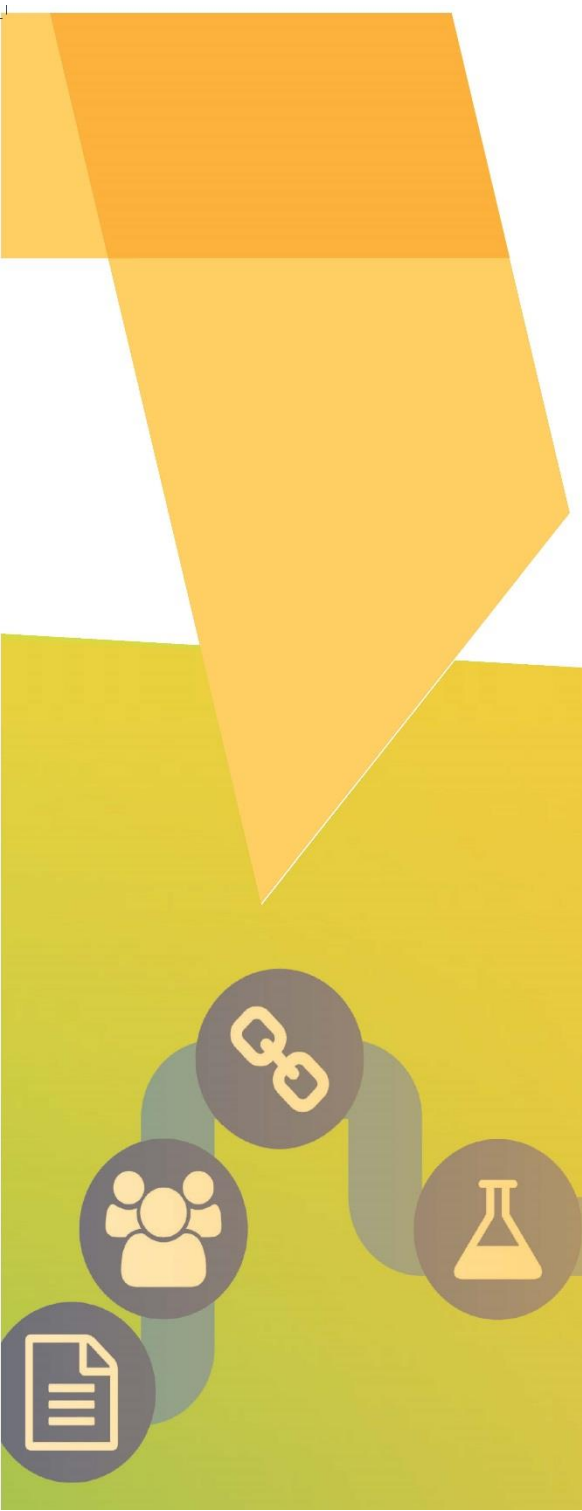




# Regional Action Plan

# MURCIA

**iWATERMAP**  
Interreg Europe





## **Part I – General information**

Project: Water Technology Innovation Roadmaps (iWATERMAP)

Partner organisation: FOOD AND AGRICULTURE CLUSTER FOUNDATION OF THE MURCIA REGION (AGROFOOD MURCIA)

Other partner organisations involved (if relevant): N/A

Country: Spain

NUTS2 region: ES62 - Murcia

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## Part II – Policy context

- The Action Plan aims to impact:
- Investment for Growth and Jobs programme
  - European Territorial Cooperation programme
  - Other regional development policy instrument

Name of the policy instrument addressed: Regional Operational Programme 2014-2020 for the Murcia Region. Measures 01-1b, 03-2a and 03-2d

Regional Operational Programme 2014-2020 for the Murcia Region main objective is to promote the development of the Region of Murcia and the creation of employment. Among its main objectives is to reorient the regional productive sector, strengthen the competitiveness of SMEs and bet on entrepreneurship, in addition to strengthening the Social Welfare system in education and therefore awareness for the development of our society.

One of its thematic objectives is to consolidate the regional R&D System, promoting public and private investment and fostering collaboration between the agents that make up the aforementioned System, with the follow results: to increase the number of innovative companies; achieve an increase in the number of companies that cooperate with universities and public and private research centers; increase the number of people employed in R&D activities, through the Regional OP and the EU Programs (Horizon 2020), all through the promotion of public and private investment.

On the other hand, in the Region of Murcia, the agrifood sector is an economic pillar that requires significant water consumption, being a critical factor for the competitiveness of local companies, which are mostly SMEs and have difficulty obtaining new technological developments and implementing them. Optimizing costs within a sustainable economy and dealing with the scarcity of water resources in our region is the objective. One way to achieve this is to respond to the demands of the sector by promoting innovation through collaboration between companies and research centers, higher education, etc. so that technological and applied research is achieved, directed to water issues.

It is especially important to maintain a quality and profitable agrifood industry, since it should not be forgotten that the economic activity inherent in the private sector is what guarantees the maintenance of the Welfare State and the sustainability of public services.

At first, the thematic objective addressed by the Policy Instrument selected was the number “01 Strengthening research, technological development and innovation”, but with the advances of the project, under the dynamic Strategy RIS3, the evaluation of the number “03 Enhancing the competitiveness of small and medium-sized enterprises, the agricultural sector (for the EAFRD) and the fisheries and aquaculture sector (for the EMFF)” was valued.

These objectives have several investment priorities being the most significant for iWATERMAP project: 01-1b – Promoting business investment in R&D developing links and synergies between enterprises, research and development centres and the higher education sector, promoting investment in product and service development, technology transfer, networking, cluster and open innovation through smart specialization and supporting technological and applied research in water technologies; 03-2a - *Creation of new companies and business incubators, in particular by improving access to finance and advanced support services and; 03-2d - Promote SME innovation and cooperation for innovation in all fields; in particular in eco-innovation, social innovation and the agricultural, fishing, marine, maritime, tourism, cultural and building refurbishment sectors.* These axes aim to encourage and promote of R&D activities led by enterprises, support to innovate business creation and consolidation and support to public innovation acquisition.

In this framework, our objective is to develop a comprehensive plan to support and to implement water technologies policies to help entities of the Region of Murcia. Action Plan aims to improve the stable economic growth of the sector of water technologies in the Region of Murcia through innovation and knowledge of R&D; the qualification of human capital and; connectivity with other knowledge regions outside Spain, which facilitate Region of Murcia water innovation making use of environmental sustainability. New collaborative

and exchange of personnel projects will serve both, to solve Region of Murcia water technology needs and also to put on the international market technological solutions in the water sector.

It is remarkable that Region of Murcia is suffering an important scarcity of water which is conditioning the most of their industrial activities. Region of Murcia aims to reduce the consumption of water by 10 % without an impact in the reduction of the irrigation lands. The reason is that the agricultural activity is the main driver of the development of rural areas with very few industrial possibilities. And nowadays, the Region of Murcia is a case of success in the optimal management of its water resources. Various projects are focused to the challenge of producing and using regenerated and safe water in controlled crops, as well as managing the available water resources according to their quality, availability and needs. And it is in line with the triple helix innovation model to promote the economic development of the Region of Murcia.

It is therefore particularly important to foster innovation and the innovation chain (cooperation between administration, enterprises and research) in the water sector, helping the local companies to stay competitive and to be able to cope with the scarce resources. All, research centers, enterprises and public administration, involved in the development of the water sector are known and collaborate in accordance with their lines of work to achieve a sustainable economy in the Region of Murcia, but communication/knowledge exchange is necessary to achieve success, using as tools: meetings/Working Groups, calls for projects proposed by the regional administration and other national and international calls, technical education/formation, public events, etc.

With the Action Plan, the current research groups and training and technological centres would increase their capacity by participating in a greater number of research, demonstration projects and offer innovation services. The companies of the Region would benefit from the advances and would be able to reach an economic advantage by the efficient use of the water resources (quality solutions). Therefore, we must consider that it is necessary to stimulate the private sector, with economic resources, and others, that promote the development of the regional economy, being able to maintain the Welfare State.

In addition, it is in line with the Intelligent Specialization of the Region of Murcia (RIS3Mur), with which the Region of Murcia has demonstrated its innovative potential in the 2014-2020 period, structuring itself around activities that have a clear leadership in terms of innovation, as well as a substantial relative weight in the regional economy, such as those linked to the agri-food value chain, which include livestock, fishing and the food industry; those linked to the water cycle (its treatment, purification and management); as well as others. The RIS3Mur 2014-2020 Strategy was designed through joint reflection and consensus among the main interlocutors and agents of the Regional Science, Technology, and Enterprise System (SRCTE), which includes the regional government, universities, research centers, technology centers, companies and business associations, together with social agents, and was promoted by the Regional Development Agency (INFO), promoter par excellence of business innovation, which used sectoral Work Groups (WG) to collect information, such as the Agrifood WG, Water Cycle WG, etc. Currently, the strategy is being reviewed to adapt it to the 2021-2027 period, also counting on all the agents involved.

AGROFOOD Murcia cluster partner of the iWATERMAP project, prepared a Regional Action Plan for Axes 01-1b, 03-2a and 03-2d of structural funds of the Murcia ROP 2014-2020 providing details on how the lessons learnt from the project cooperation will be exploited in order to improve the policy instrument tackled within that region. It specifies the nature of the actions to be implement, their timeframe, the players involved, the cost and funding sources.

It should be mentioned that the INFO participated in stakeholders' meetings, intermediate body of the policy instrument. INFO and the Regional General Directorate of European Funds, are the ones that can validate the planned activities to achieve their implementation. **AGROFOOD Murcia cluster is not a policy maker**, but it has been able to know the opinion of INFO in the stakeholder meetings and together with INFO we have assessed applicable improvements.

Finally, supporting action for water technologies innovative projects for agrifood sector through the regional support structure were not included in the framework of the Murcia ROP 20214-2021, but iWATERMAP project (1st phase with results of the exchange experience) and RIS3Mur can help to achieve water innovation. This Action Plan will contribute to the improvement of the policy instrument increasing the critical mass in the water technology sector of the Region of Murcia with different cooperative actions at regional and interregional level, creating the conditions for raising competitiveness, growth and related jobs.

In summary, this Action Plan focus on different dimensions of policy improvement, namely:

- Improving the Critical Mass in water issues

- Training and Education actions to expand Human Capital in innovation water related topics
- Internationalization of water related companies and solutions

Actions are addressing current OP (2014-2020). Next OP (2021-2027) has been considered because it is being worked on with the nearby RIS3Mur Strategy (2021-2027).

These actions are described separately, but it must be taken into account that there is a link between them due to the business context of the Region of Murcia, made up mainly of SMEs that are characterized by: low technological capacity, low environmental awareness and few economic resources. The actions to be implemented in the next two years (Phase 2 of the project) must be a seed to achieve competitive companies through innovation, which will incorporate qualified personnel who are aware of sustainability and which can grow and reach international markets.

## Part III – Details of the actions envisaged

### ACTION 1. IMPROVING CRITICAL MASS IN WATER ISSUES

#### The background

This Action is the product of a wide range of inputs during Phase 1; however the next three had an integral impact: i) the results from the stakeholder's meetings, ii) the results from conversations with the coordinator of the Interreg Europe Aquares project (Murcia) and iii) the interregional learning activities with the partners & good practices of iWATERMAP project. This last point has served to know the lines of work of other partners and help in the decision-making of the Action Plan of the Region of Murcia.

First, the conclusions of the meetings with stakeholders were considered, which are evaluated as follows: "We must collaborate to mark a sustainable agrifood sector and promote the development of new projects that guarantee them in the Region of Murcia". In summary, "Water has to be a priority research line for the Region of Murcia and needs financial support from the Public Administration"

In the Region of Murcia there is water deficit and it is necessary to modernize irrigation, reuse of water and optimize processes for an efficient use of water in industry, but it is necessary to know everything that is already being worked on in the Region of Murcia in order to optimize our efforts.

Topics of interest:

1. Reuse of treated water for irrigation.
2. Automation of irrigation systems.
3. Optimization of processes in the agri-food industry. The efficient use of water. Water footprint.
4. Recovery of rejections of membrane systems (brines).
5. Elimination of emerging contaminants.
6. Regulations. Develop better water treatment technologies for food disinfection, purified water, equipment cleaning, etc.
7. Regional technological surveillance on water issues.
8. Technical education in water issues.
9. Awareness of society to optimize water consumption and reduce the pollution of its discharges. Dissemination campaigns. Calculation of water rates paid by urban consumers.

Last two points support the need to include an action to improve human capital. All this aimed at current and future society, through training focused on sustainability.

Secondly, the coordinator of the AQUARES project (Mr. Manuel Boluda), which aims to achieve efficient water management through water reuse, take advantage of opportunities in the water market and ensure its protection, allowed us to learn about different proposals of his consortium and how to interpret their variety for successful decision making in our project. As a result, our objective had to be based on assessing information from Regions that showed affinity to ensure the continuity of work on Water issues associated with the agrifood industry in the Region of Murcia.

Therefore, the information provided by ADR Norte, the Romanian iWatermap partner, was taken into account, which made us aware of its activities as a Regional Development Agency, with the capacity to manage ERDF Funds and knowledgeable about the Romanian innovation ecosystem, with contact with companies, universities, etc. ADR Norte is an entity similar to the Region of Murcia INFO (already presented above). Their tasks are in line with those of the Region of Murcia and they are committed to calls evaluated by them, reducing the duplication of project ideas and evaluating compliance with indicators to achieve Regional Development. In addition, from its Good Practice "WATUSER project", it was possible to analyze that it is convenient to guarantee the participation of different training, research and technology groups in funding calls. Calls should have a multi-stakeholder/multi-pronged approach. Example of beneficiaries: University, company and training center, technology center, company, etc. because in this way the development and implementation of innovative technologies and management instruments that support the sustainability of companies, with a focus on water, can be guaranteed. In the "WATUSER" project, pilot plants were used that have been the subject of a patent, a clear indicator of the

innovation of the project. In addition, this project includes Gray water footprint as an instrument to analyze impacts and risks in the water use cycle. This instrument to assess the environmental impact is known in the Region of Murcia, but we believe that it can go further and be only part of the **determination of the total water footprint**, which helps control water consumption in the agrifood sector, as necessary for an efficient use of the companies.

In fact, the project titled «ECO-EFFICIENCY INDICATORS (WATER FOOTPRINT) AS A QUALITY PARAMETER IN THE PRODUCTION AND COMMERCIALIZATION OF AGROFOOD PRODUCTS» was promoted by AGROFOOD Murcia cluster in September 2018 (in accordance with the objective of creating new innovative water technology projects within the framework of the iWATERMAP project). In 2019, this project was financed within the aid to operations for the "Support for the creation and operation of operational groups of the European Association for Innovation in agricultural productivity and sustainability", corresponding to measure 16.1 of the Program of Rural Development of the Region of Murcia 2014-2020. 2nd Call, year 2018. The project started in August 2019 and finished in September 2021. The project was headed by agri-food companies, SMEs and large companies, and had the University of Murcia and the National Technological Center for the Food and Canning Industry (CTNC), as providers of innovation services, guaranteeing success in optimizing water resources in companies, as well as promoting a certification of water eco-efficiency to achieve business sustainability. Through it, greater support has been achieved from the Public Administration to promote the calculation of the water footprint in the Region of Murcia.

On the other hand, in Romania innovation vouchers have also been implemented. Starting on 2017, the vouchers can be issued for activities in the smart specialisation domains (bioeconomy; ICT, space and security; energy, environment and climate change; eco-nano-technologies and advanced materials) and in domains of public priority. Innovation vouchers encourage SMEs to invest in research and development, creating partnerships with research and innovation institutions in order to achieve the innovative products and services, as a result of using expertise and knowledge generated by research institutes based on advanced technologies, concepts contained in patents, which lead to increased productivity, competitiveness and quality of products produced. In the Region of Murcia, this type of voucher focused on the environment has not been offered, so work has been done to promote a business sustainability voucher.

In addition, through the iWATERMAP project consortium meetings it has been noticed that other partner countries, such as Latvia, do not include water as a specific area in their RIS3, water is only recognized as an interdisciplinary thematic area. On the other hand, Friesland's iWatermap partner has water as a specific area. When comparing both countries, it is observed that Friesland has managed to develop numerous actions that make this region a benchmark center on water issues. Therefore, from the Region of Murcia we believe that it is necessary to continue working in our leading sectors and the agrifood industry has the greatest impact on the regional economy, always associated with activities related to the water cycle (wastewater treatment, optimization of water resources, reuse of water, etc.).

To achieve our objective of increasing the Critical Mass in water in the Region of Murcia, it is intended that in the period 2021-2023 the activities that have a clear leadership will be maintained, in such a way that a path of economic growth is maintained through innovation, approaching the most prosperous and advanced regions of Spain and Europe. The activities that have a clear leadership in the field of innovation in Murcia, as well as a substantial relative weight in the regional economy, are those linked to the **agrifood value chain**, which include livestock, fishing and the food industry; those linked to the **water cycle** (its treatment, purification and management); environment, logistics and transportation. All these activities, prioritized in a systemic way, coordinated, oriented, and transformed through the intensive use of advanced technologies, will allow obtaining competitive advantages for the Region.

To date, the RIS3Mur Strategy 2014-2020 has fostered growth by focusing on the most promising areas of specialization based on their competitive advantages, through the so-called business opportunity discovery process, promoting activities with transformative potential that contribute to the future of the Region. So, in funding programs related to R&D, Technology Transfer and innovation services, being a priority area of the RIS3Mur is an important criterion in the assessment.

Finally, we cannot forget that SMEs consider innovation to be a high risk, due to the need for economic resources, as well as the personnel involved. For example, calculating the water footprint in agrifood companies' means spending time implementing innovative technologies to know water consumption in real time, in addition to managing a large amount of information that can be used to verify the water footprint. Therefore, the employer finds himself with the problem of assigning personnel, without specific

knowledge and very limited, to tasks that do not report "visible income", in accordance with the current situation and mentality of the SMEs in the sector (no high technological capacity, medium environmental awareness and limited economic resources). This problem could be solved by promoting business sustainability through external financing, as well as raising awareness among future businessmen/technicians in the sector and promoting it at public events aimed at the business sector. Therefore, in this framework, new calls for grants will be opened to improve the creation of innovative industries and the development of R&D projects, through INFO. And considering the line of work of ARD Norte Romania, duplication in the financing of R&D projects can be avoided, as well as optimization of resources, if the topics of interest to implement innovative water technologies are known through specialized Working Groups, made up of members from the entire innovation ecosystem. In any case, the information can be obtained beyond direct sources, such as the Working Groups, or using Technological Surveillance tools.

In this regard, in meetings with the Spanish stakeholder Agritech Murcia, it was learned of the existence of a document that compiled the work of the regional ecosystem on water issues, which requires updating to improve the regional critical mass, avoiding duplication and optimizing the resources of the research centers, universities and technology centers. As a solution, the implementation of a Technological Surveillance on Water issues has been discussed with CTNC stakeholder, which brings together the projects developed in the Region of Murcia, as well as other external ones that may be of interest.

### Actions

- Water Working Group
- To improve R&D activities based on transformative technologies.
- Support to the creation of innovative industries.
- Technological Surveillance Tool in the water sector.

Working Groups have been created by INFO with companies and researchers, among other agents of the R&D ecosystem to identify transformative itineraries, within the framework of the RIS3 Region of Murcia. Water eco-efficiency, water treatment, etc. issues could be topics from companies and researchers, because will be framed in the areas of specialization of the RIS3Mur. INFO invited AGROFOOD Murcia cluster to be a member of the Agrifood Working Group, with the topic of Water considered for its important consumption and discharge characteristics, so INFO knows the current situation of regional companies. In the next period 2021-2027, AGROFOOD Murcia will continue to be part of this WG, as well as a member of the Water Cycle Working Group.

Water is a priority in the RIS3Mur 2014-2020 and will continue to be a priority in the new RIS3Mur 2021-2027, and therefore there will be actions in R&D to support companies and researchers, as well as technological entrepreneurship of companies based on transformative technologies.

In this context, and according to the whole learning process, we are going to impact the ROP 2014-2020 by the **main action – Business Sustainability Innovation Voucher**. With this action, it will be possible to support the creation of innovative and sustainable industries, using collaborations between SMEs and expert service entities to record the calculation of the water footprint as an example of innovation in business processes. Other secondary actions will be the promotion of other collaborative R&D activities, but the current health crisis is reorienting the type of programs to facilitate the competitiveness of companies, although considering the information from the Working Groups.

Finally, for the improvement of the Critical Mass, CTNC will evaluate information of interest using a Technology Surveillance Tool and creating a **Technology Transfer Area "Water in the Agrifood Industry"**. This will be another secondary action, but it will serve to offer up-to-date information that will reduce the duplication of lines of work.



## 1.1. BUSINESS SUSTAINABILITY INNOVATION VOUCHER

This action is defined under the policy instrument: Specific objectives 03-2d - Promote SME innovation and cooperation for innovation in all fields; in particular in eco-innovation, social innovation and the agricultural, fishing, marine, maritime, tourism, cultural and building refurbishment sectors and 01-1b – Promoting business investment in R&D developing links and synergies between enterprises, research and development centres and the higher education sector, promoting investment in product and service development, technology transfer, networking, cluster and open innovation through smart specialization and supporting technological and applied research in water technologies. This program is aimed at encouraging and promoting innovative measures by companies through their responsibility and climate sustainability. The aim is to improve the competitive position of companies and promote business innovation in two types of corporate social responsibility measures, including the calculation of the water footprint of companies.

It has been achieved that, for the first time, the contracting of innovation services by regional SMEs, co-financed by the ERDF, in business sustainability, is encouraged. Category G - Other Innovation Services of the INFO Innovation Voucher has been used and the beneficiaries will be the SMEs of the Region of Murcia that have not registered their water footprint calculations until the time of application as an example of innovation in processes in the company.

**Financial support.** Non-refundable subsidy of 75% in terms of gross subsidy on the approved eligible expenditure. The maximum subsidy for the service will be: 4,000 euros, which includes the services of an accredited professional plus the cost of the company in accordance with the ISO 14046 standard.

### Request:

- Not having started the project in the modality object of the investment.
- Minimum contribution of 40% of the beneficiary.
- The service provider must be accredited by the INFO.
- The service provider may not be a beneficiary of the aid.
- In case of obtaining the ISO certification, the beneficiary company must certify it.

**Elegible cost.** Services of accredited professionals for the calculation of the water footprint as well as the services of the ISO 14046 certifying company.

### **Players involved**

INFO- (Regional Development Agency of the Region of Murcia)

The Regional Development Agency of the Region of Murcia is the organization responsible for the action. The innovation department will open the call, but all the above is linked to the decisions of the companies themselves and the service providers.

### **Timeframe**

2021-2023

The date for the execution and payment of the projects presented will be from the presentation of the aid application up to six months from the notification of the decision to grant the aid. The launch of the program is expected to be in late 2021 or early 2022.

### **Costs**

Action financed with resources from INFO's own personnel. 1 employee – full time for the coordination of the program.

### **Funding sources**

The action will be financed by ERDF funds.

The credit available for the call for grants is two hundred thousand euros (200,000€). This loan will be financed up to 80%, or with a higher co-financing rate if appropriately agreed, with resources from the

European Regional Development Fund (ERDF), that is, up to 160,000 euros, allocated to the Region of Murcia Development Agency INFO.

Finally, the new ERDF OP 2021-2027 is currently being implemented in the Region of Murcia, we cannot specify an amount for other programs R&D, but a forecast like that of the ERDF OP 2014-2020 is estimated. Specifically, an annual investment of 2 million euros is estimated in R&D support programs for 2021-2027. All the above is linked to the decisions of companies and researchers to participate in the calls. It is also related with the governing bodies of the RIS3Mur Strategy 2021-2027, as well as the characteristics of the aid programs launched by the European regulation ERDF 2021-2027.

## **1.2. TECHNOLOGY TRANSFER AREA "WATER IN THE AGRIFOOD INDUSTRY". TECHNOLOGICAL SURVEILLANCE**

Technological Surveillance (TS) is an organized, selective and permanent process of capturing information from abroad and from the organization itself on science and technology, selecting it, analyzing it, disseminating it and communicating it, to convert it into knowledge to make decisions with less risk and be able to anticipate changes. (Definition according to UNE 166006:2011 standard).

CTNC (see description below) has a defined and organized TS plan. Observing, capturing, analyzing, disseminating and retrieving information on the economic, technological and commercial environment are fundamental factors in being able to offer specialized information services.

From the CTNC, TS is proposed as the systematic and focused way of capturing quality information both from abroad and from the organization itself, on food science and technology, analysis and dissemination to serve as support in decision-making processes. It is an open and feedback system with the following scheme:

- Identification of needs and capture of knowledge
- Analysis and design of R&D lines
- Dissemination and transfer of knowledge acquired to the agri-food and related sectors

The main task of the CTNC will be to promote and articulate an integrated innovation ecosystem around water technologies, since issues related to water are of interest to its agri-food companies.

A section on its website will be made available to companies that serves as support in the design and execution of R&D projects, so that companies have access to capabilities (technicians and pilot plants), and have scientific-technological information that allows knowing the current lines of work in water technologies.

This section will be fed with fortnight bulletins with news about WATER IN THE AGRIFOOD INDUSTRY and will use an internal tool that manages information from different external sources, through a search with factors of interest.

Request. Access to the private section of the CTNC website

Cost. Free Services

### **Players involved**

CTNC- (National Technological Center for Food and Conservation)

CTNC has its origin in the Research Association of the Industry of Vegetable Preserves (AICV), founded in 1962. Currently, it functions as a technology centre that serves as a basic infrastructure for assistance and the technological development of enterprises of the agro-food sector. It offers technology pilot plant services, development of new products and technologies applied to the sector, management of quality, research and development assistance, collaborates in the implementation of business projects, environmental management of businesses, environmental projects applied to agro-business development,

technology transfer, organization of congresses and national and international symposium and training, among others, for more than 100 associates and 500 collaborators.

CTNC is a non profit organization, which is recognized by the Spanish Government as an Innovation and Technological Centre (CIT-51), an office of transfer of research results (OTRI), and it is declared of public use (INT 445/2004 Order dated January 15th).

With more than 50 years of experience, it works to promote the competitiveness of companies through research, development and innovation.

#### **Timeframe**

2022-2023

A process to create a TS on water issues will start in Q1 2022 and changes should be confirmed in Q2 2022. The most interesting sources and factors will be validated. The implementation process will then begin with the release of bulletins in Q2 2022.

#### **Costs**

Action financed with resources from CTNC's own personnel. 1 employee – partial time for the information management.

A technological surveillance tool and the website owned by the CTNC will be used. The maintenance cost of both is approximately 1,000€/year

#### **Funding sources**

The action will be financed by CTNC funds.

## **ACTION 2. TRAINING AND EDUCATION ACTIONS TO EXPAND HUMAN CAPITAL IN INNOVATION WATER RELATED TOPICS**

### **The background**

In the Region of Murcia there are different integrated centers for training and agricultural experiences (CIFEA) dependent on the Autonomous Community of the Region of Murcia-CARM and which are specialized in an agri-food field. The CIFEA center specialized in Vegetable Conservation is located in Molina de Segura, which imparts training cycles based on current legislation in Spain and other training courses in the food industry. In addition, since October 2015, this CIFEA is the National Reference Center in the professional area of Vegetable Conservations of the professional family of Food Industry (Vegetable Conservations CRN).

The National Reference Centers (CRN) are public centers of innovation and experimentation in matters of Vocational Training. The functions of the National Reference Center, in the professional area of Canned Vegetables, as established in Royal Decree 229/2008, of February 15, which regulates the National Reference Centers, are:

1. Observe and analyze at the state level, the evolution of the productive sector, to adapt the training offer to the needs of the labor market.
2. Collaborate with the National Institute of Qualifications in updating the National Catalog of Professional Qualifications.
3. Experiment with training innovation actions linked to the National Catalog of Professional Qualifications to validate their adequacy and, where appropriate, develop content, methodologies and teaching materials to propose their updating.
4. Collaborate and, where appropriate, carry out the necessary studies to prepare certificates of professionalism, as well as participate in the performance, custody, maintenance and updating of their evaluation tests.

5. Study the suitability of facilities, equipment and teaching aids, develop training organization and management techniques and propose the application of quality criteria, indicators and devices for training centers and entities.
6. Collaborate with the most representative business and trade union organizations, as well as with the Joint Commissions set up under the umbrella of state-level sectoral collective bargaining.
7. **Establish collaboration links, including the management of virtual networks, with regional qualification institutes and agencies, universities, technology and research centres, Integrated Vocational Training Centres, companies and other entities to promote research, innovation and development of professional training, as well as to observe and analyze the evolution of scientific and technological bases related to training processes or to the reference sector.**
8. **Participate in international programs and initiatives in their field of action.**
9. Contribute to the design and development of technical and methodological improvement plans aimed at teaching or training staff, experts and professional advisors, as well as evaluators who intervene in processes of recognition of professional competences.
10. Collaborate in the evaluation and accreditation procedure for professional skills, in accordance with the development of article 8 of Organic Law 5/2002, of June 19, on Qualifications and Vocational Training.
11. Carry out any other similar functions assigned to them related to the purposes described.

Considering the above, we can highlight that the Region of Murcia has the CIFEA and the Vegetable Conservations CRN, which are important centers for valuing the human capital that will constitute current and future innovation, which focus on the agri-food sector within in the context of Circular Economy, with special interest in issues of control and efficient use of water in industry. Those functions of the Vegetable Conservations CRN have been highlighted in bold that have led us to propose the actions that are discussed below, and that allow the improvement of the ROP 2014-2020 impacting the innovation of SMEs, through the qualification of the future technicians of the sector. In addition, we must not forget that the Region of Murcia is mainly made up of SMEs. Therefore, by publicizing business success stories in technical learning sessions on Circular Economy, we believe that it is a commitment to promoting investment by companies in R&D in collaborative projects. Water is a variable to achieve the competitiveness of companies because its consumption is very high (somewhat economic cost) and efficient use must be guaranteed, as well as discharge into the environment that does not compromise the sustainability of our Region. If the trainers, as well as the students, internalize the concept of Circular Economy linked to an optimized use of water resources, the objective of sustainable development and job creation can be achieved.

On the one hand, currently CIFEA, as a Vocational Training Educational center, has agreements with companies for the development of regulated practices for its students, but not all students have access to companies where they can expand their knowledge about water in the industry. In view of this situation and through the Good Practice "EXPOBIOTEC" detected by the North of Portugal iWatermap partner, it is intended to integrate a research and technological dissemination activity organized within the framework of the International Symposium on Food Technologies that is held every 2 years in the Region of Murcia. The objective would be to bring the students of the last year of the CIFEA training centre closer to the lines of work of the participating companies, as well as to promote interest in the subject of water. And as a parallel event of this International Symposium, students will be invited to visit the laboratories of CTNC, as well as meet with the staff of its Environment Area to raise awareness about the importance of water in the food industry.

On the other hand, the possibility of expanding the offer of training courses on water issues has been discussed with the Vegetable Conservations CRN of Molina de Segura, specifically to achieve an increase in water technical specialists. Mr. Pedro Angosto, is the director of this center and has been an important stakeholder in establishing an improvement in innovation in water issues since he has been able to learn about the Good Practices of the rest of the iWATERMAP partners at the meeting organized in Iasi (Romania ). The most noteworthy thing was the partner Wetsus itself, the European center of excellence for sustainable water technology, but Mr. Angosto took into account that in Murcia there is already a tool such as the Vegetable Conservations CRN, which aims to be a means to improve qualification of workers and promote the promotion and stability of employment as well as an observatory of the evolution and technological transformation of the agri-food sector to adapt training to the changes that occur. Therefore, based on the detection of needs in water issues, the Vegetable Conservations CRN plans to program innovative courses for trainers on the subject. The Region of Murcia is a success example in the efficient management of water resources and technicians from the sector (from universities, technology centers,

companies, etc.) should be used to achieve a future sustainable agri-food sector. In the coming years, the Vegetable Conservations CRN Action Plan will be renewed and the importance of water within the Circular Economy will continue to be of interest for professional training. Hence, the objective of our Action Plan, based on ensuring that the water issues is maintained from all training levels and especially in Vocational Training due to its proximity to SMEs in the Region.

Furthermore, Mr. Angosto and CTNC, have been the two stakeholders who have participated in meetings of the consortium outside the Region of Murcia and were able to learn about the Good Practice “PoVE Water Vocational Excellence” (Friesland, Latvia and CREA Hydro&Energy), that draws on existing and emerging vocational competences and skills needs in the water sector, translating them into an approach of vocational excellence. It is a project financed by the Erasmus Program, a program well known by Mr. Angosto and the CTNC, and which has served to strengthen continuous collaboration between the CRN and the CTNC with the aim of offering an excellent qualification because the training content they will be updated. The rapid changing agrifood industry demands competent, well-educated and agile technician with a mindset that sparks innovation and an adaptation of education to emerging needs of the sector, focused in water issues.

The development of practical sessions has been planned with the participation of company technicians like CTNC, who will be trainers in the efficient use of water resources and water quality control in the production process. In this way, teachers are trained to motivate students and an innovative ecosystem in water technologies associated with the agri-food sector will be created.

In addition, in the project consortium it has been evaluated that participating in platforms guarantees contact between people related to the water sector and the improvement of the sector, focused from vocational point of view.

### Action

- Entrepreneurship and training for innovation
- To promote company professionals to share real life experiences with students.
- Collaboration with Platform of Vocational Excellence in water (ERASMUS). External funding

In summary, efforts will be made to include the subject of water in technology transfer courses, as well as in the training of young people through specific training on water issues (technicians from companies with previous experience will be the trainers).

In this context, and according to the whole learning process, we are going to impact the ROP 2014-2020 by the **main action – Sustainability and Circular Economy sessions**. With this action, it will be possible to support the creation of innovative and sustainable industries, promoting the qualification of technicians that guarantee a sustainable agri-food sector. In fact, in the meetings held with the rest of the stakeholders, the need to raise public awareness was also taken into account, as well as training technicians to respond to current demands. Other secondary actions will be the organization of meetings to collaborate with the Platform of Vocational Excellence in water, of the Pilot PoVE water project with funding from the Erasmus programme.

Finally, for the improvement of the Human Capital, CTNC will organize student attendance in the International Symposium on Food Technologies and one Open Day in its center for the visit of students, where they will be able to see facilities, as well as success cases of water technologies in the agri-food sector. This will be another secondary action, to be entitled “**Water in the agrifood sector Infoday**”

### 2.1. SUSTAINABILITY AND CIRCULAR ECONOMY SESSIONS

The Region of Murcia is a success example in the efficient management of water resources and technicians from the agrifood sector (coming from universities, technology centers, companies, etc.) should be used to achieve a future sustainable agri-food sector.

The sessions will be organized in a 30-hour face-to-face event and its objective is to "Provide participating trainees with up-to-date knowledge on the principles of the circular economy, the opportunities it

represents for the food industry as a challenge for improving competitiveness and environmental efficiency, evolving towards production models more in line with current social demand”.

Session 1. Circular Economy in the Food Industry

Session 2. *To be defined*

Session.....

Program:

Module 1 Principles and fundamentals of the Circular Economy. National and European legislative requirements.

Module 2 Implementation of the Circular Economy in the Food Industry

Module 3 Application areas of the Circular Economy in the Food Industry

Module 4 New management models: Digitization and development of the Circular Economy

Module 5 Good practices of Circular Economy in the Food Industry.

Request:

- Employed participants as teachers, vocational training experts for employment and vocational training teachers.
- A maximum of 3 places are reserved for the unemployed: teachers, vocational training experts for employment and vocational training teachers.
- With experience in training related to the agri-food industry sector.

Cost. Free course. In addition, the financing of the costs of attending the course is planned according to Order TAS 708/2008.

These sessions will be publicized through the todofp.es network, social networks, etc. and will serve to establish contacts and promote projects within the Erasmus program of the European Commission, since trainers from all over Spain will participate, who will be able to present their points of view and ideas about future projects. In this way it is possible to expand the number of centers interested in exchanging learning techniques.

**Players involved**

Vegetable Conservations CRN

Vegetable Conservations CRN will be in charge of organizing the sessions, contacting speakers and attendees. In addition, it will meet with entities at the regional and national level to assess the theme of the sessions at the time of launching the event.

**Timeframe**

From Q2 2021-2023

**Costs**

Action financed with resources from CRN's own personnel. 2 employees – partial time for the management and coordination of sessions. Contact with speakers and trainers interested.

**Funding sources** (if relevant):

Own funds. Autonomous Community of the Region of Murcia - CARM. PLAN FOR THE TECHNICAL IMPROVEMENT OF TEACHERS

## 2.2. WATER IN THE AGRIFOOD SECTOR INFODAY

Technological dissemination activity organized within the framework of the International Symposium on Food Technologies that is held every 2 years in the Region of Murcia. The objective would be to bring the students of the last year of the CIFEA training centre closer to the lines of work of the participating companies, as well as to promote interest in the subject of water. In addition, these students will be motivated to participate by presenting an innovative idea to companies in the sector.

A block on Water Technologies will be planned within the framework the International Symposium on Food Technologies. This event is usually integrated by three blocks with a total duration of 2 days. In this block, 5-8 speakers from entities related to the agri-food sector, water cycle management, auxiliary companies and technological service providers will be invited, who will present their lines of work on water issues. This activity has already been carried out as a test at the X edition of the International Symposium on Food Technologies in May 2021, but without the invitation of the student. The event was a success with the participation of international entities that presented innovative solutions in water technology for the sustainable development of the agri-food industry.

A registry addressed to students of the CIFEA of Molina de Segura will be incorporated on the CTNC website and they will be admitted in order of registration. Since the International Symposium on Food Technologies includes a poster session, students will be asked to present papers that provide innovative solutions and these will be assessed by the event's scientific committee. The winning idea will be included in the poster session and will be announced to the business sector.

Additionally, as a parallel event of this International Symposium, students will be invited to visit the laboratories of CTNC, as well as meet with the staff of its Environment Area to raise awareness about the importance of water in the food industry.

This activity will be used to inform future technicians of the lines of work on water issues that offer solutions to the agri-food sector; to publicize the entities that are a reference for future collaborations; to promote students within the business sector; as well as to promote them so that they feel included from now on in the sector and develop skills to help innovation in the sector. In this way, it will be possible for human resources, which form part of the agri-food ecosystem and the water sector in the coming years, to be qualified workers to meet current demands. They will ensure that the companies that incorporate them are competitive through innovation.

Request. Register in the CTNC website and presentation of an innovative idea that includes:

- State of the art
- Objective and task description
- Benefits for the agri-food sector

Cost. Free Services

### Players involved

CTNC will be responsible for organizing student registration on its website so that they can enroll in the International Symposium on Food Technologies. This registry will include the bases for participating with innovative ideas. In addition, it will organize meetings with representatives of SMEs to be the evaluators of the ideas presented by the students and will organize its technicians to receive visits from the students in their facilities.

CIFEA will be in charge of disseminating participation in the event among its students, as well as organizing the teaching staff to accompany the students on the planned technical visit.

Representatives of SMEs will be in charge of evaluating the ideas presented by the students. They will meet days before the event to make a decision.

### Timeframe

Q3 2022-2023.

International Symposium on Food Technologies is organized every two years and its last edition was in May 2021, so from the end of 2022 the event will begin to be organized and it is intended to be planned for the month of May 2023.

### Costs

Action financed with resources from CTNC's own personnel. 1 employee – partial time for the management of website register and student support. The participation of CIFEA staff and representatives of SMEs will be punctual and will not have associated costs.

### Funding sources (if relevant):

The action will be financed by CTNC funds. 800 € for cost of dissemination material

## ACTION 3. INTERNATIONALIZATION OF WATER RELATED COMPANIES AND SOLUTIONS

### The background

In the Region of Murcia, an international meeting of stakeholders (universities, technological centers, research institutes, associations and companies) of the agri-food sector is organized every two years, due to its high impact on the regional industrial sector. In two or three days, universities, technological centres, research institutes and companies for the largest industrial sector in Spain, food, hold bilateral meetings and other activities.

The event is called Murcia Food Brokerage Event and is held together with the International Symposium on Food Technologies, where the latest innovations meet Food Technology, and in which companies from different countries hold bilateral meetings to establish technological cooperation agreements related to the latest innovations in their sector. Currently its thematic areas are: i) Hygienic design of facilities and food safety; ii) Biotechnology; iii) Conservation technology. Active and smart packaging; iv) Automation and control of processes and; v) Circular Economy.

This event (first edition in 2003) is consolidated at the international level. In ten editions (last edition in 2021) it can be considered an average participation of around 400 companies, universities and research organizations from various countries, which generate around 780 meetings in just two days. In recent editions it has reached more than 100 innovation agreements matching technological offers and demands.

Through the iWATERMAP consortium, it has been possible to learn about the existence of specialized water forums with B2B meetings, such as Aquatech 2019, which can be considered as a Good Practice for the Region of Murcia because with events of this type it is possible to achieve technology transfer and promote collaborations between different entities (companies, research centers, etc.) for the development of international R&D projects, having an impact on axis 1-1b of OP 2014- 2020. The B2B-Brokerage events are meetings with free participation that offer the opportunity to meet potential partners in international cooperation through individual meetings with companies in the sector.

Some years ago, events such as the *Water Technology Show* and the *"Sustainable Water Cycle" Conference* have been held in Murcia, but they have not continued periodically. We believe that giving greater visibility to the water technology sector in an event initially aimed at the agri-food sector can be a guarantee of success. Therefore, it is intended to include a new thematic area of **Hydraulic technologies in the food sector within the Murcia Food Brokerage Event**, promoting B2B meetings so that private companies that have a specific water problem can find a solution provider, as happened in Aquatech 2019.

This international Murcia Food event supports the internationalization of the agri-food sector, but from now on it will also support the internationalization of the water technology sector.

Furthermore, throughout the project it has been learned about the need to support networking, with the example of the Water Alliance, the networking organization for the Dutch water technology sector. In the



Region of Murcia there is the magazine CTCAlimentacion and it has been possible to contact its Editorial Board to promote the creation of a network based on the collaboration of international stakeholders with technological water solutions in their future published issues. More specifically including news, etc. from them, that allow an international impact of the magazine from the point of view of agri-food and water technology.

In addition, in the project consortium we have evaluated that the participation in technological platforms guarantees contact between people related to the water sector and the improvement of the sector because its priorities could be discussed at a European level and direct the topics of funding programs such as the nearby Horizon Europe. In fact, almost all the partners have joined the Water Smart Territories platform, so work will be done to assure that the Region of Murcia is also part of it.

The main goal of the S3 Partnership “Water Smart Territories” is to strengthen European Regions’ innovation capacity especially for water resource efficiency. It is also meant to promote new investments based on open innovation infrastructure and new technologies for sustainable water management by clusters and other actors in regional ecosystems. Water Smart Territories aims to achieve this goal by cooperating in the framework of the S3P Partnership Industrial Modernisation. It is an initiative that facilitates interregional collaboration on water.

### Action

- To promote cooperative and multidisciplinary R&D at an international level among all public and private actors.
- Creation and participation in networks and organization of International Workshops.

In this context, and according to the whole learning process, we are going to impact the ROP 2014-2020 by the **main action – iNetWater point meeting**. With this action, it will be possible to support the creation of innovative and sustainable industries, through the expansion of contacts between regions in public media (meetings, B2B events, magazines, websites, etc.). The exchange of contacts may facilitate the internationalization of technological solutions in the Region of Murcia on water issues, as well as serve as an input for innovations that improve the competitiveness of our companies.

Finally, it is also intended to dedicate efforts so that the Region of Murcia joins the Water Smart Territories platform. AGROFOOD Murcia Cluster has known since 2020 the proposal to the Region of Murcia for its inclusion of in Water Smart Territories (WST). It is an interesting initiative and it has been an intermediary to achieve it. In May 2020 AGROFOOD Murcia Cluster began contacting the Region of Murcia Office in Brussels in order to know if the Region of Murcia will join WST and, despite ongoing conversations, it is waiting for an answer. Technicians from the Ministry of Agriculture and the Region of Murcia Development Agency INFO are involved. The competences in this regard are of the Regional Ministry of Agriculture and Water, so their collaboration is required.

### 3.1. iNetWater POINT MEETING

This activity will be based on the creation of meeting points for international entities with the intention of promoting their collaboration. Information will be given on companies, lines of work of research centers, technology centers, etc. in the Region of Murcia, serving for technology transfer. The objective is to ensure that the entities of the Region of Murcia expand their contacts, achieving the internationalization of innovative solutions on water issues within the agri-food sector, as well as the capture of foreign knowledge.

It is intended to work so that the Murcia Food Brokerage Event and the International Symposium on Food Technologies, an international event held every 2 years, includes a water section related to the agri-food sector to promote technology transfer outside the Region of Murcia, as well as to capture knowledge through the participation of international technicians invited by the Organizing and Technical Committees. Hydraulic technologies in the food sector section will be included as a topic of interest in the registration of participants and a block called "iNetWater in the food sector" will be planned at the International Symposium on Food Technologies. This block will bring together the latest developments in the water sector to help achieve a competitive and sustainable agri-food industry.

In addition, it is intended that the CTCAlimentación magazine, a reference in the agri-food sector in Spain (started in 1999) and with publication of 2 issues each year, include a section on innovation in the water sector applied to industry that serves as a precursor for the creation of an international network. AGROFOOD Murcia cluster will promote the specific section “iNetWater”, to facilitate a network of contacts at an international level through the publication of news, interviews, etc. related to innovation in the water sector. In the July 71, 2021 issue of this magazine, the final design of the section was already included (work was done on it during the month of June), so this action does not require a previous stage and can already be implemented directly from number 72, which corresponds to the December 2021 publication.

In summary, efforts will be made to promote iNetWater point meeting, which will be supported by international events, as well as public media, such as the CTCAlimentación magazine, to create an international network in the water sector to improve the competitiveness of companies through knowledge of new hydraulic solutions for the agri-food sector.

Request. Register in the public events and information for dissemination

Cost. Free Register

Indicator. Number of entities that provide lines of work and contact

### **Players involved**

AGROFOOD Murcia cluster and many stakeholders of the project. University of Murcia, Polytechnic University of Cartagena, CEBAS-CSIC, PYMEs, INFO, CTNC.

AGROFOOD Murcia cluster will be in charge of organizing the “iNetWater in the food sector” block at the International Symposium on Food Technologies. AGROFOOD Murcia cluster will contact different speakers from the Region of Murcia and foreigners to promote the exchange of knowledge, as well as the contact of technicians. At the end of the event, it will guarantee that all the speakers, as well as the attendees, have all the contacts. In addition, it will be in charge of providing the information for the iNetWater section in the CTCAlimentación magazine. AGROFOOD will continually contact technicians from different entities in the Region of Murcia to find out about their lines of work and be able to publicize them in the section.

The stakeholders of the project are members of the technical committee of the International Symposium on Food Technologies and Murcia Food Brokerage Event, so they will be in charge of contacting interested technicians to register for the event as attendees.

INFO and the CTNC, as organizers of the events, will be in charge of designing the registration of attendees and will assess the meetings held to learn about the success of the knowledge exchange. A survey will be launched to attendees.

In addition, CTNC will be responsible for keeping the iNetWater section in the issues of the CTCAlimentación magazine. The editorial board, headed by CTNC, will validate the information provided by AGROFOOD Murcia cluster.

### **Timeframe**

Q3 2021-2023. Murcia Food Brokerage Event and International Symposium on Food Technologies are organized every two years and its last edition was in May 2021, so from the end of 2022 the event will begin to be organized and it is intended to be planned for the month of May 2023.

CTC Alimentación magazine is published every six months. Issues are expected to be released in December 2021, July 2022, December 2022, July 2023 and December 2023 within the framework of this Action Plan. These issues will include the iNetWater section.

### **Costs**

Action financed with resources from AGROFOOD Murcia's own personnel. 1 employee – partial time for the management of information and attendance at meetings for the organization of the event and publications.

It is expected that the organization of the INFO and CTNC events will cost around 20,000 € and that the layout and design of the CTCAlimentación magazine with the iNetWater section will cost 2,000 € throughout the planned period.

The participation of the rest of the stakeholders will be punctual and will not have associated costs.

**Funding sources**

EU funding supporting EEN (Enterprise Europe Network) activities.

To date, with players' own funds involved, but with the possibility of financing through European programs.

**Date:** December 2021

**Signature:**

**Stamp of the organisation (if available):**