

from  
Nexus **Thinking** to  
Nexus **Doing**



MANAGING RESILIENT NEXUS SYSTEMS THROUGH  
PARTICIPATORY SYSTEMS DYNAMICS MODELLING

## Deliverable 7.9 – Business plan\_First version

### WP7 – Pathways to Impact

[www.rexusproject.eu](http://www.rexusproject.eu)

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**Deliverable 7.9**

## Executive summary

The current report constitutes the first version of the Business plan of REXUS which is foreseen in the framework of Work Package 7 (WP7) of the project and especially Task 7.4 Exploitation, replication and business plan. The task focuses on the exploitation and sustainability of the REXUS results after the end of the project and on the development of mechanisms for the replication and adaptation of REXUS features at other geographical territories (e.g. sub-catchments/catchments) and countries. In the framework of the Task 7.4, a Business plan is foreseen to ensure the long-term sustainability, commercialization and uptake of its results and products, as well as to address legal and security aspects. D7.9 is oriented to the commercial exploitation of project results. More specifically, the aim of the deliverable is to identify, describe and analyse business opportunities for REXUS results with commercial exploitation potential and design, prepare and propose Business plans that are suitable for commercial result owners.

The current document summarizes business strategies needed to turn identified business opportunities into actual businesses that can generate profit, for all the project partners that have expressed interest in monetizing their project result(s). It includes an overview of each consortium member that aims to commercialize a REXUS output, a description (i.e. addressed problem, solution, main features, value proposition, IPR status) of the service(s) that each company plans to bring to the market, a market analysis (i.e. size, trends, restraining factors, customer segments, competitor analysis, SWOT analysis) of the markets each product/service is targeted at, an operational plan (i.e. marketing mix, business model canvas) for each project partner and a risk analysis for every respective business case.

The main goal of these Business plans is to serve as a starting point for every entity involved, that would help the consortium members examine their business strategy and consequently enable them to start the implementation of their desired Business plan. Ultimately the current deliverable constitutes a business card to introduce REXUS project results to interested stakeholders and support their quick commercialization.

The document focuses on seven (7) commercially exploitable results that are divided among four (4) REXUS partners (i.e. DRAXIS, ETIFOR SRL, ICATALIST, AGRISAT) with the aim to ultimately transform these commercially exploitable results into fully-functional and marketable services.

The methodology that was followed for this report comprises both primary and secondary (desk) research. More specifically, the primary research refers to the preparation and distribution a questionnaire among the consortium partners in order to gather relevant information for writing each section of the Business plan for each participating organization and to enable the creation of a Business Model Canvas for every project partner that is involved in the Business plan while creating a good base for further development of individual/consolidated Business plans in the future. Additional information, such as market insights and information on potential markets and customer/end-user segments as well as information regarding the exploitation of outputs and IP considerations, that were reviewed and utilized where appropriate, originate from the first version of the Exploitation and sustainability plan (D7.5). In addition, information regarding the participating organizations and REXUS in general were derived from the project's Proposal and Grant Agreement (GA).

Lastly, the secondary or desk research method relates to the utilization of a big number of available resources (e.g. regulation reports, government reports, market data and statistics, company websites, etc.) that were reviewed and selected to enrich the individual Business plans.

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## List of Abbreviations

Abbreviation	Definition
BLS	Bureau of Labor Statistics
CAGR	Compound Annual Growth Rate
CRA	Climate resilience team
EbA	Ecosystem based Approaches
ECS	Environmental Consulting Services
EO	Earth Observation
ES	Ecosystem Services
E&S	Exploitation and Sustainability
EU	European Union
GA	Grant Agreement
GACSA	Global Alliance for Climate-Smart Agriculture
GHG	Greenhouse gas
GIS	Geographic information system
GRA	Global Research Alliance on Agricultural Greenhouse Gases
Ha	Hectares
ICT	Information and Communications Technology
IP	Intellectual Property
IPR	Intellectual Property Rights
LAA	Learning and Action Alliances
MD	Ministerial Decision
MEEN	Ministry of Environment and Energy
NAS	National Academy of Science
NBS	Nature based Solutions
NGO	Non-Governmental Organisation
PESPACA	Regional Plans for Adaptation to Climate Change
PSDM	Participatory System Dynamics Modeling
RAAP	Regional Adaptation Action Plans



SDG	Sustainable Development Goals
SECAP	Sustainable Energy and Climate Action Plan
SME	Small and Medium Enterprises
WEF	Water-Energy-Food
WEFC	Water-Energy-Food-Climate
WP	Work Package

## 1. Introduction

The Water-Energy-Food (WEF) Nexus is central to sustainable development. Demand for all three sectors is increasing, driven by a rising global population, rapid urbanization, changing diets and economic growth. Agriculture is the largest consumer of the world's freshwater resources, and more than one-quarter of the energy used globally is expended on food production and supply. The inextricable linkages between these critical sectors require a suitably integrated approach to ensuring water and food security, and sustainable agriculture and energy production worldwide (FAO, 2011; 2021 UN, 2014).

In this context, the REXUS project jointly develops and validates knowledge and tools that facilitate the transition from the stage of "Nexus Understanding" to "Nexus Doing", in order to enhance resilience. Additionally, REXUS explores the appropriateness of existing governance structures, as well as the policy and legal frameworks for addressing the key specificity of the Nexus approach, namely the need for cross-sectoral, cross-scale and stakeholder integration. The project relies on a methodology named "Learning and Action Alliances (LAA)", for multi-stakeholder engagement, in order to develop the Participatory System Dynamics Models (PSDMs), which allow the stakeholders to understand WEFC interactions and propose evidence-based policy making. This methodology also promotes synergies across sectors, such as nature-based solutions (NBS) to climate change adaptation (i.e. EbA) and mitigation. Some additional results that the project provides are the development of a coupled-resource flow management tool and EO-based suitability tools for Nexus management, as well as climate risk assessments analysis for the pilot cases, in order to understand how climate might affect different WEF configurations. Finally, the project assesses socio-economic implications of all the above actions.

For all these actions, five pilot areas have been selected to represent a wide spectrum of European and global Nexus situations, potentials, and implementation conditions. They span scales from sub-catchment (Pinios river basin, Greece; Lower Danube river basin, Romania-Serbia-Bulgaria) to tributary catchment (Nima river, Colombia) to full catchment (Isonzo-Soča river basin, Italy/Slovenia) and to national territory (peninsular Spain).

To maximize the impact of REXUS beyond the duration of the project and across scales beyond the project partnership, WP7 Pathways to Impact is foreseen. The current report is developed in the framework of Task 7.4 which focuses on the exploitation and sustainability of the REXUS results after the end of the project and on the development of mechanisms for the replication and adaptation of REXUS features at other geographical territories (e.g. sub-catchments/catchments) and countries. Finally, in the framework of the Task 7.4, a Business plan is foreseen to ensure the long-term sustainability, commercialization and uptake of its results and products, as well as to address legal and security aspects. Task 7.4 was launched from the beginning of the project and is planned to be completed by the project end. The current report is the first version of the Business plan (Deliverable 7.9) while the final version will be submitted by the end of the project.

In essence, the Business plan serves as a starting point for every entity involved, that would help the project partners identify a set of actions and decisions that need to be taken in order to achieve their business goals considering the time frame and the methods for attaining those goals. It's overarching aim is to boost the commercialization of the key exploitable results of the REXUS project and ensure the sustainability of commercial results fostering their expansion and adoption by interested stakeholders and customer groups.

More specifically, the current document proposes a way how the REXUS partners can turn the exploitable results that have generated though the course of the project into profitable business cases and deliver added value to their future customers.

Furthermore, building on the first version of the Exploitation and sustainability plan (D7.5), the current deliverable gives an update on the exploitable results and the exploitation pathways that have been identified by

the project partners in the framework of D7.5. As the main purpose of the deliverable is to pave the way for successful commercialization of REXUS results, it focuses on the consortium members that aim to gain monetization value from their exploitable outputs.

The rest of the document is organized as follows: **Section 2**, describes the methodology followed in the current document in order to collect all the relevant information and transform it into Business plans. **Section 3**, provides significant updates upon exploitation types and pathways analysed in *D7.5*. **Section 4**, lays-out the individual Business plans. Finally, **Section 5** provides an epilogue of the current document summarizing the key points that are derived from the Business plan deliverable and highlighting possible directions that can be pursued by consortium partners regarding commercialization of their outputs. Furthermore, it outlines the way forward, namely the topics that are foreseen to be covered in the final version of the Business plan (D7.10).

## 2. Methodology

As the present deliverable aims to develop Business plans for those project results for which interest in monetization has been expressed by REXUS partners, an extensive amount of data had to be collected through primary and secondary research methods and analysed by using different channels and tools.

More specifically, the primary research method used (see Section Primary Research) is related to the preparation and distribution of a questionnaire among the consortium partners in order to firstly validate or update the already gathered information on their exploitable outputs that was collected in the framework of D7.5. The purpose of the questionnaire was: (1) to gather relevant information for writing each section of Business plans from each participating organization, (2) to enable us to create a Business Model Canvas for every project partner that is involved in the Business plan and create a good basis for further development of individual/consolidated Business plans.

The secondary or desk research method used (see Section Secondary (Desk) Research), included a big number of available resources that were reviewed and selected to enrich the individual Business plans. Additionally, Deliverable 7.5 Exploitation and sustainability plan (draft)\_ First version was used as a solid base in order to create the current document.

### 2.1. Primary Research

As far as the primary research is concerned, we began by contacting all the REXUS partners in order to investigate whether they are interested in commercializing their project results.

Subsequently a detailed questionnaire was prepared and distributed among the consortium members. This questionnaire is structured into 9 thematic blocks, containing more than 40 questions covering information needed to prepare the individual Business plans. The aforementioned questionnaire includes all the relevant information that was gathered in the framework of D7.5 (description, value proposition of the exploitable results, IPR status, potential markets, end-users, etc.) and the REXUS partners were asked to update their input. Furthermore, the questionnaire explores several necessary topics regarding a Business plan, such as marketing-readiness, customer/end-user readiness, business readiness and financial/investment readiness of the entity that aims to monetize a project result. The questionnaire was tailored for each participating entity and distributed via email.

The Business plan questionnaire is presented in detail hereafter. It consists of three Sections, in particular:

- Section 1: Contact information of the respondent.
- Section 2: Business plan questionnaire. This Section is devoted to those project results that have monetization potential and the consortium member(s) that has generated them has expressed its interest in commercializing them.
- Section 3: Glossary. Definitions of key terms such as Business Model, Exploitation, Customer/End-user, Intellectual Property (IP), etc.

Section 1 refers to the information of the respondent and the partners are asked to declare the name of the organization they represent, their full name and an e-mail.

RESPONDENT INFO	
Organization	
Name and surname	
e-mail	

Figure 1: Contact information of the respondent. REXUS BP questionnaire, Section 1

In Section 2, “Business plan questionnaire”, the respondent is asked to provide information with respect to the commercially exploitable results of his/her organization (i.e. title, brief description, added value, main features, objectives, etc.), the ownership and protection of the results (i.e. ownership of each result, intended IPR, collaborations with other consortium members), their market- readiness (i.e. potential markets, trends, competitive solutions, risks, barriers, etc.), customer readiness (i.e. potential customer segments, customer relationship, early adopters, etc.), marketing readiness (i.e. key activities, key partnerships, business goals, key metrics, etc.) investment readiness (i.e. investment needs, potential sources of capital) and its financial readiness (i.e. related costs, expected revenue streams). It is worth mentioning that in this Section, we have included most of the questions from the REXUS Exploitation questionnaire (in black font), while we have also added some new questions in green font.

Business plan questionnaire	INPUT FROM IPARTNER X	
<b>Identification of exploitable results</b>		
Does any <b>project result</b> , connected to the activities of your organization in the project, have potential for <b>exploitation</b> ?	<i>Please select</i>	
If yes, how many exploitable results can you identify?	<i>Please select</i>	
If no, please explain why.		
	<b>Exploitable result No (Title)</b>	
<b>Description of exploitable results</b>		
Please provide a title and a short description of your exploitable result, including its main features.	<b>Title :</b> <i>Short Description</i> <b>Main features :</b> <b>Objectives :</b> <b>Advantages :</b> <b>What is new :</b> <b>Why is important :</b>	
Are you planning on having any monetary value from this exploitable result? (e.g. make money)	<i>Please select</i>	
What problem your exploitable output is trying to solve?		
How do you plan to address this problem with your exploitable result?		
What is the value proposition of your exploitable output?		
What is the intended type of exploitation (e.g. commercial, non-commercial). If other, please briefly explain.	<i>Please select</i>	<i>If other, please briefly explain:</i>
Is your exploitable result demonstrated in any of the pilots? If yes, please briefly explain how.		<i>Please briefly explain:</i>

Figure 2: Identification and description of commercially exploitable results. REXUS BP questionnaire, Section 2

Ownership and protection of the results		
Are you the exclusive <u>owner</u> of the exploitable result?	Please select	
If no, please name the other partner(s) that are owner(s) of this result.		
How have they contributed to the development of your exploitable output?		
What are their responsibilities/rights regarding this project result?		
Proposed collaborations		
Do you intend to protect your result with some form of Intellectual Property Right (IPR)?	Please select	
If yes, please specify how.	Please select	If other please specify:

Figure 3: Intellectual Property issues, REXUS BP questionnaire, Section 2

Market-Readiness		
Which are your target market(s)?	<b>Target market(s):</b> <b>Size and growth rate:</b> <b>Location:</b> <b>Current trends:</b> <b>Restraining factors:</b>	
What changes are taking place currently in the market?		
Who are the main competitors in the markets you plan to compete? Please name up to 5 (minimum 3) of your key competitors and describe them very briefly.		
What is your competitive advantage/disadvantage relative to above described competitors.		
Can you identify any Strengths, Weaknesses, Opportunities and Threats regarding your exploitable result and its target market?	<b>Strengths:</b> <b>Weaknesses:</b> <b>Opportunities:</b> <b>Threats:</b>	
How do you plan to mitigate any market risks/challenges?		
Are there any barriers to the uptake of your result?		Please elaborate:

Figure 4: Market readiness aspect. REXUS BP questionnaire, Section 2

Customer-Readiness		
<b>Who are the main potential <u>customers</u> and/or <u>end-users</u> who could be interested in this result? Please describe in detail.</b>	<i>Please select</i>	<i>If more than one, please indicate: Please describe your selected options:</i>
<b>Describe your ideal (target) customer (i.e. needs, type of organization, location and size).</b>	<b>Needs/Problem :</b> <b>Type of organization :</b> <b>Location :</b> <b>Size :</b>	
<b>How does your product/service meet the customer/end-user's needs?</b>		
<b>Do you have an established and maintained relationship with your intended customer segment(s)?</b>		Please elaborate:
<b>Do you have early adopters for your exploitable result? If yes, describe who they are, how they benefit from your output and their feedback regarding your result.</b>		Please elaborate:

Figure 5: Customer readiness aspect. REXUS BP questionnaire, Section 2

Marketing-Readiness	
<b>How do you plan to reach your intended customers or targeted audience?</b>	
<b>What is your price policy/strategy going to be (If applicable, provide short term and the long term strategy/policy)?</b>	
<b>How will you actually be doing the selling?</b>	
<b>What is the biggest marketing risk you might face? What is your contingency plan to mitigate this risk.</b>	

Figure 6: Marketing readiness aspect. REXUS BP questionnaire, Section 2

Business-Readiness	
Please define the Management Team / Leadership	
What is your Mission Statement?	
Please define your Vision Statement	
Can you identify the network of key partners and/or suppliers, partnerships and synergies required to optimize the business model, acquire resources and reduce risk?	
What are the key activities that you must do to make the business model operate?	
Can you elaborate on the current and future human, intellectual and financial resources and assets required to make the model work?	
What are your Business goals and objectives?	
Could you list you key metrics? (if applicable)	
Risk Analysis	

Figure 7: Business readiness aspect. REXUS BP questionnaire, Section 2

Investment-Readiness	
Can you identify your investment needs in the next 3 -5 years	Scaling needs:
What are your potential sources of capital?	
Financial-Readiness	
What are the costs related to the product/service that you aim to exploit?	
What is the expeted revenue and revenue streams from the exploitation of your result?	

Figure 8: Investment/Financial readiness aspects. REXUS BP questionnaire, Section 2

Furthermore, additional resources that were reviewed and utilized where appropriate, originate from files and documents generated under Task 7.4 of REXUS. Specifically, market insights and information on potential markets and customer/end-user segments as well as information regarding the exploitation of outputs and IP



considerations were part of the first version of the Exploitation and sustainability plan (D7.5) and are of the utmost importance for this deliverable too. In addition, information regarding the participating organizations and REXUS in general were derived from the project's Proposal and Grant Agreement (GA).

## 2.2. Secondary (Desk) Research

Some of the external resources used were EU regulation reports, government reports, market data and statistics, company websites, etc. These sources covered topics such as the potential markets of the exploitable results that the consortium members aim to monetize, their competitive landscape, the innate risks of a commercialization process, etc. In order to safeguard the integrity of the secondary research results, we ensured that information gathered and reviewed is up-to date and accurate.

## 2.3. Business plan development

As mentioned before, for every project partner that has expressed interest in monetizing its project result(s), a Business plan has been developed. It begins with an overview of the respective consortium member (e.g. company information, areas of expertise, previous experience, etc.). Each Business plan also provides a description of the service(s) that each company plans to bring to the market, which includes a description of the problem that the product/service aims to address, the solution that it provides, its main features (i.e. technical specification regarding its functionality), an analysis of what distinguishes it from the existing solutions (value proposition) and portrays its ownership (IPR) status.

Another integral section of every Business plan is the market analysis section. It depicts the size (both economic and geographical) of each project partner's targeted market(s), its trends, that include the main driving factors and the latest or expected development and each market's restraining factors (i.e. barriers to each partner's market penetration and obstacles that could hinder the expansion of each target market). In addition, the market analysis section identifies the customer segments (customers/end-users) of each business case and their main benefits from the use of the service(s) that the respective REXUS partner provides. Furthermore, this section includes an overview of the closest competitors of each project partner with commercial exploitation intent, focusing on their local market. Lastly, the market analysis section of the individual Business plans provides a SWOT analysis. In essence, the Strengths and Weaknesses aspect refers to the internal environment of the project result(s) that will be commercialized (e.g. company/organization) while the Opportunities and Threats aspect revolves around the external environment (e.g. external risks, challenges, etc.).

The Business plan development methodology also contains an operational plan. This plan begins with the identification of the team that will be managing each service that is portrayed on the individual business cases, their vision, the project partner's business objectives regarding the service(s) that are planned for commercialization and the key metrics that are used as a means of measuring progress. Furthermore, the operational plan includes a marketing mix. The marketing mix refers to the various elements of a company's offering in the market. It is a varied "mix of ingredients" used by a business to achieve its objectives by marketing its products or services effectively to a particular customer group. The marketing mix, also referred to as the 4 Ps, is comprised of four main pieces – Products, Price, Promotion and Place. The 4Ps describe what marketers can control and are the most critical elements when building a marketing strategy (Inglis, 2022). A more in depth analysis regarding the definition of a marketing mix is provided in the ANNEX of the current document. Finally, this section provides a Business Model Canvas for every consortium member involved in the Business plan. The canvas depicts the key partners (i.e. the network of partners, partnerships and synergies required to optimize the

business model, acquire resources and reduce risk), the key activities (i.e. the most important things a company must do to make its business model operate), the key resources (i.e. the most important current and future human, intellectual and financial resources and assets required to make the business model work), the value proposition (i.e. the quantitative or qualitative value that distinguishes the service(s) provided from the ones that already exist), the customer relationship (i.e. the established and maintained relationships with potential customers), the customer segments (i.e. the segments of customers a company wants to offer value to or attract), the channels (i.e. the planned way that each project partner aims to reach its targeted customers), the cost structure (i.e. all cost incurred to make the business model operational) and the revenue streams (i.e. the company’s revenue flows) of every business case.

The Business plan development methodology ends with a risk analysis. This section presents the market, marketing, partnership and operational and development risks that each REXUS partner could phase in the process of transforming its exploitable result(s) in a fully-operational and marketable service(s).

Figure 9 portrays the Business plan development methodology that was followed for every project partner with commercial exploitation intent.

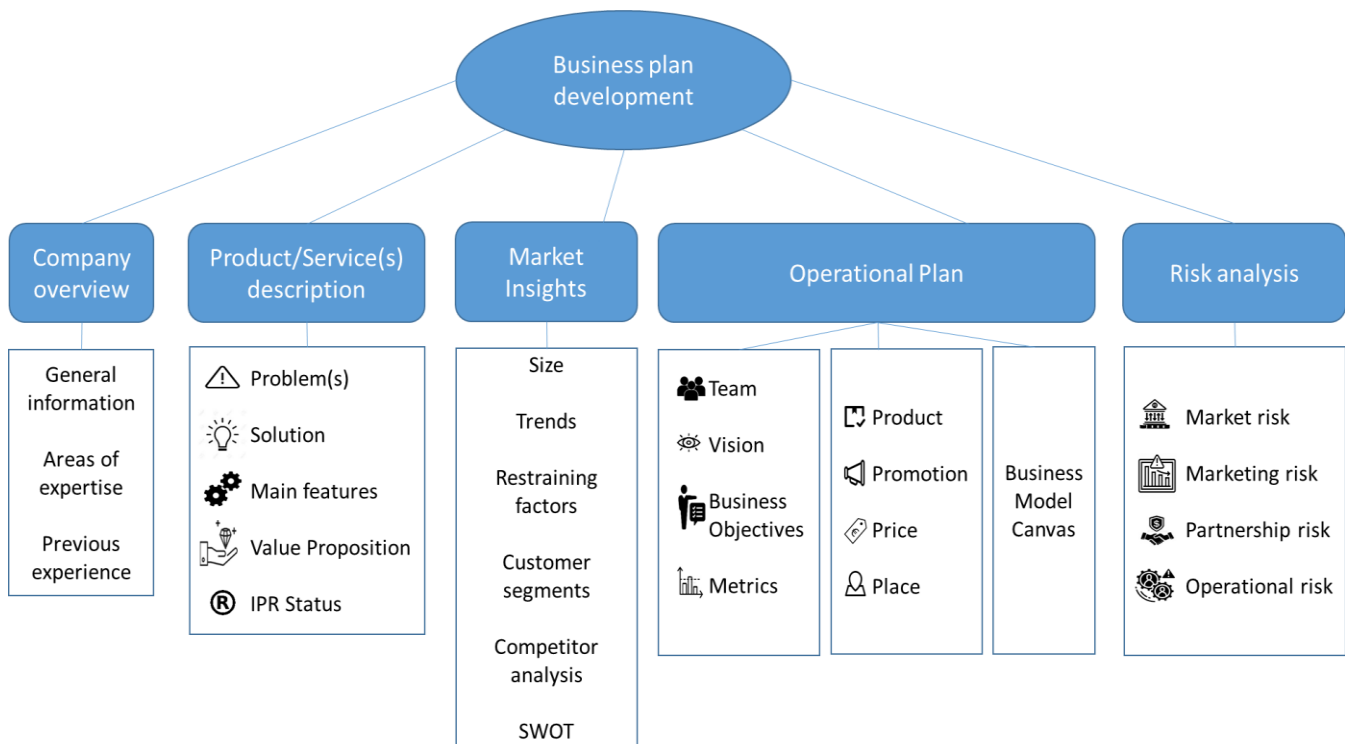


Figure 9: Business plan development methodology

### 3. REXUS Updated Exploitation and Sustainability Strategy

As explained in the first version of the Exploitation and sustainability plan (D7.5), the REXUS project delivers various outputs that fall into one of the following main categories of exploitation: 1) **commercially oriented exploitation** (ready for commercial exploitation, business models); 2) **potentially commercial exploitation** (owners have to decide which exploitation pathway to take, commercial or non-commercial<sup>1</sup>) and; 3) **non-commercial exploitation** (will not be commercialized, incl. policy guidelines, methods, models and algorithms, etc. for education related purposes, further research, scientific knowledge, etc.).

In the initial list of exploitable outputs included in D7.5, consortium partners indicated several commercial ideas. In the framework of the current deliverable, the project partners that have previously expressed interest in commercializing their results along with those whose outputs have commercialization potential, were contacted in order to clarify whether they intended to pursue the monetization of their results. However, several consortium partners clarified that they have no intention of gaining and monetary value out of their outputs, hence some **results have been re-classified as non-commercial**. It is worth noting that the aforementioned process is a dynamic one, hence it is possible that the number of the commercially exploitable results of REXUS will change in the framework of final version of the Business plan (D7.10).

Table 1 presents the updated list of all the commercially exploitable outputs identified and brought up to date by the consortium partners. As it is apparent from Table 1, there are **7 commercially exploitable outputs**.

Table 1: REXUS commercially exploitable results

Results	Brief Description	Leading (Contributing) Partner(s)	IPR Status
<b>Pilot implementation set-up: Baseline, framework, benchmarking</b>	A description will be established for implementation in each pilot area where the Nexus is evaluated, which is helpful for replication in other areas outside the project. The implementation framework will not only comprise a description of the baseline. On the contrary, it will also integrate the co-implementation and the co-validation plan, along with a roadmap for replicating the process outside the project.	AGRISAT	Owned by AGRISAT
<b>Water accounting and footprint</b>	Maps of crop water necessities and water footprint at plot scale.	UCLM (AGRISAT)	Jointly owned by UCLM (50%) and AGRISAT (50%)
<b>Land Use map of agricultural crops</b>	The methodology and map for the identification of land use at plot scale.	UCLM (AGRISAT)	Owned by UCLM

<sup>1</sup> Several consortium members have classified their project results as non-commercial, in the framework of the first version of the Exploitation and sustainability plan (D7.5), but due to their strong monetization potential, some REXUS partners were asked again whether they would like to pursue the commercialization of their output or not.

Results	Brief Description	Leading (Contributing) Partner(s)	IPR Status
			(100%)
<b>Land use suitability</b>	Selection of crop suitability.	UCLM (AGRISAT)	Owned by UCLM (50%) and AGRISAT (50%)
<b>Roadmap to identify the potential role of Nature-based solutions for a climate resilient WEF Nexus through Socio-economic impacts of WEF Nexus-related ES</b>	Through the identification of WEF Nexus-related ES, the design of an evaluation scheme to assess the socio-economic features linked to ES (supply, demand, economic value) through specific indicators, the identification of NBS capable to provide WEF Nexus-related ES. This service includes a three-dimension roadmap to assist users in selecting NBS to address WEF Nexus challenges. The roadmap finalizes with a list of 51 NBS from where the user can choose, using the considerations from the roadmap.	ETIFOR SRL (UNIPD)	Owned by ETIFOR SRL and UNIPD
<b>Visioning for resilient Nexus</b>	A participatory scenario planning is being designed as a broad participatory process whose central aim of is to engage a representative group of stakeholders around WEFC Nexus.	ICATALIST	Owned by ICATALIST
<b>Fit-for-Nexus Climate Risk Assessments</b>	Through the climate risk assessments, information on climate change in the form of composite climate indicators is used in combination with other relevant information on exposure and vulnerabilities associated to the Nexus sectors of food, water and energy.	DRAXIS	Owned by DRAXIS

## 4. Individual Business Plans

This section provides three (3) unique individual Business plan propositions, for three (3) of the four (4) participating organizations with commercial exploitation interest.

### 4.1. ETIFOR SRL

#### 4.1.1. Overview

**ETIFOR<sup>2</sup>** is a highly specialized consulting firm providing solutions to the main socio-economic challenges within development and nature conservation projects. As a spin-off company of the University of Padua (Italy) it works with a strong scientific approach, using innovative social and technological techniques, while ensuring the good governance and implementation of their proposed solutions. The company's work leads to improving the economic, environmental and social benefits of policies, projects and investments for private corporation, civil society organizations and national governments. Its approach is scientifically sound and based on a well-established experience with knowledge transfer processes, from research to practice. ETIFOR's roots are based on the experiences developed by several PhD graduates at the Department of Land, Environment, Agriculture and Forestry (TESAF) at the University of Padua. Since its foundation, ETIFOR has working on turning scientific knowledge into practical solutions by choosing, realizing and managing projects with positive environmental, social and governance impacts (ESG impacts) in its three defined areas of intervention:

- Sustainable investments;
- Responsible management;
- Local development

ETIFOR is active in the field of ecosystem services economic evaluation and spatial analysis. Stakeholder analysis, training courses, setting of appropriate governance and policy mechanism and support of participative processes for the identification/implementation of project solutions and ideas are some of the key issues within ETIFOR's activities.

After 10 years of increased intervention, ETIFOR has operated in more than 40 countries and have over 300 impact-driven projects in its portfolio. Indeed, this high number of projects has led to the dynamic and innovative pace that ETIFOR has set for itself from project conception to monitoring and evaluation.

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<sup>2</sup> For more information, please visit the website at <https://www.etifor.com/it/>.

#### 4.1.2. Product/Service(s) Description & Value Proposition

**PROBLEM(S):** Due to the rising of global population, rapid urbanization, climate change repercussions, natural resources depletion, raging energy crisis, changing diets and economic growth, there is an urgent need to support decision-making in the context of selecting Nature-based solutions under a WEF Nexus approach in order to address WEF Nexus challenges. Furthermore, meeting water, energy, and food securities agendas is a complex task that calls for integrative solutions that address multiple objectives simultaneously and consider potential trade-offs.



**SOLUTION-Roadmap to identify the potential role of Nature-based solutions for a climate resilient WEF nexus through Socio-economic impacts of WEF Nexus-related ES:** This service aims to aid in the solution of the aforementioned problem. Its objective is to guide the user through the vast landscape of catalogues and tools in the process of selecting an NBS to address challenges in the context of the WEF Nexus. For this to come to fruition, the service will illustrate to the user the potential role of NBS and present him/her with a selection of indicators comprehensive of bio-physical, social, and economic features for each ES. That would ultimately improve the provision of multiple ecosystem services by addressing some of the socio-political challenges that prevent the adoption of a Nexus approach. In essence, this service helps decision-makers see the potential of NBS for addressing complex Nexus challenges whilst analysing the effect that NBS have on ES provision. It is a way to tackle WEF Nexus challenges through an Ecosystem Services approach.



**MAIN FEATURES:** The service includes a three-dimension roadmap to assist users in selecting NBS to address WEF Nexus challenges. The roadmap finalizes with a list of 51 NBS from where the user can choose, using the considerations from the roadmap. Additionally, through the identification of WEF Nexus-related ES, the design of an evaluation scheme to assess the socio-economic features linked to ES (supply, demand, economic value) through specific indicators will be provided as well. It is worth noting that this result is not demonstrated in any pilot area of REXUS yet. Nevertheless, the aim is for it to be utilized in the pilots of Nima and Isonzo.



**VALUE PROPOSITION:** Its value stems from the fact that it is a compact and easily usable service that explores the literature about NBS and places it under the WEF Nexus approach whilst providing a vast selection of indicators, a combination which results in a well-rounded service. Specifically, it is one of the first attempts to link the logic and the considerations about Nature-based solutions under the WEF Nexus framework.



**IPR Status:** The “Roadmap to identify the potential role of Nature-based solutions for a climate resilient WEF Nexus through Socio-economic impacts of WEF Nexus-related ES”, is owned by ETIFOR SRL and UNIPD. It stems from the work developed within WP5, where other several project partners participate (i.e. UNIPD, WCMC and DELTARES). It is worth mentioning that they have contributed intellectually to developing the whole work of the work package in the framework of REXUS. Yet ETIFOR is the consortium member that will monetize this project output, since it is the only entity that does not have a research orientation. The details about each partner’s percentage of ownership of the result will be discussed and finalized in an internal agreement amongst them.



#### 4.1.3. Market Insights

In this section, a market analysis with respect to the relevant market identified by ETIFOR for its intended service, takes place. It consists of an overview of the market size, the current trends and restraining factors that currently characterize it. Furthermore, the targeted customer segments of this service and their main benefits from the use of the service are presented, along with a brief competitor audit and a SWOT analysis.

##### 4.1.3.1. Size

ETIFOR has identified the European environmental consulting services (ECS) market as their relevant market. Particularly, the company aims to enter the NBS market by providing consulting services on Ecosystem Services (ES) identification and assessment. It is worth mentioning that the company plans to kick start establishing its service in the Italian market where it has stable relationships with some organizations that could potentially become potential clients (e.g. utilities, parks).

In general, the **environmental consulting services market** consists of the sales of environmental consulting services and related goods by entities (organisations, sole traders and partnerships) that provide advice, assistance, and action plans to organisations and governments to manage their environment (The Business Research Company, 2021). The environmental consulting services undertake processes where human capital is the main input. They make available the knowledge and skills of their employees, often on an assignment basis, where an individual or a team is responsible for the delivery of services to the client (The Business Research Company, 2021).

The global environmental consulting services market reached a value of nearly \$29,082.2 million in 2020, having increased at a compound annual growth rate (CAGR) of 0.9% since 2015. The market is expected to grow from \$29,082.2 million in 2020 to \$36,926.7 million in 2025 at a rate of 4.9%. The market is then expected to grow at a CAGR of 3.7% from 2025 and reach \$44,240.1 million in 2030 (The Business Research Company, 2021). The environmental consulting services market in Europe is expected to grow from US\$ 8,356.29 million in 2021 to US\$ 11,954.86 million by 2028. It is estimated to grow at a CAGR of 5.2% from 2021 to 2028 (Ashlan Bonnell, 2021).

Regarding the **NBS market**, there has been a great deal of recent interest in it as an approach to tackle climate change with socio-economic and environmental co-benefits (David Simpson & American University School of International Services, 2020). NBS are intended to support the achievement of society's development goals and safeguard human well-being in ways that reflect cultural and societal values and enhance the resilience of ecosystems, their capacity for renewal and the provision of ES. NBS are designed to address major societal challenges, such as food security, climate change, water security, human health, disaster risk, social and economic development. In framing NBS and considering its applications, it is useful to think of it as an umbrella concept that covers a whole range of ecosystem-related approaches all of which address societal challenges (IUCN, 2022).

Some of the main categories of NBS approaches include, ecological restoration and engineering, forest landscape restoration, climate adaptation services, ecosystem-based disaster risk reduction, green infrastructure, integrated water resources and coastal zone management and area-based conservation approaches (IUCN, 2022). In essence, NBS are an ecological approach to climate change action, whilst also enhancing the resilience of natural and managed ecosystems and the human settlements that adjoin them (David Simpson & American University School of International Services, 2020).

The Nature based solutions market has been characterized as one of the fastest growing markets right now, with an estimated annual growth rate of 14.45% until the end of the decade. As of 2019, \$20.75 billion of private



capital was estimated to have flowed into nature-positive activity and conservation investments (Curran et al., 2021).

#### 4.1.3.2. Trends

The market trends that ETIFOR has declared are:

- climate neutrality targets by private companies, involving natural capital accounting and ecosystem services valuation (NBS could play an important role in meeting these goals);
- flourishing of private-public initiatives that results in governments starting to provide economic incentives for developing the sector (e.g. green bonds, recovery and resilience plans in European states);
- growing demand of the civil society for more sustainable companies, with less environmental impacts and more social commitments.

Indeed, the world is currently facing twin threats of the climate and nature crises. One cannot be solved without addressing the other and natural systems will play a critical role in adaptation and in building resilience. Halting the destruction of natural ecosystems must go hand in hand with rapid decarbonisation. Moreover, recognizing the interconnection between nature and climate change, and integrating natural processes and systems into public and financial assessments of climate change and its impacts, are going to play a fundamental role in successful action on climate change (Jackson, 2021).

According to the US Bureau of Labor Statistics (BLS), public awareness and concern about climate change are crucial drivers in the growing need for qualified environmental consultants. The Environmental Consulting industry is expected to continue to experience revenue growth as climate change persists to be a growing cause of concern. With greater measures being taken to reduce greenhouse gas (GHG) emissions across the globe, and increasing pressure from investors and consumers, companies in many industries are striving to remain ahead of regulatory changes. This increased emphasis on environmental sustainability is anticipated to support industry revenue growth (IBIS World, 2021).

Under the 2015 Paris Agreement, nearly 200 countries have endorsed the global goal of limiting the rise in average temperatures to 2.0 degrees Celsius above preindustrial levels, and ideally 1.5 degrees. Reaching the 1.5-degree target would require that global greenhouse-gas emissions are cut by 50 percent of current levels by 2030 and reduced to net zero by 2050. More companies are aligning themselves with this agenda. In less than a year, the number of companies with net-zero pledges doubled, from 500 in 2019 to more than 1,000 in 2020 (Blaufelder et al., 2021).

Thus the obvious market trend is the foreseen need for consultants specifying in the means of diminishing the hazardous environmental outcome from companies and industries, specifically the reduction of greenhouse gas emissions. That would entail the proposition and implementation of NBS into a country level and financial assessments of climate change and its impacts. So generally Ecosystem services, and more specifically Ecosystem-based Adaptation (e.g. allowing forests to regrow, restoring coastal wetlands, and switching to restorative agricultural practices such as cover crop rotation, that support healthy soils, etc.) are foreseen to be of the utmost importance in the near future (IUCN, 2022).

Furthermore, economic sectors of priority with respect to climate change (e.g. agriculture and food security, disaster risk reduction, energy, health, and water), tend to have more readily-available information on how climate services can be applied within the sectors, and what the drawbacks to using them are. However, as the impacts of climate change start to be felt across multiple economic sectors, and as consumers start to push companies to make combatting and adapting to climate change a more prominent part of their Business plans, climate services are emerging among a broad range of industries and for multiple purposes. Thus, the



environmental consulting services market, especially those that revolve around NBS, can be expected to evolve in the near future, as more investments are made and climate change impacts become an ever-present reality that must be dealt with (Tart et al., 2020). Additionally, the rising adoption of renewable technologies for cleaner and greener environment is among the other factors expected to fuel the demand for environmental consulting services in Europe (Ashlan Bonnell, 2021).

Moreover, in Europe, the IUCN European Regional Office works closely with EU institutions, EU member states and other key stakeholders to ensure that the concept of nature-based solutions is well-known, accepted, and reflected in policies across different sectors and levels of government. In 2015, IUCN welcomed the European Commission's decision to make nature-based solutions part of the Horizon 2020 programme for research and innovation which signifies a major step towards positioning the EU as a world leader in innovation with nature (IUCN, 2022).

Lastly, end-users such as governments and regulators constituted the largest segment of stakeholders that the environmental consulting services market was targeted towards and it accounted for 33.4% of the total in 2020 (The Business Research Company, 2021). Accordingly, there is a significant demand for the provision of environmental consulting services that are aimed at stakeholders such as public authorities and policy makers, something that perfectly fits the description of the service that ETIFOR aims to monetize. This demand in conjunction with the foreseen evolution of the NBS market, that was mentioned before, serve the service that ETIFOR aims to offer to the market and are anticipated to enhance the market penetration of the company.

#### 4.1.3.3. *Restraining factors*

The most prominent hurdle that could hinder the vast commercialization of ETIFOR's service, according to the company, is the lack of political willingness and economic support for such services and initiatives. In specific, the project partner has stated that market is not "ready" thus not prioritizing the development of such services yet. They are still in a "nice-to-have" phase and seen as "too innovative" rather than be a "must" and therefore are perceived as uncertain and riskier than traditional measures. This could be a consequence of the fact that the topic of ecosystem services is still hard to understand for the broader audience and it is not mandatory for public and private actors to act in this regard (i.e. there are hardly any legal requirements to endorse more environmentally friendly activities). As a result, there could be a mismatch in the value perception by the targeted customer segments of this service. In essence, they could initially have reservations regarding the service, thus being hesitant to purchase and utilize it.

Another barrier that could halt the rapid market penetration of the service that ETIFOR plans to provide is that it is restricted to the Italian and European market with little to no potential of globalization in the short-term. Furthermore, despite the fact that it is generated through a European funded project, it might prove to be hard to access European market due to the distant, yet heavy, competition.

4.1.3.4. *Customer segments*



### Policy makers and public authorities

- More advanced and scientifically oriented decision-making process regarding natural resources
- Description of action that relates to addressing resource-use conflicts



### Public organizations

- Stepping stone for more research projects and an example for replicability
- Quantitatively communicate the positive set of actions to stakeholders



### Private companies

- Improve the environmental footprint and adhere to the current environmental regulations
- Quantitatively communicate the positive set of actions to stakeholders

#### 4.1.3.5. Competitor analysis

The environmental consulting services market is highly fragmented and competitive both at a global and European scale. Key players use a variety of marketing techniques, including mergers & acquisitions, expansions, collaborations, and partnerships to establish their dominance over the vast competition. However, with technological advancement and product innovation, mid-size to smaller companies are increasing their market presence by securing new contracts and by tapping new markets, as is the case with ETIFOR that aims to penetrate the broad ECS market with emphasis on the sub-NBS market. The company’s closest competitors originate in its national market, which is Italy. *Table 2* presents the three most prominent rivals of ETIFOR, that were declared by the company.

*Table 2: Competitor analysis, ETIFOR*

Company <sup>3</sup>	Profile	Brief description
<b>Nomisma</b>	<p>Nomisma is an independent company that carries out economic research and consulting for businesses, associations and public administrations.</p> <p>Active for over 35 years, Nomisma work is inspired by the meaning of its name, in ancient Greek the word “Nomisma” signifies the “real value of things”.</p> <p>Nomisma has become a reference point in key sectors of the economy through the implementation of Observatories picturing dimensions and trends of the main market segments.</p> <p>Competence, experience and authority are the values shared by the Nomisma team which comprises over 50 professionals committed to giving innovative answers that operate every day thanks to the support of over 70 shareholders who invest in society today.</p> <p>Skills, method, innovation, ability to interpret phenomena: Nomisma offers these values to its clients to give concrete support to cognitive and decision-making processes</p>	<p>Nomisma services are divided into three types of offer to respond promptly and on ad hoc basis to the various requests of the client:</p> <p>Nomisma advisory that enables the customer to access data and analysis or receive strategic information for the growth of your business;</p> <p>Nomisma Observatories represent a valuable tool for the client, as they offer the chance to access accurate analyzes on different market sectors. A series of information of high strategic value, therefore, indispensable for the correct evaluation of choices and actions to be pursued;</p> <p>Nomisma has the means and the skills to provide the client with the necessary answers to its business growth: through tools such as market analysis, customer survey and brand reputation study. The company is able to give a detailed, essential picture to understand how act and which paths to take.</p>
<b>Terra SRL</b>	Terra SRL has always applied strict ethical	The company carries out constant

<sup>3</sup> More details about ETIFOR’s competitors: <https://www.nomisma.it/research-and-consulting-company/>, <https://www.terrasrl.com/company/?lang=en>, <http://www.seacoop.com/en/>

Company <sup>3</sup>	Profile	Brief description
	<p>rules in the phase of accepting professional assignments, rejecting any form of unsustainable land exploitation and activities that impact and harmful to human health, the landscape and the environment.</p> <p>These choices, although difficult from the point of view of corporate economic performance, have allowed the company to remain free to openly criticize and fight the planning choices and projects that it does not share, also and above all by providing its advice to administrations, committees and free citizens who oppose such harmful activities. These choices have allowed the office to consistently pursue solutions towards environmental and health quality, giving its selected customers a reason for trust and added value. This has also allowed the enhancement of its network and its work.</p>	<p>consultancy in the fields of applied ecology and in the correlation between environment and health (health impact assessment). Environmental planning ranges from environmental impact studies, environmental impact assessments and strategic environmental assessments to river design (naturalistic engineering) up to plant design (composting, biogas, phytoremediation).</p> <p>In addition to the development of tourism projects (cycle paths, waterways and dedicated cartography), since 2009 Terra SRL is one of the founding members of the AIKAL which deals with the development of project proposals towards and beyond Expo 2015 and is currently engaged in the development of projects that combine environmental issues with tourism, quality of life (health impact) up to the food and wine sector and material culture through territorial development projects.</p>
<p><b>SEAcoop STP</b></p>	<p>The company was founded in 1982 in Turin and has two operating offices in Italy. Its headquarters are located in Turin and the offices are based in Peveragno (CN). Since 2012 SEACOOP STP has been mainly operating in the Balkan area with the owned company TerEnCons d.o.o.</p>	<p>SEAcoop STP is a consultancy company in environmental, agricultural, forestal and geological sectors operating in the Italian and international market.</p> <p>It operates in design, planning and monitoring land, environment and ecosystems with multisectoral expertise. The company approach to environment management is to combine the exigencies of development with the need of preserving natural capital. SEAcoop STP manages also the pantaies platform, an offsetting ecosystem services bank.</p>

**Competitive advantage:** It is worth noting that ETIFOR considers itself to have an edge over these companies. Specifically, the company claims that its advantages stem from:

- a diversity of competences within the company (i.e. multidisciplinary team consisting of people with different technical and social backgrounds);
- strong focus on communication of results, with a well established communication and marketing team;
- important references and existing experience as well as an existing network;

- established relationships with some organizations that could become potential clients (e.g. utilities, parks);
- interface between the academia (through the University of Padova) and the private sector.

#### 4.1.3.7. SWOT Analysis

Table 3: SWOT analysis “Roadmap to identify the potential role of Nature-based solutions for a climate resilient WEF Nexus through Socio-economic impacts of WEF Nexus-related ES”

<p style="text-align: center;"><b>STRENGTHS</b></p>	<p style="text-align: center;"><b>WEAKNESSES</b></p>
<p style="text-align: center;"><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>↔ Rapid rise of global population, rapid urbanization, changing diets and economic growth.</li> <li>↔ Unfavourable weather conditions and climate change.</li> <li>↔ Increased regulation and initiatives to increase environmental consciousness in EU.</li> </ul>	<p style="text-align: center;"><b>THREATS</b></p> <ul style="list-style-type: none"> <li>⊖ A potential barrier is that the market is not "ready" or is not prioritizing this kind of actions yet. This kind of services are still in a "nice-to-have" phase and seen as “too innovative” rather than be a "must" and therefore are perceived as uncertain and riskier than traditional measures. So there could be a mismatch in the value perception by the organizations (i.e. they could not see the immediate usefulness of these exercises).</li> <li>⊖ The topic is still hard to understand for a broader audience and it is not mandatory to act in this regard (i.e. there is not a legal requirement to do these activities).</li> <li>⊖ Lack of political willingness and economic support for such services and initiatives.</li> <li>⊖ The service is restricted to the Italian and European market with little to no potential of short-term globalization.</li> <li>⊖ Despite the fact that the service is generated through a European funded project, it might prove</li> </ul>

	to be hard to access European market due to the heavy competition.
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#### 4.1.4. Operational plan

**TEAM:** The service will be managed by ETIFOR’s Nature Governance Programme and the Communication team.



It comprises an expert at forest certification and Payments for Ecosystem services, forest entrepreneurship and innovation and development cooperation, a stakeholder engagement and facilitation expert, an ecosystem services evaluation methods expert and an environmental governance professional.

**VISION:** Help stakeholders (i.e. policy makers, private companies, public organizations) solve their challenges and conflicts of natural resource use with the support of nature. Furthermore, turn the targeted customer segments into nature positive entities, by making them autonomous and aware of the role of NBS and to mainstream their use in the daily activities of these entities.



**BUSINESS OBJECTIVES:** Due to the early stages of the project, ETIFOR has identified a rough estimate of their business objectives regarding the next 5 years. Firstly, it aims to target 2 (Italian) clients in the first year, 4 in the following year, and then 10 clients (from Europe in general) after year 5. **To meet these objectives:** In the next 3-5 years, ETIFOR plans to invest considerable amount of money (around 20,000€) for the marketing analysis phase, adaptation and prototyping phase and proposal phase necessary to prepare the final service and make it available on the market. It is worth noting that ETIFOR has declared that those costs will be covered by self-financing.



**METRICS:** At this stage, ETIFOR measures the progress made through the number of consultancies done, number of NBS adopted, and also biophysics indicators such as hectares (ha) of forest planted, water storage capacity (m3/ha per year) and groundwater recharge rate (m3/ha per year).



##### 4.1.4.1. Marketing mix

**PRODUCT:** Environmental Consulting services that aim to address WEF Nexus challenges through providing support in the decision-making process in the context of selecting Nature-based solutions and through an Ecosystem Services approach.



**PROMOTION:** Mainly through an outbound strategy that could include participation in targeted events like webinars and conferences, email newsletters, direct contacts, website advertisements and testimonials of existing users (REXUS pilot users), and other early adopters. On the contrary, inbound marketing (e.g. online content, social media marketing, etc.) is not something that ETIFOR has expressed interest in at this stage of REXUS.



**PRICE & Strategy:** Due to the stage of the project, ETIFOR couldn’t identify a clear pricing strategy. Nevertheless, it has declared that it plans to define a base price for the consultancy plus a variable part based on the complexity of each case, the number of stakeholders involved and the communication requirements of each circumstance.



**PLACE:** Direct sells through asset sales (i.e. customers purchase the service for a fixed price) plus extra fees regarding the aforementioned topics. The sales are foreseen to be made through events and in programmed in-person meetings with potential customers.



4.1.4.2. Business Model Canvas

Key Partners	Key Activities	Value Proposition	Customer Relationship	Customer Segments
<p><b>-External partners:</b> multi-utilities, parks and entities that manage the resources</p> <p><b>-Internal partners:</b> other ETIFOR's Programmes like the Nature Positive and the Forests Programmes</p> <p><b>-Scientific/academic partner:</b> UNIPD</p>	<ul style="list-style-type: none"> <li>- In-depth market analysis to understand customer needs.</li> <li>- Make the REXUS project a prototype and then a product in line with the objectives of achieving the predetermined targets.</li> <li>- Marketing and product design activities.</li> </ul>	<p>-Compact and easily usable service that explores the literature about NBS and place it under the WEF Nexus approach and provides a vast selection of indicators, a combination which results in a well-rounded service.</p> <p>- One of the first attempts to link the logic and the considerations about Nature-based solutions under the WEF Nexus framework.</p>	<p>- Established relationships with some organizations that could become potential clients (e.g. utilities, parks).</p>	<p>-Policy makers and public authorities;</p> <p>-Private and public sector actors</p>
	<p><b>Key Resources</b></p> <ul style="list-style-type: none"> <li>- Expert at forest certification and Payments for Ecosystem services;</li> <li>- A stakeholder engagement and facilitation expert,</li> <li>- An ecosystem services evaluation methods expert;</li> <li>- An environmental governance professional.</li> </ul>		<p><b>Channels</b></p> <ul style="list-style-type: none"> <li>- Outbound strategy such as targeted events like as webinars and conferences, email newsletters, direct contacts, website advertisements and testimonials of existing users (REXUS pilot users), and other early adopters.</li> <li>- Through events and in programmed in-person meetings with potential customers.</li> </ul>	
<p><b>Cost Structure</b></p> <ul style="list-style-type: none"> <li>-Market analysis cost,</li> <li>-Adaptation and prototyping cost,</li> <li>-Proposal phase cost,</li> <li><b>Total estimation: 20,000€</b></li> </ul>		<p><b>Revenue Streams</b></p> <ul style="list-style-type: none"> <li>+Consulting services sales</li> <li>+Self-financing</li> <li><b>Total estimation: 600,000€ (in the upcoming 10 years)</b></li> </ul>		



#### 4.1.5. Risk analysis

**Market Risk:** A market risk that was identified by ETIFOR was that the customer segments that its service is targeted at won't see the utility of the service a priori. **Contingency:** As a mitigation measure, ETIFOR has declared that it should prototype (or try) the service, perhaps with one of its existing clients, in order to give prominence to its utility and effectiveness. That would hopefully enhance the service's chances of being requested by entities outside the company's already established customer portfolio.



**Marketing Risk:** The biggest marketing risk that ETIFOR has identified is the company's lack of recognition at an international level. Since the service is being targeted at the Italian and the European market, the project partner has expressed its reluctance in the service being a prominent force in the global market.



**Contingency:** As a means of tackling the aforementioned issue, ETIFOR has stated that it would increase its marketing effort, whilst taking advantage of the company's reputation and existing network and using it as leverage. Moreover, it could seek for participation in projects with an international trajectory thus investing in business collaboration outside the EU.

**Partnership Risk:** Not being able to form stable business relationships with the external as well as the internal network of partners presented at section 0 . As far as the latter is concerned, there could be a disagreement on the economic compensation of the contributing partners of this service.



**Contingency:** Widening the list of external partners that will be approached. Regarding the internal network, a proactive conversation with all the involved entities would go a long way in establishing a concrete relationship and ultimately leading to an agreement on the rights revolving around the service that ETIFOR plans to commercialize.

## 4.2. DRAXIS ENVIRONMENTAL SA

### 4.2.1. Overview

Founded in 2000, **DRAXIS**<sup>4</sup> Environmental S.A. is a dynamic Greek SME headquartered in Thessaloniki (Greece), having branch offices in Brussels (Belgium) and Athens (Greece). DRAXIS focuses on developing real life environmental ICT solutions and providing specialized environmental consultation services. The company uses, combines and integrates remote sensing technologies, compound algorithms, GIS and other datasets to build multi-functional web-based information systems, mobile applications, crowdsourcing platforms, workflow-based digital services and other software solutions mainly in the fields of:

- Circular economy;
- Climate change;
- Air quality

DRAXIS is empowered by its people, who are all competent professionals and experts in their respective fields and have various backgrounds, such as Physicists, Engineers, Geologists, IT engineers, etc. Having an experienced diverse pool of professionals, the company invests in research, so as to keep up with the latest scientific advances; this, coupled with its active involvement in European and National research projects, enables the company to provide top quality services and high technological standards.

DRAXIS leverages its significant experience and scientific expertise on the investigation of future climate change projections and trends at regional and local level, the analysis of climate risks for various systems and sectors and the GIS mapping of risk indicators, the employment of the big-data technology for sensing climate change impacts, the development of user friendly, interactive, decision support tools for supporting decision makers in adaptation planning, etc.

Through the years, the team has participated in 57 European and national projects. Has acted as coordinator, in 9 European and 4 national projects and as a technical and scientific manager in more than 5 European projects. The team has participated in 8 European and national projects, related to climate change adaptation.

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<sup>4</sup> For more information please visit <https://draxis.gr/el/>.

#### 4.2.2. Product/Service(s) Description & Value Proposition

**PROBLEM(S):** Policy makers do not necessarily have the time and scientific background to synthesize the relevant information from different sources so as to make well informed decisions regarding climate change policies (e.g. climate change adaptation plans).



**SOLUTION- Fit-for-Nexus Climate Risk Assessments:** This service aims to aid regional and national authorities in the decision-making process for planning sectoral and cross sectoral climate related policies.



**MAIN FEATURES:** Through the climate risk assessments, information on climate change in the form of composite climate indicators is used in combination with other relevant information on exposure and vulnerabilities associated to the Nexus sectors of food, water and energy.



**VALUE PROPOSITION:** The value of this service originates from its combination of a wide range of indicators relevant to climate change, exposure, vulnerability and adaptation for the Nexus sectors and visualizes the overall assessment results through maps, thus providing a holistic picture of the climate risks. That is something that climate risk assessment methodologies usually overlook. Traditionally climate risk assessments solely focus on specific sectors, such as the water sector (e.g. impact of precipitation or flooding) and/or on simple indicators (e.g. heat stress) without taking into account their impacts on the Nexus sectors and/or the aforementioned indicators of each sector. Furthermore, this service provides the customer with a visualization at spatial level for easily recognizing the most vulnerable areas (e.g. areas that will be exposed to climate risks where there is also presence of Nexus elements such as agricultural areas, renewable energy plants and with high sensitivity such as crops with low tolerance to high temperatures, droughts, etc.). It is worth mentioning that this type of service is new to most of the pilot areas as the current/usual approach in impact assessments is simpler. In essence, the value proposition of the service that DRAXIS aims to commercialize stems from the fact that it is well-rounded/comprehensive and easily comprehensible.



**IPR Status:** The “Fit-for-Nexus Climate Risk Assessments” service, is owned by DRAXIS and stems from the work  developed within WP3.

### 4.2.3. Market Insights

DRAXIS has clarified that its targeted market is the environmental consulting services market and more specifically the sub-market of climate change consulting services. The aim is to provide consultancy services on Fit-for-Nexus climate risk assessments that mainly focus on the Greek market and could potentially expand at a European and global level. Regarding the environmental consulting services market, an analysis of its size, trends and restraining factors is provided in section 0.

#### 4.2.3.1. Size

The global climate change consulting market was valued at US\$ 6.12 billion in 2021 and is expected to reach US\$ 9.89 billion by 2030, growing at a CAGR of 5.7% between 2022 and 2030 (Coherent Market Insights, 2021).

The market incorporates a suite of services and industries. Specifically, it includes:

- *By Service Type:* Corporate Strategy for Climate Change, Carbon Footprint Analysis, Emission Trading and Offsetting, Renewable Energy Development, Energy Efficiency, Policy and Economics, Climate Adaptation Analysis & Planning, Green Building Services.
- *By Industry:* Mining, Energy & Utilities, Government, Manufacturing, Transportation & Logistics, Others (Construction, Agriculture, Forestry, etc.).

As shown in Figure 10, North America held a dominant position in the global climate change consulting in 2021, accounting for 33.0% of the market share in terms of volume, followed by the Asia Pacific region. Nevertheless, the European region, which is the long-term target market of DRAXIS, is expected to gain traction by the end of the decade. Many organizations in Europe are adopting various solutions regarding climate change. These organizations approach consultancies for solutions and hence, various consultancies are providing sustainable solutions over climate change impacts (Coherent Market Insights, 2021).

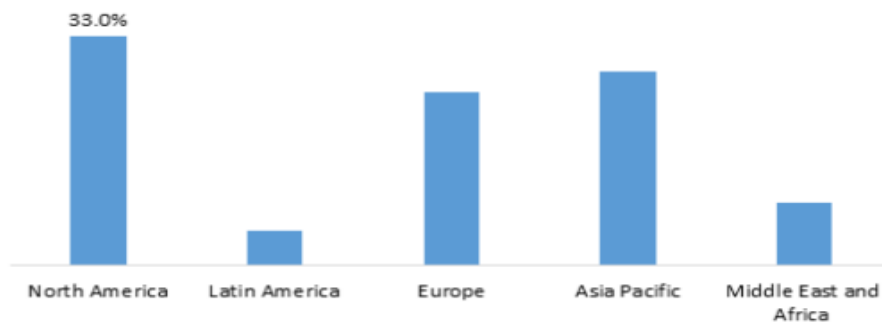


Figure 10: Global climate change consulting market share (%), by region. Source: Coherent Market Insights (2021)

Some of the major players operating in the global climate change consulting market are include ICF International, Inc., A.T. Kearney, Inc., McKinsey & Company, Inc., PricewaterhouseCoopers LLP (PwC), ERM Group, Inc., KPMG International, Coastal Risk Consulting, LLC, CH2M HILL Companies, Ltd. (Jacobs Engineering Group), Deloitte LLP, Ramboll Environ, Inc.

Since DRAXIS plans to explicitly target the Greek market in the short-run, it is worth noting that the geographical size of the market that company plans to penetrate includes the Greek municipalities (332) and all the 13 regions (NUTS 2) of the Greek territory.

#### 4.2.3.2. Trends

The trends of the global and European environmental consulting services market, presented in sub-section 4.1.3.2, translate in Greek market trends as well.

Another market trend stems from the EU strategy on climate change adaptation which was approved fact by the European Commission in April 2013 (COM (2013) 216). The strategy of the EU aims to encourage action by Member States, ensure that policy-making and decision-making are processes based on more complete and scientifically-sound evidence and information, and integrate climate change adaptation provisions into all relevant policy areas. Accordingly, the EU encourages its Member States to:

- proceed with the establishment of national and regional climate change adaptation strategies;
- incorporate the adaptation into the Covenant of Mayors (2013/2014).

Taking adaptation measures is no easy task, hence the need for companies that provide climate change consulting services. The process requires assessing the impacts of climate change on various sectors of economic and social activity at national, regional and local levels.

Greece aligned with the EU Adaptation strategy on the proposed establishment of national and regional climate change adaptation strategies with the enactment of Law 4414/2016. The Law required the 13 Regional Authorities of Greece to develop and implement Regional Adaptation Action Plans (RAAPs) within a 7-year planning cycle. Its main goals were to:

- improve the decision-making process through the acquisition of more complete information and scientific data related to adaptation;
- promote the development and implementation of regional/local action plans in accordance with the EU strategy.

For these goals to be attained, the preparation of the Regional Plans for Adaptation to Climate Change, which were based on the climatic conditions and vulnerability of each region, that will precisely define the policy areas and geographical units of priority for taking measures, were deemed necessary.

Law 4414/2016 sets the minimum technical specifications for their content. The RAAPs content has been further elaborated by Ministerial Decision (MD) 11258/2017 (Government Gazette, issue B, 873/2017), which provides the detailed specifications/template for the content of the RAAPs.

On the basis of the MD, the RAAPs shall include:

- Analysis of projections of future climate conditions at the regional level. More specifically, analysis of the trends of the main climate parameters for the short, mid (2050) and long (2100) term and for more than one scenario, using existing data and well-established regional climate models. The analysis will include existing trends and potential changes in extreme weather events, temperature, sea-level rise, etc.
- Vulnerability assessment of specific sectors and/or geographical areas within each region based on the outcomes of the climate condition projections.
- Assessment of climate change impacts (environmental, social, economic, etc.) on the previously identified sectors and/or geographical areas in the short, mid (2050) and long (2100) term. The impacts are assessed based on their: probability, magnitude (area and/or population affected), intensity, complexity, timing, reversibility/possibility to mitigate, cross-border and/or cross-sectoral character etc.
- Identification of priority sectors and priority geographical areas for action.

- Examination of the potential measures/actions included with the National Academy of Science (NAS) based on the particular regional circumstances, priorities and needs and development of concrete regional action plans.

Wherever there is a case for sector or sub-regional analysis, specific actions per sector or sub-regional area will be indicated. In addition, pursuant to the Law 4414/2016 (Art. 43), the Ministry of Environment and Energy (MEEN) is checking the compliance of the RAAPs with the National Academy of Science (NAS), while the local authorities participate in the Regional Consultation Committees giving formal opinions on the RAAPs of the respective regions.

DRAXIS has declared that its service fully addresses the first three topics of the RAAP content.

The development of the 13 RAAPs is ongoing with several regions being more advanced than others. By March 2021:

- 11 Regions have had a prepared the final draft of their RAAP.
- The MEEN has already provided a formal opinion on 7 RAAPs, concerning their compliance with the NAS, while the relevant procedure was in progress for 3 more.
- The Strategic Environmental Impact Assessment of RAAPs was advancing while several RAAPs are expected to conclude and endorsed d by the respective Regional Councils in the near future.

The market trend in this case would be the great boost that revolves around the climate changes consulting services market. Since the first RAAPs were introduced in 2017, they are foreseen to be revisited in 2024-2026, something that constitutes a great opportunity for DRAXIS. Furthermore, with the expansion of the market, all the 13 Regional Authorities of Greece are foreseen to partake and adhere to Law 4414/2016, something that was not the case originally as only eleven (11) of them did. Ultimately that would lead to the local market growing even bigger.

Moving on to the EU Covenant of Mayors for Climate & Energy, that was mentioned before, this initiative brings together thousands of local governments voluntarily committed to implementing EU climate and energy objectives. The initiative now gathers 9,000+ local and regional authorities across 57 countries drawing on the strengths of a worldwide multi-stakeholder movement and the technical and methodological support offered by dedicated offices. Covenant signatories (municipalities) commit to submitting, within two years following the date of the local council decision, a Sustainable Energy and Climate Action Plan (SECAP) outlining the key actions they plan to undertake. The plan features a Baseline Emission Inventory to track mitigation actions and a Climate Risks and Vulnerability Assessment. The adaptation strategy can either be part of the SECAP or developed and mainstreamed in a separate planning document.

In the Greek market more municipalities are entering the Covenant of Mayors by the day. Additionally, the increasing incorporation of climate risk and vulnerability assessment in the SECAP, which originally focused more on energy related topics, is something that fits DRAXIS intentions of transforming a REXUS result into a fully-operational and marketable service. That service is foreseen to adhere to the needs of the covenant signatories for developing the aforementioned Sustainable Energy and Climate Action Plan (SECAP). In specific, the service covers the second part related to the Climate Action Plan which includes a Climate Risks and Vulnerability Assessment.

Indeed, the number of municipalities that have been part of the EU Covenant of Mayors for Climate & Energy have skyrocketed in the last five years have reached the extraordinary number off 229 out of 332. This is a phenomenon that is relevant to the whole EU. In *Figure 11* and *Figure 12* the evolution of active signatories and action plan submissions is presented.

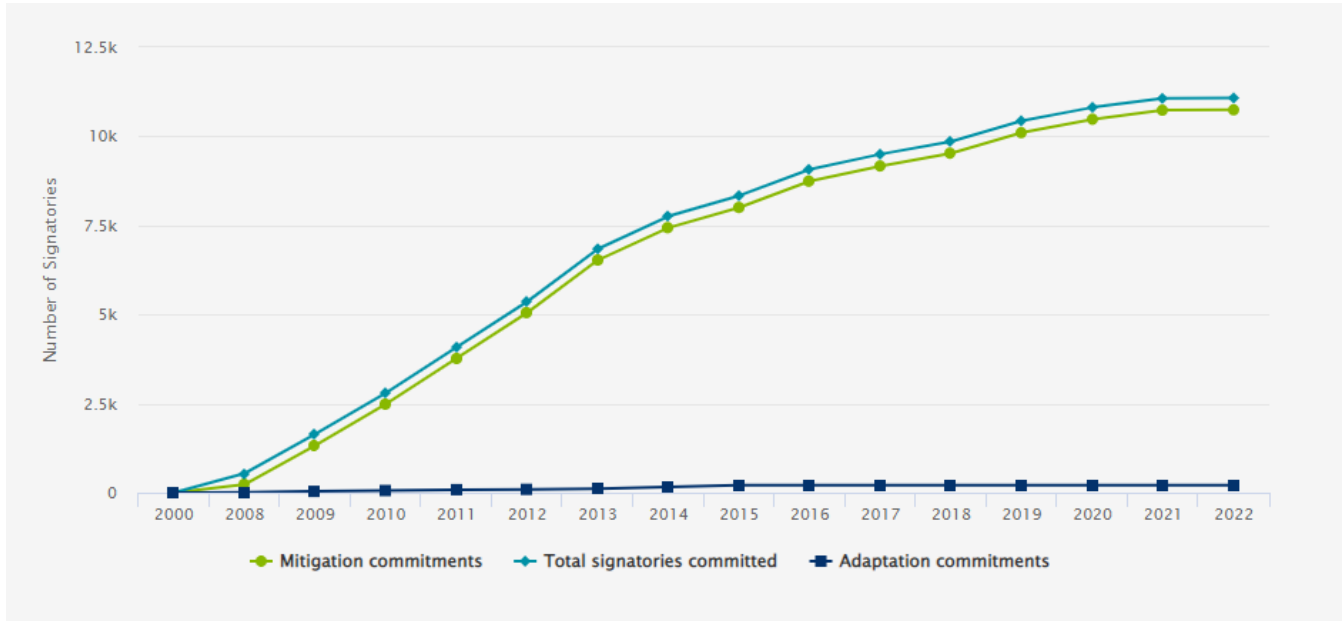


Figure 11: Active signatories over time (Source: [covenantofmayors.eu](http://covenantofmayors.eu))

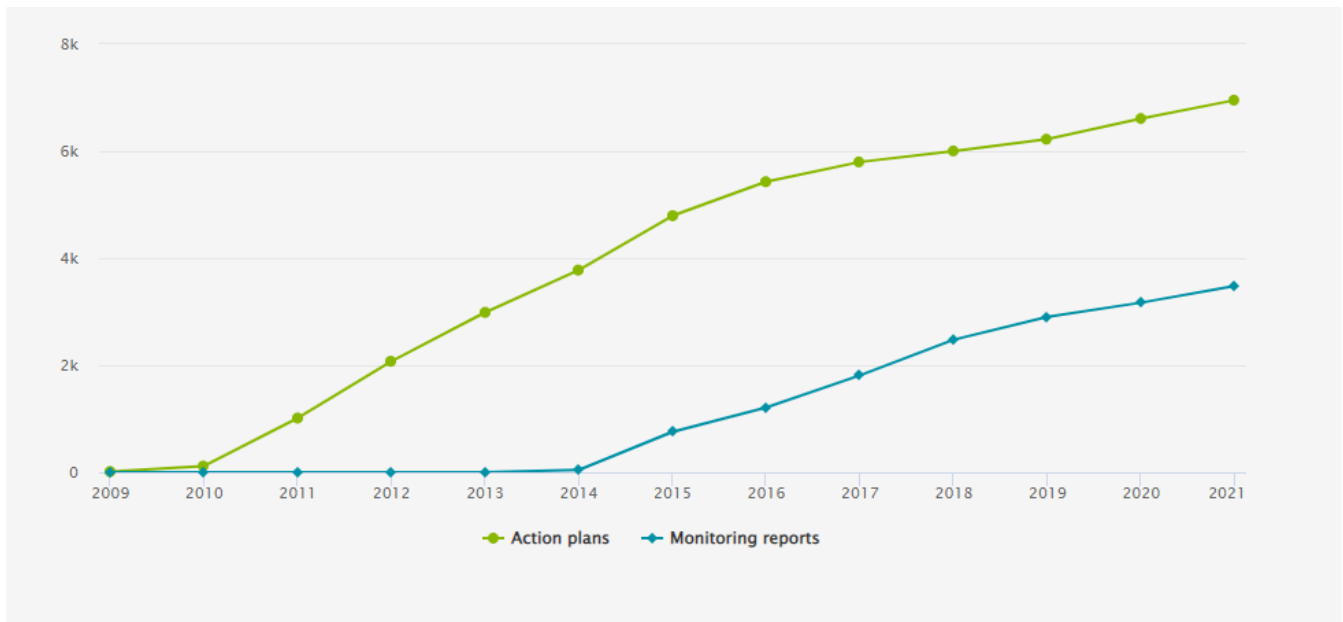


Figure 12: Action plans submission over time (Source: [covenantofmayors.eu](http://covenantofmayors.eu))

The obvious market trend in this case is the provision of climate risk assessment services in the framework of SECAPs that municipalities want to establish. Although the majority of the signatories Greece have undergone the process of creating a SECAP, there is still a substantial minority (around 100) that are foreseen to be involved in the Covenant of Mayors in the near future. Moreover, those municipalities that will revisit their SECAP, regarding climate action (adaptation) aspects, could be the most prominent market opportunity for DRAXIS in the upcoming years.



#### 4.2.3.3. *Restraining factors*

The most noticeable barrier that could hinder the vast commercialization of the service DRAXIS plans to bring to the Greek climate change consulting market is the heavy competition and segmentation that revolve around it. The Greek climate change consulting market is highly fragmented due to the aforementioned actions that have been taking place for the last seven years (i.e. construction of RAAPs and SECAPs). Accordingly, a fair deal of the customer segments of DRAXIS have already searched and found climate consulting services. Furthermore, key players of the market use a variety of marketing techniques, including mergers & acquisitions, expansions, collaborations, and partnerships to establish their dominance over the vast competition. However, with the climate consulting standards being pushed higher and higher, the aforementioned market trends that lead to the expansion of the market and the combination of the company's experience on the field and the added value provided by its service (i.e. climate risk assessments services that are Fit-for-Nexus), DRAXIS could ultimately overcome these hurdles and penetrate its targeted market.

Another impediment that could restrict the company's market penetration is the voluntary nature of the demand of such services. Indeed, regarding the market trends that were mentioned in sub-section 4.2.3.2, only compliance to the Law 4414/2016 is obligatory for the 13 Regions of Greece. Adherence to the EU Covenant of Mayors for Climate & Energy still remains a voluntary task, something that does not encourage the Greek municipalities to proceed with the creation of SECAPs. Nevertheless, as seen in sub-section 4.2.3.2 more signatories are getting involved with the Covenant of Mayors by the day, a phenomenon that could enrich DRAXIS' clientele.

#### 4.2.3.4. *Customer segments*



##### Policy makers and public authorities

- Construction of RAAPs that adhere to Law 4414/2016. Specifically, analysis of projections of future climate conditions at the regional level, vulnerability assessment of specific sectors and/or geographical areas and assessment of climate change impacts.
- More knowledgeable and scientifically sound decision making process that leads to the creation of effective policy schemes and management measures relating to climate change adaptation



##### Municipalities

- Development of a Sustainable Energy and Climate Action Plan (SECAP) in accordance to the EU Covenant of Mayors. In specific, coverage of the 2nd part related to the Climate Action Plan which includes a Climate Risks and Vulnerability Assessment.



##### Researchers/Research institutes

- Stepping stone for more research projects and an example for replicability
- State of the art methodologies and tools (i.e. Fit-for-Nexus methodology and indicators)



#### 4.2.3.5. Competitor analysis

As mentioned before, the Greek climate change consulting market is highly fragmented due to the actions that have been taking place since 2016/2017 (i.e. construction of RAAPs and SECAPs). A plethora of climate change consulting companies have already established a relationship with Greek regional authorities and municipalities. However, with technological advancement and product innovation, mid-size to smaller companies, like DRAXIS are aiming to enter the market or increase their market presence by providing added value to the already existing services on climate consulting (i.e. climate change consulting services that are Fit-for-Nexus) and offering friendly pricing packages in order to attract customers. DRAXIS’ closest competitors originate in its national market, which is Greece. As stated before, the company plans to exclusively target that specific market in the near future.

For the competitor analysis of DRAXIS, the entities (e.g. private companies, research institutes, universities, etc.) that conducted the 11 RAAPs for Greece, were examined. *Table 4* presents these entities.

*Table 4: Competitor analysis (RAAPs), DRAXIS*

Entity <sup>5</sup>	Profile	Brief description
<p><b>ENVIROPLAN S.A. Consultants &amp; Engineers</b></p>	<p>The company is an independent private consulting firm that was founded in Athens in 1990. The Firm provides Technical Consulting, Engineering &amp; Project Management Services and is specialized in Environmental Management &amp; Engineering Projects, emphasizing in Waste Management, where is considered as one of the leading companies in this sector in Greece, Cyprus, and Balkan Countries. Its business model, developed in the past 10 years, consists of marketing the whole range of its services in a local market level, while it targets selected environmental services (e.g. waste management service, climate change consulting services, etc.) at an international market level.</p> <p>The head offices of the company are in Athens / Greece and in order to run the international activities the company has also established a network of regional branch offices at Thessaloniki/ Greece, Larnaka / Cyprus, Bucharest / Romania and Sofia / Bulgaria.</p>	<p>ENVIROPLAN’s mission is to be a progressive consultancy firm in both local and international level, offering innovative, state of the art, environmental management services and solutions. Utilizing its long term know-how, quality management and business policy, the company aims to provide its clients with the services necessary to address their environmental needs in a safe and cost effective manner.</p> <p>The company’s goal is to actively contribute in the process of maintaining a safe, healthy, and cleaner environment that can be in balance with economic development, in order to create a sustainable future.</p> <p>The services that ENVIROPLAN provides involve waste management, environmental services (e.g. climate change consulting services), technical engineering services, project management &amp; soft engineering services and energy services.</p> <p>The company is responsible for the RAAPs</p>

<sup>5</sup> More details about ETIFOR’s competitors: <http://www.envioplan.gr/>, <https://www.enviometrics.gr/>, <https://www.adens.gr/en/>, <http://www.sybilla.gr/>, <https://www.dric-defkalion.org/en/Members/axon-enviorgroup-ltd/>, <http://www.academyofathens.gr/>, <https://koujianos.gr/index.php/en/>, <https://www.gamma4.gr/>, <http://emvis.gr/index.php/why-emvis>

Entity <sup>5</sup>	Profile	Brief description
		of the Region of Central Macedonia, the Region of Western Greece and the Region of Crete.
<p><b>ENVIROMETRICS Business Consultants &amp; Engineers</b></p>	<p>Since 2002, ENVIROMETRICS has been involved in the field of environmental protection and sustainable development, in Greece and abroad, providing consulting services in the private and public sector.</p> <p>ENVIROMETRICS applies high quality standards in the provision of services through continuous scientific and technical training and is accredited according to ELOT EN ISO 17025:2005 by the National Accreditation System (E.SY. D) with a wide scope that covers the compliance needs of industries and businesses. In addition, the company is certified with a Quality Management System (ISO 9001:2015), an Information Security Management System (ISO 27001:2013), an Environmental Management System (ISO 14001:2015) as well as an Occupational Health &amp; Safety Management System (ISO 45001:2018).</p>	<p>The company's main areas of expertise are air pollutant monitoring and measurement, climate change mitigation and adaptation, management systems development and occupational health and safety and reduction of greenhouse gas emissions measures.</p> <p>The company is responsible for the RAAPs of the Periphery of Mainland Greece, Region of Eastern Macedonia and Thrace and the South Aegean Region.</p>
<p><b>ADENS S.A.- Advanced Environmental Services</b></p>	<p>ADENS S.A. focuses incorporating the environmental dimension in the design of public and private projects, proposes balanced solutions of environmental management and stimulates the sustainability of the investment initiatives. ADENS S.A. was founded in 2008, but its partners are active in the field of environmental services for over 25 years, having elaborated more than 400 studies.</p> <p>The aim of ADENS is to provide advanced environmental services combining experience, innovation and integrated approach. Through the permanent scientific staff, coming from a range of specialties and through an extensive network of external collaborators, ADENS philosophy is based on comprehensive interdisciplinary study of the undertaken</p>	<p>The categories of services-studies provided by the company are:</p> <p><b>Environmental Studies</b></p> <ul style="list-style-type: none"> <li>➤ Environmental Impact Assessment Studies</li> <li>➤ Renewal-Amendment Environmental Impact Assessment Studies</li> <li>➤ Environmental Reports</li> </ul> <p>Strategic Environmental Assessment Studies</p> <p><b>Specific Environmental studies</b></p> <ul style="list-style-type: none"> <li>➤ Specific environmental studies</li> <li>➤ Ecological studies</li> <li>➤ Studies of Monitoring Habitats and Species</li> </ul> <p><b>Studies of Natural Resources Management</b></p> <ul style="list-style-type: none"> <li>➤ Studies of water resources management</li> </ul>

Entity <sup>5</sup>	Profile	Brief description
	<p>subjects and the selection of the optimum solution.</p>	<ul style="list-style-type: none"> <li>➤ Studies of monitoring noise/air pollution</li> <li>➤ Solid Waste Management Studies</li> </ul> <p><b>Technical studies</b></p> <ul style="list-style-type: none"> <li>➤ Studies of streams delineation</li> <li>➤ Hydrologic Studies</li> <li>➤ Hydraulic works Studies</li> <li>➤ Licenses for Electricity Production Stations</li> </ul> <p><b>Geological studies</b></p> <ul style="list-style-type: none"> <li>➤ Technical-geological studies</li> <li>➤ Geological Suitability Studies</li> <li>➤ Licenses of Boreholes</li> </ul> <p>The company is responsible for the RAAPs of the Region of Attica.</p>
<p><b>SYBILLA Ltd.</b></p>	<p>SYBILLA Ltd. was founded in 1992 by a group of senior engineer experts in the Environmental, Safety, Process Design &amp; Energy Sectors. In addition, the group has a substantial expertise in Mathematical Modelling of Transport Phenomena, Process Design in the above sectors using complex Computational Fluid Dynamics methods as well as conventional techniques and specialized software applications CAD, GIS etc.</p> <p>The Company is certified according to ISO 9001:2015 and to ISO 14001:2015 for "CONSULTING SERVICES IN ENVIRONMENTAL, ENERGY, RISK, SAFETY, CLIMATE CHANGE, CHEMICAL ENGINEERING AND COMPUTATIONAL FLUID DYNAMICS PROJECTS.". SYBILLA Ltd is located in Maroussi, Athens. Its staff is includes Chemical Engineers, Environmental Engineers, and supporting/administrative staff (secretaries).</p>	<p>SYBILLA Ltd provides services in the fields mentioned below:</p> <ul style="list-style-type: none"> <li>• Environmental Issues</li> <li>• Energy Management Issues</li> <li>• Risk Assessment and Safety Reports (Seveso)</li> <li>• Climate Change Issues</li> <li>• Chemical Engineering Issues</li> <li>• Environmental and Safety Management Systems</li> <li>• Environmental Planning</li> <li>• Computational Fluid Dynamics</li> <li>• Industrial Management Issues</li> </ul> <p>The company is responsible for the RAAPs of the Thessaly Region.</p>
<p><b>AXON Envirogroup Ltd.</b></p>	<p>AXON Envirogroup Ltd., established in 1997, is an independent consulting firm with extensive experience in environmental studies and management.</p> <p>The company has implemented numerous</p>	<p>AXON specializes in various thematic fields covering the whole range of environmental studies such as: a) Strategic plans for the improvement of air quality and environmental policy, b) Climate change,</p>

Entity <sup>5</sup>	Profile	Brief description
	<p>climate and environmental projects (National Emission Inventories of GHGs, Strategic Plans for Mitigation and Adaptation to Climate Change) in collaboration with national and European organizations, academic institutions, and has participated in research projects in the field of climate change.</p>	<p>modelling, projections, adaptation and mitigation plans, c) Air quality modelling and monitoring, d) Emergency Action Plans from Natural and Technological Disasters and Safety Studies, d) Design, management and implementation of national and international projects.</p> <p>The company is responsible for the RAAPs of the North Aegean Region.</p>
<p><b>Academy of Athens</b></p>	<p>The Academy of Athens was founded by the Constitutive Decision of March 18, 1926 as the Academy of Sciences, Letters and Fine Arts. With the same Decision, its first members were appointed, who were distinguished representatives of science and the intellectual and artistic creation of the time.</p> <p>The Academy of Athens is an intellectual institution with the aim of cultivating and promoting the Sciences, Letters and Fine Arts, as well as scientific research and study. It operates as a Legal Entity under Public Law and is supervised by the Ministry of Education and Religious Affairs.</p> <p>The general and main purpose of the Academy of Athens, according to its Founding Law, is the cultivation and promotion of the Sciences, Letters and Fine Arts and the communication of the institution and the academics with the other academies or their peers, as well as the exchange of views with them.</p>	<p>The purpose of the Academy revolves around scientific research and study in the fields of agriculture, industry, shipping, national economy, as well as issuing opinions, proposals, decisions, judgments for the enlightenment and guidance of state bodies and authorities.</p> <p>In the context of its purpose, the Academy of Athens makes scientific announcements through its members, and participates in scientific conferences and international research programs, publishes publications, grants scholarships, awards prizes. Today, the Academy operates 19 research centers and offices. The last major contribution of the Academy of Athens to research is the Medical Research Foundation.</p> <p>Many times the Academy of Athens, with its opinions and proposals, has offered a service to the state, mainly for national issues and for issues of education and economic policy.</p> <p>Since its foundation, the Academy of Athens has been a member of the International Association of Academies (Association Internationale des Académies) and the International Council of Scientific Unions (=ICSU). In the last decade he also participates in the international scientific organizations All European Academies (=ALLEA), European Academies Science Advisory Council (=EASAC), Inter Academy Council (=IAC), Inter Academy Medical</p>

Entity <sup>5</sup>	Profile	Brief description
		<p>Panel (=IAMP). The Academy of Athens is responsible for the RAAPs of the Peloponnese Region.</p>
<p><b>I. Koujianos and Associates</b></p>	<p>The company was founded at 1996 in order to provide integrated engineering and consulting services in the fields of environmental protection and infrastructure development. The company's operation is the continuation of the professional activities of the founder and manager Ioannis Koujianos as long as the partners and associates, the majority of which have a remarkable career since 1990. The long lasting harmonic cooperation between the partners on multitude of projects prior to the establishment of the company was the basis for the subsequent collaboration.</p>	<p>The company "I. Koujianos and Associates" with the distinctive title "Delphi Engineering", specializes in providing services of engineering and consulting in the fields of environment and infrastructure.</p> <p>More specifically, the company's provided services include:</p> <ul style="list-style-type: none"> <li>• Studies of major complex development projects</li> <li>• Consulting</li> <li>• Project management</li> <li>• Design of water infrastructure</li> <li>• Design of transport infrastructure</li> <li>• Design of environmental infrastructure</li> <li>• Environmental Impact Assessment</li> <li>• Evaluation of environmental projects and programs</li> <li>• Environmental inspection</li> <li>• Appraisal and Research</li> <li>• Technical support and project management</li> <li>• Project supervision and monitoring</li> </ul> <p>The company is responsible for the RAAPs of the Region of the Ionian Islands and the Region of Western Macedonia.</p>
<p><b>Gamma4 Ltd.</b></p>	<p>The company was founded in 1980. Gamma4 Ltd. is a member of:</p> <ul style="list-style-type: none"> <li>➤ SEGM (Association of Greek Research Offices)</li> <li>➤ CEBI (European Association of Research Societies)</li> <li>➤ founding member of the Association of Greek Geographical Information Systems (G.I.S.)</li> <li>➤ The company is also registered (register no. G-244) in the registers</li> </ul>	<p>The company was founded with the aim of preparing studies and providing services in the fields of Applied Geology, Technical Geology, Hydrogeology, Artificial Enrichment and Environmental Protection.</p> <p>The company is responsible for the RAAPs of the Region of Western Macedonia.</p>

Entity <sup>5</sup>	Profile	Brief description
	<p>of the European Union for the preparation of studies of development projects in Asian and African countries in the programs financed by the Community.</p>	
<p><b>EMVIS Water resources &amp; Environmental Management</b></p>	<p>EMVIS is a company actively involved in the wider field of Water Resources Management, through design studies, advisory work and research.</p> <p>EMVIS' partners and staff are all engineers and scientists with long working experience and specialization, high educational profile, language and multicultural skills competence. Through active involvement in research, the scientific staff of EMVIS is acquainted with state of the art scientific and technological developments, thus being able to successfully apply novel methods and approaches to practical problems and case studies related to the aquatic environment and the management of water resources.</p>	<p>The company offers services on:</p> <ul style="list-style-type: none"> <li>➤ Water resources management</li> <li>➤ Climate change</li> <li>➤ Treatment, disposal and reuse of wastewater and sludge</li> <li>➤ Water treatment</li> <li>➤ Environmental impact assessment</li> <li>➤ Solid waste management</li> <li>➤ Environmental monitoring</li> <li>➤ Ecoinformatics</li> <li>➤ Research and development</li> </ul> <p>The company is responsible for the RAAPs of the Epirus Region.</p>

Furthermore, for the competitor analysis of DRAXIS, twenty-five (25) SECAPs of Greek municipalities were examined, in order to identify the most relevant entities that provide climate change consulting services in the framework of the EU Covenant of Mayors for Climate & Energy initiative. Table 5 presents the three most prominent ones.

Table 5: Competitor analysis (SECAPs), DRAXIS

Entity <sup>6</sup>	Profile	Brief description
<p><b>PETA SA</b></p>	<p>P.E.T.A. S.A. is the Development company of the Local Government that specializes in the provision of consulting, study and support services with a focus on local development. It was founded in 1990 by local authorities. Today its main shareholders are the Central Union of Municipalities of Greece, the Deposit and Loan Fund and the Union of Regions of Greece. Shareholders are also Regional</p>	<p>P.E.T.A. S.A. has a certificate of Administrative Proficiency Category B" and is a potential "Beneficiary" in the NSRF Operational Programs 2007 - 2013. In particular, it has managerial proficiency for projects such as equipment supply and installation projects/actions, creation and installation of IT systems, equipment supply and installation IT, consulting services, training and consulting and other</p>

<sup>6</sup> More details about DRAXIS's competitors: <https://peta.gr/>, <https://www.ldk.gr/>, <https://www.ntua.gr/el/>



Entity <sup>6</sup>	Profile	Brief description
	<p>Associations of Municipalities, Development Companies, Municipal Enterprises and Municipalities from all over Greece.</p> <p>The vision of P.E.T.A. S.A. is the drawing of new paths of local development based on knowledge, innovation and the improvement of the quality of life in local communities.</p> <p>Levers for realizing the Company's vision are:</p> <ul style="list-style-type: none"> <li>▪ The support of municipalities and regions in the planning and implementation of policies for local economic development</li> <li>▪ Securing and expanding resources to finance investments in remunerative services and urban development infrastructure</li> <li>▪ The promotion of the use of e-government technologies and applications in municipalities and regions to improve administrative efficiency, service to citizens and the continuous upgrading of human resources</li> </ul>	<p>services.</p> <p>The company's main domain of expertise is the promotion of business, economic and generally sustainable development.</p> <p>The many years of experience of the company's specialized management force, as well as the conclusion of dynamic partnerships with an emphasis on the areas of Financing and Investment Plan Management as well as Strategic and Operational Planning, can open new paths for the municipalities and regions for the smart, sustainable and inclusive local economic development.</p> <p>PETA has been called upon to play a leading role in the implementation of the policies resulting from the Europe 2020 strategy by strengthening local and regional authorities with highly adequate scientific and technical support. Specifically, the company is responsible for the SECAP of the municipality of the Municipality of Larissa.</p>
<p><b>LDK Consultants</b></p>	<p>LDK Consultants is a multidisciplinary engineering and development Consultancy Group. The Group was established in 1968 as an engineering firm providing services to the buildings sector. It gradually expanded its services in the energy, environmental &amp; water, engineering, transportation, socioeconomic development and information dissemination consulting.</p> <p>The Group operates through its offices in Greece, Belgium, Cyprus, Jordan, Kenya, Romania, Serbia and has undertaken 2,700 projects in 120 countries.</p> <p>LDK Consultants has become a leading</p>	<p>LDK Consultants offers consulting services on:</p> <ul style="list-style-type: none"> <li>➤ Engineering and project management</li> <li>➤ Energy</li> <li>➤ Environment</li> <li>➤ Transport infrastructure</li> <li>➤ Socioeconomic development</li> <li>➤ Information dissemination</li> </ul> <p>The company is responsible for the SECAP of the municipality of the Municipality of Chalkis.</p>

Entity <sup>6</sup>	Profile	Brief description
	<p>engineering consultancy in hotels, mixed-use buildings, hospitals, as well as infrastructure (railways, marinas and airports). It is a trusted consultancy in energy, environment, sustainability and socioeconomic development for the European Commission, World Bank, European Bank for Reconstruction and Development, European Investment Bank, the United Nations Development Programme and other international organisations.</p> <p>Since 1968, LDK Consultants supports its vision and values for growth, sustainable development and excellence for the benefit of its staff and clients. LDK Consultants is committed to being a sustainable, diverse group and a driver of change and innovation for projects of every size and level of complexity. Being certified by international organisations for quality and expertise, LDK Consultants combines in-depth knowledge with innovation to achieve optimal solutions and sustainable results for its clients' programmes and projects.</p>	
<p><b>National Technical University of Athens (NTUA)</b></p>	<p>The National Technical University of Athens (NTUA) is a university institution in Greece headquartered in Athens. It was founded in 1837 and is the oldest technological institution in Greece, contributing the most to the scientific, technical, social and economic development of the country.</p> <p>More than 20,000 students of all levels study at the Athens Polytechnic, making it one of the country's traditional educational and research institutions.</p> <p>In 1873 it was installed in a complex of buildings in the center of the capital, in the still half-finished buildings of Patision street and was named "National Technical University", abbreviated EMP in honor of</p>	<p>The main competitor of DRAXIS is a department of NTUA. Namely, the Higher School of Chemical Engineering, that formally began its life with the publication of Law 980 of 24 and 30-10-1917 and the issuance of the executive decree of November 11, 1917. The opening in that year was the culmination of a series of events, which showed the necessity of the self-reliance of the School of Chemical Engineering. These events, which began immediately after the founding of the Polytechnic in 1837, defined the period before the establishment of the School.</p> <p>The Higher School of Chemical Engineering is responsible for the SECAP of the municipality of the Municipality of</p>



Entity <sup>6</sup>	Profile	Brief description
	the great benefactors Georgios Averof, Nikolaos Stournaris, Eleni Tositsa and Michael Tositsa.	Katerina.

**Competitive advantage:** It is worth noting that DRAXIS considers itself to have an advantage over these entities. Specifically, the company claims that its advantages stem from the fact that:

- The aforementioned entities are mostly engaged with environmental studies. Many of the competitors are based on past studies of climate projections at national level (i.e. global climate models) with coarse analysis that are used at regional, local level, as they do not have background on climate modelling.
- DRAXIS has experience on climate modelling and uses regional climate models that can be further downscaled where necessary.
- Many of the competitors provide the results only in the form of tables. DRAXIS provides visualization of the results at geospatial level with the use of maps, thus enhancing the decision-making process at a local level.
- Since the company mainly specializes in environmental digital applications, it can develop tailor made decision support tools for adaptation to climate risks.


#### 4.2.3.6. SWOT Analysis

Table 6: SWOT analysis “Fit-for-Nexus Climate Risk Assessments”

<p style="text-align: center;"><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>↔ DRAXIS’ established network of clients that contains regions and municipalities in Greece.</li> <li>↔ Participation and demonstration in REXUS could indicate the service’s effectiveness and enhance its expansion in the European market.</li> <li>↔ The service can be easily scalable in size and locations and it can be adaptable to a diversity of geographical areas.</li> <li>↔ DRAXIS’ expertise due to experience in this specific field. In specific, experience in climate modelling, GIS applications and decision support systems for adaptation planning that can provide added value for climate risk assessments at regional and local level.</li> <li>↔ Fit-for-Nexus element of the service that is value added to the traditional services provided in the market.</li> <li>↔ Unique and easy to use services with attention to detail (i.e. wide range of indicators).</li> <li>↔ Ever expanding team of experts striving for innovation and optimization of the service.</li> </ul>	<p style="text-align: center;"><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>⊖ Narrow customer segments.</li> <li>⊖ Heavy emphasis and strong dependence on human resources (i.e. work teams and their leaders in each respective area).</li> <li>⊖ Methodologies that require a high level of knowledge and technical skill.</li> <li>⊖ The superiority of services offered may deter some authorities from collaborating with DRAXIS, as the associated costs may be relatively high.</li> </ul>
<p style="text-align: center;"><b>OPPORTUNITIES</b></p> <p>☞ Climate change has been globally recognised as a phenomenon that calls for action, due to unfavourable weather conditions and climate change, at national, regional and local level. The assessment of climate risks is</p>	<p style="text-align: center;"><b>THREATS</b></p> <p>⚠ The voluntary nature of the type of service that DRAXIS aims to commercialize. Specifically, it is not mandatory (i.e. there are no legal requirements) for</p>


<p>crucial for identifying and prioritizing the necessary adaptation actions. The putting into force of national legislation on the development of regional adaptation plans based on climate risk assessments as well as the popular Covenant of Mayors initiative where signatories develop climate action plans based on climate and vulnerability assessments, constitute an important opportunity for DRAXIS to enter the climate change consulting services market.</p>	<p>regional authorities (i.e. municipalities) to act in this regard (i.e. partake in the EU Covenant of Mayors).</p> <ul style="list-style-type: none"> <li>◆ The service is restricted to the Greek and potentially the European market with little to no potential of globalization.</li> <li>◆ Despite the services is generated through a research funded project, it might prove to be hard to access targeted market due to the heavy competition.</li> <li>◆ High reliance on data availability. In many cases data could prove to be lackluster.</li> </ul>
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#### 4.2.4. Operational plan


**TEAM:** The service will be managed by DRAXIS' Climate resilience team (CRA). The team consists of Christina  Papadaskalopoulou, who is the leader of the Climate resilience unit inside DRAXIS, and holds a bachelor's degree on Business Administration, and a master's degree and PhD on Environmental impact assessment, management and protection. She has a more than 12-year working experience in research projects and studies dealing with the assessment of climate change impacts and adaptation as well as the development of decision support tools for adaptation.

Another member of the Climate resilience team is Dimitris Tassopoulos. He holds a bachelor's degree on Agricultural engineering and a master's degree on Environmental management, with an expertise on geospatial and earth observation technologies and environmental applications. In particular, in the CRA team he is involved in the geospatial processing of data for the climate risk assessment.


Lastly, Antoniadou Marina is a Geologist and has a Master degree in Meteorology, Climatology and Atmospheric Environment. In particular, in the CRA team she is mainly involved in the climate data analysis and modelling as well as in the climate risk assessment.

**VISION:**  Help stakeholders (e.g. regional and national authorities) in the decision-making process when planning sectoral and cross sectoral policies regarding climate change. Specifically, aid stakeholders in their attempt to proceed with the establishment of national and regional climate change adaptation strategies and incorporate the adaptation into the Covenant of Mayors, that has been encouraged by the EU.

**BUSINESS OBJECTIVES:**  The company's short-term business goal is to be a prominent force in the climate change consulting services market in Greece, with the long term goal being the expansion of its services in Europe and the penetration of the European environmental consulting services market. **To meet these objectives:** In the next years, DRAXIS plans to invest in its human resources aspect, focusing on environmental, climatological and agricultural experts. The company has declared that all the associated costs will be covered by self-financing.

**METRICS:**  At this stage of the project, the number of customers that aim to utilize the service that DRAXIS offers is the only means of measuring progress that the company has identified.

##### 4.2.4.1. Marketing mix

**PRODUCT:**  Climate change consulting service that aims to aid regional and national authorities in the decision-making process for planning sectoral and cross sectoral climate related policies. Specifically, provide the Greek policy makers and municipalities with technical specifications for the construction of their Regional Adaptation Action Plans (i.e. analysis of projections of future climate conditions at a regional level, vulnerability assessment of specific sectors and/or geographical areas within each region and Assessment of climate change

impacts) and cover the municipalities' needs of developing a Sustainable Energy and Climate Action Plan (i.e. Climate Risks and Vulnerability Assessment) in the framework of the EU Covenant of Mayors.

**PROMOTION:** Mainly through participation in targeted events such as webinars and conferences, direct contacts and one-to-one meetings with potential clients, website advertisements (e.g. project website, company website, etc.) and social media advertising (i.e. online content in platforms like Facebook, Instagram, LinkedIn profile pages, Google and YouTube ads, etc.).



**PRICE & Strategy:** Due to the stage of the REXUS, DRAXIS couldn't identify a clear pricing strategy. Nevertheless, the company has stated that it plans to define a base price for the consultancy plus a variable part based on the complexity of each case, the number of stakeholders involved and the communication requirements of each circumstance.



**PLACE:** Direct sells through asset sales (i.e. customers purchase the service for a fixed price) plus extra fees regarding the aforementioned topics. The sales are foreseen to be made through the company's website where customers will be able to directly contact DRAXIS or a webpage devoted to the "Fit-for-Nexus Climate Risk Assessments" service that the company plans to monetize.



4.2.4.2. Business Model Canvas

Key Partners	Key Activities	Value Proposition	Customer Relationship	Customer Segments
<p><b>-External partners:</b> regions and municipalities in Greece</p> <p><b>-Scientific/academic partner:</b> IRSA, pilot leaders of REXUS</p>	<ul style="list-style-type: none"> <li>- In-depth market analysis to understand customer needs.</li> <li>- Marketing and promotion activities.</li> <li>- Structure and deeper understanding of the services, something that will be cultivated through the participation in the REXUS project.</li> </ul>	<ul style="list-style-type: none"> <li>- Wide range of indicators relevant to climate change.</li> <li>- Provision of a holistic picture of the climate risks through maps.</li> <li>- Easy to understand service with attention to detail.</li> <li>- Replicability in similar cases.</li> <li>- More advanced than traditional climate risk assessment methodologies.</li> <li>- Scalability (i.e. applicable in larger geographical areas with more climactic fluctuations).</li> </ul>	<ul style="list-style-type: none"> <li>- Established network of regions and municipalities in Greece which is foreseen to be further expanded in the near future.</li> </ul>	<ul style="list-style-type: none"> <li>-Policy makers and public authorities;</li> <li>-Municipalities;</li> <li>- Research institutes/researchers</li> </ul>
	<p><b>Key Resources</b></p> <ul style="list-style-type: none"> <li>- Climate change and adaptation expert;</li> <li>- Earth observation technologies and environmental applications expert;</li> <li>- Climate data analysis and modelling expert.</li> </ul>		<p><b>Channels</b></p> <ul style="list-style-type: none"> <li>- Targeted events such as webinars and conferences;</li> <li>- Direct contacts and one-to-one meetings with potential clients;</li> <li>- Website advertisements (e.g. project website, company website, etc.);</li> <li>-Social media advertising (i.e. online content in platforms like Facebook, Instagram, LinkedIn profile pages, Google and YouTube ads, etc.).</li> </ul>	
<b>Cost Structure</b>		<b>Revenue Streams</b>		
NA		NA		

#### 4.2.5. Risk analysis

**Market Risk:** The main risk that DRAXIS might face is the liability that the company would invest in the aforementioned service and not being able to reach its ideal number of customers. **Contingency:** As a mitigation measure, the company could use the company's reputation and existing network as leverage. Furthermore, it could seek for participation in projects (i.e. European, national) with climate change trajectory, as a means of establishing itself as one of the most prominent forces in the industry that provides state-of-the-art services. Moreover, DRAXIS should pinpoint the most effective way of reaching its targeted customer segments (e.g. via email, telephone, company meetings, word of mouth, etc.).



Another market risk would be that many competitors have established relationships with clients in the climate change consulting services. Clients many times prefer not to leave their comfort zone when they are in need of a service/product. That could minimize the market penetration of DRAXIS. **Contingency:** The company should focus on its existing network of clients and at the same time develop collaborations and synergies with other companies for larger market penetration.

**Marketing Risk:** Incorrect pricing of service. Due to the secretive nature of the pricing policy that climate consulting service companies usually opt for, there could be an overestimation of the monetary compensation that DRAXIS demands for the provision of the "Fit-for-Nexus climate risk assessment" service. **Contingency:** Constant monitoring and evaluation of actual efforts and expenses versus budgeted resources. Consideration of findings in future budget developments. Continuous market analysis that focuses on the competitors' pricing policy. Flexible pricing strategy, with the objective to penetrate the targeted market.



**Operational & Development Risks:** The risk of running into operational failures. This could be a result of the human-driven approach that DRAXIS has established for the provision of its service. Although the company has high employee retention rate there is always the risk of employee turnover. **Contingency:** Prioritizing work-life balance, appropriate on-boarding of new staff members, transparency in communication and decision-making, paying attention to employee engagement, defining and developing a corporate culture, providing development and continuing education opportunities, and offering job flexibility, competitive salaries and compensation lead to very high employee retention.



### 4.3. AGRISAT/UCLM

#### 4.3.1. Overview

The University of Castilla La Mancha, **UCLM**<sup>7</sup>, Spain, is a public higher education and research entity. The Remote Sensing and GIS Section<sup>8</sup> of the UCLM, is an interdisciplinary group of scientists and ICT developers, bringing expertise since 1996 on Remote Sensing and GIS-based methods for agro-environmental modelling, crop classification, mapping techniques, and webGIS platforms for services and interaction with end-users. Evapotranspiration, soil water balance and crop growth monitoring and modelling by using time series of EO images from multisensor constellation are the specific fields where more experience has been gained on the last decades. This expertise was achieved through national and European research projects, and through collaborations with other important research centres in Europe and America. Moreover, this team has been collaborating closely during more than twenty years with farmers, Water Users Associations and water authorities to achieve the best crop management possible mainly in irrigated areas by using EO. This collaboration has led to an operational EO-based service for irrigation water management, funded by the users, jointly with the river basin authority, which is running since 1998 (ERMOT project).

**AGRISAT**<sup>9</sup> is an SME based in Albacete (Spain) that operates globally. It was founded in May 2014 as a spin-off of a series of EU and national projects (coordinated by University of Castilla-La Mancha). These projects have all been dedicated to the development and demonstration of the operational use of Earth observation (EO) and webGIS for water management and farm advisory. AGRISAT's founding partners are an interdisciplinary group of scientists of the University of Castilla-La Mancha, ICT developers, agronomists, farm consultants, and farmers. As such, it draws on 20 years of experience in leading-edge technology, rigorously tested and applied as decision support tools in operational irrigation and farm management in a wide range of environments. Some of its founding partners have been among the world-wide pioneers of the technology as well as of its integration in a holistic perspective and innovative participatory development and validation approaches. The mission of AGRISAT is to make this knowledge and the corresponding easy-to-use tools widely available to the water and agriculture sectors and thus, to help farmers save water, energy, and inputs while maintaining or increasing yields and ultimately increase farm profitability in an overall context of sustainable agriculture. Thanks to a technology transfer and collaboration agreement with the University of Castilla-La Mancha (Remote Sensing and GIS Unit), AGRISAT has access to continuous innovation in leading-edge technology and research capacities. Moreover, it has the advantage of an established network of experienced local collaborators amongst several countries.


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<sup>7</sup> For more information please visit [www.uclm.es](http://www.uclm.es).


<sup>8</sup> [www.teledeteccionysig.es](http://www.teledeteccionysig.es)


<sup>9</sup> For more information please visit <https://agrisat.es/>.


#### 4.3.2. Product/Service(s) Description & Value Proposition


**PROBLEM(S) #1:** Several regions in the EU (e.g. Spain) face issues relating to Nexus resources, water stress,  environmental issues or food security.


**SOLUTION #1 - Pilot implementation set-up: Baseline, framework, benchmarking:** This service aims to provide  Natural resources consulting. Its objective is to describe a methodology and develop a roadmap that provides the key points for the implementation of different solutions and methodologies, that could address the aforementioned issues in the Nexus areas and in different regions than the ones covered in REXUS, while working at different scales (i.e. from local communities to a national scale).


**MAIN FEATURES:** The main features of the service will be that a description for implementation in each requested  area, where the Nexus is evaluated, will be established. The implementation framework will not only comprise a description of the baseline. On the contrary, it will also integrate the co-implementation and the co-validation plan, along with a roadmap for replicating the process outside the project.


**VALUE PROPOSITION #1:** Its value stems from the fact that this service can provide the methodology and co-implementation framework to entities/projects that want to address the Water-Energy-Agriculture-Climate Nexus in specific locations where these factors are related. In summary, the value proposition  of the service is its replicability. Furthermore, this service uniquely combines Natural resource consulting through the developed methodology with technical consulting in the form of a roadmap.

**IPR Status:** The “**Pilot implementation set-up: Baseline, framework, benchmarking**” service is owned AGRISAT.  It is worth noting that AGRISAT and UCLM are close collaborators since the former is a spin-off company of the latter.


**PROBLEM(S) #2:** The need of mapping the water footprint that has traditionally been accounted as an aggregated  way.


**SOLUTION #2 - Water accounting and footprint:** All goods consume, either directly or indirectly, a certain volume  of water in their production and consumption process and this is what, in terms of sustainability, is called the water footprint. Thanks to the environmental indicator provided by this service, the customer/user can measure the human impact on the planet's water resources, which are as valuable as they are scarce. Through this service, water managers will be able to make decisions about water allocation and plantification. It is worth mentioning that this specific project result is demonstrated in the Spain pilot of REXUS. Furthermore, the water accounting of the Jucar hydrographic confederation has been entered in the computer system of the Ministry for Ecological Transition in the section of the national hydrological plan.


**MAIN FEATURES:** The service's main feature is that it provides the customer with maps of crop water necessities  and water footprint at plot scale. Its objective is to account the water necessities of crops and determine the water footprint within a requested area. More specifically, the service is the implementation of remote sensing assisted soil water balance and the derived water footprint. It provides maps at 10 m of pixel size of crop water necessities and the aforementioned water footprint.


**VALUE PROPOSITION #2:** Its value stems from the fact that while this service builds upon basic information, it  takes advantage of the Copernicus program which results in a better and more detailed management of water on large areas. Additionally, it provides transparency about the process of water managing.





**IPR Status:** The “**Water accounting and footprint**” service is owned by UCLM. Nevertheless, it is worth noting  that, as mentioned before, UCLM and AGRISAT are close collaborators. As stated by the two project partners, UCLM has been in charge of the development of the methodology and its implementation in REXUS. AGRISAT will be responsible for bringing this project result into the market and transforming it into a fully-fledged environmental consulting service. Details on the responsibilities and distribution of revenue will be finalized in an internal partnership contract among the two collaborating entities.


**PROBLEM(S) #3:** Policy makers and public authorities that deal with water and land use management need to  know the type of the agricultural crops in their respective area.


**SOLUTION #3 - Land Use map of agricultural crops:** By developing a better understanding of the behaviour of a  crop or a land, the process of adjusting to its needs and guaranteeing a sustainable development, which includes social, environmental and economic aspects, becomes a much easier task. In essence this service enhances the decision-making process regarding natural resources such as land and water. This project output is demonstrated in the Spain pilot of REXUS. Specifically, a detailed classification of all irrigated crops in the whole peninsula has been constructed.

**MAIN FEATURES:** The service is based on a methodology that ultimately results in a map for the identification of  land use at plot scale. Its objective is to develop agricultural land use maps based on remote sensing and ancillary data at plot scale. The service utilizes time series of Sentinel images combined with decision trees and machine learning procedures.

**VALUE PROPOSITION #3:** The value proposition of this REXUS result, that translates to an environmental service,  is that its data can be annually updated with a lower effort than its alternative, which is using field work over large areas. Also, the produced maps can be offered as input to other similar models and projects aiming to assist policy makers and public authorities that deal with water and land use management. In summary, this service is easily updatable and replicable whilst it could constitute as a stepping stone for further research.

**IPR Status:** The “**Land Use map of agricultural crops**” service is owned by AGRISAT (50%) and UCLM (50%). As  stated by the two project partners, UCLM has been in charge of the development of the methodology and its implementation in the project. AGRISAT will be responsible for bringing this REXUS output into the market and transforming it into a fully-functional environmental consulting service. Details on the responsibilities and distribution of revenue will be finalized in an internal partnership contract among the two collaborating entities.

**PROBLEM(S) #4:** Selecting suitable crops while taking into consideration all the food security aspects is no easy  task, since there is a need of compiling a large amount of information (climatic, soil, agronomy and hydrology) from different sources and in different formats.

**SOLUTION #4 - Land use suitability:** This methodology answers the question “According to the attributes of the  land, what is the most optimal use?”. By means of mathematical models this service will calculate the suitability of a crop in a region and divide the different regions into 5 classes as indicated in the FAO 1976 manual on land use evaluation. This project output is not yet demonstrated in any of the pilot areas of REXUS. Nevertheless, it is foreseen to be implemented in the Pinios pilot in the near future.




**MAIN FEATURES:** The service is based on a methodology that ultimately provides an indication of future plantification and selection of crops under future climate scenarios. This indicator analyses the probability of successful (for agricultural, environment and economic purposes) crop cultivation. It is the implementation of current low resolution land suitability maps that could enable the crop selection process to pilot areas of REXUS and further.



**VALUE PROPOSITION #4:** The value of this service lies upon its attention to detail, hence it lines with the FAO guidelines regarding land use evaluation. Moreover, its easy-to-understand and practicable approach designates it as one of the most useful services for land use suitability measurement and crop suitability selection.



**IPR Status:** The “**Land use suitability**” service is owned by AGRISAT (50%) and UCLM (50%). As stated by the two  project partners, UCLM has been in charge of the development of the methodology and its implementation inside REXUS. AGRISAT will be responsible for bringing this project output into the market and transforming it into a fully-operational environmental consulting service. Details on the responsibilities and distribution of revenue will be finalized in an internal partnership contract among the two collaborating entities.

### 4.3.3. Market Insights

AGRISAT has clarified that its targeted market is the environmental consulting services market. Specifically, it aims to provide consultancy services on NEXUS-based resources management strategies (or any other sector in need of participatory approach tools). Furthermore, regarding the service “Pilot implementation set-up: Baseline, framework, benchmarking” it has also identified the NBS market as a potential sub-market that the company foresees to penetrate. Since the target markets of AGRISAT are the same as ETFOR’s, an analysis of their size, trends and restraining factors is provided in section 0. It is worth noting that the company has expressed its interest in the globalization of its services, while focusing on the Spanish market.

#### 4.3.3.1. Size

Spain’s environmental consulting services market is the eleventh largest in the world. In 2017 it had about 1.1% share of the global environmental consulting services market. The market is expected to grow at a CAGR of 4.3% by the end of the decade.

In 2016, the European Union fined Spain for \$49.41 million for failing to treat waste water properly in 17 towns and cities and it also plans to take the country back to court over the infringements of EU law for not adequately collecting and treating waste water in 37 urban areas in 2011. Since, Spain has evolved into one of the leading forces in environmental consulting.

Some of the most prominent industries utilizing and demanding environmental consulting services in Spain are automobile, biotechnology, tourism, and transportation (The Business Research Company, 2017).

Since the size of the markets that AGRISAT plans to enter are presented above, we also focus on the input that the project partner has provided us with.

Table 7 presents the importance of the geographical size and how it affects the services provided, as were identified by AGRISAT.

Table 7: Size considerations, AGRISAT

Service	Size considerations
<b>Pilot implementation set-up: Baseline, framework, benchmarking</b>	The size can vary from large scale to small scale, precisely in REXUS the company has 5 zones with very different sizes to analyze, which allows it to have a better understanding when implementing and advising interested entities.
<b>Water accounting and footprint</b>	With this service the size is fundamental, since it will determine the degree of detail, the larger the size the greater the effort. Nevertheless, this methodology can be implemented at the farm level and even at the basin level.
<b>Land Use map of agricultural crops</b>	The size is indifferent, since this methodology can be applied at the parcel level or at the country level. Obviously, for every geographical size the level of detail would vary.
<b>Land use suitability</b>	This methodology, that will be offered as a service, is usually applied in large areas, and is usually conditioned by the availability of data.

#### 4.3.3.2. Trends

The trends of the global and European environmental consulting services market and the NBS market, presented in sub-section 4.1.3.2, translate in Spanish market trends as well.

Furthermore, Spain is a party to various legal frameworks related to climate change and other environmental issues. Since it is a party to these agreements, the country has to frame policies to adhere guidelines of each of these treaties, therefore driving the need for environmental consulting services. Some of them include:

- Kyoto Protocol
- Nitrogen Oxide Protocol
- Paris Agreement
- Global Research Alliance on Agricultural Greenhouse Gases (GRA)
- Global Alliance for Climate-Smart Agriculture (GACSA)

In addition, AGRISAT has identified several market trends regarding the services it plans to provide. They are displayed in *Table 8*.

*Table 8: Market trends, AGRISAT*

Service	Market trends
<b>Pilot implementation set-up: Baseline, framework, benchmarking</b>	It is no secret that the latest trends point to a high level of interest in nature-based solutions.
<b>Water accounting and footprint</b>	The water footprint is gaining more and more strength every day, as resources become scarcer.
<b>Land Use map of agricultural crops</b>	Every day remote sensing is gaining more and more strength in the world, something that builds upon the current trend to optimize farms.
<b>Land use suitability</b>	The current trend is very research oriented. There is willingness in the use of this methodology, hence farmers are now considering to perform this analysis in dynamic systems (i.e. changing over time, evaluating rotational crops).

In addition, according to AGRISAT, the appearance and rapid development of new technologies are a constant. Thus, specialization in all the technological variants that can be applied in the agricultural sector is foreseen to be of the utmost importance in the near future. Also, agronomic utilities of remote sensing provide endless possibilities and are ever-growing aspects of the marriage between technology and agriculture. According to the company, that in combination with the constant technological and knowledge advances augur a true revolution in crop management control and resources management decision making. In essence AGRISTAT estimates that the expansion of the environmental consulting services market and the NBS market is imminent.

#### 4.3.3.3. Restraining factors

The most conspicuous factors that could halt the commercialization of the REXUS results that AGRISAT plans to monetize is the lack of knowledge and understanding around environmental services, the way that the relevant stakeholders could benefit from them and the way that they should be implemented. Accordingly, the preceding difficulty of grasping the topic that these services aim to address along with the misinformation that revolve

around environmental topics and the fact that there are not many legal requirements that enforce environmental friendly actions (e.g. for private companies), result in little to no environmental awareness that consequently minimizes the political willingness and economic support for such services and initiatives.

Another barrier to the transformation of the project results to fully-fledged and marketable services relates to the nature of the services themselves. According to AGRISAT, the services are based on methodologies that require a high level of knowledge and technical skill. Furthermore, most of them are linked to data collection, where in some cases can prove to be a difficult task (i.e. at a European and global level). Nevertheless, AGRISAT has declared that it aims to invest in its technical team and has stated that is fully capable of meeting these challenges, thus bringing the four aforementioned services to the market.

#### 4.3.3.4. Customer segments



##### Policy makers and public authorities

- Improved agricultural management and more knowledgeable and scientifically sound policy decision-making
- Responsive to environmental and agricultural changes
- Better understanding of crop behaviour
- Natural resources management optimization



##### Researchers

- Stepping stone for more research projects and an example for replicability
- State of the art methodologies and tools (i.e. maps and indicators)



##### Civil society organizations

- Methodologies and tools that enhance resource management and agricultural decision-making. More informed advocacy provided to governments and public institutions
- Greater understanding of the issues that are linked to the depletion of natural resources



##### Private companies

- Incorporation of social and environmental concerns into business activities

#### 4.3.3.5. Competitor analysis

As mentioned before, the environmental consulting services market is highly fragmented and competitive both at a global and European scale. With technological advancement and product innovation, mid-size to smaller companies are increasing their market presence by securing new contracts and by tapping new markets, as is the case with AGRISAT that aims to penetrate the broad ECS market with emphasis on the sub-NBS market. In the short run the company aims to utilize its existing relationship with clients that originate mainly in the agricultural sector and in ministries that tackle environmental and agricultural aspects. The company’s closest competitors originate in its national market, which is Spain. *Table 9* presents the most prominent rivals of AGRISAT.

Table 9: Competitor analysis, AGRISAT

Company <sup>10</sup>	Profile	Brief description
<b>ESTOP - Environmental Studies in Mallorca</b>	Founded in April 1964, the ESTOP is a consulting firm based in Spain, with presence in the Balearic environmental sector.	ESTOP specializes in all types of environmental consulting: hydric resources, environmental management, environmental viability studies, marine and coastal environment.
<b>QED Environmental Systems</b>	QED Environmental Systems was established in 1982 by industry experts who were eager to provide sound, scientific solutions to an industry in need. It has a very strong presence in the Spanish market. The company has been a leading manufacturer of environmental monitoring and remediation equipment. QED Environmental Systems is the market leading provider of environmental technology solutions. It designs, manufacture and support solutions for groundwater, soil and gas management and detection applications into environmental, industrial and renewable energy markets worldwide. Its products ensure compliance to international standards. QED has developed a global network of international distribution and service partners, enabling us to consistently deliver a superior customer experience.	<p>QED supports its customers around the globe through a network of local technical sales specialists backed by an in-house technical sales and customer support team dedicated to providing expert help and quick response. QED’s major facilities include its Global headquarters in Dexter, Michigan headquarters and its EMEA and APAC division in Coventry, England. Also, the company is one of the most prominent forces in the Spanish market.</p> <p>QED Environmental Systems is the world's leading provider of environmental technology solutions. Its products serve:</p> <ol style="list-style-type: none"> <li>1. groundwater and soil monitoring;</li> <li>2. gas management applications in medical and foodstuff;</li> <li>3. control and monitoring systems for environmental and energy markets.</li> </ol>

<sup>10</sup> More details about AGRISAT’s competitors: <https://www.environmental-expert.com/companies/estop-environmental-studies-in-mallorca-48845>, <https://www.environmental-expert.com/companies/qed-environmental-systems-9549>, <https://www.environmental-expert.com/companies/zelya-energy-22760>, <https://www.environmental-expert.com/companies/future-dynamics-31190>, <https://www.environmental-expert.com/companies/imsm-ltd-10089>, <https://www.environmental-expert.com/companies/co2-solutions-31091>, <https://www.environmental-expert.com/companies/ambidata-digital-innovation-solutions-consulting-lda-21106>

Company <sup>10</sup>	Profile	Brief description
<p><b>Zelya Energy</b></p>	<p>Zelya Energy is a European consulting firm, specialized in the energy sectors, whose mission is to help industrial and financial players create and maintain a competitive advantage. Also, it is a prominent force in the Spanish environmental consulting services market.</p>	<p>The company relies on high-experienced consultants in regulatory, technical and financial issues, in strategy and management, specialized in the gas, power and renewable energy sectors. More precisely, in the renewable, power and gas sectors, the firm's team constantly reviews the regulatory and policy frameworks in order to provide our clients with a high level of expertise and a solid and detailed know-how of these rules and markets. As such, Zelya Energy has an in-depth understanding of the business, legal and regulatory environment in which its clients would like to invest. It also gathers the best financial and technical advisory capabilities to assist our clients in the development of their projects of power supply and generation.</p>
<p><b>Future Dynamics</b></p>	<p>Future Dynamics is an international consultancy company founded by leading professionals, from academia and private sector, with a unique international experience in addressing sustainable development issues and a strong presence in the Spanish market.</p> <p>The consulting firm's aim is to support public institutions, private enterprises and non-governmental organizations to move toward sustainable development in an innovative and sound way through consultancy, training and research activities.</p>	<p>The company's experience matured within research, consultancy and training activities that has been developed along the work for EU Commission, universities, private enterprises, local administrations, governmental institutions and the UNESCO Chair of Sustainability at UPC where he is currently finishing his PhD research and in charge for the International Relations and Research Networking.</p> <p>Future Dynamics activities are supported by a well-established multidisciplinary network of leading experts that includes engineers (environment, transport, energy, water, waste) social scientists (evaluation, decision making, participation) architects (planning, architecture, landscape, design) and trainers (teambuilding, management, coaching, innovation), that can collaborate on a wide range of assignments.</p>
<p><b>IMSM Ltd</b></p>	<p>IMSM Ltd is a consulting firm established in 1994 that has grown to become an international market leader in supporting organisations to gain ISO certification. It has</p>	<p>It delivers high quality ISO consultancy services and standards to organisations of all sizes, from all sectors, all over the world. As an organisation it works towards a</p>

Company <sup>10</sup>	Profile	Brief description
	<p>helped over 10,000 businesses achieve international standards, across a wide range of business sectors. The company offices in 20 countries (including Spain), and can draw on a wealth of experience. The firm is considered to be one of the leading forces of the Spanish market.</p>	<p>common goal: to consistently deliver to our clients world class ISO consultation, reinforced by adherence to our IMSM Mission Vision and Values 2016.</p>
<p><b>CO2 Solutions</b></p>	<p>CO2 Solutions is a consulting firm located in Madrid, Spain that delivers complete solutions concerning Climate Change and Carbon Markets.</p>	<p>The company's variety of services spans from the development of emission reduction projects within the Clean Development Mechanism (CDM), Joint Implementation (JI) and Voluntary Schemes, Carbon Market consulting, development of Neutral Carbon projects, Nationally Appropriate Mitigation Actions and Strategic Climate Change Consulting Services.</p>
<p><b>Ambidata Digital Innovation Solutions &amp; Consulting Lda.</b></p>	<p>Ambidata is a leading Portuguese technological provider of digital solutions and consulting to laboratories. The company is also one of the most prominent forces in the Spanish market. It comprises two specialized teams/departments in this area:</p> <ol style="list-style-type: none"> <li>1. the SOFTWARE team that develops a LIMS (LABORATORY Information/INTEGRATION Management Software/SOLUTION): LabWay-LIMS is addressed to any industry laboratories needs and specifications (Analytical Process; ERP, BI, CRM);</li> <li>2. the SERVICING/QUALITY team specialized in implementing LabWay-LIMS, focused on ISO/IEC 17025:2005 in order to assist our Laboratories Customers in developing their management system for quality, administrative and technical operations.</li> </ol>	<p>The company's solutions are designed and implemented for a future where the digital laboratory has its equipment and software solutions integrated and capable of optimizing resources. It claims to provide the best quality of service (QoS) by offering unique and valuable laboratory digital solutions, at the best price in the market.</p>

**Competitive advantage:** It is worth noting that AGRISAT considers itself to have an edge over these entities. Specifically, the company claims that its advantages stem from:



- the personalized treatment that is provided by the project partner through a group of experts in the environmental and agricultural field who adjust and adhere to the real needs of each customer/stakeholder in demand of its services;
- established customer relationship with clients in the environmental and the agricultural sector, along with national ministries;
- interface between the academia (through UCLM) and the private sector.

#### 4.3.3.6. SWOT Analysis


Table 10: SWOT analysis “Pilot implementation set-up: Baseline, framework, benchmarking”, “Water accounting and footprint”, “Land Use map of agricultural crops”, “Land use suitability”


<b>S</b> TRENGTHS	<b>W</b> EAKNESSES
<ul style="list-style-type: none"> <li>↔ Since the results that are provided as services are evolutionary processes, they are responsive to changes.</li> <li>↔ Unique and easy to use services with attention to detail and replicability.</li> <li>↔ Teams of experts striving for innovation and optimization of the services.</li> <li>↔ The services offer elimination of unnecessary tasks through centralization of efforts and unification of criteria for action.</li> <li>↔ AGRISAT and UNIPD’s stable relationships with some organizations that could become potential clients (e.g. entities in the environmental and agricultural sector, ministries, etc.).</li> <li>↔ Participation and demonstration in REXUS could indicate the service’s effectiveness and enhance its expansion in the European market.</li> <li>↔ The service can be easily scalable in size and locations and it can be adaptable to a diversity of potential customers.</li> <li>↔ Vast customer segment (i.e. policy makers and public authorities, public and private companies and civil society organizations).</li> <li>↔ AGRISAT and UNIPD’s expertise and know-how due to experience in this specific field.</li> </ul>	<ul style="list-style-type: none"> <li>⊖ The “go to market” process may be slow (i.e. it takes time for this type of project to show results).</li> <li>⊖ This specific service requires the collaboration of two consortium members, which could ultimately backfire in the finalization of monetary strategy of this service. Nevertheless, since AGRISAT is a spin-off company of UCLM that would be highly unlikely.</li> <li>⊖ Heavy emphasis and strong dependence on human resources (i.e. work teams and their leaders in each respective area).</li> <li>⊖ Methodologies that require a high level of knowledge and technical skill.</li> </ul>
<b>O</b> PPORTUNITIES	<b>T</b> HREATS
<ul style="list-style-type: none"> <li> ⚡ Increasing pressure on the business sector to incorporate social and environmental concerns into business activities without neglecting any company’s economic performance.</li> <li> ⚡ Incremental water stress in different areas and systems presents opportunities for water management services.</li> <li> ⚡ Remote sensing, artificial intelligence systems are becoming increasingly attractive in the agricultural sector.</li> <li> ⚡ Increased regulation and initiatives to increase environmental consciousness in EU.</li> </ul>	<ul style="list-style-type: none"> <li>⚡ Input and data availability outside the Spanish landscape (i.e. at a European and global level) is lackluster.</li> <li>⚡ The topic is still hard to understand for a broader audience and it is not mandatory to act in this regard (i.e. there is not a legal requirement to do these activities).</li> <li>⚡ Lack of environmental awareness that results to minimal political willingness and economic support for such services and initiatives.</li> <li>⚡ The services are restricted to the Spanish and European market with little to no potential of globalization in the short-run.</li> <li>⚡ Despite the fact that the services are generated through a European funded project, it might prove</li> </ul>





	to be hard to access European market due to the heavy competition.
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#### 4.3.4. Operational plan


**TEAM:** AGRISAT’s team is composed by Anna Osann, the Co-founder and Innovation Director of AGRISAT and  Honorary Fellow at Universidad de Castilla-La Mancha with over 20 years of experience in coordinating and participating in large EU projects on the improvement of water and nutrient use efficiency in agriculture, focusing in particular on the synergy between new technologies and participatory approaches and stakeholder collaboration. The team also consists of Vicente Bodas, the Co-Executive Director and Agronomic Director of AGRISAT, who is an agronomist with over thirty years of experience as an agronomic consultant. He started his professional career in a renowned multinational agricultural company and later in his own company, mainly focused on developing and applying conservation agriculture. Today he has become one of the leading Spanish experts in this field. According to the company, he has become a reference in cutting-edge technologies, all aimed at improving resource allocation and reducing the ecological implications of agriculture in environmentally constrained agro-systems. He has compiled extensive, relevant, and valuable documentation related to crop management in close contact with farmers.


**VISION:** AGRISAT’s vision is to use technology as a useful tool in agricultural management. As a company born  among people who work in the field, its priority is to be useful to the farmer or technician, who needs information on a daily basis in order to make decisions. Its products and services are not designed with the objective of dazzling with technological boasts, but with the idea that they have to be simple and practical tools for agronomic management.

**BUSINESS OBJECTIVES:** The objective of AGRISAT is to make the knowledge it provides and the corresponding  easy-to-use tools widely available to the water and agriculture sectors thus helping farmers save water, energy, and inputs while maintaining or increasing yields and ultimately increase farm profitability in an overall context of sustainable agriculture. The company’s long term business goal is to be a leading company in the agricultural sector. **To meet these objectives:** In the next years, AGRISAT plans to invest in its human resources aspect, focusing on IT, engineers, agricultural experts and economists. As the company has stated, its goal is to collaborate with people who are passionate about sustainable development and have an awareness of the real needs of the different sectors of the Nexus. It is worth mentioning that AGRISAT hasn’t identified its expected revenue streams that relate to the coverage of the innate costs of the aforementioned activities.


**METRICS:** At this stage of REXUS, the number of clients that aim to utilize the services that AGRISAT and UNIPD  offer is the only means of measuring progress that the two entities have identified.


##### 4.3.4.1. Marketing mix

**PRODUCTS:** AGRISAT plans to sale the aforementioned services as standalone components. They fall under the  category of environmental consulting services that plan to enhance the decision-making process on natural resources, food security, crop selection, water and land use management.

**PROMOTION:** As AGRISAT has stated, it would not use a one size fits all approach. On the contrary, it plans to  closely investigate and examine the need of its customers. The company has identified that its main source of promotion will be social networks (e.g. business page, social media, etc.). AGRISAT has also

outlined that it could reach its targeted customers via email, telephone, company meetings and word of mouth. Furthermore, its strategy incorporates its targeted customer segments, since after the provision of services the firm plans to ask them for feedback that will ultimately help the company improve its services and evolve.

**PRICE & Strategy:** AGRISAT has declared that in order to set the price of its services, it must consult with its team  in charge of doing a market analysis, something that was considered unrealistic and unnecessary in the current stage of REXUS. The pricing policy is foreseen to be finalized and presented in the final version of the Business plan (D7.10).

**PLACE:** The AGRISAT sales team is foreseen to be in charge of the selling of the services which will be done mainly  through the company's website where customers will be able to directly contact the company. The type of selling will most likely be through asset sales (i.e. customers purchase the service for a fixed price).

4.3.4.1. Business Model Canvas

Key Partners	Key Activities	Value Proposition	Customer Relationship	Customer Segments
<ul style="list-style-type: none"> <li>-UCLM</li> <li>-ICATALIST</li> </ul>	<ul style="list-style-type: none"> <li>-Better understanding of methodologies, tools, information and frameworks that relate to the services provided.</li> <li>-Structure and deeper understanding of the services, something that will be cultivated through the participation in the REXUS project.</li> </ul>	<ul style="list-style-type: none"> <li>-Plethora of services;</li> <li>- Unique and easy-to-use services with attention to detail;</li> <li>- Replicability;</li> <li>- Elimination of unnecessary tasks through centralization of efforts and unification of criteria for action;</li> <li>- Scalability</li> </ul>	<ul style="list-style-type: none"> <li>- Clients in the agricultural sector;</li> <li>- Different ministries, that deal with environmental and agricultural aspects.</li> </ul>	<ul style="list-style-type: none"> <li>-Policy makers and public authorities;</li> <li>-Private and public sector companies;</li> <li>- Civil society organizations;</li> <li>- Research projects/researchers</li> </ul>
	Key Resources		Channels	
	<ul style="list-style-type: none"> <li>- IT personnel;</li> <li>- engineers;</li> <li>- agricultural experts;</li> <li>- economists;</li> <li>- In general, people who are passionate about sustainable development and have an awareness of the real needs of the different sectors of the Nexus.</li> </ul>		<ul style="list-style-type: none"> <li>- Social media;</li> <li>- Company website;</li> <li>- Business page</li> </ul>	
Cost Structure		Revenue Streams		
NA		NA		

#### 4.3.5. Risk analysis

**Market Risk:** The main risk that AGRISAT has identified is the liability that the company would invest in the aforementioned services and not being able to reach its ideal number of customers. **Contingency:** As a mitigation measure, AGRISAT has declared that its strategy would be to try and locate the ideal group of customers for their services and pinpoint the most effective way of reaching them (e.g. via email, telephone, company meetings, word of mouth, etc.).



**Marketing Risk:** The biggest marketing risk that the company has identified is the lack of recognition at an international level. Since the services are being targeted at the Spanish and the European market, services could struggle to be a prominent force in the global market. **Contingency:** As a means of tackling the aforementioned issue, AGRISAT could increase their marketing effort, whilst taking advantage of the company's reputation and existing network and using it as leverage. Moreover, it could seek for participation in projects with an international trajectory thus investing in business collaboration outside the EU.



**Operational, Development & IT Risks:** The risk of running into operational failures related to the high standards that AGRISAT has set for itself. **Contingency:** However, the company could add up to its IT, agricultural, economist and engineering resources and employ additional personnel in order to run the entire commercialization process smoothly.



## 5. Conclusions

The current document (D7.9 Business plan\_ First version) aims to deliver a coherent Business plan, that will outlast the duration of the project, for the consortium members of REXUS that aim to gain monetization value out of their project results and outline their positioning in the respective markets.

Although not all the commercial partners of REXUS were able to participate in this deliverable, their business case is foreseen to be thoroughly examined in the final version of the Business plan (D7.10). Furthermore, a detailed financial plan that examines the feasibility of each business case, along with an implementation roadmap of actions that will ultimately transform the commercially exploitable results of REXUS into fully-functional and marketable services for all the Business plans (i.e. individual and consolidated), are planned to be a part of that deliverable as well.

The present document focuses on individual Business plans that are targeted on a project partner level. All the collaborations mentioned are aligned with the interests of the involved parties and will be thoroughly examined in the framework of the final version of the Business plan (D7.10), where the possibility of a consolidated Business plan for the whole of REXUS will be considered. Even though the Business plans mentioned are collectively exhaustive, they are by no means a guarantee of future action plans.

Based on the Business plans described in this report, there is a need for actions to be put in motion with respect to partners pursuing their own financial goals. For example, further networking activities aimed to commercialize the results of the project need to be organized by consortium members in order to enhance project's communication and dissemination outreach and to further support the REXUS market exploitation and ultimately the project's impact. Moreover, the project partners need (to be assisted) to prepare presentations to potential investors for their investment talk and relevant investment events with the aim to secure additional funding for their business ideas and make it easier to implement the proposed plans.

According to individual business and marketing strategies elaborated in the document, all entities analysed have a good starting point for the exploitation and commercialization of their respective services. What remains for the project partners is to thoroughly examine their business strategy, utilizing this deliverable as a starting point, and begin the implementation of their desired Business plan.

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## ANNEX

The marketing mix, also referred to as the 4 Ps, is comprised of four main pieces – Products, Price, Promotion and Place.



Figure 13: 4Ps of Marketing Mix (Source: [bbc.co.uk](http://bbc.co.uk))

**Product** refers to a good or service that a company offers to customers. Ideally, a product should fulfill an existing consumer demand. Or a product may be so compelling that consumers believe they need to have it and it creates a new demand. The product or service that a company is selling needs to be correctly defined. Its features, how it is packaged must be clear, and then the benefits that can accrue to customers from their use must be built on (Investopedia, 2022).

The type of product partially dictates how much businesses can charge for it, where they should place it, and how they should promote it in the marketplace.

**Price** is the cost consumers pay for a product/service. Company needs to have a strategy on pricing, both for wholesale and retail, bulk sale and whether it is in a position to offer discounts to ensure customer loyalty. Marketers must link the price to the product's real and perceived value, but they also must consider supply costs, seasonal discounts, and competitors' prices. In some cases, business executives may raise the price to give the product the appearance of being a luxury. Alternatively, they may lower the price so more consumers can try the product.

Marketers also need to determine when and if discounting is appropriate. A discount can sometimes draw in more customers, but it can also give the impression that the product is less exclusive or less of a luxury compared to when it is used to be priced higher.

When a company makes decisions regarding **place**, they are trying to determine where they should sell a product and how to deliver the product to the market. The goal of business executives is always to get their products in front of the consumers that are the most likely to buy them.

In some cases, this may refer to placing a product in certain stores, but it also refers to the product's placement on a specific store's display. In some cases, placement may refer to the act of including a product on television shows, in films, or on web pages in order to garner attention for the product.

**Promotion** includes advertising, public relations, and promotional strategy. The goal of promoting a product is to reveal to consumers why they need it and why they should pay a certain price for it.



Marketers tend to tie promotion and placement elements together so they can reach their core audiences. For example, In the digital age, the "place" and "promotion" factors are as much online as they are offline. Specifically, where a product appears on a company's web page or social media, as well as which types of search functions trigger corresponding, targeted ads for the product (Investopedia, 2022).