Carbonica

Low-carbon Farming: building a sustainable future

D1.7 Brain gain strategies

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5	AG FUTURA TECHNOLOGII DOOEL SKOPJE	AGFT	RNM
6	ZDRUZENIE PLATFORMA ZA ZELEN RAZVOJ SKOPJE	GGP	RNM
7	AGENCIJA ZA POTTIKNUVANJE NA RAZVOJOT NA ZEMJODELSTVOTO	APRZ	RNM
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13	ETHNIKO SYSTIMA DIAPISTEUSIS	ESYD	EL
14	PANAGROTIKOS SYNDESMOS KYPROU SOMATEIO	PSK	EL

Executive Summary

The D1.7 of the WP1 concerns the development and implementation of brain gain strategies. On this task, development of three working groups from the CARBONICA project will be established including one from each country. The purpose of this working group is the knowledge exchange, information and experience sharing between the members of the three MAPs created from the D1.1. Participants will also derive from CY, GR and NMK diaspora in addition to European and internation experts. The goal of this task is the creation of online roundtables where members participating will present and discuss topics related to carbon farming. Each online roundtable will consist of different topics with the aim of one-page statement preparation in order to present the common view of the working group. Also, 6 conferences of the working groups members will be held where speakers from the diaspora will be invited to present the state-of-the art of carbon farming R&I.

During this period a few meetings were held with the representatives of T1.4 from each country in order to decide activities should be held in addition to a plan creation in order to create successful and meaningful roundtables. During this meeting an action plan was created in relation to several topics including how many people will invited to each roundtable, meeting duration, how many online events, possible dates, and some carbon farming topics that it would be good to discuss.

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CF	Carbon Farming
MAPs	Multy Actor Platforms
MS TEAMS	Microsoft TEAMS
R&I	Research and Innovation
NGO	Non-governmental organization
AEAS	Agricultural Extension and Advisory Services
MRV	Monitoring, Reporting and Verification

1 Introduction

Climate change year by year becomes a major problem having a serious impact on the environment. The agricultural sector is one of the industries that contributes to climate change through the release of CO_2 in the atmosphere. Carbon Farming (CF) is an emerging methodology that showed promising outcomes in relation to CO_2 reduction, contributing to the European Unions' zero-net goal. CF practices were scientifically proved that can contribute to CO_2 reduction as well as increase productivity, promote water sustainability and upgrade food security.

The social and environmental benefits of agricultural research can be harder to quantify precisely than the financial gains, which are frequently quantifiable. Nonetheless, there is a compelling argument for continuing to fund agricultural research given the long-term benefits for resilience, sustainability, and general social well-being. Governments, businesses, and international organizations understand how critical it is to fund research and innovation in order to tackle the multifaceted issues that confront the world's agricultural sector.

Agricultural research is an important asset coming with a lot of environmental challenges and needs that are necessary to be addressed and find solutions to them. A strategic approach should be created to identify needs and understand the challenges that the agricultural sector faces in order to stand in the first line for problem solving by opening new business opportunities and promote sustainability on this domain. A crucial aspect for needs identification is to bring close all the interested stakeholders that are involved in the agricultural sector and record all their concerns for problem solving.

2 European Union Carbon removal certification

The aim of a certified carbon removal scheme is to advance carbon reduction activities and fight greenwashing by authorizing businesses to illustrate their actions in this domain[1]. There will be two stages in the development of the European Union (EU) certification of carbon removals. First, under the proposed Regulation, the Commission will establish high-level quality standards. Second, the measuring, tracking, reporting, and verification of carbon removals from industrial and natural activities will be facilitated by the Commission's approval of comprehensive certification criteria.

In November 2020 was the initial proposal for the carbon removal certification scheme. In 20th of February 2024, EU release a press release about the agreement of EU-wide certification scheme for carbon farming removals[2]. A welcome agreement by the Commission took place between the European parliament and the council related to the first certification framework of high-quality carbon removals. The aim of this certification guidelines is to increase carbon removal innovative solutions and technologies and promote carbon farming that has as an outcome the zero-pollution goals of EU. By verifying carbon removals and carbon farming (CF) to make sure they are transparent and reliable, avoiding greenwashing, and opening new business opportunities, this new framework will assist the EU in reaching climate neutrality. The certification agreement concerns the following areas:

- CF such us restoration and advancements of forests and soils and avoidance of soil emissions, peatlands rewetting, fertilizers efficiency and other innovative farming practices.
- Carbon removal from industry, such as carbon capture and storage for bioenergy or a direct way of carbon storage and capture.
- Binding carbon in durable goods and materials, like biochar or wood-based building supplies

The EU will be able to measure, track, and confirm the legitimacy of all these carbon removal methods more effectively thanks to the provisionally agreed Regulation. It specifically lays out guidelines for identifying certification programs that show adherence to the EU framework as well as a set of requirements to guarantee the high caliber of carbon reductions and the legitimacy and openness of the certification procedure. The agreed principles will make sure that carbon removals are properly quantified, ensure long lasting carbon storage that will be at least of 35 years, update and adopt new practicing methodologies and ensure the contribution of achieving sustainable goals (e.g., biodiversity). According to the European commission, establishments of EU registry will take place to establish a high standard transparency about verified carbon reductions. The time set of the above goals was set to be in place in 4 years. Based on this, the Commission will keep working to create reliable and customized certification processes for the various kinds of carbon removal activities, with assistance from a Carbon Removal Expert Groups. The expert group will consist of independent experts and stakeholders from national experts, businesses, public entities, industry, research institutions, non-governmental organizations, and certified bodies in the domain of carbon removals[3].

European Commission stated that carbon removals certification could be the start of new financial opportunities and can be achieved through private proposals and support from the public sector as well as creating financial benefits since customers want to reward eco-friendly practices. In addition, CF methodologies will establish new business proposals and models for agriculture and forestry and is anticipated to benefit biodiversity restoration. The established regulation also promotes the utilization of durable bio-based construction materials to maintain carbon sequestration for extended periods, thereby encouraging the development of innovative sustainable building methods. The regulation will promote financial support for this matter through private and public funds since farmers' participation in carbon removal will be rewarded based on the certified removals and emissions reduction. The next step set by

[1] EU carbon removal certification: Carbon Removal Certification - European Commission (europa.eu)
[2] European Commission agreement on carbon removal certification: EU-wide certification scheme for carbon removals (europa.eu)
[3] Expert Groups: Expert group on carbon removals - European Commission (europa.eu)

the European Parliament and the Council is the formal approval of this agreement. After this procedure is finished, the new law will be published in the Union's Official Journal and go into effect.

A schedule online meeting was set on 15th April 2024 with the expert group and several topics will be discussed such as CF, certification framework, certification process, verification and registries and the permanent removal and long-term storage in products[4].

[4] Next group meeting on carbon removal certification: 4th EU Carbon Removals Expert Group meeting - European Commission (europa.eu)

3 Aims of roundtable discussions

An online roundtable discussion is an event that its main aim is to bring many individuals from different sectors together. During this kind of event several specific topics are discussed that are of high importance to the groups and the organizations that are part of. The format of a roundtable discussion is an ideal asset for organizations that need to make significant decisions and want to engage on certain topics that will facilitate their positions. One excellent option to hear other people's thoughts and opinions in a convenient format is through a virtual roundtable. Since everyone will be able to hear and engage with the many conversation points throughout the meeting, these talks can help facilitate more transparent and seamless communication.

During Deliverable 1.1 (D1.1) of the Working package 1 (WP1) of the CARBONICA project a literature review was contacted as well as a questionnaire that was sent to members that are part of the quadruple helix followed by face-to-face interviews. During these activities several issues and concerns of the agricultural sector were identified. However, many of the participants were signed to part of the Multi-Actor Platform (MAP) in order to facilitate their position showing their interest in CF and its benefits. Several topics based on the needs identified in the agricultural sector will be discussed during the online roundtable discussion. Another aim of these discussions is to be able to identify more concerns and gain a broader understanding of the current situation. Nevertheless, during online roundtable discussion several aims should be covered including:

- Participant engagement
- Promotion of CF
- Need identification
- Solutions
- Knowledge exchange

4 Multi-Actor Platform (MAP)

A Multi-Actor Platform (MAP) serves as a dynamic framework that facilitates smallholder farmers, small-scale processors, and traders to address their individual challenges and needs. It involves seizing opportunities, utilizing common interests, and determining how the various value chain elements will advance over time. Access to Agricultural Extension and Advisory Services (AEAS) is made demand-driven through the MAP, improving responsiveness and sensitivity to the unique circumstances and requirements of the community.

Through facilitating group learning, exploration, and action, MAPs promote co-innovation. As a multi-actor platform, it must facilitate diverse interactions and collaborative processes, such as farmer-to-farmer, trader-to-farmer, input supplier-to-farmer, processor-to-farmer, agricultural extension officers-to-farmer and input supplier, among others. These exchanges and partnerships are essential for fostering co-innovation and building participant trust and a sense of ownership, both of which are qualities that rarely arise on their own. In order to improve organizational and facilitation capabilities, a MAP should provide the required organizational structure and streamline processes. This will call for a simultaneous capacity-building initiative.

One of CASRBONICA's project goals is to create three MAPs one for each ecosystem (Cyprus (CY), Greece (GR), and Republic of North Macedonia (NMK)). During the WP1 and the T1.1 a detailed literature review on the current CF situation on a global scale as well as on the three ecosystems was carried out. In addition, a survey was prepared and sent to all concerned stakeholders represented in the quadruple helix scheme. The anticipated outcomes from this survey were to identify current issues faced in the agricultural sector and existing knowledge in the field of CF. Variety of opinions and needs identified that need to be address further. One of the aims of the D1.1 was the creation of the MAPs that will involve stakeholders representing the quadruple helix from the three ecosystems.

The goal of the MAPs is to act as a lighthouse for knowledge exchange, experience sharing and problems sharing between the three ecosystems. A lot of issues and concerns were identified in the three ecosystems. The issues and concerns are mainly relied on financial income. One of the purposes of the roundtable discussions is to cover topics related to the outcomes derived from the survey and face-to-face interviews. In addition, carbon removal certification topics and the role of the Monitoring, Reporting and Verification (MRV) will be discussed as it is a topic mentioned before that might open new business opportunities and thus financial gains.

4.1 Capacity building and brain gain strategies

Promoting the carbon farming industry, which is essential for reducing the consequences of climate change, requires strategies incorporating capacity building and the creation of new knowledge. Capacity building includes the knowledge advancements and strengthening, skills upgrade and increase competence of individuals as well as organizations that are involved in agricultural practices. This can be achieved through training programs, educational processes and training initiatives that focus on bringing stakeholders up to date with the latest scientific and technological developments related to crop production.

In the meantime, ongoing knowledge input is a key component of efforts to draw in and keep outstanding personnel for agricultural development. This will be accomplished by offering rewards, encouraging collaborations on research, and establishing an atmosphere that supports the growth of the professions. Initiatives for sustainable rural development will be more resilient and effective with investments in capacity building and strategic knowledge enhancement, which will ultimately contribute to a more neutral and sustainable environment.

5 Roundtable strategy

Roundtable strategy concerns the creation of a small group of people that will be called to discuss and state specific issues and concerns, challenges, and opportunities on a specific topic.

5.1 Type of discussions

The types of discussions involved in the CARBONICA project are related to the CF schemes. Through these methodologies certain topics will be discussed including opportunities in CF the benefits of adopting CF practices, financial viewpoints, Measurement, Reporting, and Verification (MRV) strategies, and the certification of carbon removal, among others. The reason of the panel discussion is to provide to the participants an update information on CF, to raise awareness, provide an insight on CF to the stakeholders of the MAPs, provide them the opportunity of a better and more sustainable agricultural practices, financial perspectives and identify the current needs.

As mentioned before an introductory speech will be held by the Greek ecosystem. In addition, topics related to what applies in carbon farming today will be discussed. Topics will differ on each roundtable in order to cover a high spectrum of themes based on CF theme.

5.2 Participants

The online roundtable discussions will involve participants from the MAPs. The MAPs were created with people representing the quadruple helix model and include people from industry, non-governmental organizations, public bodies, farmers, and academic communities. Thought their experiences and knowledge a diversity of perspectives will be discussed for needs identification and achieving certain problem solving. In addition, MAPs will give an insight through their position by representing each category and state the needs derived from them.

5.3 Hosts

The three ecosystems of CY, GR and NMK will be organizing the online roundtable discussion, one at each time. As mentioned before the first country that will start the first roundtable will be Greece. Each country responsible for the organization of the online roundtable discussion will be the host of the meeting. The host will be responsible for the topic discussion and provides a clear understanding around it to the participants. The host will start the online roundtable meeting by introducing the CARBONICA project and the topic that would be discussed at a given time. The host will actively engage all participants and allow them to share their perspectives. One of the purposes of the online roundtable's discussion is to make the participants feel inclusive to the discussion and make sure that every participant will have the opportunity to speak and share their knowledge and perspectives. Another key responsibility of the host is to create a respectful environment where participants feel comfortable in sharing their opinions. Another responsibility that the host is to summarize the main issues brought up during the roundtable discussion and draw attention to any significant discoveries or findings.

6 Structured Discussion

The panel discussion was estimated to begin when the commence of the final MAPs list participants will conclude. This activity of the MAPs creation was started in the frames of the D1.1 for the WP1 and the T1.1 where face-to-face interviews for carbon farming (CF) initiated. When the list of MAPs concludes the first roundtable will take place in an online format. After a few meetings with the key partners from Greece and North Macedonia conclusion regarding the number of participants on each roundtable took place. The number of participants on each panel discussion was set to six people. Each panel discussion will host one body from each category of the quadruple helix. The aim of the panel discussion that will be created during the CARBONICA project is the knowledge transfer between the participants involved in the quadruple helix along with people that will be invited representing CY, GR and NMK diaspora.

After the European Commission press release about the carbon removal certification the lead beneficiary and the participants of this deliverable organized an online meeting. A discussion was held related to this topic and came up with a few decisions regarding this. The decisions concern the additions of the carbon removal certification and whether the online roundtable discussion can host verified bodies according to the EU guidelines. We came to the decision that it would be a good opportunity to host this kind of stakeholder bodies in order to show to stakeholders that are participating in the MAPs the benefits of the CF and the gains they will have with the carbon removal certification.

During the meeting with partners, possible agenda was discussed in order to cover and obtain all the relevant information. The online roundtable will start with a small introduction about the CARBONICA project and the creation of the Multi-Actor Platforms (MAPs), one from each ecosystem and the goal of Excellence Hub creation in the CF domain. After that a word will be given to the guest where they should say a few words about themselves and their career or knowledge in the agricultural sector. After that, a specific topic related to CF will be discussed by the working groups. A few topic ideas were discussed during the meetings that are related to CF.

6.1 Meeting Duration

During the meeting performed by partners that are responsible for this task duration of the online roundtable meeting was set. We came to a decision that each online roundtable meeting will dure approximately two hours. This is because we want to extend the conversations amongst the participants in order to achieve knowledge transfer and experiences gain from each category. Additionally, a one-page statement from each working group should be created in order to observe the common view of the group on the specific subject presented.

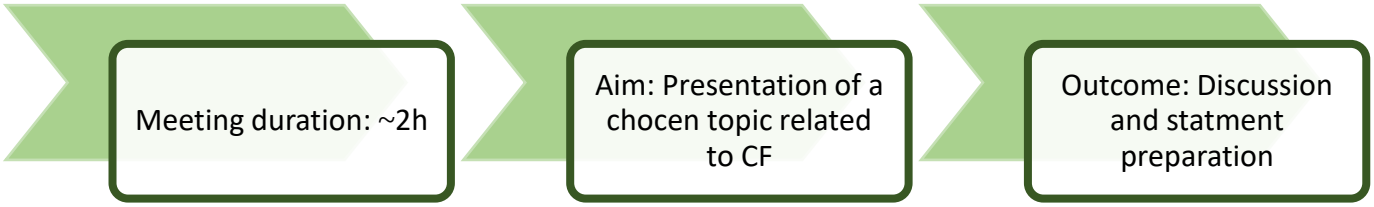

Figure 1. Process of the online Roundtable

Time that will be given to the presenter of the online roundtable will be 15 minutes in order to have more time in discussion with guests. Each guest will be given five minutes to contribute to the discussion from each country. The purpose of this roundtable discussion is to provide all the guests with an equal standing on this discussion, enabling them to contribute with their opinion and thoughts and share ideas freely and fully to the conversation.

6.2 Platform

During the discussion performed with partners involved on this task, platform that will be used were also mentioned. We discussed about using the platforms Microsoft TEAMS (MS TEAMS) or ZOOM meetings. We need to decide which platform we will use in order to keep records and minutes from the online roundtable discussions.

6.3 Stakeholder engagement

For a successful roundtable discussion stakeholder engagement is an important asset that will determine the discussion gains. Successful stakeholder participation is essential to the long-term viability of carbon farming initiatives. A human rights-based approach to organizational operations, local knowledge of each stage of a carbon farming project and giving communities that will be impacted by the projects a voice in decision-making is all necessary to ensure broad community support. Carbon farming projects greatly boost their prospects of long-term success by adopting this inclusive method. Key principles and best practices for fostering effective stakeholder engagement encompass a wide range of strategies:

- engaging with a diverse array of stakeholders.
- establishing and maintaining long-term trustful relationships.
- communicating empathetically.
- maintaining transparency and accountability.
- adopting a co-creative rather than an imposing approach.
- acknowledging the mutual benefits of engagement.
- eliminating barriers to participation.
- formalizing stakeholder relationships through clear agreements.
- providing sufficient financial backing.
- ensuring the involvement of well-trained, knowledgeable facilitators.

Given the unique nature of each carbon farming project, which varies by location, activities involved, and stakeholders, tailoring these principles to fit the specific context is essential.

7 Online Events

According to the CARBONICA project contract online roundtables meetings should be held four times a year. The total number of online roundtables that should be organized are 12 in order to cover as many as topics in CF possible. In addition, we should keep records regarding changes that appear each year in CF on each ecosystem as well as invite as many people as possible to obtain opinions on this cause. The first roundtable will be held by Greece the second by Cyprus and the third by North Macedonia. For these roundtables guests from the three ecosystems will be invited and will discuss topics that will be decided before every meeting. In order to achieve the four online roundtable per year goal, we decided that every three months we will schedule a roundtable meeting organized by each country alternately.

7.1 Conferences

In the framework of CARBONICA project, 6 conferences of the working groups' members are going to be organized where speakers from the diaspora will be invited to present the state-of-the art in CF Research and Innovation (R&I). These conferences aim to activate the MAPs at a national mainly focusing to encourage stakeholders' engagement as well as to inform several actors with valuable findings from the European scene. Up to now 1 national event was held in Greece and a second event is planned and will take place in Cyprus on the 9th of April 2024.

7.1.1 Greece national event-AGROTICA

Agrotica stands as the preeminent sectoral exhibition in Greece's agro-economic landscape and ranks among the most significant primary sector exhibitions in Europe. Since its inception in 1985, it has biennially graced the Thessaloniki Exhibition and Conference Centre, emerging as a pivotal hub for interaction and networking within the agricultural sector and rural economy. Distinguished for its meticulous organization, the exhibition features a plethora of topical events and a bespoke programme for hosted buyers, drawing a vast array of visitors from across the agricultural entrepreneurship spectrum keen on exploring new industry trends and the latest global technological advancements.

At this flagship industry showcase, Carbonica marked a notable presence through various events and dialogues, offering an immersive exploration into the realm of carbon farming innovations and insights. A highlight was the collaboration between i-BEC and the Region of Central Macedonia in organizing the event "Accredited Certifications in Carbon Agriculture: Challenges and Opportunities." Here, George Zalidis, a professor at AUTH and Scientific Coordinator of Carbonica EU, illuminated the potential of Carbon Farming.

The Deputy Head of the Agricultural Economy for the Central Macedonia region, alongside the Deputy Head of Agriculture, Livestock, and Fisheries for Central Greece, played pivotal roles in facilitating a rich and engaging dialogue. This conversation also included distinguished guests from academia, certification authorities, and policy circles. During the debate, a diverse audience comprising farmers, consultants, regional and municipal representatives, researchers, and certification body officials had the chance to engage actively. They offered insights, posed questions, and voiced concerns regarding the practical execution of carbon programs. The discussions culminated in valuable outcomes, with a key takeaway being the existence of thorough methodologies for the measurement and reporting of carbon footprints and soil carbon sequestration. Moreover, it was acknowledged that certifications with accreditation could ensure the authenticity and reliability of these reports. This assurance is instrumental in providing carbon program participants with a significant competitive edge in securing public or private investments.

Further enriching the dialogue, Grigoris Chatzikostas, the Project Coordinator, elaborated on Carbonica's visions and objectives, European initiatives on carbon farming, and outlined funding avenues for climate-resilient agriculture under the Horizon Europe Work Programme 2024-2025 and the Strategic Plan 2025-2027 during the "Opportunities of the Agricultural Sector from the Carbon Economy" event.

The engagement was comprehensive, with farmers, consultants, regional and municipal representatives, researchers, and certification body members actively contributing. The event underscored the widespread

interest and participation across the agricultural sector, spotlighting the importance of carbon accounting and the viable pathways for implementing carbon farming practices to foster sustainable agriculture.

Figure 2. Photos during the Greece national event-AGROTICA

7.1.2 RSCy2024

One event will be organized in Cyprus by the ERATOSTHENES CoE during the **Tenth International Conference on Remote Sensing and Geoinformation of Environment** (RSCy2024) that will take place in Paphos on the 8-9 of April 2024 **at Aliathon Holiday Village**. A special session entitled ''ERATOSTHENES CoE Living Labs & Opportunities and Challenges in Carbon Farming for a Success Story in Cyprus and the EU'' will be organized and dedicated to the CARBONICA project. Invitations have been sent to people representing the quadruple helix in order to bring together stakeholders from the Cyprus MAP. Presentation of the CARBONICA project aims and objectives will be presented as well as discussions on CF in order to obtain as much information as possible and understand the current limitations the agricultural industry faces.

During the abovementioned event, a special session will be held where CARBONICA project activities and outcomes up to now will be introduced. In addition, CF challenges and opportunities as well as the EU roadmap for sustainable CF practices will be presented. The special session will also include a panel discussion, where Quadruple helix perspectives on CF policies will be discussed. In addition, discussions will involve topics such as research and innovation and community engagement for sustainable agriculture.

8 Task representative partners

The organization of the virtual discussion panels will be orchestrated through a systemic rotation between the responsible partners of the CARBONICA project. As mentioned before the first online roundtable will be organized by the Greek ecosystem. Four online roundtable discussion should be held each year. The table below shows the estimated months for a roundtable along with the country that will be responsible for organization.

Table 1. Timeline for online roundtable schedule

Country organize roundtable	Estimated month for roundtable
Greece	April 2024
Cyprus	June 2024
North Macedonia	October 2024
Greece	January 2025
Cyprus	April 2025
North Macedonia	June 2025
Greece	October 2025
Cyprus	January 2026
North Macedonia	April 2026
Greece	June 2026
Cyprus	October 2026
North Macedonia	January 2027

8.1 Working Groups

Working groups were created from the three ecosystems Cyprus, Greece and North Macedonia. The three ecosystems were divided into working groups, each specifically designed to handle the opportunities and problems that are specific to their surroundings. These organizations, which consisted of diverse teams bound by a common dedication to sustainable development and ecosystem care, served as vibrant centers of knowledge, creativity, and cooperation. An excel file was created where each country suggests its own working group. The working group consists of people that are representing the quadruple helix model. The working group are people derived from non-governmental organization (NGO), policy maker, industry, and academia. The common view of the working groups that was designed is to take advantage of expertise sharing during the discussion as well as possible collaboration with other stakeholders.

Individuals from diasporas in from the three ecosystems were carefully identified, which was the last step in a ground-breaking project to promote international cooperation and environmental care. This large-scale project aimed to find and include people who are spread out over the world but have distinct perspectives, life experiences, and ties to various ecosystems. The diversity within these diasporas proved to be a wellspring of innovation and understanding. Their shared passion for environmental preservation and sustainable development formed the cornerstone of a burgeoning global movement. Through collaborative projects, knowledge exchange programs, and grassroots initiatives, these diasporic communities became catalysts for positive change through their experiences from other cultures and the country status they lived in.

9 Conclusions

During this period several meetings took place with the responsible partners for T1.4. These meetings were about the organization of the online roundtable meetings. Agenda created by the Greek ecosystem since it will be the first that will hold the first roundtable discussion. The reason for not starting yet the online roundtables meetings was the fact that we were waiting for the MAPs final creation so as to include the people that want to contribute to the CARBONICA project.

The organization of online roundtables discussions has proven to be an important asset for future collaborations and environmental action across diverse ecosystems. During these discussions participants will have the opportunity to explore new insight into the agricultural sector along with new technologies that will be profitable and beneficial for them.

Global stakeholders have come together through the online roundtable format, which has enabled previously unheard-of levels of involvement and engagement by overcoming geographic constraints. Organizations have been able to bring together working groups made up of multidisciplinary professionals, indigenous leaders, local communities, and policymakers by utilizing digital platforms and communication tools. This has allowed for the promotion of collaboration, innovation, and dialogue. This kind of activity of using virtual discussion panels overcomes several knowledgeable gaps serving as a cornerstone in knowledge exchange. Thus, several problems can be discussed and solved, strategies can be developed along with capacity building and bring together stakeholders.