UNISECO

UNDERSTANDING & IMPROVING THE SUSTAINABILITY OF AGRO-ECOLOGICAL FARMING SYSTEMS IN THE EU

# Deliverable D6.3: Final Spatially Explicit Interactive Online Tool

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## TABLE OF CONTENTS



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## ACRONYMS

| | |
|---|---|
| AEFS | Agro-ecological Farming Systems |
| API | Application programming interface |
| CAP | Common Agricultural Policy |
| EC | European Commission |
| EU | European Union |
| ESRI | Environmental Systems Research Institute |
| FAO | Food and Agriculture Organization of the United Nations |
| GDPR | General Data Protection Regulation |
| GHG | Greenhouse gas |
| GIS | Geographical information system |
| GLOBIL | Global Observation and Information Portal |
| GUI | Graphical user interface |
| IPCC | Intergovernmental Panel on Climate Change |
| M | Month |
| MA | Multi-actor |
| MAP | Multi-Actor Platform |
| MS | Milestone |
| NGO | Non-Governmental Organisation |
| NUTS | Nomenclature of Territorial Units for Statistics |
| PAG | Project Advisory Group |
| RDP | Rural development programme |
| SDGs | Sustainable Development Goals |
| SES | Socio-ecological system |
| SESSIT | Socio-ecological system interaction tool |
| SRG | Stakeholder Reference Group |
| UN | United Nations |
| WP | Work package |

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# EXECUTIVE SUMMARY

The UNISECO project has developed a spatially explicit interactive online tool (named the Socio-Ecological System Interaction Tool (SESSIT)) which is available at https://arcg.is/1fyqz00 (Deliverable D6.3). The document provides an outline of the technical elements for the tool and its contents. The described tool elements include the graphical user interface (GUI), data management, and a set of variables that has been implemented to describe the different dimensions of sustainability.

The overall purpose of the tool is to increase understanding of the sustainability of agriculture, and in particular the role that agro-ecological transitions can play in increasing sustainability of European agriculture. For this purpose, the tool provides a channel for delivering, viewing and interacting with information.

The tool has been implemented on a platform which requires minimal technical knowledge for easy content creation for example by other projects at a local level, or farmers who want to share information on more sustainable practices in agriculture. This does set limits for customisation of the interface to the purposes of communicating project results. As the tool concept is grounded in engaging local actors like justified in the socio-ecological systems (SES) approach for facilitating sustainability, it is named as Socio-Ecological System Interaction Tool (SESSIT).

SESSIT contains maps of different aspects of sustainability of farming systems, available at different spatial resolutions. Maps provide interactive visual representations of the geography of an area that is used for telling stories of farmers and other value chain actors as well as describing policies and model driven sustainability indicators for 2030 and 2050.

The tool includes indicators of social, economic and environmental dimensions of sustainability. The social dimension is mainly represented by the narratives of farmers. Economic and environmental dimensions are illustrated by both farm level decision support tool results and territorial (NUTS2/country) level biophysical model results. The concept of the tool was discussed in workshops with stakeholders and members of the EU Multi-Actor Platform. Their feedback has informed the development of plans for the tool, including the inclusion of indicators such as biodiversity, while some indicators such as the pesticide use were not available in the project results despite also having relevance in agro-ecological farming.

The tool is implemented using the GIS infrastructure of a key stakeholder (WWF) to enable knowledge sharing after the completion of the UNISECO project.

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# 1. INTRODUCTION

This report outlines the spatially explicit interactive online tool of UNISECO (Deliverable D6.3) called SESSIT (Socio-Ecological System Interaction Tool) found at: https://arcg.is/1fyqz00.

The plan for the design of the tool was reported in the D6.1 of the UNISECO-project (Helin and Schwarz, 2019). The core functionality of SESSIT is to facilitate more informed decision making, particularly in the local communities following SES principles, but also to distribute accessible information on other levels of decision making. Due to complexity of the sustainability issues and transition, the tool is split to different sections with different target audiences. Narratives implemented in story maps are for farmers and the wider audience, policy focused stories for stakeholders acting at the national level and finally the EU/Global model results for experts interested in long run trends and challenges. “Story map” is a term formulated to describe a web page consisting of linked text, photos, videos and figures including maps with which users can interact in different ways.

This document summarises the tool concept from D6.1, describes the main stages of creating the tool, shows the updated structure and presents a more detailed technical specification of the tool functionalities and the meta data for the project results that are displayed through the tool.

SESSIT was developed in two stages. In the planning stage, different technical solutions and solution providers were studied and discussed in the UNISECO-project as well as with the EU level stakeholders to agro-ecological farming. A simple demo version including few basic functionalities was created and the territorial model outputs that could be used were listed. In the second stage, the actual outputs of the project were used, and the interactive features were matched with the available content. In the first stage of the project, the primary data storage for the tool was ArcGIS–online server of Natural Resources Institute Finland (Luke), which ensured an easy access, and compatibility with Esri Story maps and the customised app development environment. For serving the published tool, WWF ArcGIS–server, accessed through the Global Observation and Biodiversity Information Portal (GLOBIL), is used. This solution was agreed with WWF Germany in June 2020.

Due to technical limitations, time constraints and data availability the published version of the tool few changes in the features of the tool had to be implemented compared to the initial concept outlined in D6.1. Most differences compared to the plan are evident in the part of the tool that visualises sustainability indicators from territorial models and was in the plan also envisioned to contain indicators that would have been based on the FADN data. However, the data acquisition process was lengthy, which impacted on the possibility to organise and implement a task for converting FADN data with the typology into a sustainability indicator for the tool. Furthermore, the resulting data from the territorial modelling required adjustments to the geographical coverage.

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# 2. TOOL CONCEPT SUMMARY

Increasing sustainability is challenging since farming involves numerous complicated social and ecological interactions. The purpose of the UNISECO project, and the concept of the online tool, is to provide information that facilitates increasing the sustainability of agriculture. To do so, we adopted an approach popularised by Elinor Ostrom (2011), i.e. considering the sustainability of resource management, or lack of it, as a system. When considering a particular sub-system, like agriculture, it can be difficult to draw conclusions on the sustainability of some practices from the perspective of multiple actors and multiple resources involved (see also Guisepelli et al 2018). To address this challenge, Elinor Ostrom (2011) suggested that the key decision makers involved in the sustainable use of resources are those operating at the local level. Therefore, the results, and the definition of the research questions, should involve local actors. Since transfer of information is more effective when it is not one way, SESSIT is linked to Agro-ecological knowledge hub that allows interaction between the users.

The role of SESSIT is mainly to facilitate the use of accurate scientific information in decision-making, but to truly play this role beyond the end of the UNISECO project such tools would need to be adopted to active use on the local and other levels. Since, environmental NGOs have stake in making agriculture more sustainable, SESSIT has been implemented on the WWF Global Observation and Biodiversity Information Portal. Local level commitments for the tool adoption proved to be as challenging as expected and for the SES vision on sustained local level decision support, challenges remain for future transdisciplinary project to tackle (see also Irvine et al 2019).

SESSIT has three main elements: i) for farmers, advisors, other value chain actors and consumers, illustrated stories are provided and enriched with carefully selected infographics which are quick to read and digest; ii) for a more general level of agro-ecological development and policy, stories focusing on changes and drivers at the national level; iii) scenarios illustrating the big picture with quantitative model results.

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# 3. TOOL STRUCTURE

SESSIT is accessed with web browsers (e.g. Firefox, Chrome). The SESSIT entry page is a web app built with "the first generation" ESRI story map template. It divides information on sustainability of farming to three tabs, each with different target audience. Each tab is associated with a map. The first of the tabs (that is active when entering the page by default) is labelled "Agro-ecological farming" and the maps show agro-ecological farms and case study areas. The target audience for this information is the (European) farming community and the general public. The map symbols open attribute information boxes, which link to story maps that contain narratives of agro-ecological farming and sustainability. The second tab is labelled "Policies and strategies" and the associated map that opens when clicking the tab shows countries that have highlighted some particular policies or strategies relevant for the sustainability of farming. These stories are targeted to authorities on national and EU level, but typically some aspects of policies carry relevance for the wider audiences too. The third tab labelled "Sustainability tool" links to a dashboard type of a custom web application tailored to display territorial level model results of agriculture and food system with emphasis on scenarios for 2050. The "Sustainability tool" is targeted at experts in agriculture.

SESSIT can be accessed through GLOBII (globil.panda.org) and also through the agro-ecological knowledge hub created by the UNISECO project **(https://uniseco-project.eu/).**

The basic structure is illustrated in Figure 1.

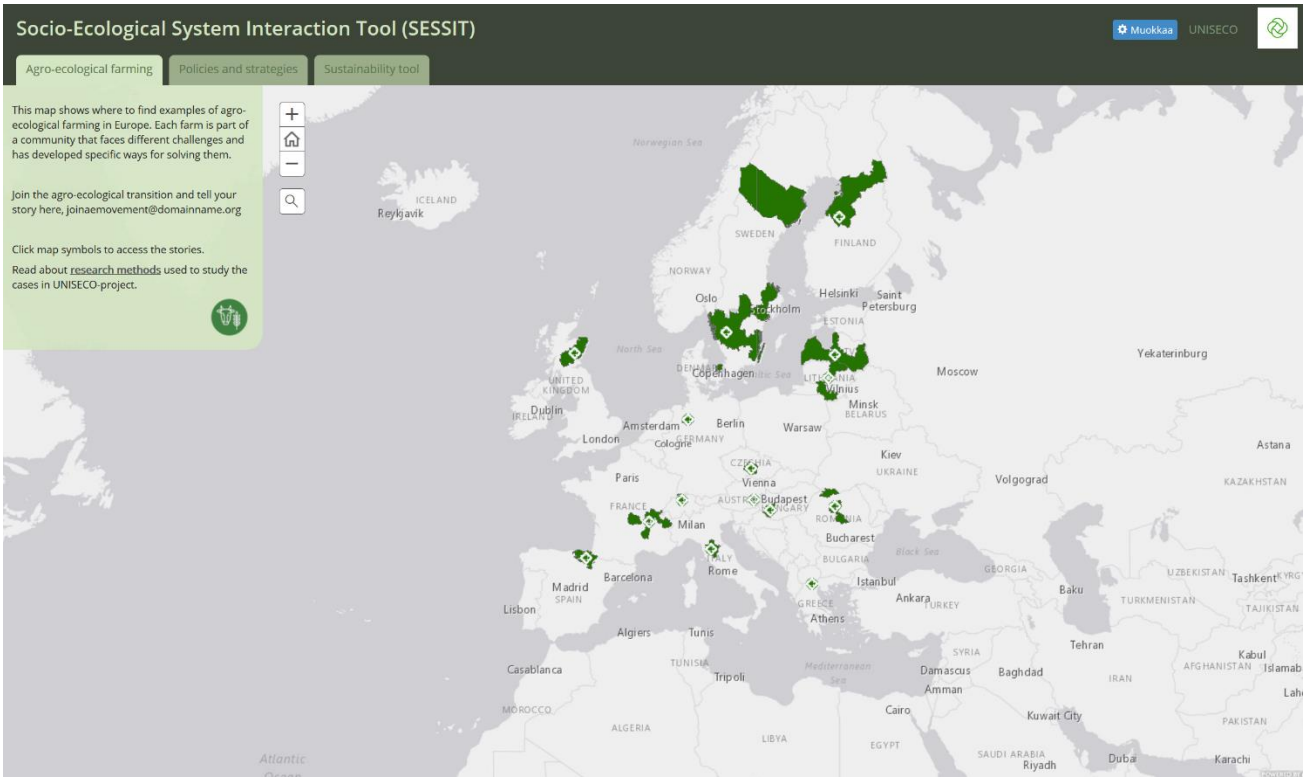


**Figure 1. Screen shot of SESSIT (https://arcg.is/1fyqz00)**

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# 4. TOOL FUNCTIONS & CONTENT

The tool functions to synthesise information that supports more sustainable decisions in agriculture. The functionalities of the tool are described tab-by-tab following the approach described in the section 3. At the launch stage the tool is populated only with results from the UNISECO-project. The technical implementation enables an entry-level GIS analyst to add data to any of the spatial datasets used in the maps for each tab. Also reconfiguring SESSIT functions is easy, if the desired changes are based on the existing widgets and ESRI templates supported by ArcGIS online.

## 4.1. Agro-ecological farming

### 4.1.1. Interactive features

Zoom in/zoon out, panning, click to open attribute boxes which can be clicked to open story map URLs. The linked story maps can contain further web maps with the same interactive features.

### 4.1.2. Content

Agro-ecological farms are displayed by points on the map. Each point has a set of attributes that can be displayed by clicking it. Attributes given to farms are: farm name, its main product (based on the share from farm revenues), key agro-ecological practise highlighted (based on the description of the case study farms), links to English (EN) and local language (LL) version of the Story Map narrative which contains this farm, source type and country of farm location. Currently, due to data protection farm locations are not revealed (the point is located at the centroid of the case study area).

Agro-ecological districts/case study areas are shown by polygons on the map. Each polygon has an attribute box that can be accessed by clicking the polygon. The listed attributes are: Country (of the area), main product in the area (based share of farm revenue of the farm sample), key agro-ecological practise in the area (expert evaluation/focus of the case study), links to the story maps in English (EN) and local language (LL) and Research question if relevant for the area and URL for an extended case study description.

More details on the design principles of the story maps can be found from the UNISECO D6.1 (Helin and Schwarz, 2019).

### 4.1.3. Functionality

The map demonstrates functionality for the use case of where to find agro-ecological farms or areas of agro-ecological farming and to the question of what is agro-ecological farming. The functionality is limited as long as only few farms and areas are displayed. The idea is to inspire farmers and stakeholders in farming to think of agro-ecological practises, but also of including their own farms and stories on the map to increase visibility of agro-ecological farming. Similary, more agro-ecological projects and initiatives (e.g. living labs) should be mapped. Given sufficient popularity, SESSIT could become a place to find your local supplier of agro-ecological products anywhere in Europe and lead increasing the market share of agro-ecological products. Such trajectory would require either commitment of WWF in developing SESSIT or further research projects that would develop the data entry procedure and increase the visibility of the tool so that a critical mass of farms would exist in the tool.


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## 4.2. Policies and strategies

### 4.2.1. Interactive features

Zoom in/zoon out, panning, click to open attribute boxes which can be clicked to open URL.

### 4.2.2. Content

The map consists of country polygons that open attribute boxes that link to stories that have focus in policies and strategies relating to agro-ecological agriculture. The listed attributes are: Country name, population, key agro-ecological practise identified in the case study of that country (expert evaluation), the main action that is proposed based on the case study, links to the story maps in English (EN) and local language (LL) and URL for additional information description. This attribute box was rather designed to be populated with descriptive information such as the area of agro-ecological practises applied in the country, their market share and overall sustainability indicators, which were not supplied by other work packages of UNISECO. However, this type of information could turn out to be feasible to add and useful in the future for giving the context for the linked policy focused narratives. Several countries produced only one narrative incorporating the farm and policy perspective into a single story.

### 4.2.3. Functionality

The function is to give the broader societal context and more indepth analysis of the challenges to agro-ecology than can be presented in the very short farm focused stories. Often the policies framing the decision-making environment of farmers in EU are numerous and describing accurately what would be needed for transition to happen could be too lengthy to hold the interest of wider audiences, while the people involved in the policy sphere would benefit from increased lenght. For sustaining the value of visiting this section of SESSIT, more systematic screening of agro-ecological data on the national level would be needed. Without dynamically updated content and institutonal setting to support it, it seems likely that the tool use remains limited to people searching for some particular result of the UNISECO project.

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## 4.3. Sustainability tool

### 4.3.1. Interactive features

Several interactive features are enabled by using a selected set of pre-programmed widgets from Esri. Compatibility issues and limited functionalities of the pre-existing widgets prevent from creating perfect interactive user experience. The project plan did not allocate enough time for widget customisation that could have been in theory used to avoid problems in the pre-existing widgets. The widget windows can be expanded from the top right corner (for example to avoid being overlapped or to enlarge charts).

Implemented widgets:

Time slider - scrolling different years:
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-time-slider.htm

Legend - on map legend
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-legend.htm

Group filter - searching for specific values in data
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-group-filter.htm

Info summary – counting features from a map
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-info-summary.htm

Select - choose regions for interactive graphs
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-select.htm

Chart - interactive for comparing scenarios
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-chart.htm

Infograph - Gauge - Quick overall trends in time
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-infographic.htm

Layer list - turning map layers on and off
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-layer-list.htm

Add data - adding more layers for viewing
https://doc.arcgis.com/en/web-appbuilder/create-apps/widget-add-data.htm

Basic interactive features: Zoom in/zoon out, panning, click to open attribute boxes which can be clicked to open URL , switching layers on and off.

### 4.3.2. Content

Following from limited resources, technical barriers and comments received from the EU level Multi-Actor Platform (EU-MAP), the sustainability indicator data in the sustainability tool of SESSIT is at the launch of the tool limited to output from the UNISECO-project WP4 territorial models BioBaM and SOLm (Müller et al 2020, D4.1). Five different scenarios were defined in the UNISECO-project (WP4) using feedback from various EU level stakeholder meetings. To be shown on SESSIT only “business as usual” (BAU) and “Local-agro-ecological-


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food-systems" (LAEsyst) were selected because the data storage requirements were preferred to be decreased to avoid additional costs for WWF and because dealing with many layers would slow down the system and potentially lead to confusion in understanding the different story lines for different scenarios.

The results from the WP4 models were calculated for the years 2012, 2030 and 2050, but the tool would deal technically better with more complete times series data than with for example extra scenarios.

In the BAU scenario, FAO/EU agricultural outlook trends to 20301 are used to set the development of the sector and 25% of the production is assumed fall under the umbrella of agro-ecology. In the LAEsyst scenario by 2050, 100% of total EU cropland is assumed as agro-ecological, ruminants are expected to be feed with only grass (no decline in productivity is assumed), pigs poultry and eggs are assumed to decrease 10% in production efficiency, food waste is assumed to be reduce by 50% and last, but very importantly European consumers are assumed to adopt "Eat-Lancet diet" (Willet et al. 2019), which significantly reduces the consumption of all animal products in EU. Further details of the scenarios have been published in D4.2. (Röös et al 2021).

The results available from these models do not cover country level data outside EU as originally envisioned. Furthermore, some indicators have not been provided at all outside EU. Because of technical limitations (primarily the loading time) only few selected indicators are preloaded to SESSIT. This is to reduce loading time of the tool that extended too much when all the indicators were preloaded.

The indicators preloaded to SESSIT are:

- Labour productivity in agriculture (EUR per hour) (a SDG)
- Total greenhouse gas emission from agriculture (including land use) (Millions of tonnes CO2ekv)
- Harvested biomass as share of total net primary production HANPP
- Irrigation water - scarcity adjusted (m3 Index)

These indicators reflect a key socioeconomic objective, one of key public goods produced by European agriculture, biodiversity (proxied by Harvested biomass as share of total net primary production, e.g. the higher share that is harvested, the poorer is the outcome for biodiversity) and one the main threats to food sustainability, climate change in both mitigation (emissions) and adaption/resilience sense proxied by water (one of the key sustainability issues identified in the case studies). It is worth to note that the impacts of climate change (for example see IPCC 2018) are not reflected in the model runs that produced the data shown in the SESSIT from WP4. In addition to these preloaded data layers, users can easily add the model results layers uploaded to SESSIT in GLOBIL:

[1] https://ec.europa.eu/agriculture/sites/agriculture/files/markets-and-prices/medium-term-outlook/2017/2017-fullrep_en.pdf


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### *Table 1. Indicators from BioBaM*

| Indicator | Items | Name in SESSIT |
|---|---|---|
| Land use (Mha) | Cultivated cropland | Landuse_Cropland_Mha |
| | Grazing land | Landuse_Grazingland_Mha |
| | Fallow cropland | |
| | Cropland converted to grazing land | Landuse_Cropland2Grazingland_Mha |
| | Cropland left to natural succession | Landuse_Cropland2NatVeg_Mha |
| | Grazing land converted to cropland | Landuse_Grazingland2Cropland_Mha |
| | Grazing land left to natural succession | Landuse_Grazingland2NatVeg_Mha |
| Cropland area by cropgroups (Mha) | 14 crop groups | NA |
| Grazing land by classes (Mha) | All grazing class names and 'original cropland' | NA |
| Net imports by cropgroups (Mt) | All cropgroup names | Trade_CropNetImports_Mt |
| Crop production (Mt) | All cropgroup names | Production_TotalCrops_Mt<br>Production_TotalCropYield_tperha |
| Crop consumption for food (Mt) | All cropgroup names | Demand_TotalCropsFood_Mt |
| Crop consumption for feed (Mt) | All cropgroup names | |
| Crop residues used as feed (Mt) | Crop residues | Demand_TotalCropsFeed_Mt |
| Crop consumption for feed by agriproduct (Mt) | All agricultural product names , followed by ' - ' and all cropgroup names | NA |
| Crop residues used as feed by agriproduct (Mt) | All agricultural product names , followed by ' - crop residues' | NA |
| Crop consumption for other uses (Mt) | All cropgroup names | Demand_TotalCropsOtheruses_Mt |
| Crop consumption (wasted) | Total | Demand_TotalCropsWaste_Mt |
| Agri.products production (Mt) | All agricultural product names | NA |
| Total animal production (Mt) | Sum over all animal prouducts | Production_TotalAnimalprod_Mt |
| Agri.products consumption for food (Mt) | All agricultural product names | Demand_TotalAgriproductsFood_Mt |
| Agri.products consumption for other uses (Mt) | All agricultural product names | Demand_TotalAgriproductsOtheruses_Mt |
| Grass supply (Mt) | All classes | Production_GrassSupply_Mt<br>Production_GrassSupply_tperha |
| Grass demand (Mt) | Total grazed biomass | |
| Grazing intensities (1) | All grazing class names and 'original cropland' | EnvInd_GrazingInt_1 |
| Potential self-sufficiency (1) | Land-based self-sufficiency on region level | NA |
| | Land-based self-sufficiency for regional aggregates level 1 | Selfsuff_PotSelfsuff_1 |
| | Land-based self-sufficiency for regional aggregates level 2 | NA |
| Self-sufficiency (all crops) (1) | all crops | Selfsuff_Crops_1 |
| Self-sufficiency by crops (1) | All cropgroup names | NA |
| | All cropgroup names | NA |
| | All cropgroup names | NA |
| Self-sufficiency by agri.products (1) | All agricultural product names | Selfsuff_TotalDryMatter_1 |

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| | | |
|---|---|---|
| | All agricultural product names | NA |
| | All agricultural product names | NA |
| GHG emissions from land use change (annual) (Mt $CO_2e$) | Total annual LUC emissions | EnvInd_GHGfromLUC_MtCO2e |
| GHG emissions from land use change (cumulative) (Mt $CO_2e$) | Total cumulative LUC emissions | NA |
| GHG emissions from manure management (Mt $CO_2e$) | All agricultural product names | EnvInd_GHGfromManMgmt_MtCO2e |
| GHG emissions from enteric fermentation (Mt $CO_2e$) | All agricultural product names | EnvInd_GHGfromEntferm_MtCO2e |
| GHG emissions: upstream emissions by cropg roup (Mt $CO_2e$) | All cropgroup names | EnvInd_GHGCropCultUpstream_MtCO2e |
| GHG emissions from crop production (Mt $CO_2e$): | Total over crop groups | EnvInd_GHGfromLUCexclNSucc_MtCO2e<br>EnvInd_GHGfromPaddyrice_MtCO2e<br>EnvInd_GHGfromResburn_MtCO2e<br>EnvInd_GHGfromSoils_MtCO2e<br>EnvInd_GHGtotalexclNSucc_MtCO2e |
| Relative N deficiency | Total | EnvInd_RelNDeficit_1 |
| Regional grazing feasibility (1) | Regional grazing feasibility | NA |

### *Table 2. SOLm based indicators*

| Indicator | Items | Name in SESSIT |
|---|---|---|
| Crop water use (m3) | Blue water footprint | BlueWater_m3_Index |
| | Green water footprint | GreenWater_m3_Index |
| | Grey water footprint | GreyWater_m3_Index |
| | Irrigation water use (i.e. alternative data source for blue water footprint) | Irrigation_m3_Index |
| Labour use (h) | Total labour use | AnimalLabourUse_h_Index<br>LabourUse_h_Index<br>CropLabourUse_h_Index |
| Production value (Euro) | Production value | ProducerValue_Animals_Euro<br>ProducerValue_Crops_Euro |
| Labour productivity (Euro/h) | Production value per unit labour input | LabourProductivity_Animals_EuroPerHour<br>LabourProductivity_Crops_EuroPerHour |
| Animal welfare (index) | Antibiotics use | AnimalWelfare_Antibiotics_Index |
| | Production intensity | AnimalWelfare_IntensityEggs_Index<br>AnimalWelfare_IntensityMonogastrMeat_Index<br>AnimalWelfare_IntensityRuminants_Index |
| | Heat stress | AnimalWelfare_HeatStress_Index |
| | Transport of living animals | AnimalWelfare_Transport_Index |
| Ammonia (index) | | NH3FromLand_t_Index<br>NH3FromLivestock_t_Index<br>NH3Total_t_Index |
| Soil water erosion | | SoilWaterErosion_t_Index |

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Crop or animal product specific results were not included in SESSIT to reduce the data storage needs.

Further details on the models and how the indicators have been defined can be found from the deliverables of the UNISECO project D4.2 (Röös et al 2021) and D4.3 (Mayer et al 2021).

### 4.3.3. Functionality

Heterogeneity of farming and the diversity of challenges related to sustainability make it difficult to generalise policy level conclusions from the case studies. There is a need to model the scope of the implementation of agro-ecological practices and assess the effects of implementation that can vary from region to region. SESSIT was designed to visualise content created for different scenarios to enable the inclusion of territorial models or other regional data.

SESSIT was envisioned as a tool that can outlast the UNISECO project. The basic premise was that staying useful requires that data gets updated after the project has finished. For this purpose, the sustainability tool was developed as a custom app based on the concept of "Dashboard" – a set of visualised sustainability metrics that update dynamically with both time and space. However, results of the UNISECO project are snapshots for given predefined years and for limited spatial coverage and therefore the potential of the tool is not fully utilised by its content. Only the four preloaded indicators update the gauges and charts due to design limitation in the interaction of the different widgets. Alas, preloading all of the data is too slow for good user experience, since the data layer widget and the web app are configured by ESRI so that the browser window only updates once all of the layers are processed instead of allowing to load little by little in the background while the user can inspect the data that was already loaded. More effective solution for the layer management would improve the tool usability as the tool was designed to have a nested data structure that would allow grouping of different indicators to avoid creating inconveniently long layer lists. However, the various widgets implemented in SESSIT are not yet supporting the group structure. This may change in the near future, but the group structure was not configured for ArcGIS Online due to the lack of current widget support. Furthermore, time data compatible versions of the gauge and chart widgets would streamline the layer structure and remove the need to have separate layers for specific years.

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# 5. INTENDED IMPACTS OF THE TOOL

The main purpose of the tool is to deliver information that can lead to decisions that improve the sustainability of agriculture. The aims of the stories provided through the tool are: i) the demonstration of compelling ways of how farmers have been able to transition to more sustainable practises; ii) illustrating the challenges which had to be overcome for this to happen; iii) and showing the roles and experiences of other actors, such as advisors and value chain actors, in promoting this process. The stories have been complemented by quantitative information (both from the case studies and territorial level analysis) presented as graphs and interactive features summarising sustainability indicator data.

The development of SESSIT has increased the capacity of the project to communicate issues relating to sustainability, which is an important element of successful transitions to more sustainable practises. The development has increased the capacity of the UNISECO partners to utilise and understand spatial data.

Local actors, including farmers, advisors and value chain actors who were involved in the project case studies have learned about the existence and functionality of the tool through the process of creating the story maps with them. The tool is open for further contributions of content and use of the platform to disseminate information about best practices with a view to changing consumer behaviour, value chain practises and agricultural policies. The overall impact is expected to facilitate transitions towards more sustainable agriculture through increased connectivity between actors using the tool, and the resulting operational changes in farming practices. However, such changes require time and the surrounding society must keep on supporting the role that the access to information has to increase the likelihood that the transition occurs.

Farming within the European Union is guided by supra-national, national and regional level policies. The tool was being designed and implemented to increase the awareness of policy makers of the effects of agro-ecological practises on sustainability. Some evidence that could support instrumental impacts (e.g. the identification of options for policy, and development of guidelines and the Handbook for practitioners) has been presented. In particular, the practical challenges faced by farmers have been illustrated, and the influencing policies have been discussed. The quantitative scenarios presented in the tool illustrate the relevance of local solutions to global sustainability challenges. Albeit, many challenges remain in forecasting how the agro-ecological solutions can be sustained in the future.

Given growing traction amongst the different stakeholders, the aim is that the tool will collect and disseminate an increasing number of stories relating to more sustainable farming practises and helping to tackle the fundamental dilemma faced by the project of how to produce public goods whilst having viable production of private goods, securing economic and social sustainability at a farm level, which is not overly dependent on public funds. The longer-term potential of the ideas that formed SESSIT is in the hands of WWF, which hopefully recognises the long-term nature of transitions to agro-ecological practices. One lesson from the efforts in constructing SESSIT is to plan the final deliverables of the multi-actor projects already in the proposal stage deeply with the “client” actor(s) to ensure that the research truly contributes to the long term development and is driven by concrete solutions.

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