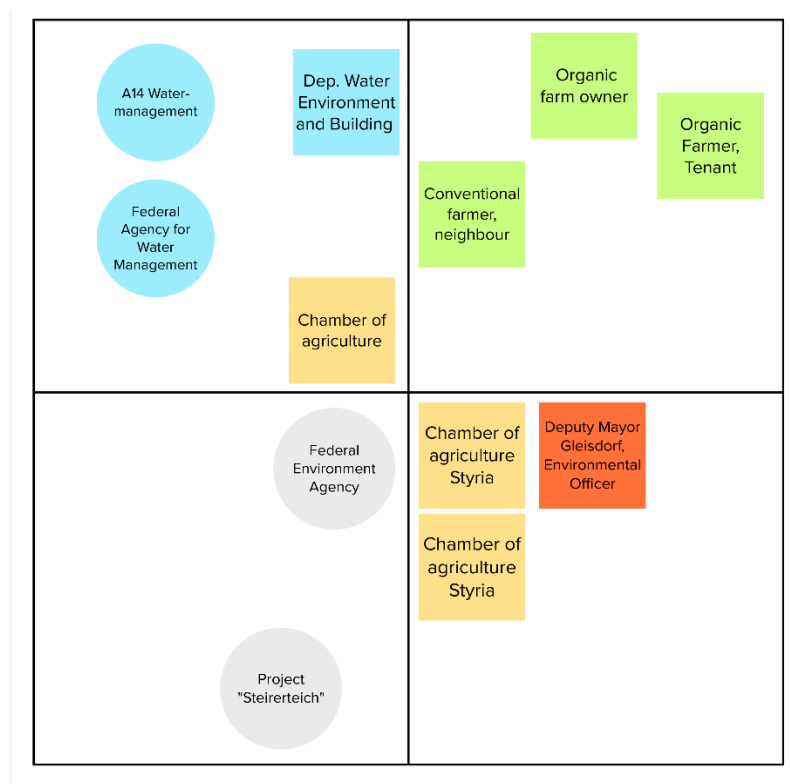
2.   France
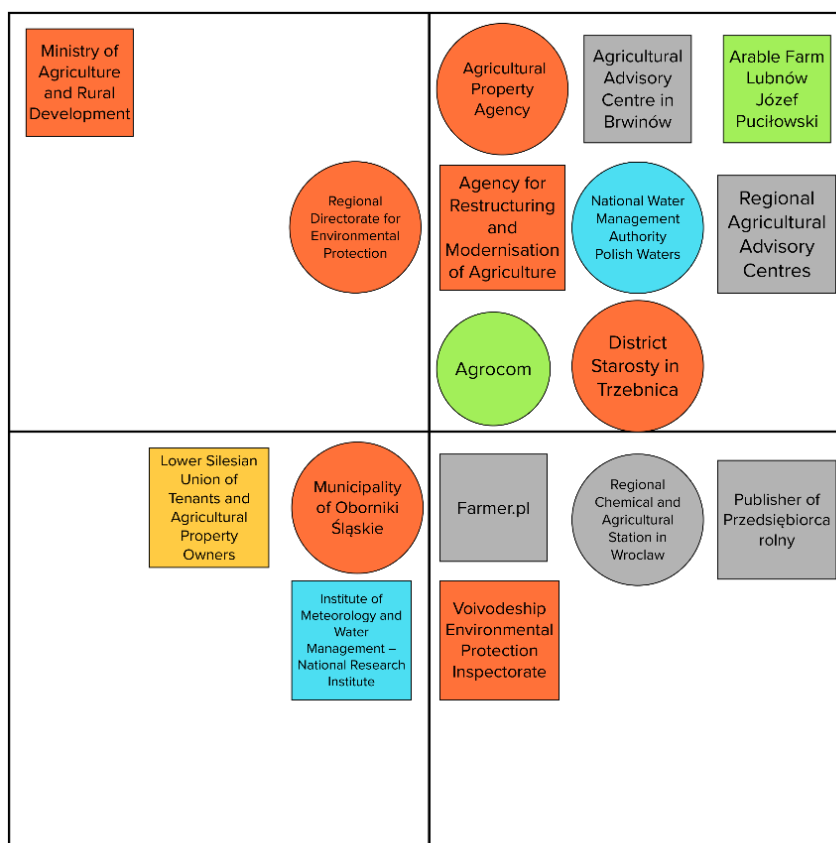
3. Germany

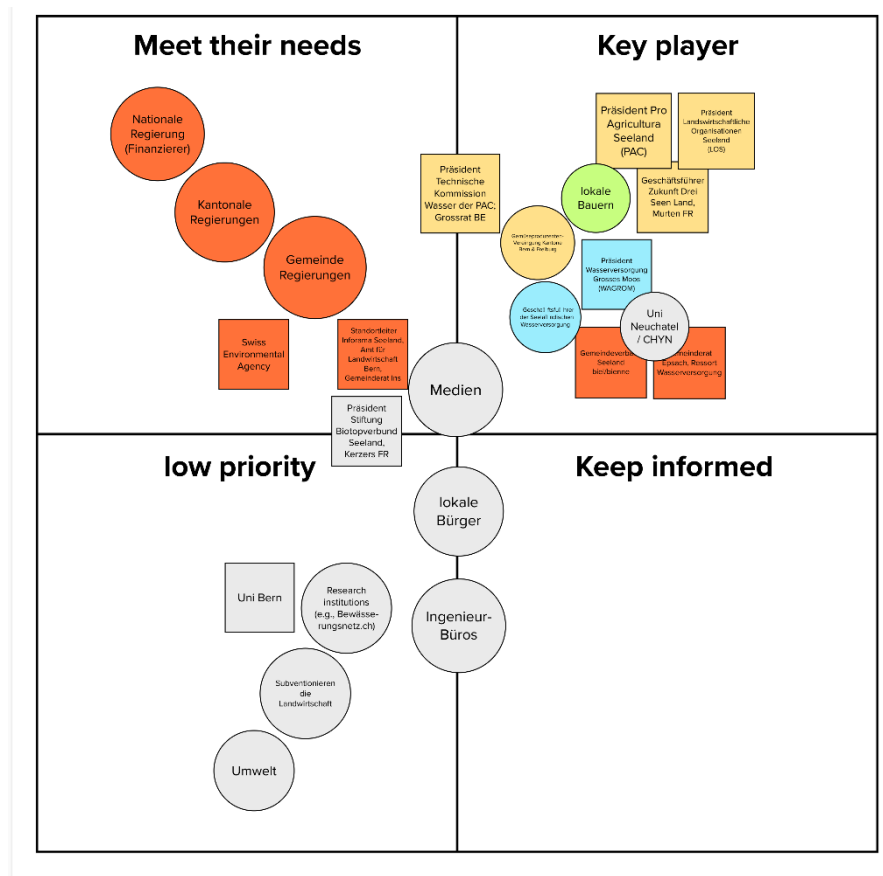

4. Hungary

5. Italy
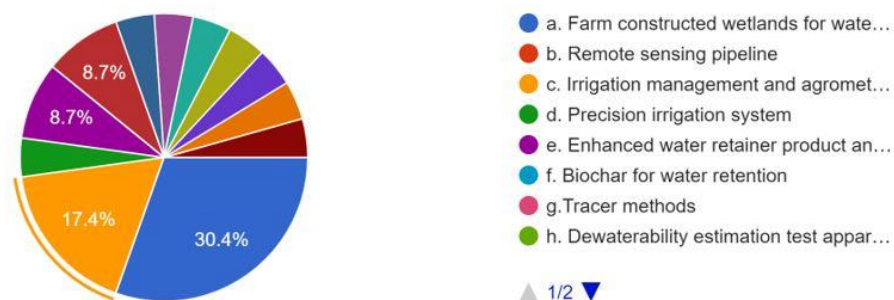

6. Poland

7. Switzerland

6.6 Appendix F

6.6.1 Exit survey results

Solutions preferred by survey respondents

9. Among the provided solutions which one(s) are you most interested in?
23 responses

- a. Farm constructed wetlands for wate…
- b. Remote sensing pipeline
- c. Irrigation management and agromet…
- d. Precision irrigation system
- e. Enhanced water retainer product an…
- f. Biochar for water retention
- g. Tracer methods
- h. Dewaterability estimation test appar…

1/2

8.7% 8.7% 17.4% 30.4%

9. Among the provided solutions which one(s) are you most interested in?
23 responses

- Combination of above ("like a and b"…
- all of them
- I am intrested in remote sensing and r…
- B d e h
- Combination of a, e and f
- a, f and e
- solutions for water run-off
- a, c, d, g

2/2

8.7% 8.7% 17.4% 30.4%