



CIRCULAR ECONOMY
ACTION PLAN
ALBA IULIA MUNICIPALITY
2021-2030

ACTION PLAN

ALBA IULIA MUNICIPALITY IN TRANSITION TO THE CIRCULAR ECONOMY

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PRIMĂRIA MUNICIPIULUI
ALBA IULIA



EURE
Interreg Europe



European Union



IRCEM
Institutul pentru Cercetări
în Economie Circulară
și Mediu "Ernest Lupan"



ABOUT IRCEM

- Non-governmental, independent organization formed in the form of a think tank of research, consulting and education established in 2012 in Cluj-Napoca, Romania.
- IRCEM's mission is to mobilize individuals, organizations and institutions in the process of transition to a circular economy through the ecosystemic development of life on our planet under the influence of the three pillars: social, economic and natural.

GENERAL FRAMEWORK: THE CIRCULAR ECONOMY IN THE URBAN CONTEXT



- About 55% of the global population currently lives in urban areas, with the global percentage expected to increase to 80% by 2030.
- Cities as a whole currently need 40 billion tons of resources annually to keep their ecosystems viable, and this need is likely to reach 90 billion tons over the next 30 years (Swilling et al., 2018)
- All these numbers show not only an upward trend of the urban population, but also an unsustainable way of development, in which economic and social welfare is based on intensive consumption, unsustainable of natural resources, that does not promise a secure future for the future generations that will live in thr cities of tomorrow.

GENERAL FRAMEWORK: THE CIRCULAR ECONOMY IN THE URBAN CONTEXT



The Circular Economy (CE):

- Offers an opportunity to respond to these challenges, by rethinking the way we use materials, products and technology, but also by generating new ways to create value in all economic sectors.
- Contributes to the elimination of the negative externalities of the economic activity characterized by the “take-make-dispose” model, activating new ways and ways of economic growth, but also new actions regarding the conservation and improvement of natural capital.
- Replaces the concept of "expiration" with "conservation" and seeks, instead, the recovery of resources from waste through a circular design of materials, products and associated systems.

Alba Iulia Municipality in the transition to a Circular City

This action plan aims to take a step towards increasing the efficiency of urban resources in Alba Iulia and is built on the principles already known and successfully implemented, which govern a circular city as listed in the literature (Circle Economy, 2016):

- ✓ Creating closed loops of materials, with a minimum of harmful emissions, with the aim that the consumed materials enter an infinite life cycle (technical or biological);
- ✓ Reduced pollutant emissions - energy comes from renewable sources as much as possible by replacing fossil energy with renewable energy where possible;
- ✓ Value generation - resources are used to generate value (financial or otherwise);
- ✓ Promotion and purchase of circularly designed products (waste-free and for long-term use)
- ✓ Modular design - modular and flexible design of products and production chains to increase the adaptability of systems
- ✓ Etc.



METHODOLOGY



- ✓ **QUESTIONNAIRE**
- ✓ **PUBLIC CONSULTATIONS (FOCUS GROUPS)**

- The **focus groups** engaged all relevant stakeholders in Alba Iulia (academia, local authorities, NGOs, the private sector) in order to identify the main challenges related to the transition to a circular city
- The **questionnaire** contained questions concerning the future development of the circular economy in Alba Iulia Municipality:
 - Infrastructures that must undergo significant changes;
 - Evaluation of the catalytic factors of the Circular Economy;
 - Waste Management;
 - Innovation, Competitiveness and Research;
 - Important objectives for the development of resilience and the well-being of citizens;
 - Important objectives for the creation of inclusive opportunities for citizens;
 - Etc.

SWOT ANALYSIS



STRENGTHS

- ✓ Eligibility of a significant part of the share of investments in separate collection infrastructure from European funds;
- ✓ The University of Alba Iulia "1 December 1918" can be a starting point for the start-up of circular economy projects, thus capitalizing on the R&D and innovation activity;
- ✓ The increased interest in "green" business, which will have a competitive advantage in the future;
- ✓ The interest and openness of local authorities to apply circular economy solutions at urban level;
- ✓ The city's membership of the Covenant of Mayors for Climate and Energy, the certification obtained by the European Energy Award evaluation as a sustainable community, as well as membership of the Association of Romanian municipalities.

SWOT ANALYSIS



WEAKNESSES

- ✓ Indicators on the level of collection and recycling of waste indicate a sustainability gap with the EU average in both the private and administrative environment;
- ✓ Knowledge transfer between academia and the economy on the circular economy is low and not sufficiently exploited
- ✓ Poor positioning of universities and research institutes as drivers for the transfer of technological progress in the circular economy;
- ✓ There is no system of specific assessment factors and procedures for circular and green public procurement;
- ✓ Lack of urban symbiosis practices for the recovery of sub-products and waste.

SWOT ANALYSIS



OPPORTUNITIES

- ✓ Existence of the European Union legislative framework and favorable funding for innovation, especially through Horizon Europe, Life Plus, etc
- ✓ The structure of the European strategic value chains, which provide opportunities to connect to them by focusing RDI efforts on the following areas: Clean, Connected and Autonomous Vehicles, Smart Health, Low Carbon Industry, Hydrogen-Based Systems and Technologies, etc
- ✓ Replacing the classic heating systems of homes with alternative systems that use energy from local renewable sources through programs such as Casa Verde
- ✓ Raising awareness of the circular economy among local authorities by initiating exchanges of good practice with advanced states in the implementation of industrial symbiosis projects.

SWOT ANALYSIS



THREATS

- ✓ Lack of access to finance for disruptive innovations in the field of circular economy;
- ✓ Emigration of qualified personnel, especially from intelligence-intensive fields;
- ✓ Most companies do not have sustainability or research offices, which prevents the possibility of local collaboration on Research-Development-Innovation projects;
- ✓ Lack of financial instruments to provide support for innovation entrepreneurs in the circular economy (spin-off and start-up) as an alternative to grant programs and bank loans;
- ✓ A low level of awareness among the population about the importance of a sustainable and circular consumption model focused on the 10 Rs;
- ✓ The growing dependence of the industrial sector on virgin materials extracted, traded, transformed into goods and finally disposed of in the form of waste

VISION AND DIRECTIONS FOR ACTION

The vision:

"Reforming the linear paradigm of the local economy in order to develop the effectiveness, competitiveness and efficiency of urban resources while focusing on developing the principles and practices of the circular economy supported by educated, responsible and proactive citizens."



VISION AND DIRECTIONS FOR ACTION



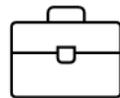
Alba Iulia - Zero Waste City: This direction encompasses the vision of a city that conserves resources, prevents waste of all kinds, repairs and maintains products and materials to prolong their life and distributes, reuses or reconditions products and materials before recycling;



Alba Iulia - Innovative City of the future: This direction includes measures that take into account the fact that the circular economy is conditioned by the emergence of innovation in all strategic sectors of a city;



Alba Iulia - Resilient and Healthy City: This direction conceptualizes the Municipality of Alba Iulia as a future resilient city that has the ability to recover and prepare for future shocks (economic, environmental, social or institutional);



Alba Iulia - City with opportunities for all: This direction aims to capitalize on the principles of the circular economy in the sense of creating new jobs, entrepreneurial opportunities.

1. ALBA IULIA – ZERO WASTE CITY

- ✓ **OBJECTIVE 1.1** Alba Iulia recovers the maximum value from waste streams
 - **KPI:** Average profit per tonne of recovered waste - Increasing the recycling rate by 30% compared to 2020
- ✓ **OBJECTIVE 1.2** Alba Iulia reduces by 2030 the annual CO2 emissions by 40% compared to the 2008 level
 - **KPI:** Tons of CO2-equivalent greenhouse gas (GHG) emissions per person - A 40% reduction by 2030 from 2008
- ✓ **OBJECTIVE 1.3** Alba Iulia reduces the use of landfills by 2030
 - **KPI:** Tons of waste stored per capita per year - A decrease of 30% by 2030

- ✓ **OBJECTIVE 1.4** Alba Iulia ensures that nutrients from organic waste are returned to natural cycles
 - **KPI:** An increase of 20% in the percentage of organic waste processed compared to 2020
- ✓ **OBJECTIVE 1.5** Alba Iulia improves the flow of information on waste between stakeholders and the city
 - **KPI:** Qualitative annual assessment of information flows
- ✓ **OBJECTIVE 1.6** Circular companies can thrive in Alba Iulia
 - **KPI:** Circular turnover as a share of total business - A 20% increase in circular turnover compared to 2020

0
waste
city

1. ALBA IULIA – ZERO WASTE CITY

PROPOSED ACTIONS

A1.1 Material mapping (critical materials, hard-to-recycle materials and substitution options) and sharing of best practices across sectors to capitalize on the multiple use of by-products and waste materials and to dispose of used products only once

A1.2 Promotion of awareness campaigns allowing behavioral changes for waste reduction and the implementation of variable fees for waste collection, depending on the quality of sorting.

A1.3. Implementation of "zero waste" areas or incentives in retail trade: E.g. centralization of bulk goods in "non-standard" formats at the end of their expiry date and subsidies through the accumulation of "store card points" (linked to the sectoral agenda - distribution and retail);

A1.4. Introduction of tax incentives associated with reducing the consumption of hard-to-recyclable plastic products and taking into account their application to products made of recyclable (fossil fuel) materials;

A1.5. Facilitating repair and reuse services: Supporting the development of a local repair network, e.g. supporting initiatives such as repair cafes, local swap shops and repair banks to enhance the value of long-life products that can be innovated via up-grade.

A1.6. Establish partnerships with other municipalities to form and disseminate repair and reuse and resale networks



2. ALBA IULIA – INNOVATIVE CITY OF THE FUTURE

✓ **OBJECTIVE 2.1** Alba Iulia encourages cleantech startups (impact reduction technologies)

- **KPI:** Number of companies in the clean technologies sector (impact reduction technologies) as a share of total companies - An increase of 20% compared to 2020

✓ **OBJECTIVE 2.2** Alba Iulia is a regional leader in the development, testing and scaling of new technologies related to the circular economy

- **KPI:** Total revenues from the clean technologies sector in Alba-Iulia as a share of good manufacturing practices (GMP) - A 50% increase in revenues compared to 2020

✓ **OBJECTIVE 2.5** Alba Iulia supports sustainable, circular research and development and innovation

- **KPI:** Share of public funding for research and development for sustainable and circular innovation - Increasing the share of funding by 40% compared to 2020

✓ **OBJECTIVE 2.3** Alba Iulia encourages innovation in materials-intensive sectors (production, logistics, transport and waste treatment)

- **KPI:** The share of patents in material-intensive sectors - A 25% increase in patents compared to 2020

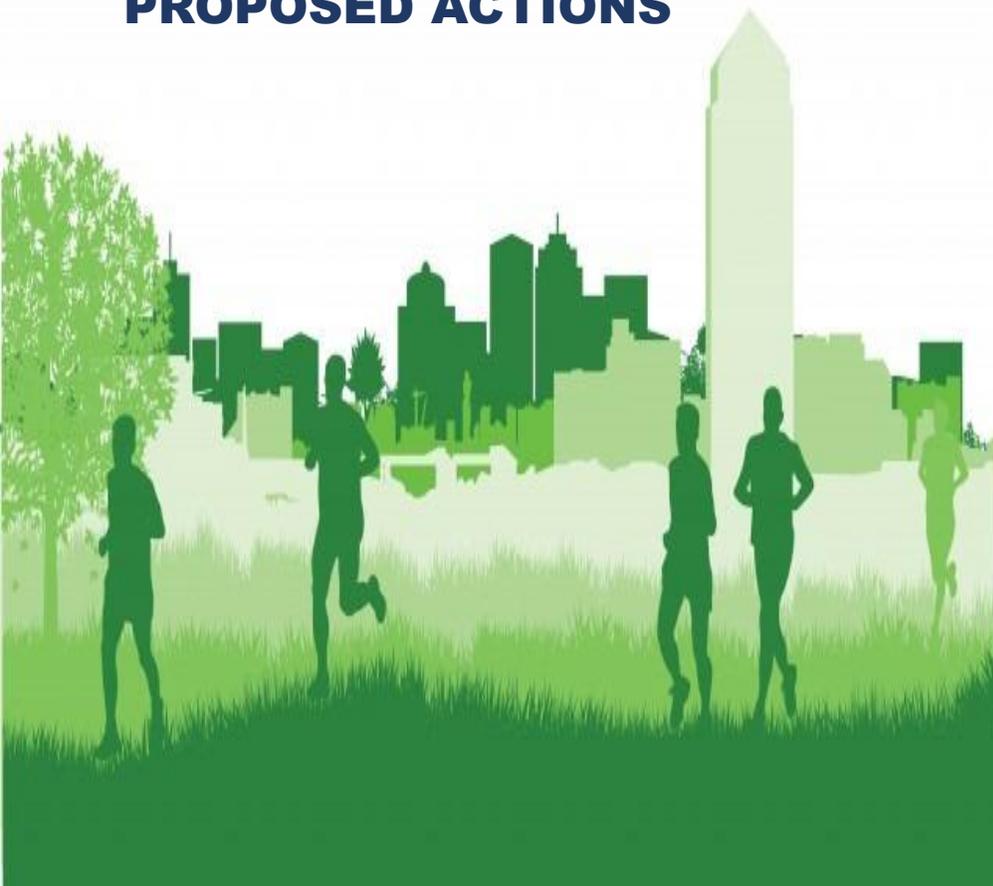
✓ **OBJECTIVE 2.4.** Alba Iulia is a scaling place for the development and testing of innovative circular solutions

- **KPI:** Number of pilot projects related to sustainability launched in Alba-Iulia - An increase in the number of pilot projects by 50% compared to 2020



2. ALBA IULIA – INNOVATIVE CITY OF THE FUTURE

PROPOSED ACTIONS



A2.1. Promoting resource efficiency in the value chain: efficient resource use plans, reverse logistics systems.

A2.2. Supporting environmental education programs and activities targeting the circular economy mainly through the development of municipal environmental education programs including actions to be undertaken, objectives and targets for the different target groups;

A2.3. Promoting biotechnologies for water treatment and extraction and reuse of nutrients and compost, fostering the waste hierarchy and the added (economic and environmental) value of derived products

A2.4 Promoting knowledge transfer between entities (e.g. creation of collaborative spaces for knowledge sharing between academia and business)

A2.5 Promoting interaction between circular economy-oriented enterprises and technology centers to support the development of methodologies and criteria associated with industrial by-products

3.ALBA IULIA – RESILIENT AND HEALTHY CITY

✓ **OBJECTIVE 3.1 Alba Iulia has clean water and air and low exposure to pollutants**

- **KPI:** Pollution levels (NO_x, PM₁₀, PM_{2.5}, BOD - Biochemical oxygen demand - QALY - quality adjusted life years) - A 20% reduction in the number of days in which the normal parameters are exceeded, compared to 2020

✓ **OBJECTIVE 3.2 Alba Iulia has high quality and extensive green areas**

- **KPI:** Share of the surface of green spaces in the city of Alba Iulia - A 15% increase in green spaces compared to 2020

✓ **OBJECTIVE 3.3 Alba Iulia has resilient supply systems (food, energy, water, etc.)**

- **KPI:** Self-sufficiency (local production as part of total food, energy, water consumption) - Increasing self-sufficiency by 20% compared to 2020

✓ **OBJECTIVE 3.4 Alba Iulia ensures access to healthy food for all**

- **KPI:** Percentage of households with food insecurity - Decrease in the percentage of households exposed to this risk by 30% compared to 2020

✓ **OBJECTIVE 3.5 Alba Iulia promotes social cohesion and strong communities**

- **KPI:** Share of the population participating in community events or is involved in community organizations - Increase of the participating population by 40%



3.ALBA IULIA – RESILIENT AND HEALTHY CITY

PROPOSED ACTIONS

A3.1. Financing solutions and projects in the field of organic urban agriculture and sustainable agricultural practices as a vehicle for accelerating nutrient regeneration and water efficiency, as well as local integration of the production-cont-recycling cycle;

A3.2. Develop awareness campaigns for water re-use, involving key stakeholders;

A3.3. Supporting solutions aimed at reducing food waste in urban areas, together with measuring economic and environmental impact, using new collaborative technologies and platforms and local production/consumption systems;

A3.4 Setting targets by river basin region for a more efficient relationship between volume captured and volume used with sustainability objectives;

A3.5 Identifying volumes of water corresponding to the main types of consumption and specific measures to complement the volume caught during periods of drought



4. ALBA IULIA – A CITY WITH CIRCULAR OPPORTUNITIES FOR ALL

- ✓ **OBJECTIVE 4.1** Alba Iulia provides employment opportunities for all

- **KPI:** Unemployment rate - Decrease of the rate by 30% compared to 2020

- ✓ **OBJECTIVE 4.2** Alba Iulia offers significant jobs related to the circular economy

- **KPI:** Total number of circular job offers - 25% increase in circular jobs compared to 2020

- ✓ **OBJECTIVE 4.3** Alba-Iulia ensures that the unemployed have the right type of training / experience to have significant circular jobs

- **KPI:** Amount of training relevant to circular jobs among the unemployed- Increase in the number of circular training programs by 25% compared to 2020

- ✓ **OBJECTIVE 4.4** Alba Iulia ensures that the circular economy generates economic profit and jobs

- **KPI:** Circular economy turnover and number of employees in the field - An increase of 20% compared to 2020

- ✓ **OBJECTIVE 4.5** Alba Iulia empowers citizens to reduce material consumption and to reuse / recycle their materials and goods

- **KPI:** Percentage of the population with access to the knowledge they need to reduce the consumption of materials and to recycle or reuse materials and goods - Increasing the number of the population with access to 50% by 2020



4. ALBA IULIA – A CITY WITH CIRCULAR OPPORTUNITIES FOR ALL

PROPOSED ACTIONS



A4.1. Facilitating the presence of cleantech start-ups in the city by developing human capital on the green component and developing infrastructure for the client economic environment;

A4.2 Provide assistance to local producers to access grants/grants

A4.3. Supporting bottom-up initiatives of the community on sustainability and circularity (e.g. developing a circular HUB, developing a green research center);

A4.4 developing circular businesses for professional retraining

A4.5 establishment of a support office for future entrepreneurs in the circular economy with start-up support services.

THANK YOU FOR YOUR ATTENTION!



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Project Partners

