

SYNTHESIS DOCUMENT

**MULTI-STAKEHOLDER
DIALOGUE:**
Climate Action Barriers
in Spain's Food Systems

ORGANIZED BY ALINNEA - IE FOUNDATION

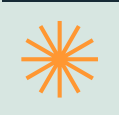
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Alinnea is a dynamic Think & Action Tank established in 2024 to accelerate effective and equitable climate solutions in Spain and beyond. We are supported by the European Climate Foundation (ECF) and hosted by the IE Foundation.

Alinnea's commitment is to identify specific barriers in different economic sectors and propose incentives and recommendations to reduce existing bottlenecks. We do this through multi-stakeholder dialogue. Our mission is to serve as a dynamic and independent platform, bringing to the table a broad interdisciplinary knowledge, from the public, private and social sectors, which allows us to understand and analyze proposals from the different actors that are part of each of the sectors analyzed. Alinnea relies on collaboration, knowledge sharing and innovative thinking to catalyze impactful solutions to the climate agenda.

Alinnea's main pillars of action are:

Multistakeholder Dialogue:

To foster an inclusive understanding of climate challenges and opportunities, we engage in open dialogue with all stakeholders, regardless of their level of involvement in the climate agenda. Through active listening, Alinnea surfaces concerns, interests, and potential losses associated with the transition, while also uncovering pathways for effective and equitable climate action.

Research & Knowledge Dissemination:

We generate comprehensive knowledge on topics aligned with its mission through in-depth analysis and by addressing gaps in existing research. This positions Alinnea as a valuable contributor to the field, providing insights that inform policy decisions and drive effective climate action.

Partnerships & Alliances:

We actively engage with other think tanks and national and global organizations and networks dedicated to advancing climate action to amplify impact and resources, and create shared strategies. By encouraging collaboration across sectors, Alinnea promotes transformative initiatives and mutually beneficial solutions.

Strategic Communication & Advocacy:

We share data-driven briefs and reports to provide incentives and inform key actors about the most efficient measures for climate action and just transition. By leveraging insights and advocacy strategies, Alinnea catalyzes transformative ideas for climate action.



An abstract graphic on the left side of the page. It features a solid orange background. Overlaid on this are several white, semi-transparent geometric shapes. A large, thin white 'X' shape is centered vertically. From the intersection of the 'X', four white bars radiate outwards at approximately 45-degree angles. Additionally, there are several white triangular and quadrilateral shapes scattered across the orange background, some overlapping the 'X' and the radiating bars.

Introduction

Climate change poses a significant and growing threat to global food systems, with far-reaching consequences for food security, livelihoods, and ecosystems. Rising temperatures, changing precipitation patterns, and the increasing frequency of extreme weather events are disrupting agricultural productivity, leading to reduced crop yields, water scarcity, and greater vulnerability to pests and diseases.

As the global population continues to grow and climate-related pressures intensify, it is essential to rethink how we produce, distribute, and consume food. The objective is clear: to create sustainable food systems that minimize environmental harm, reduce greenhouse gas emissions, conserve water resources, and protect biodiversity, ensuring a viable future for generations to come.

To address these challenges and explore potential solutions, Alinnea conducted several one-on-one interviews to identify key issues surrounding sustainable food systems in Spain. We also organized an exploratory dialogue with experts from various sectors and organizations to discuss and develop concrete recommendations for overcoming these challenges.



Objectives

The objective of the exploratory dialogue was to identify the main bottlenecks hindering climate action on the selected topic, assess each bottleneck based on its potential impact and feasibility for resolution, explore actionable solutions, and highlight best practices that could serve as models.

This synthesis document outlines the key findings and actionable recommendations proposed by participants during these discussions, providing a roadmap for future work on sustainable food systems.

To facilitate the exploratory dialogue, we employed the "Pro-Action Café" technique - a dynamic facilitation method designed to foster collaboration, creativity, and actionable outcomes. Participants were organized into small groups of 6-7 individuals per table, each focusing on one of the following topics:

- **Table 1: Water crisis – new sources**
- **Table 2: Distribution**
- **Table 3: Missing a Shared Roadmap for Climate Action in Food Production**

At each table, a “host” was assigned to represent a person directly affected by the challenge. The host guided the discussion, ensuring the group remained focused on the topic. Meanwhile, a “harvester” was responsible for capturing key insights and ideas, using flipcharts as the primary workspace.

The discussions followed a structured approach:

1. Identifying Bottlenecks: Participants shared their perspectives on the barriers hindering climate action in each area.
2. Prioritizing Challenges: The group evaluated the bottlenecks based on their potential impact and the feasibility of addressing them.
3. Exploring Solutions: Participants proposed actionable solutions, identified key stakeholders, and highlighted best practices that could serve as models.

The barriers identified were categorized into the following themes:

1. Training, communication, and information needs
2. Dialogue and stakeholder engagement requirements
3. Regulatory frameworks and institutional coordination
4. Incentives and fiscal measures
5. Defining the scope of the problem or solution
6. Economic implications of proposed solutions or barriers
7. Data requirements and socioeconomic analysis
8. Systems thinking and integrated approaches

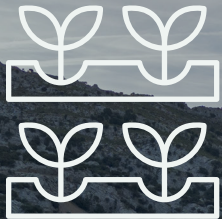
These categories provide a common framework for understanding the obstacles to advancing climate action. They are linked to actionable recommendations and best practices, as well as the stakeholders required to drive progress. While time constraints limited the ability to identify all barriers, actions, or actors across all thematic tables, the framework offers a robust foundation for future efforts.



Partici- pants

The following table presents the organizations and people who participated in this exploratory dialogue on climate action barriers in Spain’s sustainable food systems.

1	Gonzalo Delacámara	Director, IE University Center for Water and Climate Adaptation
2	Julia Martinez	Executive Director, New Water Culture Foundation (FNCA)
3	Ana Tudela	Co-Founder, Datadista
4	Nieves Álvarez	Senior Director, Llorente y Cuenca (LLYC)
5	Daniel González	Founder, Urban Logic
6	María Coto	Senior Associate, European Climate Foundation
7	Franco Llobera	President, Economías BioRegionales (EBR)
8	Angel Muñoa - CCOO	Secretario de energía, CCOO Industria
9	Juan Silva	Head of Environmental Sciences for Sustainability Academic Area, IE University
10	Jon Ruiz de Infante	Técnico de proyectos, Centro de Estudios Ambientales (CEA)
11	Amaya Sanchez	Coordinadora de Políticas para Sistemas Alimentarios Sostenibles, WWF
12	Yara Shennan-Farpón	Senior Researcher, Icatalist
13	Javier Sánchez-Somoza	Director of Public Affairs, Harmon Corporate Affairs
14	Elena Lopez Gunn	Founder, Icatalist – Senior Researcher, Real Instituto Elcano
15	Sofía Tirado Sarti	Researcher, Real Instituto Elcano



MAIN FINDINGS

Table 1: Water Crisis - New Sources

BOTTLENECKS IDENTIFIED

Training, communication and information needs

- **End-user “literacy”** – one of the major barriers to expanding circular economy approaches - such as the reuse of water, nutrients, and biogas - is the public perception of the quality of reclaimed water, which often stems from misconceptions. Additionally, there are various resistances rooted in myths or legendary ideas. Desalination does not necessarily have to be linked to a high carbon footprint; significant progress has been made in energy efficiency, and the energy mix that powers desalination is now highly diversified. Furthermore, the membranes used in desalination, which typically have a lifespan of 3-5 years, are no longer the challenge they once were. Advances in membrane recycling and the use of biodegradable or less polluting materials in the latest generation of membranes have made a considerable difference. Some irrigators argue that desalinated water contains a high concentration of boron, making it unsuitable for citrus irrigation. However, they often overlook that irrigation commonly uses a mixture of water rather than solely desalinated water. In times of drought, aquifers with higher boron concentrations are frequently overexploited. It’s worth noting that boron can be removed by incorporating an additional step in the reverse osmosis process, although this does have cost implications. On the other hand, reclaimed water frequently meets higher quality specifications than mains water. In summary, there is considerable potential for improved communication about these water sources.

Marcos regulatorios y coordinación institucional

- **The difficulties** we face today **are no longer technological**; instead, they **relate to governance** in a contemporary sense and the need for the development of water sources to be strictly linked to planning. As discussed during the dialogue, governance has often been narrowly defined in terms of transparency, accountability, integrity (meaning the absence of corrupt practices), and meaningful stakeholder participation. While these elements are crucial, they are necessary but not sufficient on their own. Governance encompasses not only the resolution of institutional challenges - such as fragmented competencies, contradictions, redundancies, and dysfunctionalities - but also a thorough review of decision-making processes, particularly regarding water security management and the diversification of supply sources. To achieve effective governance,

we need to coordinate sectorial policies, redesign financial incentives, strengthen factors that encourage innovation – ranging from technological to social, institutional and financial approaches –, ensure robust strategic financing frameworks, enhance data management, and improve the evaluation of public policies. All these efforts need to be anchored in planning exercises within each water basin. This will help strengthen the legal framework surrounding public water domains and prevent significant inconsistencies within the territory. A critical point agreed upon is the importance of reinforcing the concept of transition toward more sustainable scenarios.

- Some **current policies** may not be **adequate for the optimal development of these water sources**. In terms of water reuse, there is already a shared framework among the 27 European Union Member States. Spain is well-positioned thanks to the quality of its 1620/2007 Decree, but it still requires adaptation, implementing these reforms will undoubtedly be challenging. This presents an opportunity for Alinnea to facilitate discussions on the matter. In the case of desalination, more profound reforms are necessary. In the case of reuse, for instance, there are technical difficulties in adopting these technologies, as eliminating bacteria is not as straightforward as eliminating viruses or protozoa. Additionally, the rising operating costs associated with contaminant screening procedures could potentially be reduced with more cost-effective methods that do not compromise public health or ecosystems.
- There are **significant institutional barriers** beyond just policy design, including the challenges of coordinating sectorial policies and dealing with strictly regulatory aspects. Often, the distribution of responsibilities creates inherent difficulties. Additionally, the allocation (and reallocation) of exclusive water uses and development rights poses obstacles. When considering "new" resources, such as desalinated or reclaimed water, it is also essential to reflect on these issues as they are integrated into the overall set of resources in a basin, which includes surface runoff and groundwater.

Incentives and fiscal measures

- Different water qualities for various uses – Although all water may seem alike, the quality of water sources varies significantly in practice. This variation presents challenges. On one hand, it is crucial to recognize the differences between water reuse in coastal and inland areas. On the other hand, there is a distinction between large-scale, centralized desalination of seawater along the coast (par-



ticularly in the Mediterranean) and decentralized desalination of brackish water across extensive territories. It is also important to note that neither reclaimed nor desalinated water is typically used in its original state as delivered by the reuse or desalination plants. Instead, it is mixed with other resources – for example when injected into aquifers or combined with surface water. As one participant pointed out, the contribution of these new water resources may not be significant on a national scale but can be highly relevant at local or regional levels. These resources are most effective in contexts requiring security and adaptation strategies in basins facing high water stress. However, addressing this also requires careful consideration of interoperability issues and understanding the role each water source plays within the basin, as they are not entirely interchangeable..

Action identified as necessary to reduce barriers:

- Implementing a social distribution of water based on environmental and social criteria.

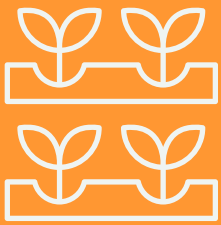
Defining the scope of the problem or solution

- The opportunity for **diversification** is closely **linked to long-term water security** within the context of adaptation
- The use of advanced membrane technologies for reclaimed water reuse or desalination is more relevant not just for the immediate water supply, but when considering the provision of two public goods: long-term supply security and adaptation to climate change.
- A thorough **evaluation of environmental implications is necessary**, incorporating both environmental benefits - such as reduced overexploitation of conventional resources and decreased discharge of contaminated water effluents into the environment - and potential costs that arise if the plants are not operated properly. A critical issue in desalination is the management of brine, which is the hypersaline by-product created during the desalination of seawater or brackish water. Under European legislation, this brine cannot be discharged into the environment without prior treatment to prevent harm to the local ecosystem, such as the continental shelf. However, significant progress is being made worldwide in brine mining, which involves the recovery of valuable materials like bromine, lithium, boron, and sodium chloride. This advancement allows for a transformative shift in operating models, turning desalination plants from entities that produce water while facing the challenge of brine disposal into facilities

that recover critical materials and deliver water at a lower cost.

Economic implications of proposed solutions or barriers

- **Financial considerations** – addressing capital investment needs is crucial, particularly when it comes to converting wastewater treatment plants into biorefineries or installing and expanding large desalination plants. Financial challenges extend beyond initial investments; high volatility in wholesale energy prices necessitates careful consideration of operating expenses as well. While significant progress has been made, there is still room for improvement. Additionally, maintenance costs can be a challenge, especially for membranes, which depend on varying water qualities and can lead to higher energy consumption if not properly maintained.
- **Economic perspectives** – it is vital to advance the redesign of economic incentives. Conventionally, surface and groundwater sources appear cheaper, with costs typically ranging from a few cents to a maximum of 15 euro cents per cubic meter. In contrast, the average cost for reuse is around 0.45 to 0.50 euros per cubic meter, while desalination costs can be about 0.60 euros per cubic meter if economies of scale are leveraged and the plant operates above 80% capacity. However, when operational rates fall below 20%, costs can exceed 1 euro per cubic meter. Similarly, when connected to specific plots, costs can escalate to 2 to 4 euros per cubic meter. While there is the necessary installed capacity for both desalination and reuse of water, effective demand - users willing to pay - does not always align with implicit demand. The primary challenge now lies not in technology but in economic incentives, tariff systems, and the remuneration of different water sources. Moreover, it is essential to discuss equitable sharing of costs, risks, and benefits among all stakeholders, which includes urban users, industries, irrigation communities, the tourism sector, and nature conservation organizations.
- **Cost challenges** by prevalence:
 - Supply
 - Agriculture
 - Industry
 - Energy



MAIN FINDINGS

Table 2: Distribution

BOTTLENECKS IDENTIFIED

The objective of this roundtable discussion was to identify the bottlenecks that prevent the retail sector from playing a more significant role in driving a transition at the production level. A key question raised was whether large-scale distribution can be supplied by small-scale local production.

Training, communication, and information needs

- **Cultural and socioeconomic dietary barriers** – there is a lack of healthy consumption habits among consumers.
- **Purchasing power** – this barrier assumes that local products are often more expensive, although this is not always the case. It involves both the consumer's willingness to pay for a "sustainable" shopping basket and the issue of food poverty, which creates a gap in purchasing power.
- **Lack of truthful information available** to consumers:
- Consumers do not have all the necessary information to make informed decisions.
- There is significant disinformation regarding products, economic data, and health-related information.
- Product traceability information is often missing.
- Models that provide co-benefits, such as agroecological and agroforestry approaches, are not adequately rewarded.
- Confusing labelling and instances of greenwashing further complicate choices.

Actions identified as necessary to reduce barrier:

- Implementing didactic communication strategies to share the history of products.
- Quantifying what is sold, how is it produced, and how it reaches consumers
- Generating metrics to assess the impact of individual purchasing decisions
- Mobilizing industry stakeholders and distribution networks.
- Collaborating with purchasing centers for improved sourcing practices.

Regulatory framework and institutional coordination

Attendees shared several comments regarding the fragmentation of the food system:

- Organizations are operating in “**silos**”.
- There is a general lack of **understanding** of the complexity of the food distribution and logistics system.
- A **systemic vision is lacking**.
- Despite having the Common Agricultural Policy (CAP), in Europe, we **lack a clear systemic food policy**.
- There is disconnection from the field.

- **We lack a local production** integrator capable of interacting with retailers.
- The regulatory framework is oriented towards large-scale production, which highlights the absence of a clear systemic food policy despite having the CAP.
- There are challenges related to the international distribution of **raw materials**.
- The **nature and scale of production** are not recognized as a normative subject.
- Issues such as **energy, logistics**, and **regulatory costs pose challenges**.
- The **regulatory burden** is significant.
- **Geopolitical factors** also impact the food system.

Defining the scope of the problem or solution

- Differentiation between the **agribusiness** model and **family farming**.
- There is a need to agree on who is responsible for **paying** environmental and social **externalities**.
- **Unequal distribution of risks** within the supply chain, leading to vulnerability for producers.
- There is a need to promote the production and marketing of local food.

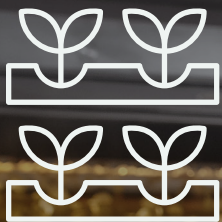
Economic implications of proposed solutions or barriers

The existing business model operates under an inertia where economies of scale drive operations. Key factors include:

- **Certification and standards** as competitive advantages.
- **Economies of scale** as a primary operational driver.
- **Size of market operators**.
- Strong global and international **competition affecting** food prices and profit margins.
- **Lack of transparency** in pricing.
- **Limited flexibility** in business hours.
- **Imbalance in bargaining power** due to the concentration of market players.
- High-value products that have **limited scalability**.
- **Lack of recognition** of the value chain.
- The traditional food model versus the global model.
- **Insufficient** availability of **local products**.

Actions identified as necessary to reduce the barrier:

- Strengthen producer cooperatives
- Renew production models
- Highlight the value of sustainable production
- Involve irrigation communities
- Encourage public procurement
- Explore financing mechanisms.



MAIN FINDINGS

Table 3: Missing a Shared Roadmap for Climate Action in Food Production

BOTTLENECKS IDENTIFIED

Training, communication, and information needs

For attendees, a significant challenge is to **avoid** providing false information and to prevent **greenwashing** by companies

- Supermarkets have a responsibility to **provide accurate sustainability** information to consumers.
- The concept of **sustainability should be effectively communicated** to consumers.
- **Prevent companies** from using sustainability-related concepts opportunistically and misleadingly (**greenwashing**).
- **Foster collaboration** between entities to improve consumer information.

Actions identified as necessary to reduce these barriers:

- Define standards to enhance information on "eco-friendly" food for consumers, specifically concerning climate action.

In addition, there is a need for more information on a shared vision within the sector:

- **The value chain is highly fragmented**, with varying degrees of bargaining power. At one end are small agricultural producers, while at the other end are companies that purchase processed products (retailers) and are in direct contact with consumers.
- There is a need to agree on **clearer definitions of sustainable agriculture** terms and practices. Many concepts, such as smart agriculture, organic agriculture, regenerative agriculture, and agroecology, have subtle differences but often hinder dialogue and the search for solutions.
- There should be **greater recognition of the value of the product** and the work of farmers.
- A **common vision for climate action** (in economic, social, and environmental terms) among stakeholders in the value chain is lacking. This results in polarized views that frame the issue in terms of winners and losers.
- The impact on the territory includes:

- A disconnection between rural and urban areas.
- Competition between two vital sectors in Spain's economic model - tourism and agriculture - for the same resources: land and water. This creates tension, especially as a new sector, renewable energy, also competes for land and water resources, such as those needed for green hydrogen

Actions identified as necessary to reduce these barriers include:

- Assisting farmers in defining a medium-term vision.
- Incorporating urban planning methodologies and tools into the rural environment.

Dialogue and stakeholders engagement requirements

- There is a **lack of meeting and dialogue spaces** between various actors in the sector, as well as a lack of economic empathy among those involved in the supply chain.

Regulatory framework and institutional coordination

- There is **non-compliance with regulations**, yet no consequences are enforced.
- There are **competency issues** between administrations regarding water rights.
- **Decision-making power** is very **unequally distributed** among different actors within the value chain.

Incentives and fiscal measures

- **Dialogue is necessary** to define incentives that will encourage the rural economy to adopt climate action, particularly concerning production practices and soil quality.



Defining the scope of the problem or solution

For attendees, a significant bottleneck is the absence of a value chain roadmap:

- There is an **active resistance** to climate action from several actors within the food sector value chain.
- Regarding the **European Farm to Fork Strategy**:
 - The industry has shown poor acceptance.
 - There is a solid roadmap outlining the path forward.
 - It provides a good foundation for communication, dialogue and discussion about changes in the sector.
 - However, there is room for improvement.
- It is essential to **define and co-create a roadmap** that incorporates just transition principles and fundamental justice, ensuring fair prices for both producers and consumers.
- The roadmap should focus on achieving, encouraging, promoting, and facilitating **fair prices for producers**, taking into account the costs associated with implementing climate action measures.
- We must **understand** how progress has been made on **other roadmaps** that started from extremely challenging positions and learn from those experiences (for example, in the energy sector).
- There is a need to establish or **strengthen oversight and compliance agencies** to ensure, for example, fair food prices and fair prices for producers.
- It is important to **identify the target audience for the roadmap**, define key actors, and establish specific goals (such as legislation, citizen information, civil society involvement, and mobilization).
- Certain political, agricultural and industrial sectors propagate a narrative that opposes **environmental policies**, and, consequently climate action.

Actions identified as necessary to reduce barriers include:

- Reclaiming the Farm-to-Table narrative as a framework for dialogue.

- Countering negative narratives about the adverse impact of climate action measures on producers and farmers, thereby overcoming the perception of losers in this transition.

Economic implications of proposed solutions or barriers

For attendees, a major bottleneck is determining who will finance the transition.

- **Increased costs** associated with climate action hinder long-term decision-making, crucial for making the sector more resilient.
- We still lack clarity on **who is financially responsible for the contamination** of aquifers.
- The Common Agricultural Policy (**CAP**) **does not account for the transitional costs** required for agriculture to meet climate action needs. Consequently, it is ineffective for this purpose.
- We must **define the costs of climate action** for producers (farmers).
- There is an **issue with** how **water consumption costs** are paid; leading to a form of ‘**water populism**’ (the notion that water should be available for all as if the resource were unlimited).
- We must address **who bears the cost** of adapting to climate change, a burden that primarily falls on farmers. Should these costs be shared with consumers and market-ers?

Actions identified as necessary to reduce these barriers:

- Develop reliable methodologies for measuring results that are acceptable to both legislators and producers.
- Clearly define who is responsible for each identified cost associated with advancing climate action.