

# **PAYS DE LA LOIRE BIO-BASED CIRCULAR ECONOMY ACTION PLAN**

Pays de la Loire Regional Council  
Association of the Chambers of Agriculture of the Atlantic Area



# Content

Preface .....	2
1. General information .....	4
2. Policy context .....	5
2.1 EU Circular Economy and Bioeconomy Programs.....	5
2.2 National Programs related to Circular Economy and Bioeconomy .....	5
2.3 Regional Programs related to Circular Economy and Bioeconomy .....	8
2.4 Operational Program Pays de la Loire ERDF-ESF 2014-2020 .....	10
3. Action Plan Preparation .....	11
3.1 Overview.....	11
3.2 BIOREGIO Project Goals .....	12
3.3 Action Plan Development.....	12
3.4 Pays de la Loire Good Practices.....	13
4. Actions .....	14
ACTION 1: Foster and support bio-based circular economy initiatives among civil society and private sector through example-based information and awareness raising.....	14
ACTION 2: Foster the bio-based circular economy component in the Circular Economy Regional Call for Projects and in other calls. ....	16
ACTION 3: Strengthen, through supervision and training, the coherence of public policies around biomass management in the territories.....	18
ACTION 4: Experiment the construction of “bio-based circular economy territories” based on new solutions resulting from research and innovation.....	20
5. Monitoring the Action Plan Implementation .....	22
Signature .....	23
Sources .....	24
Annex 1: Table of acronyms .....	25

## Preface

This document is the Bio-Based Circular Economy Action Plan for the Pays de la Loire region in France, set up as part of the BIOREGIO project, supported by the INTERREG Europe Program. It includes four Actions to develop the bio-based circular economy in Pays de la Loire.

The circular economy can be defined as an economic system of trade and production which, at all stages of the product life cycle (goods and services), aims to increase the efficiency of resource use and reduce the impact on the environment while developing the well-being of individuals (ADEME, 2014). One of the fundamental principles of the circular economy is the fight against waste: a resource does not have to be recycled if it has been saved at source.

The bioeconomy refers to all activities related to the production, use and transformation of bioresources (Ministry of Agriculture and Food, Bioeconomy Strategy for France 2018-2020).

The bio-based circular economy is the sustainable management and use of biological resources that maintains the economic, social and ecological value of products and the nutrients they contain for as long as possible (European Commission 2015, Vanhamäki et al. 2018). It implies the sober use of resources, the fight against waste, and the circular loop of the return to the land.

The development of this Bio-Based Circular Economy Action Plan for the Pays de la Loire region was carried out in consultation with the Regional Council and the group of stakeholders in Pays de la Loire (local authorities, company, associations, university, Regional Chamber of Agriculture). It has been coordinated by the Association of the Chambers of Agriculture of the Atlantic Area (AC3A), a partner in the BIOREGIO project. This group of stakeholders has jointly defined objectives which aim at: informing and raising awareness about bio-based circular economy; train decision-makers and key stakeholders; and implement innovative experiments for the territory. The roots of the actions developed below are the good practices observed in the other European regions of the BIOREGIO project, in particular the networking of actors and the sharing of tools, as well as the need to involve research stakeholders.

A Circular Economy Action Plan (PAEC) will be presented to regional elected officials for adoption by the Regional Council on 16 October 2019. The aim of the Bio-Based Circular Economy Action Plan for the Pays de la Loire, developed in the frame of BIOREGIO project, is to establish the first lines for a bio-based circular economy, a new concept locally. It will serve as an experiment and a stepping stone for the development of future regional policies on bio-based circular economy.

This Action Plan has identified four actions. These are concrete measures to develop a bio-based circular economy in Pays de la Loire. These actions will be implemented over the period 2020-2021.

- The first action focuses on communication, awareness-raising and information based on concrete examples, in order to develop and bring out local initiatives of citizens, farmers, companies and communities in relation to the bio-based circular economy. Awareness of the issues and acceptance of the need to change one's behaviour are essential, as demonstrated

by the good practice "Material Footprint Calculator for Citizens" (Finland), which raises awareness of overexploitation of resources and proposes solutions for citizens wishing to reduce their environmental impact.

- The second action focuses on the change in the Circular Economy Regional Call for Projects, to enhance the bio-based circular economy component. This action is inspired from the Slovak Good practice "Programme to Support Integrated Rural Development LEADER NSK", and aims at increasing the number of local initiatives focusing on bio-based circular economy solutions.
- The third action focuses on decision-makers and key actors, to enhance supervision and coherence of initiatives on the territory. The training of elected officials and technicians is central to this. The training and skills development of decision-makers will have a direct impact on regional and territorial public policies. The key stakeholders will be formed into a network, which will allow better coordination and coherence of public policies and funding around biomass management.
- The fourth action aims to implement action research, involving a research laboratory and local authorities, in order to observe and test solutions to develop the bio-based circular economy on a small scale, based on new solutions and innovation. This action-research will serve as a showcase and laboratory for Loire actors, who will be encouraged, through concrete examples, to bring the bio-based circular economy to life and inspire the consultation and implementation of future regional policy on the subject.

The BIOREGIO project shares the expertise of six European regions on the best technologies and cooperation models to foster the development of the bio-based circular economy. In Pays de la Loire, the BIOREGIO project stakeholder group reaffirmed the priorities of sustainable and rational use of resources and reduction of waste production to achieve a bio-based circular economy. Stakeholders noted a lack of specific actions on these two priorities, and decided to make them a common thread developed in each of the actions of this Action Plan.

This Action Plan was developed in French and translated into English. The content of this publication is the sole responsibility of its authors. The information and opinions expressed herein do not necessarily reflect the position of the INTERREG Europe Programme, which can in no way be held responsible for them.

# 1. General information

The preparation of this Bio-Based Circular Economy Action Plan for the Pays de la Loire started in 2018 as part of the BIOREGIO project funded by the INTERREG Europe Programme. This action plan will be regularly updated by the stakeholders group in Pays de la Loire Region. Its implementation will be monitored as part of the BIOREGIO project.

## **Project:**

BIOREGIO - Regional circular economy models and best available technologies for biological streams 2017-2021.

## **French Partner:**

Association of the Chambers of the Atlantic Area - AC3A

## **NUTS2 target area:**

Pays de la Loire, FRANCE

## **Contact persons:**

**Pascal DAGRON**

Association of the Chambers of the Atlantic Area - AC3A  
contact@ac3a.chambagri.fr

**Héloïse EVEN**

Pays de la Loire Regional Council  
heloise.even@paysdelaloire.fr



## 2. Policy context

### 2.1 EU Circular Economy and Bioeconomy Programs

Several European strategies and plans support the development of the bio-based circular economy in the Member States. These include the "Circular Economy Package" adopted in 2018 (a first package had been adopted in 2015), which includes a monitoring framework with key indicators to measure progress towards circular economy, as well as new regulations on packaging that Member States must apply by June 2020 at the latest.

A European Bioeconomy Strategy has also been adopted in 2018 to strengthen the "biosectors" and deploy bioeconomy across Europe.

### 2.2 National Programs related to Circular Economy and Bioeconomy

#### 2.2.1 Law n°2015-992 on Energy Transition for Green Growth (LTECV)

Adopted on 17 August 2015, the LTECV sets up transition towards a circular economy as a national objective, and as one of the pillars of sustainable development. With regard to biomass, the law requires all waste producers to sort bio-waste at source by 2025, and obliges public bodies to implement actions to reduce food waste within the collective catering services they manage. The competence on waste is also transferred to the Regions.

To ensure the transition to a circular economy, the LTECV places low resource consumption and the prevention of waste production at the top of the list of priorities: *"Art. L. 110-1-1-1.-The transition to a circular economy aims to move beyond the linear economic model of extracting, manufacturing, consuming and disposing by calling for a sober and responsible consumption of natural resources and primary raw materials and, in order of priority, for the prevention of waste generation, including the reuse of products, and, following the hierarchy of waste treatment methods, for the reuse, recycling or, failing that, recovery of waste"*.

This law sets the following objectives:

- 10% decrease of household wastes produced by 2020 ;
- 55% recycling rate of non-hazardous waste by 2020 and 65% by 2025 ;
- 70% recovery of construction and public work wastes by 2020 ;
- 50 % decrease in the quantities of wastes accepted for storage by 2025.

#### [Link to the BIOREGIO project](#)

The LTECV encourages the reduction of waste and a better recovery of biomass. All the actions in this Action Plan contribute to reducing bio-waste and increasing collection and recovery rates.

### 2.2.2 Law 2015-991 on the New Territorial Organisation of the Republic (NOTRe)

The Law NOTRe assigns new competences to the Regions. They are required to adopt a Waste Prevention and Management Plan (WPMP), which must include a Circular Economy Action Plan (PAEC) and have a focus on bio-waste.

#### [Link to the BIOREGIO project](#)

The Law NOTRe makes the region the new planning level for the transition towards a bio-based circular economy. The implementation of the Action Plan drawn up as part of the BIOREGIO project will thus support the development of public policy, with the regional level being the appropriate level to coordinate and support the actors involved in the transition towards a bio-based circular economy.

### 2.2.3 Law n°2016-138 against food waste

This law defines a hierarchy of actions to be implemented to fight against food waste, in the following order of priority:

1. Preventing food waste by avoiding it « at the source » ;
2. Use unsold food through donation or transformation ;
3. Valorization of food wastes into animal feed ;
4. Use of food wastes as compost for agriculture or for energy purposes, in particular through anaerobic digestion.

#### [Link to the BIOREGIO project](#)

The law against food waste reiterates the priority of reducing waste at source, before finding the best ways of recovering it to make it a resource. The third action of this Action Plan is in line with this priority by providing a better understanding of how to articulate this hierarchy of uses and place biomass at the heart of local development strategies.

### 2.2.4 National Roadmap for the Circular Economy (FREC)

Adopted on 23 April 2018, the FREC insists on the need to move away from the linear model of *"producing, consuming, discarding"*, which is facing the depletion of the planet's resources, to *"move towards a different type of economy, where we consume in moderation, where products have a longer lifetime, where we limit waste, and where we are able to transform waste into new resources"*. The FREC proposes 50 measures to successfully make the transition towards the circular economy. Its objectives are: better production, better consumption, better management of our waste, and mobilization of all stakeholders. This roadmap is to be followed in 2019 by legislative measures, in line with the European Waste Directive.

The FREC is the starting point for the development of an anti-waste law for a circular economy. This law has been presented on 10 July 2019 to the Council of Ministers, and is structured around 4 orientations:

- Stop waste to preserve our resources.
- Mobilizing industrialists to transform our production methods.
- Informing for better consumption.
- Improve waste collection to combat illegal dumping.

#### [Link to the BIOREGIO project](#)

The FREC encourages the transition from a linear to a circular economy and biomass is a key component of this model change. Through its actions 1&2, this Action Plan will make it possible to reach as many people as possible in order to train and engage biomass stakeholders in this paradigm shift.

### 2.2.5 The Agricultural Component to the FREC

Developed by the Ministry of Agriculture and Food, the Agricultural Component to the FREC reinforces the essential role of agriculture in this transition to the bio-based circular economy.

The Agricultural Component of the FREC presents challenges for the agricultural community in this transition, and focuses its actions on three objectives:

- Mobilize fertilizing materials from renewable resources
- Make farmers the driving forces behind the development of the circular economy
- Better prevention and management of agricultural waste.

#### [Link to the BIOREGIO project](#)

The agricultural component of the FREC details for a large part of the agricultural biomass how to enter a circular economy. Action 3 of this Action Plan will make it possible to make this transition a reality in the stakeholder territories and create local loops for organic matter management.

### 2.2.6 The Bioeconomy Strategy for France 2018-2020

The Bioeconomy Strategy for France, developed and led by the Ministry of Agriculture and Food, defines the bioeconomy as "*all activities related to the production, use and transformation of bioresources*". These activities are intended to meet in a sustainable way the food needs and part of the material and energy needs of the society. The strategy places the bioeconomy at the heart of current societal challenges and makes the link with the circular economy: "*The bioeconomy therefore draws important changes for our society with the transition from the use of fossil-based products to biosourced products, the transformation of the economic systems that supply these*



*materials, the mobilization oriented towards agricultural and forest production and industrial transformations respecting the logic of sustainable management of water resources, soils, biodiversity, in a logic of cascade use and circularity".*

#### [Link to the BIOREGIO project](#)

The Bioeconomy Strategy puts territories at the heart of changing practices. Actions 2 and 3 of the Action Plan focus on increasing the skills of territories on the subject of the bio-based circular economy and on the implementation of experiments.

## 2.3 Regional Programs related to Circular Economy and Bioeconomy

The Pays de la Loire Region has several policies related to circular economy and biomass, including the Regional Roadmap on Energy Transition 2017/2021, adopted at the end of 2016, which includes a component on renewable energies (including biomass). Furthermore, several policies are currently under adoption by the Regional Council:

### 2.3.1 Circular Economy Action Plan

The development of a PAEC is an obligation for the French regions, set up in the Law NOTRe. The PAEC is currently under adoption by the Pays de la Loire Regional Council. It mentions objectives to be reached by 2025, and identifies the circular economy as both challenge and opportunity for the region. It is structured around three objectives:

1. Preserve resources through efficient use ;
2. Create added value and new jobs ;
3. Develop new innovative sectors.

It has three axes, among the axis "Developing the circular economy in high-potential sectors", that includes the agri-food sector.

The circular economy applied to the agri-food sector consists in promoting complementarities between farms, companies and local authorities in limited geographical areas, with positive impacts, particularly in terms of limiting transport, reducing waste, combating food waste and recovering biowaste.

Three actions are developed in the biological loop component of this plan:

- Develop and raise awareness on short food circuits, in a logic of environmental quality.
- Fight against food waste from production to consumption.
- Create value with bio-waste and co-products.

#### [Link to the BIOREGIO project](#)

The PAEC encourages a bio-based circular economy. Action 1 of the Action Plan will make it possible to raise awareness and disseminate good practices on this subject, and action 2 will allow to train the stakeholders concerned on this emerging concept of the bioeconomy, so that they can bring out projects in the territory. Action 3 focuses on the observation and capitalization of the implementation of bio-based circular economy projects in the territories in order to meet the challenges of the PAEC.

#### 2.3.2 Regional Biomass Scheme

The regional Biomass scheme is being finalised. It is in line with the thoughts of the BIOREGIO stakeholder group and will be proposed for adoption by the Regional Council in June 2020. Its ambition is:

- Promote the development of projects on valorizing biomass into energy: heating networks, wood-fired boilers, anaerobic digestion and biogas use to reduce the share of fossil fuels, and work collectively on the energy and ecological transition.
- Be attentive to the rational use of biomass for energy :
  - hierarchy of uses ;
  - environmental issues : soils, water, air, biodiversity, sustainable agricultural production...
  - carbon storage through biomass (forest, hedgerows, agricultural land use, grasslands, wood construction, etc.) and its sustainable management (e.g. dynamic forestry).
- Mobilize: biomass is an asset for the territories, it has a potential to create wealth, particularly in agriculture and economic development of the wood sector.

#### [Link to the BIOREGIO project](#)

The regional biomass scheme gives objectives to use biomass to produce energy in accordance with the hierarchy of uses. Action 3 of this action plan will make it possible to manage biomass in a sustainable and circular way on relevant territorial scales and to define which energy recovery will be possible with which biomass for which needs.

## 2.4 Operational Program Pays de la Loire ERDF-ESF 2014-2020

The Regional Council coordinates ERDF-ESF funding in Pays de la Loire. The Pays de la Loire ERDF-ESF Operational Program 2014-2020 aims to create a dynamic economy that should place the region among the most developed in Europe and contribute to achieving the Europe 2020 targets for smart, sustainable and inclusive growth. It should create jobs and boost productivity, particularly in SMEs and in the research and innovation sector. This Program also supports integrated actions for sustainable urban development.

The funding priorities are:

- Research and innovation
- Foster creation of SMEs
- Transition towards a low-carbon economy
- Mitigate climate change
- Social inclusion (fighting against poverty and any other form of discrimination)
- Invest in education, lifelong learning, vocational training and apprenticeship.

The activities of the BIOREGIO project are in line with the regional priorities of strengthening Research and Development and combating climate change.

### [Link to the BIOREGIO project](#)

Contacts have been made with the ERDF department of the Pays de la Loire Regional Council. However, at the time this Action plan was drawn up as part of BIOREGIO project, all the ERDF lines targeted by the project had already been allocated.

However, the BIOREGIO project allowed to influence the policy instrument. The work undertaken with the Environment and Energy Transition Directorate of the Pays de la Loire Regional Council has made it possible to reconfigure the regional "Circular Economy" call for projects. Indeed, the 2019 regional budget for support for "food/biological loop" projects has been increased. This change in the policy instrument through the BIOREGIO project is reported as an action in this Action Plan, and will be monitored during phase 2 of the project (see Action 2).

In addition, the ambition of this Action Plan is to show the interest of bio-based circular economy projects for the Pays de la Loire in the context of the discussions on the new ERDF 2021-2027 Programme.

## 3. Action Plan Preparation

### 3.1 Overview

The Action Plan towards a bio-based circular economy in the Pays de la Loire Region is part of a dense public policy context, presented in the previous chapter. It also relies on many local planning tools related to biomass management: Territorial Food Projects, Zero Waste Territories, Waste Objective Contracts and Circular Economy...

According to the Environment and Energy Management Agency (ADEME), this multiplicity of tools leads to a need to improve the coherence of biomass projects: prevention, food waste, composting, anaerobic digestion and agriculture.

That is why the objectives of this Action Plan are:

- to develop information and communication on bio-based circular economy to a wide audience of economic actors and the general public;
- to train and network local authorities to enhance their approaches of biomass management;
- to observe and experiment innovative solutions, that will serve as a showcase and stepping stone for future bio-based circular economy projects.

This Action Plan is based on the lessons learned from the BIOREGIO project and the good practices shared by its stakeholders. BIOREGIO's good practices are models of cooperation or technologies that have been successfully proven in practice and meet the following criteria:

- Promote circular economy and keep products, components, and materials in the economic cycle as long as possible (Ellen MacArthur Foundation 2017; European Commission 2015).
- Are related to biological materials (i.e., bio-based materials and products are made wholly or partly from organic raw material) (European Commission 2017a).
- Promote social and environmental sustainability, economic growth, and taking into account all dimensions of sustainability (European Commission 2017b).
- They are resource-efficient and economically viable (European Commission 2015).
- Minimize direct or indirect waste generation according to the waste hierarchy (i.e., waste prevention, reuse, recycling, energy recovery, and safe disposal) (European Commission 2016).
- Encourage closing the loops and emphasising longer cycles/cascades (Ellen MacArthur Foundation 2017).
- Encourage cooperation between stakeholders (e.g., businesses, universities, administrations, and consumers). Collaboration is the foundation of a functioning circular economy (Ellen MacArthur Foundation 2014).
- Are most likely transferable and scalable to different European regions (INTERREG Europe 2018a).

Among these criteria, the BIOREGIO stakeholder group in Pays de la Loire chose to highlight the need to minimise waste for its Action Plan, reaffirming the need to go beyond the simple closure of loops to avoid the use of an unnecessary resource and to reduce the production of organic waste. This concern is part of a regional context that encourages the development of local food chains: agriculture, agri-food and fishing represent the leading economic sector in the Pays de la Loire Region.

### 3.2 BIOREGIO Project Goals

The initial objective of the BIOREGIO project was to influence the Pays de la Loire ERDF-ESF 2014-2020 Operational Programme to take into account the challenges of the bio-based circular economy. Some bioeconomy projects, particularly on the multiple applications of microalgae, were funded by the ERDF-ESF 2014-2020. However, this represents a very limited sector of the bioeconomy (see Regional innovation strategy for intelligent specialization – SRI-SI 2014-2015 review<sup>1</sup>).

Nevertheless, the development of the BIOREGIO project has made it possible to influence the Regional Council's call for "Circular Economy" projects towards supporting more projects related to bio-based circular economy. This component is expected to develop further during the implementation phase of this Action Plan, in particular through awareness-raising and training of stakeholders, which should make it possible to increase the number of bio-based circular economy projects submitted and supported. Similarly, this Action Plan should make it possible to influence this instrument for the next ERDF-ESF 2021-2027 programming by supporting stakeholders in the development of bio-based circular economy project proposals.

The good practices of the BIOREGIO regions defined according to the above-mentioned criteria, and the lessons learned in the framework of the BIOREGIO project, have been used to feed the development of this Action Plan. For instance, the multi-stakeholder networks mobilized by the project partners in each region, and in particular, the presence of research stakeholders (universities and laboratories), has been a source of inspiration to associate Le Mans University with the stakeholders of the BIOREGIO project in Pays de la Loire. A specific action in this Action Plan is also dedicated to action research involving this stakeholder. Action research is a method designed to combine action and the production of scientific knowledge. It is a research approach aimed at solving concrete problems in real-life situations, and is based on collaboration between the researcher and the various actors involved in the study. Its objective is to produce scientific knowledge on the situations studied and provide solutions.

### 3.3 Action Plan Development

The regional stakeholders group for the Pays de la Loire Region in the BIOREGIO project is composed of the following organisations:

- Pays de la Loire Regional Council (local authority)
- Mauges Communauté (local authority)

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<sup>1</sup> The assessment of the SRI-SI 2016-2018 is being drafted and has not yet been published.

- Municipality of Ile d'Yeu (local authority)
- AILE (association)
- AlgoSource Technologies (private company)
- Le Mans University (research)
- Cluster Méthatlantique (company representative)
- Chamber of Agriculture of the Pays de la Loire (farmer representative)
- Association of the Chambers of Agriculture of the Atlantic Area (association)

### 3.4 Pays de la Loire Good Practices

Nom		Synthèse	Lien vers le site web
1	Reducing bio-waste from domestic waste	Implementation of an integrated service to manage waste and incentive charging to reduce the share of bio-waste in domestic waste.	<a href="https://www.interregeurope.eu/policylearning/good-practices/item/2407/reducing-bio-waste-from-domestic-waste/">https://www.interregeurope.eu/policylearning/good-practices/item/2407/reducing-bio-waste-from-domestic-waste/</a>
2	Biomethane from anaerobic digestion of agricultural wastes	Biomethane produced from farming waste supplied by neighbouring farms. Production of this renewable energy is part of a local bio-based circular economy.	<a href="https://www.interregeurope.eu/policylearning/good-practices/item/2484/biomethane-from-anaerobic-digestion-of-agricultural-wastes/">https://www.interregeurope.eu/policylearning/good-practices/item/2484/biomethane-from-anaerobic-digestion-of-agricultural-wastes/</a>
3	Farm carbon footprint reduction through fermentable waste valorization by anaerobic digestion	Valorisation of livestock manure from the experimental farm in the anaerobic digestion unit and valorisation of digestates on the farm plot.	<a href="https://www.interregeurope.eu/policylearning/good-practices/item/2505/farm-carbon-footprint-reduction-through-fermentable-waste-valorization-by-anaerobic-digestion/">https://www.interregeurope.eu/policylearning/good-practices/item/2505/farm-carbon-footprint-reduction-through-fermentable-waste-valorization-by-anaerobic-digestion/</a>
4	West Grid Synergy Project	Intelligent gas station allowing "reverse" streams to facilitate renewable gas distribution into gas grids.	<a href="https://www.interregeurope.eu/policylearning/good-practices/item/2653/west-grid-synergy-project-wgs-project/">https://www.interregeurope.eu/policylearning/good-practices/item/2653/west-grid-synergy-project-wgs-project/</a>
5	Valorizing green waste in the garden	Change residents' practices to avoid green waste disposal in landfills.	<a href="https://www.interregeurope.eu/policylearning/good-practices/item/2707/valorizing-green-waste-in-the-garden/">https://www.interregeurope.eu/policylearning/good-practices/item/2707/valorizing-green-waste-in-the-garden/</a>
6	Cluster Methatlantique	Ambition of the cluster is to boost the AD sector in the region and strengthen existing and planned sites, as well as to promote the emergence of new sites.	<i>Link not available.</i>
7	Food production and waste disposal on an island : local loop on l'Ile d'Yeu	In a constraining context linked to its insularity, the Municipality of Ile d'Yeu implements a local biological loop promoting food short circuits and recovery of bio-waste to fight against expensive and difficult waste management.	<a href="https://www.interregeurope.eu/policylearning/good-practices/item/2949/food-production-and-waste-disposal-on-an-island-local-loop-on-l-ile-d-yeu/">https://www.interregeurope.eu/policylearning/good-practices/item/2949/food-production-and-waste-disposal-on-an-island-local-loop-on-l-ile-d-yeu/</a>

## 4. Actions

The regional stakeholders group for the BIOREGIO project has defined the following Actions for the Pays de la Loire Bio-Based Circular Economy Action Plan:

1. Foster and support bio-based circular economy initiatives among civil society and private sector through example-based information and awareness raising.
2. Foster the bio-based circular economy component in the Circular Economy Regional Call for Projects.
3. Strengthen, through supervision and training, the coherence of public policies around biomass management in the territories.
4. Experiment the construction of “bio-based circular economy territories” based on new solutions resulting from research and innovation.

Having observed a lack of specific actions to prevent resource use and waste generation, the stakeholders group reaffirms these two priorities and makes them a common thread for the actions of this Bio-Based Circular Economy Action Plan.

**ACTION 1: Foster and support bio-based circular economy initiatives among civil society and private sector through example-based information and awareness raising.**

### **Relation to the BIOREGIO project**

The circular economy requires a strong involvement of all actors, from the production chain to consumption. In order to increase the number of bio-based circular economy initiatives, this action is designed to develop communication and awareness raising towards economic actors and citizens who are not yet necessarily aware of this issue. One good practice in particular inspired the development of this action.

The good practice "The Grain Cluster - a cooperation model between companies" (Finland) has been a source of inspiration for targeting a wide audience of companies, from SMEs to international companies, within this first action. This model of cooperation, aimed at creating synergies between actors in the same production chain, is inspiring to address regional priorities for efficient resource use and waste prevention. It promotes a connected approach between stakeholders that will also be promoted in targeted calls for projects to integrate the notion of a bio-based circular economy.

Another main element of communication and condition for supporting projects will be the management hierarchy ("reduce, reuse, sort and recover"), in order to encourage the sustainable use of biomass and the reduction of waste.

## Nature of the action

The actions are the following:

- a. Organization of events and participation in exhibitions related to the circular economy and/or bioeconomy to promote the subject of the bio-based circular economy.
- b. Realization of a webinar within the Chambers of agriculture of the Atlantic area to raise awareness on the subject of the bio-based circular economy and disseminate good practices identified in the framework of the BIOREGIO project.
- c. Awareness-raising actions with consumer citizens, through participation in exhibitions for the general public (e. g. Les Tables de Nantes – food exhibition, SIVAL - plant production exhibition), and the distribution of videos. Sharing of news on best practices and bio-based circular economy and anti-waste events on the AC3A website, relayed by stakeholders.

## Stakeholders involved

All stakeholders are involved in the participation in the events.

- Organization of events: Pays de la Loire Regional Council (Day of Circular economy stakeholders), AC3A (Annual Congress), AILE (Biogaz Europe Exhibition).
- Webinar: led by AC3A with stakeholders participation.
- Education of consumer citizens: Regional Chamber of Agriculture of Pays de la Loire, Mauges Communauté, Ile d'Yeu

## Timeframe

Long-term objective.

- Organisation and participation in events: annual frequency of the three events mentioned (the Day of Circular economy stakeholders, the AC3A Annual Congress in August 2020 and 2021, the Biogaz Europe Exhibition on 29 and 30 January 2019 in Nantes). Other events will be targeted as implementation progresses.
- Webinar for the Chambers of Agriculture: 2020.
- Les Tables de Nantes (2020 and 2021); SIVAL (14-16 January 2020 in Angers, 2021)

## Costs and Funding sources

Day of Circular economy stakeholders: €2,000 to €3,000 (financed by the Regional Council).

The stakeholders involved in this action will finance from their own funds the staff time devoted to the participation and implementation of the activities mentioned. This mobilization in full-time equivalent (FTE) could reach 0.3 FTE for stakeholders leading certain actions (example: Regional Council with Circular economy call for projects and the Day of Circular economy stakeholders).



## ACTION 2: Foster the bio-based circular economy component in the Circular Economy Regional Call for Projects.

### Relation to the BIOREGIO project

BIOREGIO project allowed to influence the policy instrument in our region. Indeed, the work undertaken with the Environment and Energy Transition Directorate of the Pays de la Loire Regional Council has made it possible to reconfigure the regional "Circular Economy" call for projects. The 2019 regional budget for support for "food/biological loop" projects has been increased. This second actions aims at monitoring this policy change, and is also designed to consider other calls for projects that could integrate the bio-based circular economy component.

The good practice "Programme to Support Integrated Rural Development LEADER NSK" (Slovakia) on the financing of small-scale projects to support the development of the circular economy in the rural areas of the Nitra region, also inspired the intended development of this action for 2020-2021. The extension of the LEADER-NSK Programme to environmental activities and the circular economy has had a leverage effect on project proposals and the number of applications and projects supported has increased. The possibility of replicating this good practice by introducing the subject of the bio-based circular economy into LEADER Programme is being explored, as well as for other regional and national calls for projects.

### Nature of the action

The actions are the following:

- a. Monitor the change in the policy instrument: the "food/biological loop" component of the regional "Circular economy" call for projects, supporting innovative and exemplary projects, should the strengthened in order to increase the number of applications and the number of projects supported related to organic loops. Particular attention will be given to projects with specific actions to reduce waste generation and limit resource use.
- b. Networking of the winners of the regional "Circular economy" call for projects whose projects are related to bio-based circular economy. Update of the interactive mapping with all the actors in Pays de la Loire. Creation of a close link between the BIOREGIO stakeholders group (including the Pays de la Loire Regional Council, initiator of the regional "Circular economy" call for projects) and network winners to benefit from the feedback from their experience.

### Stakeholders involved

- Organization and financing of Circular economy regional call for projects : Pays de la Loire Regional Council
- All stakeholders will take part to the networking

## **Timeframe**

- Regional call for projects and updating of the mapping: annual.

## **Costs and Funding sources**

As part of this action, the targeting of calls for projects other than the Circular economy call for projects, relating to the circular economy or the bioeconomy, is envisaged to develop initiatives in the territory. Financing of actions and support for project leaders in submitting applications to various European financial instruments such as Horizon 2020, LIFE, LEADER transnational cooperation, Urban Innovative Actions (UIA). The Pays de la Loire Region encourages stakeholders to set up European projects, thanks to its instrument “Support to the European Council 2020” (Appui au Conseil Européen 2020 - ACE), that provides advices for making European project applications. This instrument was renewed in 2019 until 2023 and has a budget of €75,000 per year.

Other local funds (LEADER, grants from municipalities and departments) and national funds (grants from ADEME, Regional directorate for the environment, land use planning and housing - DREAL) are also being studied.

## ACTION 3: Strengthen, through supervision and training, the coherence of public policies around biomass management in the territories.

### Relation to the BIOREGIO project

There are many public policies related to biomass management, both at the regional and local levels. The objective of this action is to introduce the notion of a circular economy into all public policies in order to ensure a transversal and coherent approach. The aim is to seize the opportunity to use the issue of biomass management to create working habits in consultation within local authorities, making it easier to approach new themes and increase the visibility of good practices.

Political support is identified as an essential element for the implementation of this transversal approach, and the BIOREGIO project has had a positive impact on the awareness of elected officials of the bioeconomy within the stakeholder territories in Pays de la Loire. The presentation of the Spanish Strategy for Bioeconomy at the second interregional meeting of the project in Toledo in November 2017 was significant in this respect.

This third action is inspired by the cooperation practices observed among European partners. The good practice of the Päijät-Häme Region (Finland)'s "Regional Roadmap Towards Circular Economy" has been an inspiration in this respect, showing the close consultation that has been carried out between local authorities and non-institutional stakeholders. The regional implementation of European and national strategies is necessary for the development of the circular economy, and the Pays de la Loire Region is currently developing its own Circular Economy Action Plan, and regularly reports on its progress to the BIOREGIO stakeholders group. The BIOREGIO project has made it possible to highlight the subject of bioeconomy, and the development of a dedicated plan is under study by the Regional Council.

This third action aims to develop links between local authorities and with non-institutional actors: it draws on the many good practices of the partners, demonstrating the major role of local authorities and the value of collaboration with private partners in financing and developing actions in the field. The BIOREGIO project has made it possible to reveal the progress made by other European regions in the construction of multi-sector and multi-actor networks, bringing together small and large structures, companies, local authorities, associations and research laboratory. It also revealed the importance of local, small-scale actions to advance the subject of bio-based circular economy.

In particular, the good practice "Cluster of Bioenergy and Environment of Western Macedonia (CLuBE)" (Greece) has been a source of inspiration to seek to strengthen business interest in the bioeconomy by including them in the biowaste working group led by the Regional Council. This second action aims to link the actors of sustainable consumption/waste reduction with the actors of recovery, in line with the Industrial and Territorial Ecology (ITE) approach, which stimulates the exchange of resources (energy, materials, co-products, etc.) between companies, thus playing a decisive role in reducing resource consumption, extending the duration of use cycles and limiting waste production.

## Nature of the action

The action is structured around four pilot activities:

- a. Inter-departmental "bioeconomy" working groups between technicians within the Regional Council.
- b. Inter-departmental "biomass" working groups between technicians within the voluntary local authorities.
- c. Ensure continuation of the "biowaste" working group led by the Regional Council (1 annual meeting and setting of a work and thematic calendar), and expansion to include new actors, particularly economic and research stakeholders.
- d. Training of regional and local elected officials in order to improve the political support for bioeconomy, to anticipate the bioeconomy issue in the various European calls for projects and to bring out eligible projects (ERDF/ESF/EAFRD 2021-2027; Horizon Europe, LIFE).

The possibility of setting up a training day for the local authorities on the facilitation of working groups and the mobilization of their various departments to create inter-departmental working groups is under consideration. The notion of a hierarchy of uses and the reduction of waste at source will be included in the themes addressed by the training sessions and working groups.

## Stakeholders involved

- Pays de la Loire Regional Council ; Municipality of Ile d'Yeu ; Mauges Communauté.

## Timeframe

Interdepartmental working group within the Region: beginning in 2020 with the aim of being sustainable.

Biowaste working groups within local authorities: met once in 2020, possibility of a meeting twice a year from 2021 is under study, with a view to ensuring its sustainability.

## Costs and Funding sources

It is difficult to estimate the cost of this activity, as this cost is the human resources allocated to these actions, financed by the stakeholders (who free up the working time of their staff to carry out or participate in these activities: leading working groups; participating in training) and ADEME for certain positions.

This mobilization could reach 0.2 FTE for stakeholders leading certain actions (Regional Council).

## ACTION 4: Experiment the construction of “bio-based circular economy territories” based on new solutions resulting from research and innovation.

### Relation to the BIOREGIO project

This fourth and final action aims to implement an action-research to develop tools and assist in the development of a regional bioeconomy strategy. The many BIOREGIO good practices presenting small-scale projects have reinforced the idea that it is necessary to start from the local scale to inspire political framing. The good practice "Community Composting of Food Waste" (Spain), which is testing a circular economy solution for small-scale biowaste management with a view to replicating it on a larger scale, has been particularly inspiring in this respect.

Action research should help the territories involved to go further and develop indicators to quantify their needs and objectives. The involvement of a research organization in the development and implementation of this Action plan, Le Mans University, is directly linked to interregional learning and the progress of other regions in terms of partnerships with research stakeholders. The need has become evident to develop similar partnerships to support the development of regional policies related to bio-based circular economy.

This fourth action must act as a lever for the development of the bio-based circular economy in the territories. Research must specify how the policy instrument is performing or failing, why, and what its results on territories are. Research must show whether transversal approaches in policies fosters the emergence of bio-based circular economy projects. Action research should also guide the Regional Council in the implementation of its Waste-Resources Observatory for its biomass component, and allow to monitor and measure resource streams at regional level (quantities of material in tonnes) with the objective of controlling resource consumption (matching production/consumption, resource use hierarchy).

The aim is to initiate a dynamic of cooperation within and between territories, fed by the action research, which will make it possible, in complementarity with the activities of Action 3, to support the development of regional and territorial strategies for biomass management.

### Nature of the action

The activities foreseen are the following:

- a. Implementation of territorial projects in the field of bio-based circular economy in voluntary local authorities. This is in line with the fact that the Pays de la Loire Region will be a test area for the finalisation of the “ConcerTO” methodological guide on territorial management of organic matter, developed by ADEME. The experimentation of the ConcerTO approach will contribute to regional policies on waste management (PRPGD) and circular economy (PAEC).
- b. Research-action: observation of territories, diagnosis of biomass streams and mapping of stakeholders. Highlighting the levers that allow the development and adaptation of these projects to other territories. Observation of the working groups developed in Action 3. Identification and formulation of recommendations on techniques that allow cooperation,

on loops that are interesting to replicate in a territory. This action research will lead to experiments in the test territories.

- c. Consolidation of the BIOREGIO stakeholders group and integration of new local authorities in order to develop inter-territorial cooperation on biomass management. Participation of the Waste- Resources Observatory (to be set up by the Regional Council in 2020) in this working group. This group may have a thematic entry, a rotating animation and structures acting as experts according to the themes. Objective to involve about ten local authorities.

### **Stakeholders involved**

- Action research: led by the University of Le Mans.
- Experiments: local authorities (Mauges Communauté, Municipality of Ile d'Yeu)
- BIOREGIO stakeholders group: led by the Pays de la Loire Regional Council and AC3A.

The participation of a third local authority for action research is being studied.

### **Timeframe**

Test of the ConcerTO methodology: 2020-2021.

Research-action: 2020-2021.

### **Costs and Funding sources**

Given the long-term nature of the action, it is difficult to evaluate its cost. Its implementation will be promoted in the long term through various funding instruments (project submission to the next ERDF programming, EAFRD, H2020...).

- Test of the ConcerTO approach: 0.2 FTE at the Regional Council. Funded by ADEME.
- Research-action: the possibility of a CIFRE thesis, funded by the Regional Council and the National Research and Technology Association (ANRT) is being studied, for a budget of €47,000 over 3 years.
- Experimentation in voluntary local authorities: LEADER funding is being considered.

In addition, the stakeholders involved in this action will finance from their own funds the working time of their staff involved in the participation and implementation of the activities mentioned.

The action-research will make it possible to identify promising projects that can be presented to the next ERDF programming period 2021-2027.

## 5. Monitoring the Action Plan Implementation

The implementation of the Pays de la Loire Bio-Based Circular Economy will be monitored by the Pays de la Loire stakeholders group of the BIOREGIO project, which will meet at least twice a year during the period covered by this Action Plan.

For the BIOREGIO project, the monitoring period is 01.01.2020 – 31.12.2021. During this period, the progress made in the achievement of the objectives will be reported to the INTERREG Europe Programme.

## Signature

On the behalf of AC3A, I agree to support and promote the implementation of the action plan detailed above.

Date:

Name, title:

Signature:



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## Annex 1: Table of acronyms

AC3A: Association of the Chambers of Agriculture of the Atlantic Area

ADEME: Environment and Energy Management Agency

CIFRE: Industrial Conventions for Training through Research

DREAL: Regional directorate for the environment, land use planning and housing

EAFRD: European Agricultural Fund for Rural Development

ERDF: European Regional Development Fund

ESF: European Social Fund

FREC: National Roadmap for the Circular Economy

FTE: Full-time equivalent

ITE: Industrial and Territorial Ecology

Law NOTRe: Law on the New Territorial Organisation of the Republic

LTECV: Law on Energy Transition for Green Growth

PAEC: Circular Economy Action Plan

PRPGD: Regional Plan for Waste Prevention and Management

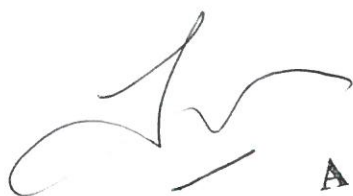
SME: Small and medium enterprise

## Signature

On the behalf of AC3A, I agree to support and promote the implementation of the action plan detailed above.

Date: 16/12/19  
Name, title: DAGRON - chargé de Mission

Signature:



**AC3A**  
Association des Chambres d'Agriculture  
de l'Arc Atlantique  
Maison de l'Agriculture  
Rue PA Bobierre - La Géraudière  
44939 NANTES CEDEX 9