



FOLOU

D8.1 – Mapping of stakeholders and development of stakeholder engagement strategy

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Executive Summary

This report is part of the FOLOU project Task 8.1 '*Mapping of stakeholders and development of stakeholder engagement strategy*' aiming to generate a greater understanding of the Food Losses and Waste (FLW) context through a stakeholder analysis of how farmers, primary producers, organisations, researchers, public institutions, retailers, consumers and networks influence, interact and show potential interest in the topic. As a first step, the report aims to understand who are the key stakeholders at EU, national and local levels and how FOLOU can potentially engage them during the different stages of the project. This first exercise, which is based on the existing networks and connections of the project partners is a preliminary step to establish a first database of interested stakeholders and better define and strengthen the continuous process of stakeholder mapping and engagement strategy over the project lifetime. The report provides the next actions to further explore the interlinkages between the different stakeholders involved, to different extents, in the primary food production value chain with the aim to provide guidance to effectively bridge the research and society interface, assess the uptake of news technologies and monitoring systems and produce inputs that will ultimately result in reducing food losses and waste. It also provides – where demanded by project activities - a mapping of actors at institutional level for the governance aspects related to the project's measures uptake and implementation. Further analysis will follow in the forthcoming years and will be reported in D8.3 'First DEC update' and 'D8.4 Second DEC update' which are due by M24 and M36, respectively.

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Abbreviations

Abbreviation	Meaning
CA	Consortium Agreement
D	Deliverable
DEC	Dissemination, Exploitation and Communication
D&C	Dissemination and Communication
EC	European Commission
EU	European Union
E-FLR	European Food Loss Repository
FLW	Food Loss and Waste
GA	Grant Agreement
GDPR	General Data Protection Rules
HE	Horizon Europe
KPIs	Key Performance Indicators
M	Month
N-FLR	National Food Loss Repository
NUT	Nomenclature of Territorial Units for Statistics
WP	Work Package
T	Task
Y	Year

1. Project scope

Each year, a substantial amount of food loss is generated at the primary production stage. Food losses impact negatively on the society, contributing to food insecurity, depleting the environment, generating avoidable GHG emissions and creating pressure on land and water.

There are several factors hampering the reduction of food losses. At regulatory level, food losses at primary production stage are currently excluded from the EU Commission Decision (EU) 2019/1597, which sets a common method and minimum quality requirements for the uniform measurement of levels of food waste at the national level. Moreover, at technical and scientific level there is a lack of a common measurement methodology to estimate food losses at the primary stage as well as an insufficient knowledge and understanding of the drivers behind it. Likewise, key stakeholders involved in the value chain often lack the needed skills and tools to efficiently prevent food losses and adopt tailored solutions.

In line with the EU Green Deal and the Farm to Fork strategy, FOLOU is willing to contribute to unlock the systemic transition of EU food systems by setting up the necessary mechanisms to:

- measure and estimate food losses at primary production stage, encompassing agriculture, aquaculture, and fisheries;
- monitor and report food losses at Member States and European levels;
- assess the magnitude and impact of Food Loss and identify its key drivers.

Additionally, FOLOU will also work to assure the appropriate knowledge transfer and adoption of the project outcomes by the key targeted stakeholders: primary producers, retailers, consumers, policy makers and researchers.

FOLOU will structure its activities in a comprehensive action plan revolving around four levers of change:

- *Understanding* by working on collecting and curing food losses available data, by understanding the drivers behind food losses and by assessing the impact of these losses;
- *Measuring* by developing new cost-effective tools for the measurement/estimation of food losses and a robust and harmonized quantification methodology for five main commodity groups;
- *Training* by providing tailored trainings to different stakeholders;
- *Adopting* by preparing recommendations and creating a twinning programme between frontrunner and followers' regions.

With a duration of 4 years, FOLOU gathers 16 multidisciplinary partners from 10 countries joining forces around the common challenge of preventing and reducing the amount of food intended for human consumption that is eventually lost.

2. Introduction

2.1 Project background

Food loss and waste (FLW) currently represent a pressing challenge in the design of sustainable food systems. FLW negatively impact food security and nutrition and significantly contribute to greenhouse gas (GHG) emissions, environmental pollution, degradation of natural ecosystems and biodiversity loss, and represents a waste of resources used in food production.

Tackling food loss and waste is a defined target by the SDGs. More specifically SDG target 12 on sustainable consumption and production calls for halving per capita global food waste at the retail and consumer levels and reducing food loss along the production and supply chains by 2030.

Food loss and waste could be reduced and prevented by investing in sustainable, healthy and inclusive food systems which can generate a win-win situation for climate mitigation, safe human consumption and sustainable healthy production. In that sense, a common understanding is required of where in the food supply chain the loss or waste is generated. When we address the primary food production, FAO estimates that 30-40 percent of total production can be lost before it reaches the market, due to problems ranging from improper use of inputs to lack of proper post-harvest storage, processing or transportation facilities. These losses can be as high as 40-50 percent for root crops, fruits and vegetables, 30 percent for cereals and fish, and 20 percent for oilseeds.

In this context, collaboration with stakeholders along the value chain is essential to identify and pinpoint that complex causes of loss and waste as well as to define and implement mitigation strategies to eliminate FLW drivers at the primary production stage of the value chain.

Based on these assumptions, FOLOU sets up a structured, comprehensive approach for stakeholder engagement that is complementary to all the Work Packages and their respective activities, and it is aiming at building linkages between all the players involved in the food value chain and better identifying the root causes of food losses at the primary production stage.

2.2 Purpose of the document

The present document, D8.1 '*Mapping of stakeholders and development of stakeholder engagement strategy*' provides an overview of the preliminary mapping of key stakeholders of the primary food production.

This initial mapping of stakeholders, as part of the T8.1, aims at identifying the key stakeholders operating in the primary food production in the context of the FOLOU project in order to understand how they can collaborate with the consortium and between them. This first exercise establishes the baseline for the continuous process over the project lifetime in terms of stakeholder mapping and engagement.

This initial analysis is based on the existing FOLOU network and connections, and it has 4 main objectives:

- To map stakeholders' network and to show the level of interaction (multi-level governance);
- To identify key stakeholders' challenges, interests and expectations from the project with different roles and different levels of impact (international, national, regional, local);
- To gather information on attitudes, opinions and behaviors of concerned stakeholders;
- To provide recommendations to favor the multi-actor dialogue and the multi-stakeholders co-creation and commitment process to prevent food losses.

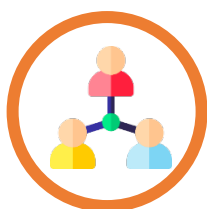
2.3 Structure of the report

This report is structured in two main sections. The first one provides a description of who are the FOLOU stakeholders of main interest, the quadruple helix approach and the stakeholder mapping centered around factors related to interest and influence. The second section of the report focuses on the FOLOU three actionable steps and how stakeholders will be involved at the different stages of the project. Lastly, the report will offer an overview on the next steps to undertake to ensure an effective stakeholder engagement and the tools to monitor its impact.

3. Who are the FOLOU stakeholders

The FOLOU stakeholders are organisations that have influence and/or interest, skills and knowledge of food losses and waste and whom can be interested in evaluating and testing the solutions proposed by FOLOU for implementing correction//improvement measures.

As mentioned above, one of the purposes of the FOLOU project is to engage different types of stakeholders to create and foster interactions within the value chain to assure an appropriate transfer of knowledge with the aim to achieve valuable reduction of food losses at primary production. In the FOLOU project, stakeholders directly involved in the project or benefitting from its results are referred to as **Aware community**, while those who lack awareness, such as the general public, on the food losses and waste are identified as **Unaware community**.



Aware Community includes actors directly and indirectly involved in the implementation of the project, affected by it or benefitting from its results.



Unaware Community only includes the general public.

Figure 1. FOLOU stakeholders. Aware and Unaware community

Aware Community

Direct stakeholders

Project partners and third parties that are regularly in contact with FOLOU and that agreed to have a closer collaboration.

Indirect stakeholders

Actors that are involved to different extent in the value chain of Food Losses and Waste (FLW) and specifically in the primary production, such as farmers, food producers, retailers, consumers, policy makers and researchers.

Unaware Community

The community, mainly the general public, lacking knowledge and awareness on the food losses and waste and thus on the FOLOU project itself. The unaware community will be informed on the FOLOU scope and how it is tackling the systemic transition to a more efficient food system by reducing and preventing FLW at first production stage. Communication and dissemination activities (WP8) coordinated with activities planned for WP6 and WP7 will ensure that the unaware community is merged with the aware community by the end of the project.

3.1 The FOLOU actionable steps

The FOLOU concept revolves around the idea of three interlinked FOLOU actionable steps, the so-called (i) **FOLOU-ME**, (ii) **FOLOU-ERS** and (iii) **FOLOU-EU**, where key stakeholders are involved to different extents as from the picture below:

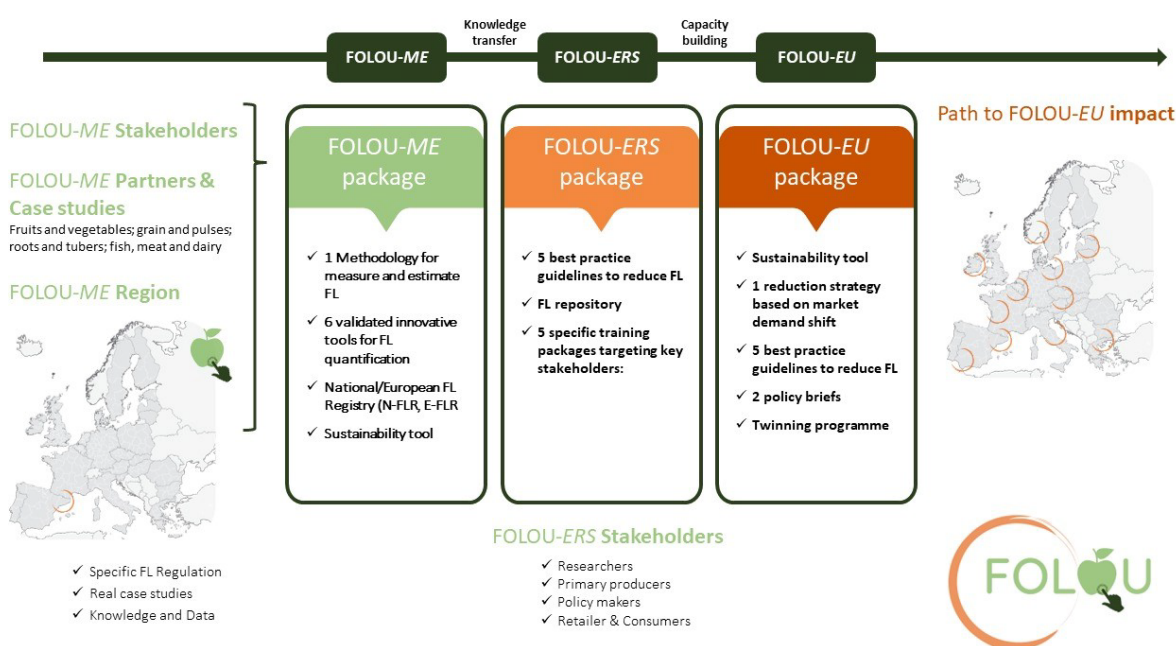


Figure 2. Overview of the main FOLOU stakeholders of interest

The FOLOU-ME step will create the knowledge, the tools and the methods to measure and estimate food losses at the primary production stage, including storage of products originating from agriculture, fisheries and aquaculture. Starting from the best practice implemented by the Catalonia region, the FOLOU project identified **FOLOU-ME** institutions, such as regional/local stakeholders (waste/agriculture ministry's/agencies, municipalities, etc.) and high-level stakeholders such as JRC and other institutions such as WWF, FAO, UfM or H2020/HE projects, which can provide their expertise to improve and harmonise the existing knowledge.

As a second step, FOLOU has identified a pool of **FOLOU-ERS** actors able to effectively adopt and apply the concepts, methods and tools developed during the FOLOU-ME step and to pave the way for future implementation of N-FLR and E-FLR including the needed regulations. FOLOU has identified four FOLOU-ERS key stakeholders, resulting from the quadruple helix, which are:

- (i) **farmers and primary producers**, covering different commodity types targeted by the project and with specific focus to engage young professionals. This will facilitate the understanding of how, when, what and where to measure and estimate food losses as well as learning best practices to avoid these losses;
- (ii) **researchers**, mainly in the fields of agricultural sciences, food systems, engineering, software, that could work on the implementation of the innovative measurement and estimation tools and also can learn on how to apply the developed methodology. They will be able to apply the method and directly measure and estimate the food losses at the primary production stage;
- (iii) **policy makers and public administrations**, such as national and sub-national ministerial advisors and civil servants in relevant ministries, EU officials, think-tanks and intergovernmental organisations, able to design and implement plans, strategies and regulations at different regional scales;
- (iv) **retailers and consumers** (i.e., citizen organisations, environmental NGOs, general public) who, with their contractual arrangements (e.g., fair trades), market structure and their individual purchasing decisions, have a strong impact on the value chain.

FOLOU will develop the FOLOU-ERS package which will include all the necessary training and capacity building materials such as:

- (i) Specific training packages targeting key stakeholders (training courses and materials);
- (ii) the food losses repository;
- (iii) the best practice guidelines to reduce food losses. FOLOU-ERS package will be predominantly linked to the EIT Food Learning Centre.

This will enable the effective transfer of generated knowledge from FOLOU-ME to each FOLOU-ERS group described above who will be responsible for ultimately transforming the EU food system in the near future.

This action will lead then to the third step, **FOLOU-EU**, which is intended to facilitate constructive stakeholder dialogue and a clear transition pathway towards maximizing the project impact at EU level. This will be achieved by preparing a FOLOU-EU package dedicated to assessing governance strategies, recommend policy measures, and boost awareness and action by public and private authorities to encourage the replicability of successful practices creating a multiplier effect in the adoption of FOLOU outcomes.

3.2 The quadruple helix approach

To support the reduction and the prevention of food losses in the primary production stage, multi-stakeholder' engagement and collaboration is essential. Therefore, the FOLOU stakeholder engagement strategy is based on the Quadruple helix approach which is a collaborative model of innovation recognizing four major actors in the innovation systems: science (academia), policy (government), industry (producers, private sector) and society (civil society organizations). Consumers and end-users are usually perceived as passive actors, who consume the products or the services made available by businesses. In the quadruple helix model, consumers and end-users play a central role being directly involved in the conception and the development of innovative solutions.

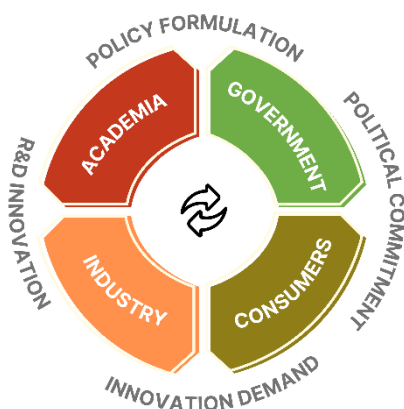


Figure 3. FOLOU Quadruple Helix

Therefore, the model can ensure more effective and user-oriented innovations and a greater social benefit empowering consumers and end-users who will become active part of the innovation system.

In order to make the quadruple helix collaboration process effective and ensure that the key stakeholders of each of the interested sectors are duly engaged in the different phases of the project it is important to define the relevant target groups at international, national, regional and local levels as well as the methods that will be used for involving each of the players in the project's activities.

International and national levels will play a more supportive role in setting up a common language and harmonise the existing knowledge, while the regional and local dimension will be addressed in the different WPs, in order to facilitate the implementation of the solutions proposed by FOLOU.

Given these premises, one single approach is not the best choice for all stakeholders, therefore the stakeholder engagement plan will be mainly supported by the Communication, Dissemination and Exploitation Plan (D8.2), where all the communication and dissemination activities planned to favor the engagement of each key target group are duly described. In addition, a quadruple helix stakeholder's map for different pilot countries will be then set up to identify interaction between different actors and the decision-making process among them.

To increase the success of the stakeholders' interaction and engagement it is of major importance to develop a stakeholder mapping, which will help define the key players within the quadruple helix matrix, their level of interaction, collaboration and inter-dependency.

This exercise will be run for each of the regional pilots of the projects, and potentially for those regions which will be willing to participate in the twinning programme and replicate the project's results.

To facilitate the identification process, a stakeholder registry has been set up by FOLOU's partner Impact (Annex 1) to identify the different categories of stakeholders at country/regional level which are relevant for the implementation of, and participation to, the project activities. By doing this, the FOLOU consortium will be able to detect the different roles that each stakeholder might play in the three actionable steps of the project (described in the following paragraphs) and identify possible missing actors that need to be engaged.

3.3 Stakeholder analysis and mapping

Given the structured methodology underlying FOLOU, the stakeholders analysis is of outmost importance to define the stakeholders' position/power, the level of influence they hold, the level of interest they have in the specific context, their capacity to act and change practices, the interdependencies among actors.

The stakeholder analysis will be initially drawn on secondary data (desk study) and existing partners knowledge of the project's core objectives, sector and country. This will allow to define a preliminary list of key stakeholders which is then verified, modified and enhanced at the regional/country level.

Once the stakeholders will be initially mapped based on the quadruple helix approach, three qualitative aspects of the attributes of FOLOU stakeholder will be assessed:

- Interest or willingness to act;
- Most efficient interaction format to spread information and exchange knowledge;
- Degree of influence (towards other stakeholder groups).

These 3 aspects respectively talk about, the capacity of actors to enact change, the communication format most effective to reach out to them, the power relation and the governance aspects related to the decision-making process.

The investigation on stakeholders' attitudes will be achieved by:

- gathering information from the stakeholders directly related to the project;
- gathering information from other stakeholders not directly related to the project but who may be interested in the outcomes of it (primary producers, farmers, etc.) or those who can be reluctant in adopting new solution proposed by FOLOU for the acceptance (NGOs, press, associations, etc.);
- designing dedicated surveys to find out the opinions from the different actors of the quadruple helix.

After collecting the above mentioned information, a two dimension stakeholder matrix will be created to get the stakeholder mapping, a visual representation of the stakeholder analysis organizing those contacts according to key criteria, such as influence and interest. Therefore, stakeholders will be plotted on whether they have high or low interest in and high or low influence on the project. Each of the boxes represent a level of engagement, ranging from the lowest level (monitor) through the middle levels (consult and involve) to the highest level (collaborate).

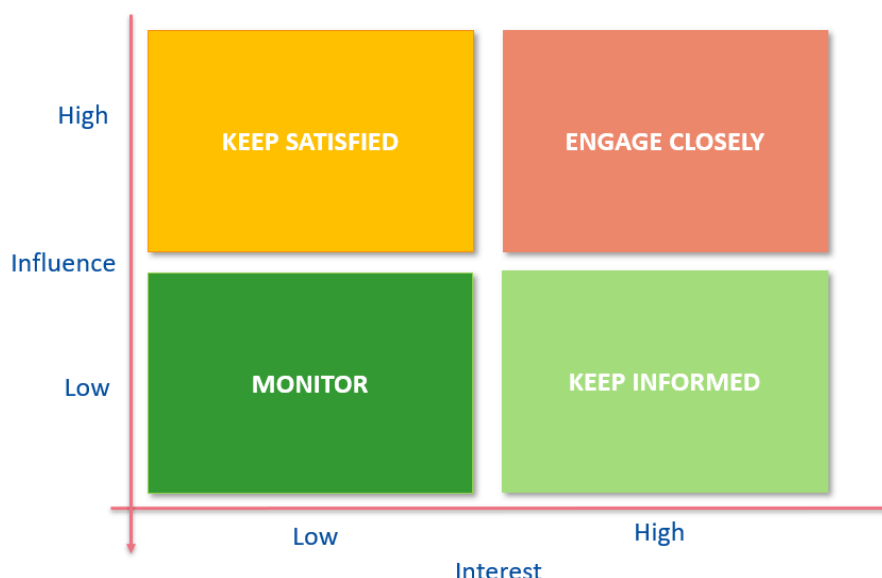


Figure 4. Stakeholder matrix

The above matrix is used to accurately identify stakeholders' interests and plan the subsequent participation and the direct collaboration with specific key stakeholder groups. This will be used as a basis to develop the next steps about the process of contacting stakeholders and how to engage them, as described in the following section.

4. Stakeholder engagement

The stakeholder engagement is a guiding process during which key actors active in a specific field are involved in a regular exchange and join their forces to overcome specific challenges addressed by a project. Therefore, the stakeholders' engagement is an inclusive dialogue among all actors that can contribute directly or indirectly or have an interest in a given topic. To allow stakeholders to have an effective interaction with the FOLOU consortium a set of activities has been put in place and will be implemented according to stakeholders' expectations and needs.

All the activities planned to ensure the stakeholders' involvement are described below, following the three actionable steps and with specific reference to each Work Package.

5. Engagement strategy

This section offers an overview of the stakeholder engagement activities planned in each Work Package. The content summarises the main topics addressed, the type of stakeholders engaged and the related engagement activities. A broader overview of the communication and dissemination activities planned transversally in the project are duly described in D8.2 '*Dissemination, exploitation plan including communication*', which is complementary to the present document.

5.1 FOLOU-ME stakeholder engagement strategy

As mentioned in par.3.1, the FOLOU-ME step, which is focused on two levers of change **Understanding** and **Measuring**, relies on relevant work and research already carried out in the last years, with respect to the investigation of direct and indirect drivers of food losses at the primary production sector. Frontrunner regions and institutions with knowledge, data, and with a clear view and experience on how to overcome current gaps and limitations, have been already identified by FOLOU and existing data from FOLOU-ME partners and stakeholders will be used to provide an initial estimation of the context and contribute to develop the FOLOU-ME package.

The latter includes:

- a first draft database for the national and European food losses repositories (WP1, WP2, WP4)
- the 6 validated innovative tools for the quantification of Food Losses at the primary production stage (WP3)
- the methodology for measuring and estimating Food Losses for the five main commodity category groups (WP4)
- the FOLOU sustainability tool (WP5)

Each of these activities planned in the FOLOU-ME package, will be developed and implemented in a dedicated Work Package, which also identifies specific stakeholders to approach to reach its output.

5.1.1 Creation of a robust and consolidated registry and repository on Food Losses at the primary production sector

Together with the other partners involved in the work package, UNIVPM as leader of WP1 '*Creation of a robust and consolidated registry and repository on Food Losses at the primary production sector*' will approach the most important stakeholders at a national and European level in the public, private and tertiary sector in order to gain insights on principal information about data availability.

As a strategy for gaining long-term engagement with the stakeholders, the following steps will be followed:

- Identification of existing connections with key infrastructure and bodies of interest;
- Initial communication through electronic means with the provision of a short and targeted presentation of the project, including the aim, the output and the potential interest for the stakeholder;
- Follow-up activities for creating synergies, such as in-person or online meetings, potential invitation to workshops or collaboration and inclusion on outputs of the project;
- Regular sharing of updates on progress of the project, relevant outputs and outcomes.

As an initial step, a preliminary mapping of key stakeholders in the Italian context is currently being conducted. WP1 is planning on initial communication with JRC, a major stakeholder at the European level.

For the time being, the following activities are planned for the Italian pilot case:

- Contact with Italian stakeholders from the fishery and aquaculture industries (Aquaculture Journal “La pesca” (National level) and its network; associations of fisheries, associations of aquaculture);
- Publications in Journal “La pesca” ;
- Online workshop to present the project;
- Contact assessors and Italian Ministry of Agriculture;
- Plan shared folder with JRC.

5.1.2 Investigation of direct and indirect drivers and root causes of food losses

To understand the current context and gather information on food loss drivers, a stakeholder analysis will be developed starting with desk research and expert consultation to define the most relevant characteristics of possible stakeholders to be involved in FOLOU activities.

This will lead to identify key stakeholders at regional and national levels, and map their different roles and interactions, highlighting the plurality of perspectives and experiences. By exploiting the existing networks, stakeholders will be reached and contacted electronically to schedule face-to-face meetings to verify their availability in being involved in the project and the most appropriate means of involvement.

The outcomes of the stakeholder analysis will allow to understand stakeholders' needs, challenges and potentialities to plan an engagement strategy favouring the multi-actor dialogue in investigating food loss drivers. The stakeholder engagement strategy will take shape starting from the *Food Loss definitional framework* (D4.1) and *the Standard Research protocol for data collection* (D2.1), to ensure consistency throughout the project outcomes. It will then be tailored to the local contexts and stakeholders concerned. Indeed, relying on previous experiences in food loss evaluation activities, a co-design approach will be adopted to ensure the acceptance and effectiveness of the selected stakeholder engagement tools, minimising risks of low participation and biased or missing answers. WP2 activities will take advantage of workshops including interviews and focus groups involving relevant stakeholders in the investigation on food loss drivers. The engagement strategy will be then exploited by the dissemination and communication plan and updated over the course of the project.

5.1.3 Development and validation of innovative tools to measure and estimate Food Losses

The stakeholder engagement in the development and validation of innovative tools to measure and estimate food losses. will be crucial. When developing a new technology, the feasibility of this technology and desirability for the sector are key. This is for instance related to the exact topic that they will be covering (and its perceived relevance), the applied sensors (cost, complexity, ease of application, level of expertise required for their application), the applied processing software (i.e., general applicability, user friendliness, availability & cost...). The stakeholders' input will be vital for evaluating the proposed technology and improving them based on the stakeholder's input. This will occur through an iterative process in a close dialogue, e.g., during the national stakeholder workshops, but also at earlier times for several crops.

The activities focus on roughly three different commodities: agronomic activities, with a variety of crops (Fruits and vegetables in T3.1 & T3.2, wheat, Faba beans and potato in T3.2 & T3.3), aquaculture and fisheries (T3.4 & T3.5) and finally social media exploration (T3.6).

In the first two commodities (agronomy and aquaculture, T3.1-3.4), the focus lies on technology development of food loss measurements. Here, UGENT with the collaboration on task leaders, are primarily targeting primary producers, retailers and researchers as the three main stakeholder categories. Per crop, partners will engage with one stakeholder per identified category. All involved partners have a long-going expertise, which will enable them to identify and select stakeholders from their existing network.

The aim of the third commodity (T3.6) is to better match people's food demand to supply. Here, partners will primarily target consumers, policy makers and retailers.

For several of the crops of T3.1-T3.3 (e.g., potato), stakeholders for each of the mentioned three categories have been contacted. A general stakeholder list is being assembled, listed per country, which will be completed in the next few months.

5.1.4 Development and validation of the FOLOU methodology for measuring and estimating food losses

One of the most relevant aspects in the FOLOU project is the development of a definition on food losses that is commonly shared within the consortium and also in line with key stakeholders' perception. To this aim, ESPIGOLADOR, as WP4 leader, drafted an online survey which has been circulated internally to collect partners' opinions on the definition of the food loss. Simultaneously, ESPIGOLADOR is currently conducting interviews with international stakeholders, such as WWF members, Joint Research Centre of the European Commission, the statistics department of FAO and DACC and ARC who are currently developing a reporting system for Food Loss at the Catalan level. As a follow-up action, ESPIGOLADORS plans to interview key stakeholders related to all the different commodities: fisheries experts and associations, agricultural departments from EU Member States, and researchers on Food Loss in primary production.

Parallely the WP4 activated synergies with food loss related initiatives, which will be strengthened over the project lifetime. In this context the initial framework of FOLOU was presented to the Food Loss and Waste Platform. In addition, ESPIGOLADORS is developing synergies with ZeroW project and with similar initiatives that can provide an added value to the project itself.

As leader of the sub-package of measuring Food Loss in Fruits and Vegetables, ESPIGOLADOR will also be conducting interviews and case studies involving primarily Catalan producers to proceed with the in-field quantifications. Other case studies planned in the WP will be conducted by project partners which will contact specific stakeholders, mainly primary producers for each commodity sector. Specifically, UNIVPM will contact grain and pulses producers, UGENT will contact roots, tubers and oil crop producers, NORCE will contact fish producers, and ULIM and UGENT will contact Meat and Dairy producers.

Over the course of the project, stakeholders' consultations through in-depth interviews and focus groups will be made to different EU countries and regions to define a common methodology and minimum quality requirement to measure food losses in the EU Countries.

The stakeholder involvement will be crucial to help refining the methodology which will be submitted to public consultation (JRC, on-going HE projects, Ministries of environment/agriculture). This consultation process will be part of the FOLOU strategy to build on existing and ongoing EU-funded research and work together with relevant initiatives including the European Commission Platform on Food Losses and Food Waste.

After the revision based on the feedback received from FOLOU-ME institutions, a second draft will be released which will be tested and validated in the five regional validation case studies, each one addressing a different commodity sector. This latter will provide recommendations for future measurements allowing the methodology to be continuously updated. All the information collected and analysed will be used in WP6 and WP7 to develop the training programmes and the recommendations, best practices, policy barriers.

5.1.5 Evaluation of the magnitude and impact (environmental, economic and social) of Food Losses at primary production stage

Within WP5, which is led by UVIC, the first step to the stakeholder engagement would be an identification and mapping of stakeholders who may provide relevant inputs that may affect the decision making on the approaches adapted to sustainability assessment of Food Loss. This information will complement the one already collected for the same commodity groups in the other phases of the project (WP2, WP3, WP4) With the complete picture of all relevant stakeholders identified for each commodity group, a stakeholder analysis of each stakeholder group will be conducted to define, their interests, concerns and potential influence on the sustainability assessment of food losses.

It is expected that the stakeholders having a strong influence on a variety of outcomes through consultation, communication, negotiation, compromise, and relationship building in WP5 will be segmented into four main groups, namely:

- Database developers for the sustainability assessment: Ecoinvent and Agribalyse
- LCSA experts to validate the scope, methodologies and approaches adapted for the impacts assessment related to FL;
- Direct actors that will prevent food loss and take decisions about the food production strategies;
- Reporting and dissemination stakeholders, namely governments, industries and the customers

This division will help prioritize efforts and tailor engagement and communication strategies accordingly. Finally, regardless the stakeholder group, earlier engagement, transparency and accessibility are a must to foster their continued involvement and promote their trust.

To ensure optimal stakeholder engagement and relevant outputs from WP5, the following activities are being executed following the above-mentioned steps:

- Meeting database developers (Ecoinvent and Agribalyse) to understand the how the datasets of the five commodities to be assessed in FOLOU are being modeled in terms of emissions and whether the impacts associated to food loss fraction is being quantified.
- Meeting with JRC to share the Product Category Rules structure to ensure that the work being done within FOLOU is aligned with what is being promoted by the EC.
- Meeting the sister project WASTELESS to avoid any overlap in terms of the sustainability assessment tool to be developed by both parties separately. Making sure the scope of FOLOU does not interfere with the one of WASTELESS.
- Prepare a survey for farmers, associations and retails to define the decisions they will make in case there is more food available in the market, reduce production or export

food, substitute a product in the marker or stop purchasing. These decisions will help WP5 to build the decision tree for consequential LCA.

- Organizing online workshops about “Food Loss LCA group” to discuss the best way to standardize the sustainability approaches, methodologies and results interpretations.
- Organization of specific sessions about LCSA of FL to present our methodologies and findings.

The following figure illustrate an example of the involvement of WP5 stakeholders in the execution of T5.1.

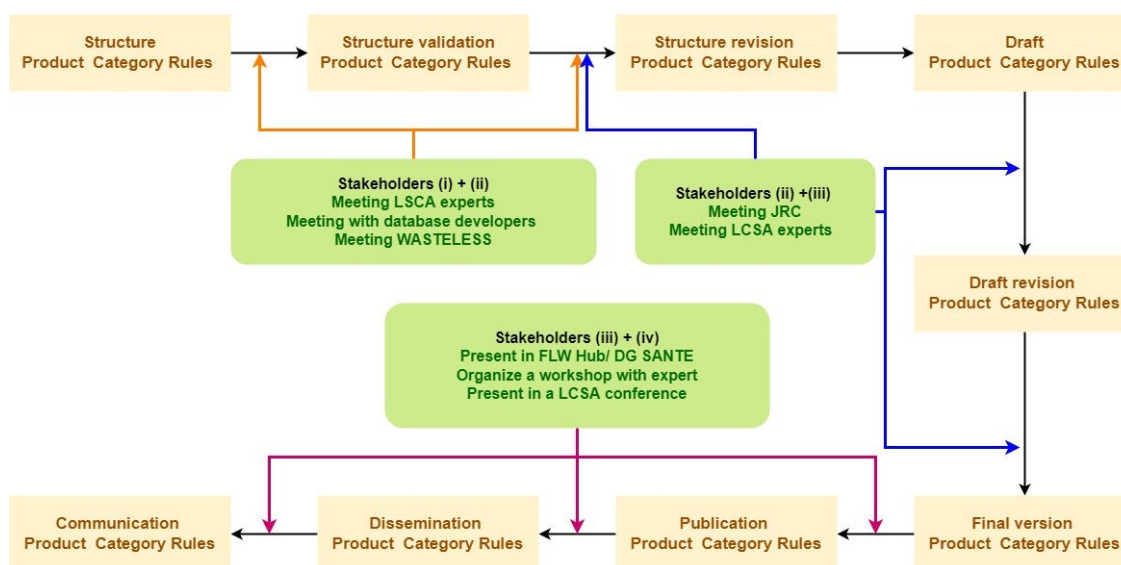


Figure 5. WP5 - Visual structure on stakeholder engagement

5.2 FOLOU-ERS stakeholder engagement strategy

The FOLOU-ME package will not succeed, just by itself, in unlocking the envisaged systemic transition of EU food systems towards sustainable, resilient, healthy and inclusive ones. Therefore, as a second step, there is the need to create a pool of FOLOU-ERS actors able to effectively adopt and apply the concepts, methods and tools developed during the FOLOU-ME step.

Specifically, this second step of the FOLOU methodology will be centered on Training activities, where the key stakeholder groups namely researchers, policy makers/public administrations, farmers and primary producers (also described in par.3.1) can reinforce their skills and drive transformations.

To achieve this, the project will create a Learning Centre, working on:

- detecting and evaluating the lack of competences and training needs for public administrations having to deal with Food Losses quantification and reporting ;
- stimulating professional development and improving competences in food system transitions for farmers and primary producers as well as researchers;
- offering specialised training contents on specific FOLOU concepts for each specific stakeholder group (e.g, measurement of food losses for farmers and researchers,

how to effectively plan a food loss reduction strategy at regional level for policy makers and public administrations). The courses developed (training and capacity building package) will focus on the FOLOU-ME package and will address those identified competency gaps and training needs.

FOLOU will develop the FOLOU-ERS package which will include all the necessary training and capacity building material such as:

- Specific training packages targeting key stakeholders (training courses and learning materials);
- Training on the food losses repository, developed in WP1;
- the best practice guidelines to reduce food losses for the main 5 EU commodity sectors (vegetables and fruits, (2) grain and pulses, (3) roots, tubers and oil crops, (4) aquaculture and fisheries and (5) meat and dairy products)

FOLOU-ERS package will be predominantly linked to the EIT Food Learning Centre. This will enable the effective transfer of generated knowledge from FOLOU-ME to each FOLOU-ERS group described above who will be responsible for ultimately transforming the EU food system.

5.2.1 Learning Centre – Development of training materials and organisation of courses

The successful implementation of a harmonized measurement and estimation method and the implementation of policy and business strategies for preventing and reducing food losses across Europe requires the creation of a strong training capacity for effective knowledge exchange between the key stakeholders.

Based on the **Training** lever of change, within WP6, UREAD will set up the FOLOU Learning Centre, relying on the work developed with EIT Food, the EIT Food Competency Framework, as the foundation for the capacity building component of this project.

The overarching learning objectives will be defined through a comprehensive stakeholder engagement and sector analysis for sector specificities. Internal and external analysis will be undertaken to understand the expertise which exists within the sector to allow the creation of “Expert Groups” who will form a consultative body to work with the project team to propose courses, content, resources, educators, assessment and delivery mechanisms to ensure the needs of the sector are met, and where suitable, to provide assessors for certification purposes.

The Learning Center will provide tailored training courses and training material aimed at different stakeholders.

At least, five training courses will be developed:

- Implementation of the FOLOU methodology;
- training on the 6 innovative FL measurement/estimation tools;
- training on FL sustainability implications;
- training on best practices to avoid FL at the primary production stage;
- training on governance, capacity building and FL regulations.

Trainings will target one or several stakeholders’ groups (e.g. researchers, primary producers, policy makers and public administrations). Training materials will be developed as appropriate for the learners using a blend of synchronous and asynchronous teaching and face to face workshops which will ensure communities of practice are nurtured and

knowledge sharing is fostered. Self-directed and peer-to-peer learning will be supported where appropriate with courses being grounded in the needs of the agri-food value chain actors and the impact that enhanced competencies will enable.

FOLOU will create training courses and training material in different national languages specifically targeting the measurement of food losses. To maximize FOLOU short-term adoption, during the project period, FOLOU will train, at different EU countries, a minimum of 100 researchers and 100 primary producers to be able to implement FOLOU outputs. However, to maximize the number of trainees after the project ends, all training courses/materials will be made available online to the widely used EIT Food Professional Education Framework and EIT Food Assessment, which will offer certified training and credit recognition in environmental courses delivered by accredited providers. This will maximize the number of trainees able to widely implement FOLOU outcomes at EU level within a few months after the end of the project.

As part of the FOLOU knowledge transfer and capacity building program, a cooperation network will draw strong liaisons with the approaches, efforts and outcomes of related projects and international bodies (e.g., JRC, FAO, WWF, WRAP, EIT Food) to enhance the impact created by the FOLOU training program. The EU food losses data repository will be linked with the EU Platform on Food Losses and Food Waste to ensure continuity after the end of the project and an efficient long-term dissemination through all important actors. This will aim to serve as the central repository for researchers and policymakers to access, filter, work, analyse and extract relevant data and information to work on prevention and reduction of food losses.

To support these activities, WP6 leading partner will closely cooperate with WP8 for a comprehensive dissemination strategy plan within the project's general Dissemination plan, to recruit learners, raise awareness and engagement with the Learning Centre and to support the broader stakeholder engagement in FOLOU and its association with other initiatives which will provide mutual benefit. Specifically, after the quadruple helix assessment is completed a pilots' distribution lists will be set up to inform the local stakeholders on the progress of activities in the project. A tailored newsletter will be drafted by project partners in their own language to inform stakeholders on their own pilot and on the progress of activities in the other pilots (general, in English). The newslines will be "structured" internally with specific target for each of the 4 categories of the quadruple helix to advertise those activities such as trainings only to categories that might be concerned or have interest in it.

5.3 FOLOU-EU stakeholders engagement strategy

FOLOU-EU is the last step of the FOLOU concept and is intended to facilitate constructive stakeholder dialogue and a clear transition pathway towards maximizing the project impact at EU level.

While FOLOU-ME step will create the knowledge, the tools and the methods to measure and estimate food losses at the primary production stage and FOLOU-ERS will train and prepare key stakeholders across the various diverse terrestrial and aquatic food value chain. Finally, FOLOU-EU step will prepare a FOLOU-EU package dedicated at assessing governance strategies, recommend policy measures, and boost awareness and action by public and private authorities to encourage the replicability of successful practices creating a multiplier effect in the adoption of FOLOU outcomes.

The FOLOU-EU package, which is basically implemented through WP7, will include:

- the twinning programme between frontrunner regions and follower regions;
- the 2 policy briefs: one on the implementation of the national and EU food loss registries (N-FLR and EU-FLR) and a second policy brief dealing with the implementation of the measurement/estimation methodology at country level;
- the reduction strategy based on market demand shifts;
- roadmap to standardisation of the FOLOU Methodology;
- National workshops;
- Clustering activities.

As part of this strategy, work will be devoted to integrate the FOLOU outputs and results into the EU Platform on Food Losses and Food Waste ensuring easy access for all relevant stakeholders to up to date data on EU food losses.

5.3.1 Twinning of regions programme

FOLOU also acknowledges the importance of raising awareness and increase the capacities of policy makers and public bodies to adopt effective monitoring measures. Thus, to create a supportive environment that enables the smooth implementation of strong FOLOU outputs, specific governance tasks have been established to facilitate the knowledge and experience exchange among public authorities from different EU regions and encourage the replicability of successful practices. In that sense, the project will engage with key territorial players and policymakers in a twinning programme and advocacy activities between frontrunner regions and follower regions to facilitate the exchange of effective governance instruments and potential funding schemes, as well as to promote realistic and easily applicable innovations overcoming current gaps.

As part of the **Adopting** lever of change, ACR+ will identify EU frontrunner regions based on their advancement in terms of policy development for FL prevention, the analysis of governance aspects and the overall business environment set-up and functioning that allows for minimization of FL in the different FVCs analysed within the project.

As a following step, FOLOU will identify at least 5 twinning regions as a sub-set of 50+ NUT-1 and NUT-2 level regions identified in T7.3. Twinning regions will be territories where the need for FL monitoring system is much needed based on the relevance and prevalence of food activities within the same regions.

In order to achieve this, ACR+ and MIO-ECSDE will activate their 200+ members network of local and regional authorities, non-governmental and non-profit organizations to identify regions and actors interested in replicating the experience of FOLOU beyond the partners' territorial coverage. This includes development of the testing (WP3 and WP4) and the set-up of a replication plan during the second semester of Y3 and the whole of Y4. The twinning programme will be facilitated by ACR+ in collaboration with the other project partners involved in the different work packages. DACC will share its experience as frontrunner region.

Recruited regions will then be involved in the activities of WP6 and WP7 for the enhancement of human and technical capacity in replication territories and collaborate with partners in WP3 and WP4 for the testing of the monitoring and quantification tools, and ideally with partners in WP2 and WP1 for the identification of drivers and the preliminary set-up of a measuring and reporting system.



5.3.2 Policy recommendations

Best practices guidelines, reduction strategies, policy recommendations as well as other relevant outputs will be widely communicated during the project and will be available at the end of the project at the EU Platform on Food Losses and Food Waste under the format of current “recommendations for action”.

Policy recommendations will target each of the key actor groups: political decision makers and public administrations, farmers and primary producers and retailers, consumers and non-governmental organisations engaged in food loss prevention and reduction.

The recommendations will feed into the training courses developed in WP6 and be disseminated to a large audience through the national stakeholder workshops (T7.4) and communication activities in WP8. Policy recommendations will allow steering EU and national policy formulation and implementation towards minimization of FLs.

Potential organisation of international discussion rounds (virtual or as part of other physical FOLOU events) are planned to collect feedback on the recommendations targeted to the different stakeholder groups (policy makers, primary producers, retailers and consumers).

ACR+ will establish contacts with at least 50 EU regions (NUTS-1 and NUT-2 level) where primary food production from agriculture and fisheries (incl. aquaculture) is prominent. These regions will be provided with relevant information on project activities and final recommendations at least twice a year, starting in Y2 to enable progressive familiarization with the project aims and activities before the final stage of the project.

Policy recommendations for including measurement (implementation of the FL methodology) and monitoring (use of N-FLR and E-FLR) of food losses at Member State and EU level will be also developed.

In addition, at the end of the project, two policy briefs dealing with two important required policy changes to effectively implement FOLOU outputs will be delivered. A first policy brief on the implementation of the national and EU food loss registries (N-FLR and E-FLR) and a second policy brief dealing with the implementation of the measurement/estimation methodology at country level.

Furthermore, recommendations for farmers and primary producers will include guidance on farming practices that minimise FL and improve overall farmers' income and resources use, and on effective and cost-efficient application of the innovative tools developed in WP3. Strategies to cope with short-term changes in market demand, alternative marketing of foods that are currently unmarketable and opportunities to engage in policy development beyond the scope of FOLOU will also be covered. Retailers will be targeted in their role as business partners of upstream suppliers and ambassadors of educational campaigns. Consumers will be addressed directly and via civil society organisations regarding their consumption choices. Recommendations will link marketing, purchasing and/or consumption choices that contribute to FL reduction at primary production stage to sustainable business practices, healthy diet and climate action.

5.3.3 National Stakeholders workshops

To ensure an optimal stakeholder engagement, at least one national stakeholder workshop in each of the countries of the consortium members held in national languages and, if possible, in physical form. National Stakeholders Workshops to FOLOU-ERS regions are among other activities such as the twinning region programme, that will ensure broad dissemination of the project outcomes to EU Member States and will facilitate the knowledge transfer to stakeholders outside the consortium. Based on identification and

analysis of stakeholders on national level in WP8 'Dissemination and communication', potentially interested stakeholders of each of the mentioned groups (par.3.2) will be contacted and invited to the national physical workshops. Stakeholders will be given the opportunity to share the invitation within their networks to enhance the outreach of the workshops. These activities will favor the exchange and discussion among stakeholders and between stakeholders and FOLOU partners. Furthermore, this will highlight additional opportunities for involvement in other FOLOU activities.

5.3.4 Clustering activities

To strengthen the collaboration with existing initiatives and projects related to food losses, a joint cooperation plan will be developed to:

- enhance complementarity, cooperation and uniform reporting in data collection,
- sharing of preliminary, unpublished results,
- aligning task planning to avoid doubling work
- Potential opportunities for joint publications, e.g., regarding the database uploaded at the EU Platform on Food Losses and Food Waste,
- mutual aid in expanding networks, including potential secondments, and cooperation in the recruitment of twinning regions (T7.2.)
- cooperation in communication and dissemination activities such as joint training courses (WP6), organisation of national stakeholder workshops (T7.4.), alignment and coherent communication of policy recommendations, etc.

At the time being, the FOLOU consortium, led by PROMAN, compiled a list of projects which includes national and international projects (planned, ongoing or finished) related to food loss, food waste, innovative farming technologies (remote sensing, etc.) as well as national and international organisations and institutions engaged in food loss prevention and reduction.

The following steps are implemented in order to ensure an effective stakeholder engagement.

- Identification of stakeholders who may be interested in participating in clustering activities through screening of relevant project databases and making use of FOLOU project partners' networks.
- Survey among the identified stakeholders to collect their interest in participating in different WP-related activities.
- Organisation of a set of virtual roundtables involving FOLOU WP leaders and interested stakeholders of external projects to discuss the extent and format of involvement and cooperation.
- Formalising the outcomes of discussions in a joint cooperation plan signed by FOLOU and external project partners allowing for different level of involvement by different project stakeholders
- Regular meetings between FOLOU and cooperation partners and annual update of the joint cooperation plan to monitor implementation, practicability and relevance of the clustering activities and adapt activities where needed.

6. Monitoring the stakeholder engagement

To ensure the effectiveness of the stakeholder engagement plan, a monitoring process of stakeholder engagement will be implemented and will include regularly checking in (every 9 months) on the achieved actions to make adjustments when needed. This is an ongoing process that will be performed throughout the project to ensure that needs and expectations of all relevant stakeholders are being met.

To monitor stakeholder engagement, these steps will be implemented:

- Collect and analyze data on the level of engagement and participation of each stakeholder group gathered through surveys, interviews, meetings;
- Identify any areas where stakeholder engagement could be improved or where stakeholder needs are not being met;
- Make changes to the stakeholder engagement plan as needed to address any identified areas for improvement (i.e. low interest, i.e. low capacity to engage).

The stakeholders' register which has been set up by FOLOU's project partner IMPACT - will identify all the different stakeholders from the key stakeholders categories of the quadruple helix- and will be used to monitor the identified stakeholders' level of interest and engagement throughout the project. This will help the consortium to focus on those key stakeholders who are less involved than others and favor their involvement, while nurturing the interest and commitment of those stakeholders who are already very active in FL prevention strategies and FL measurement.

The effectiveness of the stakeholder strategy will be then assessed through specific Key Performance Indicators (KPI) which are reported in the table below:

Stakeholder engagement measures	Target groups	KPIs
Stakeholder engagement strategy	All stakeholders	Target value: >500 engaged stakeholders
Targeted trainings	Farmers and primary producers, researchers	Outreach up to 100 (per category)
Stakeholder workshops	Farmers and primary producers, public entities, policy makers	9 stakeholder workshops (outreach of up to 100 per category)
Twinning region programme	Public entities	5 FOLOU - EU regions and 10 EU regions involved in the twinning of regions programme
Broad dissemination activities	Consumers and retailers	>750

A template will be provided by Impact to partners so that they report activities carried on at pilot level, focused on the knowledge sharing to the identified stakeholders. In addition, bi-annual meeting will be planned to discuss the achievements, monitor the actor's engagement and adopt corrective actions when needed. This will be also be useful for an "needs assessment" on different levels (i.e. skills, information, knowledge, training, financing, tools) which can be used by FOLOU partners to reinforce the link between the project activities and the FL stakeholders.

7. Next steps

At M6, the key actors to be involved in FOLOU have already been named as well as other institutions that should be involved in the future both for their potential interest and their potential influence on the development of the case study. Therefore, in the following phases of the FOLOU project to involve these organizations in each of these areas.

To further develop trust in stakeholders, they will be involved at different stages of the project and constantly informed about the relevant project updates that follow in their field of expertise and that can be of their interest. In this sense, the dissemination, exploitation and communication plan will act as complementary strategy to ensure a bi-directional communication process through the implementation of successful ways of communication.

Different ways of interaction and involvement are required in order to achieve sound knowledge exchange. Stakeholders will be actively involved in face-to-face actions such as workshops, bilateral meetings, focus groups as a very effective way to be engaged them going beyond mere request for participation to questionnaires or interviews. It is also important to provide sufficient notice of invitation to these types of meetings, to ensure their potential participation. With regards to online interactions, bi-monthly interactions to keep them informed about project activities would be acceptable.

D8.1 – Mapping of stakeholders and development of stakeholder engagement strategy

Annex 1

Stakeholder register

[illegible]