

## Article

# The Circular Economy as an Axis of Agricultural and Rural Development: The Case of the Municipality of Almócita (Almería, Spain)

Francisco Javier García Corral <sup>1</sup>, Rosa María Martínez Vázquez <sup>2</sup>, Juan Milán García <sup>2,\*</sup>  
and Jaime de Pablo Valenciano <sup>2</sup>

<sup>1</sup> Research Group: Almeria Group of Applied Economy (SEJ-147), University of Almería, Ctra. De Sacramento s/n, 04120 Almería, Spain; fcojavier\_garcia@outlook.com

<sup>2</sup> Faculty of Economics and Business, University of Almería, Ctra. De Sacramento s/n, 04120 Almería, Spain; rosamaria@ual.es (R.M.M.V.); jdepablo@ual.es (J.d.P.V.)

\* Correspondence: jmg483@ual.es

**Abstract:** In recent years, the concept of the circular economy has been gaining relevance and its importance has grown both in academia and in rural municipalities in general. The rural development policy of the European Union, in addition to prioritizing the diversification of the productive activities of municipalities, encourages the adoption of the circular economy. The aim of this article is to show and publicize the applications relating to the circular economy that are being carried out in a rural mountain municipality with a small population focused on agriculture, and which are setting an example for others that are suffering the endemic problem of depopulation. A diagnosis is carried out taking into consideration local sustainable development methodologies. In relation to the results, the positive impact of these practices with a rural development approach based on awareness and education regarding the basic 3Rs (reduce, reuse, recycle) is highlighted. Almócita is an example that can be extrapolated to many mountain municipalities at national and international levels.

**Keywords:** Almócita; Spain; circular economy; rural development; rural municipality; agriculture; new technologies



**Citation:** Corral, F.J.G.; Vázquez, R.M.M.; García, J.M.; de Pablo Valenciano, J. The Circular Economy as an Axis of Agricultural and Rural Development: The Case of the Municipality of Almócita (Almería, Spain). *Agronomy* **2022**, *12*, 1553. <https://doi.org/10.3390/agronomy12071553>

Academic Editors: Rosa Maria Fanelli and Luis Jesús Belmonte-Ureña

Received: 18 May 2022

Accepted: 27 June 2022

Published: 28 June 2022

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

The concept of sustainable development began to take shape at the end of the last century. It sought to satisfy the needs of present generations without compromising those of the future, combining economic, social, environmental and, more recently, temporal dimensions [1–7]. Through the application of sustainable development, the aim is to change the traditional system of resource extraction and subsequent processing as this is not considered sustainable, and in doing so to try to raise awareness and generate greater use of productive systems based on different practices that are more efficient, increasing the recovery and reuse of goods and services [8–16].

We are experiencing a further evolutionary change in humanity in which environmental problems must also become the focus of debate in socio-economic and political forums aiming to jeopardize the three pillars of sustainable development as little as possible [17–21], addressing problems not only with (end of pipe) corrective techniques [22]. This change is due to the failure of the linear economic system that emerged especially during the industrial revolution [23], which did not contemplate a general awareness of production and environmental care at either a business or a governmental level [21].

It is clearly observed how in all environments, including the smallest ones, the posited linear economic model of extract, produce and consume is incompatible with the system of limited resources that produces enormous consumption and waste [24], and which has affected the balance of burden and regeneration limits [25–27]. Therefore, more practical

measures must be implemented that will complement government regulations to generate economic, environmental and social growth [28].

One such environment is agriculture, a basic pillar of society. Food production is fundamental and represents one of the sectors with the most transformative impact on the environment, urgently requiring a less linear, more circular model as a necessary strategy for the achievement of sustainable and regenerative agriculture [29,30]. Thus, recycling and reuse are beginning to be seen as key roles in agriculture. This can be achieved through measures such as using one's own waste for fertiliser, improving water efficiency and upgrading the type of irrigation, and even transforming waste into other packaging mechanisms. It is therefore clear how agriculture and sustainability can be merged through other economic principles that offer new solutions [31].

At this point, it is clear how the evolution of the classic linear model makes it necessary to seek other systems which have a circular approach in order to pursue economic prosperity and environmental protection, within the sustainable development model that begins by underlining the stability of "reduce, reuse and recycle" [21,32]. It is from this point that the circular economy, hereafter CE, appears and begins to slowly gain importance. It endeavours to achieve local sustainable development through a new economic system that aims to contribute to reducing the environmental impact caused by development processes and improve productive efficiency and well-being for all [33–38]. However, for this development to come into effect in the most satisfactory way, it must take place within an endogenous process of the territories themselves delimited by their political-administrative structure [39] including a greater territorial linkage [40].

The strategies followed by CE, usually of sustainable design such as Cradle to Cradle, will be important because they help to reintroduce products as resources [41,42], and they will have different levels of influence from micro, to meso and macro [23]. In the case of CE, they are brought together within the so-called 3Rs (reduce, reuse, recycle), or the 9Rs in their extended version (reject, rethink, reduce, reuse, repair, renew, remanufacture, recycle and recover) [43].

CE is based on the principles of diversity, resilience and comprehensive thinking, which requires an integrative approach to biological and technological material cycles, promoting a cyclical relationship and flow of extraction, transformation, distribution, utilisation and recovery of available materials [37,44,45]. However, it should be noted that there is no perfect and closed system that allows every action to be carried out, making it clear that there are both advantages and limits to their application, Table 1 [46–57]. In other words, CC is not always positive, but also needs to overcome a number of problems, including political regulation and economic incentives for implementation, technical barriers and self-interest in environmental issues, or neglect or non-inclusion of many social dimension factors [58–64].

Therefore, and given the context of the circular economy and its implications in sectors such as agriculture, the general objective of this work is to analyse the circular economy from the point of view of a rural municipality with an important agricultural base. This research can be extrapolated to other rural mountain municipalities with which it shares characteristics or that simply need to observe a model and thus can be of particular interest to public administrations, politicians, the private sector, researchers and experts in local development, the circular economy and other related areas.

**Table 1.** Advantages and limitations of CC.

Advantages	Limitations
There are more resources through improved security, reduced dependence on other distant entities and the use of more local products.	There are thermodynamic limits in cyclic systems such as resources, waste and emissions which are also co-localised.
The environmental impact is improved as everything is more localised.	The product generated in this environment can produce problems in its development and use that will have repercussions everywhere regardless of sustainability issues.
Economic benefits are generated by creating new opportunities for economic development, especially through innovation, together with the possibility of updating business policy internally and externally.	The planning of the way forward is complex as it has to take into account multiple variables that have been so far overlooked and there is no common regulatory framework. At the same time, there are limits to governance and management, as well as to the strategies to be followed. In this setting, we can even see confrontation between actors, or “sectarianism” may be fostered, ignoring international safety agreements and resorting to abusive production models.
An overall social improvement is fostered by promoting more sustainable behaviour for consumers, along with an increase in local labour, an increase in creativity and a better understanding of the processes of pollution, recycling and reuse.	There are technological barriers that cannot always be overcome and may even require prior research, hindering programming schedules. In turn, the technology available will not always be the most efficient but will take into account its position in the market.
	This improvement in efficiency during development or in consumption will not necessarily be adopted, producing maintenance of the current culture or even a greater rejection of change. The actions carried out will be analysed and cultural/social barriers will begin to crop up. In other words, it is possible that cultural or social norms may also require an evolution that will emerge over time.

Source: Own elaboration.

This leaves us with the specific objective of trying to visualize a municipality that follows the principles of the circular economy correctly. To do so, both the municipality in general and the projects being developed should be shown. Thanks to the PESTEL analysis methodologies and the systematization of experiences, it will be possible to frame both the municipal orientations and the local development that have arisen from these to show this circular model.

Regarding the municipal selection, the municipality of Almócita in the province of Almería, Spain, has been chosen, linking all the projects that are being developed with the principles of the circular economy and the sustainable development goals. The municipal selection has been made according to several criteria.

Firstly, it has been based on the agricultural base as the origin, making it necessary for the livelihood of its residents. This has been the main focus of sustainable actions, including the implementation of or participation in projects linked to agroecology in particular. Secondly, and as a direct consequence, the municipality has positioned itself in a good position on the scale. This has allowed it to win the national CONAMA award for sustainability of small- and medium-sized municipalities, thanks to its commitment to agroecology, culture and democracy. Additionally at the regional level, has been awarded by the Ministry of Environment and Regional Planning and the Andalusian Federation of Municipalities and Provinces with the first prize in the VII Contest of Good Practices of En-

vironmental Education and Urban Sustainability in Andalusia for its project “Ecomuseum and agroecology to combat rural depopulation”. Finally, and although on a smaller scale, it has also been awarded by the 2018 Atila provincial awards with the “Good Grass” prize thanks to the commitment to energy transition policies, promotion of ecological agriculture and the great participation in bio-construction. In turn, and with respect to the divulgation level, it collaborates with the Spanish Society of Ecological Agriculture and Red TERRAE making publications on the path they follow. To conclude, it should be noted that it has been placed as one of the first as a reference thanks to the recent Photovoltaic Energy Community, being the second Spanish municipality to create it, but a pioneer in Europe thanks to the intelligent system of implementation. Specifically, the Local Energy Community (CEL) is an efficient and democratic solution that is shaping a shared self-consumption and that, through blockchain technology, allows the co-marketing of renewable energy between peers (P2P). The energy generated can be sold through the blockchain-enabled xGrid platform, allowing, for example, its purchase by neighbours who lack the facilities.

Therefore, thanks to the identification and more in-depth entry of their actions, it will be possible to break down those good practices carried out by municipal authorities and their neighbours. This can mark a fixed line of research that can be observed by the rest of the municipalities and the research community. The underlying justification is based on the observation that municipalities as a public political entity are a key unit in the management of circular economy ideas in all their ramifications, such as the efficiency of waste management and collection [65].

## 2. Materials and Methods

### 2.1. Initial Considerations

The structure of the work and the intended approach of the article correspond to a constructive process in five consecutive systematic phases. The first three phases lasted six months. Once the theoretical framework was in place, the hypothesis was set and the site was selected, the observation and monitoring of the municipal actions were carried out over a twenty-four-month period from non-November 2019 to November 2021. This left phases four and five complete. Subsequently, the conclusions and the analysis of their possible re-applicability were established for a period of four months. The systematically applied phases are as follows:

1. The current situation of the circular economy was highlighted in the introductory part, focusing especially on its advantages and disadvantages. During this preliminary phase, which lasted for half a year, a basis on the circular economy and the concept of the municipality was created.
2. A problem or dilemma was then defined. In this case, the correct application of the circular economy in a controlled and analyzable environment.
3. A research hypothesis was then established, as follows:
  - a. Is there a municipality that correctly follows the guidelines of the circular economy?
  - b. If the statement is correct, are the references provided and the projects re-implemented relevant to local development and its maintenance?
4. This made it necessary to outline an introductory framework of the municipality to facilitate a better understanding of the topic. To do this, a population analysis was carried out to show its evolution and to be able to choose the trigger of this new strategy, allowing to better delimit the correct period to analyze. Then a more in-depth investigation was carried out after that date, being the last economic crisis of 2008, which ended up materializing this change of municipal idea. Finally, and in a more current period, we observed the approach of the most recent projects already elaborated or future, thanks to a follow-up in the municipality itself between the years 2019 and 2021.

5. After that, the corresponding analyses were carried out to report on the mechanisms or projects carried out, as well as their assessment, especially observing those of an agricultural nature which were the first to be carried out.
6. Subsequently, conclusions were drawn on the site and considering the scope of the applicability of the solution to other locations.

## 2.2. PESTEL Analysis

A more exhaustive check will be carried out for a short recent time period corresponding to the years after the 2008 crisis and up to the present day. This will be achieved by applying a PESTEL matrix encompassing the municipal context. PESTEL analysis is often used from a business perspective to plan future strategic directions based on the environment. Therefore, it allows to observe and evaluate the impact that such an industry would offer [66]. In turn, it is a multifaceted analysis that allows for capturing strategic forces and supporting decision making [67].

The PESTEL matrix indicates the conditions of the macro-environment in which the municipality of Almócita is located. The term was coined by Harvard Business School professor Francis J. Aguilar in his book “Scanning the Business Environment” [68]. The matrix to be filled in corresponds to the elements in Table 2.

**Table 2.** Elements of PESTEL.

Politics	Economy	Social
Aspects concerning existing or potential government, international relations, governmental stability, etc.	Micro and macroeconomic indicators such as level of output, interest rate, level of employment, etc.	Factors such as trends and fashions, demographics, culture, religion, purchasing power, etc.
Technology	Ecology	Law
Aspects such as the state of technology, access to technology, potential for innovation, etc.	State of the environment, ability to achieve sustainability, etc.	This encompasses everything relating to the legislative situation corresponding to the sector under study. Due to the scope of the case, as it is a municipality, the most relevant regulations relating to its latest projects will be shown.

Source: Own elaboration.

On a scientific level, this methodology has been used in a variety of areas to define the characteristics of the external environment [69]. In the field of the circular economy, the analysis of challenges and trends in the circular economy [70] and the study of the environmental performance of island areas [71] stand out among the extant research works.

## 2.3. Systematisation of Experiences

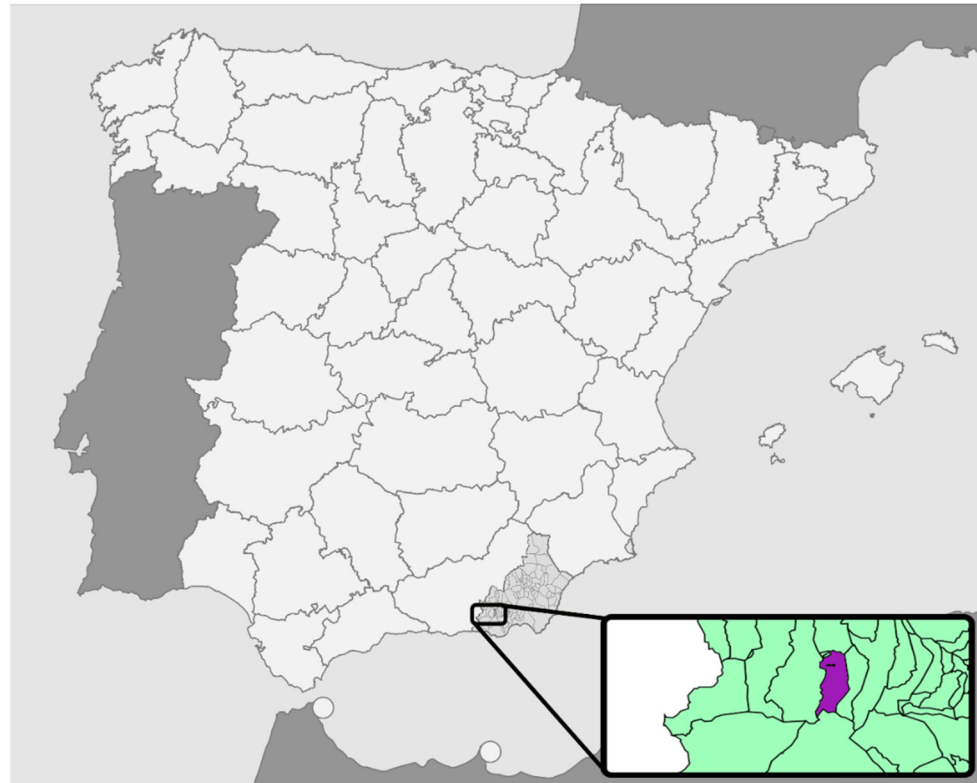
Following the diagnostic matrices of the situation and using the same time period, the methodology of systematisation of experiences was applied. According to Jara Holliday, this methodology is defined as “the critical interpretation of one or several experiences which, by ordering and reconstructing them, uncovers or makes explicit the logic of the process experienced in them”.

The main characteristic of this methodology is the dialogue between the main actors and the way they act out the reality. It seeks to preserve local information, to improve the implementation of plans, to verify self-management and sustainable development, and to strengthen popular empowerment and organisational capacity by promoting local cooperation.

This methodology is not a mere description of the project but delves deeper, allowing experiences from previous projects to be examined and to use the lessons learned in order to improve the implementation of a current approach [72].

### 3. Contextualisation of Almócita

The municipality of Almócita is located in the Alpujarra Almeriense region with a surface area of 30.8 km<sup>2</sup> [73]. Its municipal area is located between Sierra Nevada and Sierra de Gádor and belongs to the Sierra Nevada National Park (Figure 1).



**Figure 1.** Location of the municipality of Almócita (Spain). Source: Own elaboration.

Almócita has 197 inhabitants, being one of the 10 municipalities with the smallest population in the province [73]. Indeed, its population fell by more than half during the last century [74]. It is located at a distance of approximately 47 km from the capital [73] and has a classic Arabic urban structure made up of simple, white houses located in small, sloping, winding streets. The town is essentially agricultural with grapes having been the key crops for centuries.

Focusing on its population, the average age of the municipality is 49.4 years [73]. 71.1% of the population is of working age, with the dependent population making up 28.9% of the total, of which 19.3% are over 65 years of age [75]. This is a high rate of ageing, which is forecast to be even higher in the coming years.

With regard to the economic context, the municipality has been based on a poorly diversified economy, principally family farming on a subsistence scale. In recent years, the most important crops have been green beans (2 hectares) along with olive groves and almond trees as the main irrigated and unirrigated woody crops, with 53 and 60 hectares, respectively [76]. In terms of other economic activities, most are carried out by self-employed workers [76]. Finally, and in terms of tourism, the municipality has considerable potential for cultural, sporting and spiritual tourism, but no strategic promotion has yet been established.

The town council is working hard to prevent depopulation and to encourage new inhabitants to settle in the municipality. The actions carried out in the past and proposed by the town council for the future are underscored by the circular economy. These actions began mainly with the local economic engine, which is agriculture, and new inhabitants were attracted thanks to the fundamental role of the town hall as the land facilitator and its role as an intermediary, creating a relationship of trust while also acting as a disseminator



of knowledge. This line of action of the town council intensified after the economic crisis of 2008, carrying out work to update social thinking, in meetings, workshops or fairs, in order to achieve local economic reactivation based on the circular economy. It is committed to agroecology, culture and participatory democracy, recently putting the so-called “Almócita in Transition” plan into action, with the proposal of several projects all focused along these economic lines [77].

More specifically, the environment that defines the municipality of Almócita in the context of the circular economy in the agricultural sector is reflected in the following PESTEL analysis.

### 3.1. Politics

On a general level, elections to the Congress of Deputies and the Senate were held in November 2019, and the 14th Legislature began with the publication of the composition of the first government in the Official State Gazette on 13 January 2020. Within the municipality, there is currently a stable government that has been in power since 2011 with no foreseeable changes. It maintains a broad relationship with neighbouring municipalities without the existence of major external conflicts.

The emergence of the COVID-19 pandemic caused the WHO to declare a worldwide state of health emergency and this has had severe repercussions in the municipality.

Active participation in numerous events related to depopulation.

Green and digital transition as key factors in the agreement on the Recovery Plan.

Equality policies between women and men and the promotion of R&D in rural areas are noted.

### 3.2. Economy

The main economic activity is agriculture, although there are other economic activities in the area.

The establishments with economic activity during 2020 consist of: 8 without employees and 1 with up to 5 employees.

The hotel and catering industry is the activity with the most business premises with a total of 3, followed by commerce. Even so, the weakest sectors at present are those related to the catering industry, since external income is scarce except during the summer season and these establishments remain closed for several days a week.

The local economy has stagnated further due to the pandemic, although there was already a low level of diversity in the labour market.

There is a municipal unemployment rate of 16.2%.

Neither this municipality nor its nearest neighbours have an industrial estate or connected area with good communications.

There has been a temporary repopulation through teleworking which, to a certain extent, has attracted people to the municipality.

The budget of the local authorities has remained stable.

The average net income declared during 2019 did not reach the Minimum Interprofessional Wage, leaving the average purchasing power of the municipality rather low.

Over the last few years, several job vacancies and temporary employment opportunities have arisen, making the town council the “company” with the greatest impact on the territory.

Tenders have been invited for the leasing of several municipal warehouses in order to stimulate the local economy irrespective of their location.

There is a cash dispenser and this is the only way to carry out non-online banking transactions in the area.

There is no large parcel collection point in the municipality or nearby.

### 3.3. Social

The population is aged although it is not the highest average in the area.

The sense of belonging to the municipality is weakening due to the repopulation with newcomers who are motivated by the cultural orientation of the latest interventions. This means that ecological thinking about the area is becoming increasingly present in the municipality itself. Nevertheless, there is a wide cultural division in the municipality that has generated an increase in social scepticism about certain initiatives carried out.

Customs and traditions have been supported even during the pandemic through online competitions.

There has been an increased appreciation of handmade craft products or crops that have not been grown on large farms. Thus, even mutual cooperation initiatives among the members of the municipality are encouraged, regardless of whether they involve new settlers or not.

Generally speaking, interest in sustainable rural tourism has grown and is seen to be complementary to sun and beach tourism.

There is no place nearby for nightlife, thus foregoing potential income and making the location less attractive, especially for younger people.

### 3.4. Technology

The municipality has a fibre optic connection throughout the town and has held digital literacy seminars.

It also has a good 4G connection, although there are no plans to upgrade to the 5G network.

The Guadalinfo Centre is available for various activities.

### 3.5. Ecology

The local population maintains responsible consumption because they are aware that human intervention in a given ecosystem must be kept to a minimum in order for that ecosystem to survive over time.

The environmental debate has not been ignored and is mentioned specifically in every municipal meeting.

There are recycling containers throughout the municipality, a charging point for electric vehicles, a composting area, ...

Part of the project for the installation of solar panels has been carried out in various municipal and private premises to achieve energy self-sufficiency in some areas.

There is neglect towards part of the environment by the inhabitants because certain aspects are not seen as profitable or because they fall outside the planned projects.

Scarcity of water resources.

Implementation of the circular economy in the municipality with different aspects.

Great environmental and landscape wealth.

### 3.6. Law

Based on the self-employed and SMEs due to the size of the Almócita nucleus, the central core is governed by the Corporate Tax (Law 27/2014 of 27 November on Corporate Tax).

Development and implementation of a legal framework regulating the conditions of teleworking.

A search for alerts for legislative publications (BOJA, BOE, DOUE, etc.) is proposed.

General Urban Development Plan is to be carried out.

The current configuration of the Social Economy is governed by Law 5/2011 of 29 March and the III Andalusian Pact for the Social Economy.

## 4. Results

Below is a summary of the pre-2020 actions being carried out in the municipality that link agriculture with the principles of the circular economy (Table 3).



**Table 3.** Initiatives implemented prior to 2020.

Title of the Project	Summary	Circular Economy Principles Applied	SDG
Land Bank	This belongs to the TERRAE Network of Agro-ecological Reserve Territories. Within this framework, there is a land bank that assigns a value to all the plots that were unused so that new neighbours can work them. The land was made available free of charge to agroecology project holders.	Reduction Reuse	2 10 12
Talks, workshops, municipal events and ecomarkets: Ecomarketings, Agroecology Workshops, Agricultural Conferences, Candles Night (Night of the Oil Lamps)	Among all the activities that are carried out as part of the various public events of the municipality, the Ecoencuentro stands out within the framework of the Project Promoting Sustainable Food Systems in Andalusia through local crop varieties. In this event, activities such as seed tasting and exchanges, collaborative work days, talks on the situation of nearby crops, development of short trade circles, etc., can be carried out. So-called ecological education is promoted within the municipality, seeking food sovereignty that goes beyond the agrarian vision at a productive level. For example, the course "Food Sovereignty in the face of Climate Change: Edible Gardens" was recently held. In a practical way, it contributes to the visualisation of agriculture in a way that is closer to society through workshops aimed especially at children.	Dissemination/Rethinking Reuse Recycling Reduction Recovery	17
Vegetable garden and neighbourhood chicken coop	The "Grandfather Emiliano" farm was created as a community project. Several people from the municipality have laid out a wide terrace for the production of vegetables and fruit. Responsibility for maintenance is shared among them. To prevent pests and diseases, the garden has a series of insecticidal plants around it, along with other materials such as a macerate of garlic, rue and wormwood. Fertilisers are also made on the farm. In the henhouse, the workload distribution is organised on a weekly basis, with each family in turn taking care of the care and collection of the chickens. Next to the henhouse, there is a compost bin in which all the organic matter is deposited.	Reuse Reduction	2 10 12 13
Production-Project "Ecological Mushrooms".	A smaller-scale mushroom cultivation project has been carried out on poplar logs collected from private farms as this is a fast-growing species.	Reduction	10
Seed bank and use of local seeds	Classified as a place where seeds are stored in the short term for agriculture or in the long term for conservation. The idea is to rescue, plant and store indigenous seeds. With this initiative support is provided to local people who are interested in extracting their own seeds after harvesting.	Reuse Recovery	13 15
Compost Centre: Your waste creates life	It is intended that in the future, complete recycling of the organic waste can be carried out achieving zero kilometres and avoiding transport. In the first year, the aim is to recycle approximately 20 tonnes of this waste. All the compost generated will be used as fertiliser for the vegetable gardens and green spaces. This more modern project goes hand in hand with the composting facility, which has turned over about 3 tonnes in the past year.	Reuse Recycling Reduction	11 13 15
Development of the edible arboretum area	Through the Savia Foundation, an area has been set up with various fruit trees planted by the youngest children in an effort to link them to their land and generate greater future involvement.	Recovery	11
Participation in various competitions, seminars, ...	For example, the municipality took part in the 1st Ecochef culinary competition of the TERRAE Network with 5 entries of original and traditional dishes made with local seeds.	Dissemination/Rethinking Reuse Recycling Reduction Recovery	12
Development of a monthly open forum	The municipality is supported by a strong participatory democracy. Therefore, a forum is regularly held for all citizens to discuss and propose actions to be taken within the municipality.	Dissemination	11
Promoting bio-construction: Municipal dome	An ecological multi-purpose building made of straw, wood, lime, sand and water has been created. They are currently thinking of exporting this type of construction to other buildings.	Recycling Reuse	11 13
Communal oven	A communal oven in a room of 8X3X3m built with adobe bricks handmade by the villagers and members of the consumer group Trotahuertos.	Reduction	11 12
Organic egg farm	Although privately owned, they have managed to foster an entrepreneurial spirit and have created an organic egg company which now also sells a range of products such as olive oil. The 3rd generation of the original family forms the basis of the farm, although the location has changed. They have 850 m <sup>2</sup> of outdoor areas and a factory, as well as 1,350 free-range laying hens and 3 hectares of olive trees.	Reduction	2 8 12

Source: Own elaboration.

Along with other complementary actions in the search to achieve a circular economy, the “Almócita in Transition” programme has been launched (Table 4).

**Table 4.** Projects to be implemented from 2020 onwards with the “Almócita in Transition” programme.

Title of the Project	Summary	Circular Economy Principles Applied	SDG
Energy self-sufficiency, pro-consumer community and elimination of wiring on facades	The creation of a Pro-Energy Consumption community is proposed, which will start with the installation of municipal renewable energies while establishing agreements with the neighbours for the installation of photovoltaic panels on the roofs of the houses, together with the installation of batteries for energy storage. The aim is that, as a community, they will be both energy producers and consumers.	Reduction	7
	A secondary objective is the burying of all electrical wiring and current cabling necessary for the panels and batteries.		8
	The creation of an energy bank is also contemplated to supply people who are at risk of social exclusion or whose income does not reach the minimum threshold.		10
	Implementation has already begun. There are more than 100 solar panels located in parts of the municipality such as in a restaurant or on some municipal facilities. In order to lend greater emphasis to the project, a cooperative has been set up and its statutes are currently being drawn up.		11
	Its provisional name is “Comunidad Energética Eco Almócita Sociedad Cooperativa”. The 100 solar panels currently generate a surplus of 50KW.		12
			15
Self-managed cohousing	The project proposes the creation of a community self-managed by the inhabitants. It would be made up of small dwellings for small families grouped to live together and share common spaces. In principle, a series of 30 flats are proposed for a maximum of 60 people who, in turn, can help each other by undertaking the management of the community.	Reuse	17
			10
			11
Municipal eco-housing for rent	As a complement to the previous case, the transfer of efficiently sustainable housing is considered once the current market is updated.	Recovery	17
Green smart multi-service buildings for the settlement of local entrepreneurs in rural areas	The construction or adaptation of buildings to house entrepreneurs in order to facilitate their work or, if required, to inhabit.	Recovery	10
			11
			15
			17
Mobility and sustainable tourism plan	The municipality is committed to sustainable urban planning, developing processes towards local rural sustainability through the implementation of basic tools and infrastructures that allow the conservation of cultural and natural heritage while improving the quality of life. A start has been made with the planning of car parks to justify the pedestrianisation of the town centre; the creation of a network of electric bicycles for local and tourist use; and the necessary technical support for the implementation of a General Mobility Plan.	Recovery	8
			11

Table 4. Cont.

Title of the Project	Summary	Circular Economy Principles Applied	SDG
Ecological forest project	It is proposed to combat desertification by regenerating the autochthonous Mediterranean forest while creating from this “new” resource a future sustainable routemap, generating stable employment in sustainable forestry exploitation. The forestry sector routemap contemplates the establishment of didactic routes, artistic spaces, a nursery area and research areas, all of this when required, conserving the traditional Alpujarra architecture and the dry stone work declared a World Heritage Site by UNESCO.	Reuse	8
			9
			11
			13
Zero organic waste	The Zero Organic Waste project is aimed at the independent and selective collection of all organic waste discarded from municipal households and agricultural, gardening and forest pruning waste from the municipality. The goal is to obtain compost to enrich agricultural soil, favouring a circular process of collaboration and environmental awareness through a strategy of Just and Inclusive Transition.	Recycling Reduction Reuse	11
			12
			13
			15

Source: Own elaboration.

## 5. Discussion: A Shift towards a Circular Economy

The evolution from a linear economy to a circular economy requires coordination between public administrations, economic sectors and society. In the circular economy model, products are part of an integrated distribution channelled towards the distribution of a service, the geographical location of which influences their production and use. Business model innovation is not limited to simply changing the product or service offered or the way it is produced but focuses on how and for what it is produced, with a view toward social and environmental benefits. Therefore everything is conducted at a more local level, which may even mean changing the terminology from “business” to “economic activity” when discussing it.

The principles of the circular economy can be applied to the functioning of the production system in the agricultural and livestock sector [78]. Within this approach, there are studies that analyze the impact of technology on the productive process, although it is necessary to be attentive to the different realities as can be seen from the classification of Mühl and Oliveira [79] and it is clear that investment in agricultural ecological capital plays an important role in promoting the development of the circular economy in general, but it is necessary to observe both active and passive investment because their impacts are different [80]; others show the effect of entrepreneurship-oriented education making it clear that there is a lack of in-depth work in less common thematic areas [81] or the increase of productive efficiency under the circular model thanks to techniques such as the reuse of waste on farms for composting in a satisfactory way as can be seen from the “Vermi Ekoprodukt” Farm [82] also emphasizing the need to create new distribution networks or strengthen the existing ones [83].

Efficiency is the intrinsic dimension of greatest strength in the body of CC. Therefore, the application of this type of economy has been mainly in ecological areas or in areas such as the municipality of Almócita, with construction and agricultural activities being particularly relevant.

Even so, we must take into account and learn from various experiences in production processes in countries such as China or Japan that have promoted technological innovation in the materials used or even the consumption of the main goods has changed with very positive results, showing how a global approach is necessary in which everyone takes

part [32,84,85]. Thus, the circular economy model can be applied as a development tool in many fields, as can the approach in the Erhai Lake basin, with a unique industrial structure with several weaknesses in which it is seen how an agro-circular system should be applied that treats energy, ecological breeding and integrated waste utilization model for proper maintenance [86].

However, not everything is positive, since at the local level and as we go down the scale, the deficiencies of the areas are more marked, revealing economic deficiencies such as the scarce generation of companies and their low specialisation, low production that does not add value, lack of coordination in environmental management, or the lack of technical–technological know-how. This is also mainly due to socio-cultural factors such as apathy and lack of citizen participation together with a lack of association and low local articulation [87]. Therefore, the current framework such as the one suffered by the municipality with the lack of diversified projects seems to further aggravate the competitive disadvantages of these rural mountain municipalities, despite having other great advantages. It is, therefore, necessary to establish a geographical differentiation and to elaborate an exhaustive analysis when presenting circular economy proposals in order to clearly identify the starting point, as has been performed in the research on the renewal of Italian municipal waste systems [88] or the collection system of Polish rural and urban municipalities [89], which show how localization is a factor to be taken into account in the elaboration of these projects if we are looking for efficiency.

In order to achieve change, it may be necessary to resort to and take advantage of: submission to comply with new guidelines and legal frameworks either top-down from institutions or bottom-up from the socio-economic actors themselves; or willingness to gain benefits or advantages irrespective of the area [90]. These are benefits for economies as a whole, for the consumer and for the business sector [9,91]. Therefore, a first step to overcoming the aforementioned barriers would be the creation of a policy to foster regulatory, economic and market instruments, volunteers, knowledge, supply and finance. These policies will need to go further and will require changes in the functioning and proposals of the institutions themselves, rendering the discourse and actions more useful, as there is a large gap between the policy statements on needs and the current reality [92].

Currently and in the face of this situation, it is worth mentioning that due to the global pandemic created by COVID-19, the economies of countries can benefit from the circular economy to pursue their development thanks to the establishment of public policies based on the Rs along the entire product chain, so as to take advantage of the productive negativity experienced as a nexus of change and improvement. However, it should not be reduced to the most classic projects, as most initiatives are clearly focused on reduction and reuse, advocating the simplest of things, such as recycling as a recovery goal. One should only avoid these generalities by identifying projects of several of the proposed Rs such as those carried out in the municipality under analysis, since, if an area is merely proud of its high recycling percentage, it is possibly not applying the circular economy in the right way [93]. For example, the city of Dalian started with projects to alleviate pollution, resource scarcity and help with climate change, channelling all policies towards waste reduction and reducing its environmental impact [94]. It has shown promising results, but it should be noted that the circular economy seeks to go a step further and to be seen as an optimal option for development [95]. Still, it is worth acknowledging that a reasonable start was made as an important part of the circular economy is municipal management which helps through the creation of jobs along with the reduction and disposal of local waste, so even if it is not much, this is an incentive for its implementation [96].

Therefore, for the development of municipalities and to recognise how the circular economy is a viable path, a local development system must be established that maximises the bottom-up approach by not having a large external regulation that establishes fixed bases. This, in the municipal development forums in the municipality of Almócita, has taken shape excellently, enhancing their role as an attractor and transforming factor of the social, economic, temporal and physical space [97]. With regard to the local development

model and the CE, both are proposed as endogenous measures to promote and strengthen local relations as well as to anchor territorial development to a region's own resources that will create a symbol and generate benefits based on the cultural wealth of the area.

Regarding the use of multiple Rs, it should also be remembered that there are several sectors to focus on. For example, agriculture, in order to face future climate, social and economic challenges, must be organic and more productive [98]. In turn, advances and improvements in techniques such as the use of compost generation, waste control, water pollution monitoring, user perception of fertiliser use, etc. can be encouraged. These processes, such as the use of own compost, can help and provide new lines of research within the CE and related areas, creating new synergies and deposits such as the one followed by slaughterhouse waste [99] by applying several technologies since one cannot finish with all pathogens [100]. This model of life is permeating society and slowly this generalizing influence is helping to create a more sustainable behaviour that promotes CC-based business models, such as the sale of organic compost [101], although further research of a practical nature is needed [102].

However, it is not only in the scientific arena in which dissemination techniques must be suitable and able to reach the population in order to teach it the virtues of the correct application of the CE [92]. At the same time, it is necessary to analyse and understand the behaviour of the population as consumers within this new type of economic system. Recent studies show that consumer systems will have to carry out extensive digital updating work as the largest consumer of these products regularly accesses digital networks [103].

## 6. Conclusions

On a more theoretical level, it can therefore be stated that the circular economy is being embraced by various actors as a sustainable development strategy that generates benefits to both society and the environment, without ceasing to be a highly competitive strategy in the business world. Therefore, the most important result is that it cannot be dismissed as a mere trend, but is in fact a paradigm of action resulting from the evolution of sustainability and the triple (quadruple if the temporal aspect is included) approach.

This is thanks to the inherent change in the conception of production from a linear one to a branched but more comprehensively planned productive circularity with a systemic approach to the design of processes, products and business models, which, in turn, increases competitiveness. It is not seen as a threat to economic growth, but rather as a proposal to make better and more intensive use of what is available.

We must therefore take into account the entire life cycle of the product (from extraction to recovery). It is important to create actions and business models that are used to implement the CE correctly and thus have relevance at all scales (micro, meso and macro). In this sense, circularity needs to be discussed in different arenas, not only at large national and supranational levels. The limitations of the circular economy must be highlighted in order to reach common agreements that establish the strategies to be followed in each of them.

For its successful achievement, it is necessary not only to implement transversal public policies such as the evolution of the term itself, but also to allow time for citizens to become aware of their consumption, for the research field to carry out the relevant analyses and provide knowledge, and for the business field to ensure that this sustainability will be reflected in its economic, social and environmental results.

Therefore, it is necessary to implement a local development model that seeks to revitalise the local economy, taking advantage of local capacities while, at the same time, trying to alleviate the major problems facing its inhabitants, such as the lack of knowledge, innovation and regulatory framework.

At the level of the research proposal, in the case of the municipality of Almócita, the appropriate actions have been taken to implement the circular economy. Both public and private projects have been carried out in which the three or nine Rs are easily recognisable. In particular, dissemination and attraction work are being carried out to create a strong core of awareness that will help with future projects, creating a main line of action.

However, focusing on agricultural activities, the circular economy has been stagnating, requiring extra participation to improve and to create new factors of progress. It can be seen that traditional farming is being strongly advocated, eschewing a newer conception and giving the impression, in part, of an outdated rural society. More research should therefore be conducted on advancing the techniques used, as well as improving trade channels on a prudent scale so that the main livelihood of the municipality can evolve.

The municipality's own compost generation and utilisation activities have been mentioned and these should be better monitored. Currently, only the percentage of tons generated is measured along with its subsequent place of use, leaving aside the possible beneficial analysis for the crops on which this fertiliser is used.

With regard to the other activities, mainly of an economic nature, such as the Energy Community and the promotion of sustainable tourism, a more exhaustive analysis should also be carried out.

This shows that the projects carried out, and future projects, framed almost entirely within the circular economy, are helping the municipality to subsist thanks to the fact that it is a focus of attraction for the new population, at least during the last 10 years, this being the generation that has followed this practice more closely. Statistically speaking, the municipality had been declining from 541 people in the middle of the last century to 166 at the beginning of the 21st century [76]. This new approach has performed a job of attracting a population because although the number of births is always lower than the number of deaths, leaving a negative growth curve [78], the number of inhabitants has been growing and remains stable thanks to the movement of new families. Even so, it seems to be focusing too much on the ecological aspect, leaving aside the economic and especially the social. The division of thinking within the municipality itself is one of the problems observed that must be addressed in order to continue to carry out the projects in the right way.

For this reason, a series of objective proposals are proposed with respect to the most evident deficiencies observed in the municipality during the study, which can serve both for the municipality itself and as a wake-up call for other municipalities interested in their application. Observing how the central focus of the municipality is agriculture should in turn make it more involved in economic life. Therefore, it should be an attractor of new sources of employment that improve the economic and social situation, not only being a way for the distribution of products in short supply chains. Regarding the remaining projects, "energy self-sufficiency, pro-consumption community and elimination of wiring in facades" would focus on strengthening the local economy thanks to the creation of this cooperative and the diversification of development plans; the "self-managed cohousing" and "ecological housing in use" would serve to strengthen development while improving ties in the environment. The "green buildings-smart multi-services for the settlement of local entrepreneurs in rural areas" would also help diversify and strengthen the local economy along with the "Plan for mobility and sustainable tourism". The rest of the projects, such as the "Ecological forest" and the "Organic waste 0" will help to preserve the environment and to update this important agricultural production.

The application of the circular economy is in line with the solutions proposed for and by the municipality and its temporary maintenance, although less attention seems to be paid to those related to the social factor (age, public services and development of ties in the environment), followed by the economic section (since no new trade techniques are seen, for example). The circular economy seeks, as has been said, to be a new economic system that contributes to mitigating the environmental impact caused by the development processes, but also seeks to improve productive efficiency and increase the quality of life and well-being of all. Therefore, the orientation followed by the municipality should be followed, but new sources of employment linked to this way of life should be taken into account. Regarding the replicability of the projects, those carried out in the municipality are easily exportable as long as a corresponding analysis is carried out to see if they have



similar characteristics since, as has been said, especially the geographical and social aspects have a great influence on the achievement of these actions.

Finally, this study shows the positive evolution of the municipality over the last 14 years, but at the same time, it suffers from limitations. Especially being a single municipality allows to analyze it to better verify the results, but possibly the area should be analyzed to see if the development mechanisms carried out by neighbouring municipalities are also serving as a focus attractor area and only the circular economy is not the pioneer, but it is a factor to be taken into account. In turn, the period of the actions analyzed is those that have taken place since 2008, although Almócita in Transition started in the last 2 years. Therefore, the present study should be continued to see if the results are constant, efficient and sustainable over time. Finally, and as another limitation, the size of the municipality exposes projects of a minor nature that should be reconsidered when they are carried out in large cities, making an analysis on a smaller scale always necessary.

**Author Contributions:** Conceptualization, F.J.G.C., R.M.M.V., J.M.G. and J.d.P.V.; methodology, F.J.G.C., R.M.M.V., J.M.G. and J.d.P.V.; investigation, F.J.G.C., R.M.M.V., J.M.G. and J.d.P.V.; writing—original draft preparation, F.J.G.C., R.M.M.V., J.M.G. and J.d.P.V.; writing—review and editing, F.J.G.C., R.M.M.V., J.M.G. and J.d.P.V. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. WCED. *Report of the World Commission on Environment and Development: Our Common Future Acronyms and Note on Terminology Chairman's Foreword*; Oxford University Press: Oxford, UK, 1987.
2. Mebratu, D. Sustainability and sustainable development: Historical and conceptual review. *Environ. Impact Assess. Rev.* **1998**, *18*, 493–520. [CrossRef]
3. Vázquez, A. *Desarrollo Local: Una Estrategia de Creación de Empleo*; Pirámide: Madrid, Spain, 1988.
4. Latouche, S. *La Apuesta por el Decrecimiento: ¿Cómo Salir del Imaginario Dominante?* Icaria Editorial: Barcelona, Spain, 2008.
5. Lozano, R. Envisioning Sustainability three-dimensionally. *J. Clean. Prod.* **2008**, *16*, 1838–1846. [CrossRef]
6. Bravo, O.; Payares, L. El Desarrollo Sostenible Desde La termodinámica No Lineal. *Multiciencias* **2012**, *12*, 94–99.
7. Castaño, C. *Los Pilares del Desarrollo Sostenible*; VUAD: Bogotá, Colombia, 2013.
8. Pearce, D.; Turner, R. *Economics of Natural Resources and the Environment*; Harvester Wheats: Brighton, UK, 1990.
9. Ellen MacArthur Foundation. Available online: [https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Executive\\_summary\\_S.pdf](https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Executive_summary_S.pdf) (accessed on 5 December 2021).
10. Ghisellini, P.; Catia, C.; Ulgiati, S. A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. *J. Clean. Prod.* **2016**, *114*, 11–32. [CrossRef]
11. Espaliat, M. *Economía Circular y Sostenibilidad: Nuevos Enfoques para la Creación de Valor*, 1st ed.; CreateSpace Independent Publishing Platform: Santiago de Chile, Colombia, 2017.
12. Kirchherr, J.; Reike, D.; Hekkert, M. Conceptualizing the circular economy: An analysis of 114 definitions. *Resour. Conserv. Recycl.* **2017**, *127*, 221–232. [CrossRef]
13. Chaves, R.; Monzón, J.L. La economía social ante los paradigmas económicos emergentes: Innovación social, economía colaborativa, economía circular, responsabilidad social empresarial, economía del bien común, empresa social y economía solidaria. *CIRIEC-España* **2018**, *93*, 5–50. [CrossRef]
14. Priede, T.; Hilliard, I. La economía circular en la industria alimentaria. *Responsab. Soc. Corp. Ind. Aliment.* **2019**, *35*, 36–40.
15. Santamaría, R. Economía circular: Líneas maestras de un concepto jurídico en construcción. *Rev. Catalana Dret Ambient.* **2019**, *10*, 1. [CrossRef]
16. Hernández, O. Evolución histórica-epistemológica de la Economía Circular: ¿Hacia un nuevo paradigma del desarrollo? *Econ. Y Soc.* **2021**, *26*, 1–16. [CrossRef]
17. Bossel, H. *Indicators for Sustainable Development: Theory, Method, Applications. A Report to the Balaton Group*; International Institute for Sustainable Development (IISD): Winnipeg, MB, Canada, 1999.

18. Gallopín, G. *Los Indicadores de Desarrollo Sostenible: Aspectos Conceptuales y Metodológicos*; Biblioteca Virtual-Ponencias FODEPAL: Santiago de Chile, Colombia, 2006.
19. Boisier, S. Descodificando el desarrollo del siglo XXI: Subjetividad, complejidad, sinapsis, sinergia, recursividad, liderazgo, y anclaje territorial. *Semest. Econ.* **2010**, *13*, 11–37.
20. Alonso, G.J. Revisión del concepto de desarrollo local desde una perspectiva territorial. *Líder Rev. Labor Interdiscip. Desarro. Reg.* **2013**, *23*, 9–28.
21. Mora, L.; Martín, M. *Logística Inversa y Ambiental: Retos y Oportunidades en las Organizaciones Modernas*; ECOE EDICIONES: Bogotá, Colombia, 2013.
22. Huesemann, M.H. The failure of eco-efficiency to guarantee sustainability: Future challenges for industrial ecology. *Environ. Prog.* **2004**, *23*, 264–270. [[CrossRef](#)]
23. Prieto-Sandoval, V.; Jaca-García, C.; Ormazabal-Goenaga, M. Economía circular: Relación con la evolución del concepto de sostenibilidad y estrategias para su implementación. *Mem. Investig. En Ing.* **2017**, *15*, 85–95.
24. Guohui, S.; Yunfeng, L. The Effect of Reinforcing the Concept of Circular Economy in West China Environmental Protection and Economic Development. *Procedia Environ. Sci.* **2012**, *12*, 785–792. [[CrossRef](#)]
25. Meadows, D.; Meadows, D.; Rander, J.; Behrens, W. The limits to growth. In *Report for the Club of Rome*; Universe Books: New York, NY, USA, 1972.
26. Rockström, J.; Steffen, W.; Noone, K.; Persson, A.; Chapin, F.S.; Lambin, E.F.; Lenton, T.M.; Scheffer, M.; Folke, C.; Schellnhuber, H.J.; et al. A safe operating space for humanity. *Nature* **2009**, *461*, 472–475. [[CrossRef](#)]
27. Steffen, W.; Richardson, K.; Rockström, J.; Cornell, S.E.; Fetzer, I.; Bennett, E.M.; Biggs, R.; Carpenter, S.R.; de Vries, W.; de Wit, C.A.; et al. Planetary Boundaries: Guiding human development on a changing planet. *Science* **2015**, *347*, 1259855. [[CrossRef](#)]
28. Lett, L.A. Las amenazas globales, el reciclaje de residuos y el concepto de economía circular. *Rev. Argent. Microbiol.* **2014**, *46*, 1–2. [[CrossRef](#)]
29. Chröder, P.; Lemille, A.; Desmond, P. Making the circular economy work for human development. *Resour. Conserv. Recycl.* **2020**, *156*, 104686. [[CrossRef](#)]
30. Duque-Acevedo, M.; Belmonte-Ureña, L.J.; Plaza-Úbeda, J.A.; Camacho-Ferre, F. The management of agricultural waste biomass in the framework of circular economy and bioeconomy: An opportunity for greenhouse agriculture in southeast Spain. *Agronomy* **2020**, *10*, 489. [[CrossRef](#)]
31. Esposito, B.; Sessa, M.R.; Sica, D.; Malandrino, O. Towards circular economy in the agri-food sector. A systematic literature review. *Sustainability* **2020**, *12*, 7401.
32. Yuan, Z.; Bi, J.; Moriguichi, Y. The circular economy: A new development strategy in China. *J. Ind. Ecol.* **2008**, *10*, 4–8. [[CrossRef](#)]
33. OECD 2011: Resource Productivity in the G8 and the OECD. Available online: <https://www.oecd.org/env/waste/47944428.pdf> (accessed on 8 September 2021).
34. Bocken, N.; William, S. Towards a sufficiency-driven business model: Experiences and opportunities. *Environ. Innov. Soc. Transit.* **2016**, *18*, 41–61. [[CrossRef](#)]
35. Harvard Business Review. Available online: <https://hbr.org/2016/12/9-sustainable-business-stories-that-shaped-2016> (accessed on 13 September 2021).
36. World Economic Forum. Available online: <https://www.weforum.org/reports/intelligent-assets-unlocking-the-circular-economy-potential> (accessed on 10 July 2021).
37. Reike, D.; Vermeulena, W.J.V.; Witjesb, S. The circular economy: New or Refurbished as CE 3.0?—Exploring Controversies in the Conceptualization of the Circular Economy through a Focus on History and Resource Value Retention Options. *Resour. Conserv. Recycl.* **2018**, *135*, 246–264. [[CrossRef](#)]
38. Konietzko, J.; Bocken, N.; Hultink, E. Circular Ecosystema Innovation: An Initial Set of Principles. *J. Clean. Prod.* **2020**, *253*, 119942. [[CrossRef](#)]
39. Boisier, S. Desarrollo local ¿de qué estamos hablando. In *Transformaciones Globales, Instituciones y Políticas de Desarrollo Local*, 1st ed.; Homo Sapiens: Rosario, Argentina, 2001; pp. 48–74.
40. Llorens, A. Desarrollo económico local y descentralización en América Latina. *Rev. CEPAL* **2004**, *82*, 157–171.
41. McDonough, W.; Braungart, M. *Cradle to Cradle: Remaking the Way We Make Things*; Mc Graw-Hill: Madrid, Spain, 2005.
42. Prieto-Sandoval, V.; Jaca, C.; Ormazabal, M. Circular Economy: An economic and industrial model to achieve the sustainability of the society. In Proceedings of the 22nd Annual International Sustainable Development Research Society Conference, Lisbon, Portugal, 13–15 July 2016.
43. Potting, J.; Hekkert, M.; Worrell, E.; Hanemaaijer, A. *Circular Economy: Measuring Innovation in the Product Chain*; Netherlands Environmental Assessment Agency: The Hague, The Netherlands, 2017.
44. Yan, J.; Feng, C. Sustainable design-oriented product modularity combined with 6R concept: A case study of rotor laboratory bench. *Clean Technol. Environ. Policy* **2014**, *16*, 95–109. [[CrossRef](#)]
45. Stahel, W. The circular economy. *Nature* **2016**, *531*, 435–438. [[CrossRef](#)]
46. Altamirano, A.M.; Corcuera, G.G.; Kiwaki, G.C.; Paz, J.W. Plan Estratégico Para el Sector Agrícola con Economía Circular. Master’s Thesis, Pontificia Universidad Católica del Perú, Centro de Negocios, Lima, Perú, 2019.
47. Haas, W.; Krausmann, F.; Wiedenhofer, D.; Heinz, M. How circular is the Global Economy? An Assessment of Material Flows, Waste Production, and Recycling in the EU and the World in 2005. *J. Ind. Ecol.* **2015**, *19*, 765–777.

48. García, S. Economía circular: La Unión Europea impulsa reformas sobre la base de un tema crucial, la gestión de residuos, con el fin de alcanzar mejoras económicas y medioambientales. *Actual. Jurídica Ambient.* **2016**, *57*, 26–36.
49. Diaz, L.F. Waste management in developing countries and the circular economy. *Waste Manag. Res.* **2017**, *35*, 1–2. [CrossRef]
50. Maina, S.; Kachrimanidou, V.; Koutinas, A. A roadmap towards a circular and sustainable bioeconomy through waste valorization. *Green Sustain. Chem.* **2017**, *8*, 18–23. [CrossRef]
51. Wilts, H. Key Challenges for Transformations Towards a Circular Economy—The Status Quo in Germany. *Int. J. Waste Resour.* **2017**, *7*, 1–5. [CrossRef]
52. Alhola, K.; Ryding, S.; Salmenperä, H.; Busch, N. Exploiting the Potential of Public Procurement: Opportunities for Circular Economy: Public procurement promoting circular economy. *J. Ind. Ecol.* **2018**, *23*, 96–109. [CrossRef]
53. De-Jesus, A.; Mendonça, S. Lost in Transition? *Drivers and Barriers in the Eco-innovation Road to the Circular Economy.* *Ecol. Econ.* **2018**, *145*, 75–89.
54. Kirchherr, J.; Piscicelli, L.; Bour, R.; Kostense-Smit, E.; Muller, J.; Huibrechtse-Truijens, A.; Hekkert, M. Barriers to the Circular Economy: Evidence from the European Union (EU). *Ecol. Econ.* **2018**, *150*, 264–272. [CrossRef]
55. Korhonen, J.; Honkasalo, A.; Seppälä, J. Circular Economy: The Concept and its Limitations. *Ecol. Econ.* **2018**, *143*, 37–46. [CrossRef]
56. Haas, W.; Krausmann, F.; Wiedenhofer, D.; Lauk, D.; Mayer, A. Spaceship earth’s odyssey to a circular economy—A century long perspective. *Resour. Conserv. Recycl.* **2020**, *163*, 105076. [CrossRef]
57. Palmieri, N.; Suardi, A.; Alfano, V.; Pari, L. Circular Economy Model: Insights from a Case Study in South Italy. *Sustainability* **2020**, *12*, 3466. [CrossRef]
58. Biondi, V.; Iraldo, F.; Meredith, S. Achieving sustainability through environmental innovation: The role of SMEs. *Int. J. Technol. Manag.* **2002**, *24*, 612. [CrossRef]
59. Geng, Y.; Haight, M.; Zhu, Q. Empirical analysis of eco-industrial development in China. *Sustain. Dev.* **2007**, *15*, 121–133. [CrossRef]
60. Geng, Y.; Doberstein, B. Developing the circular economy in China: Challenges and opportunities for achieving ‘leapfrog development’. *Int. J. Sustain. Dev. World Ecol.* **2008**, *15*, 231–239. [CrossRef]
61. Geissdoerfer, M.; Savaget, P.; Bocken, N.; Hultink, E. The Circular Economy—A new sustainability paradigm? *J. Clean. Prod.* **2017**, *143*, 757–768. [CrossRef]
62. Genovese, A.; Pansera, M. The Circular Economy at a Crossroads: Technocratic Eco- Modernism or Convivial Technology for Social Revolution? *Capital. Nat. Social.* **2020**, *32*, 95–113. [CrossRef]
63. Sauer, P.; Dvorak, A.; Prasek, J.; Hadrabova, A.; Nencková, L. Introducing circular economy in small municipalities: Methodology and a case of sewage sludge composting. *J. Environ. Prot. Ecol.* **2020**, *21*, 1127–1135.
64. Heshmati, A.; Rashidghalam, M. Assessment of the Urban Circular Economy in Sweden. *J. Clean. Prod.* **2021**, *310*, 127475. [CrossRef]
65. Agovino, M.; Cerciello, M.; Musella, G. The good and the bad: Identifying homogeneous groups of municipalities in terms of separate waste collection determinants in Italy. *Ecol. Indic.* **2019**, *98*, 297–309. [CrossRef]
66. Johnson, G.; Scholes, K.; Whittington, R. *Exploring Corporate Strategy*, 7th ed.; Pearson Education Limited: London, UK, 2005.
67. Pan, W.; Chen, L.; Zhan, W. PESTEL analysis of construction productivity enhancement strategies: A case study of three economies. *J. Manag. Eng.* **2019**, *35*, 05018013. [CrossRef]
68. Aguilar, F.J. *Scanning the Business Environment*. MacMillan Co.: New York, NY, USA, 1967.
69. Fernandes, J.P. Developing viable, adjustable strategies for planning and management—A methodological approach. *Land Use Policy* **2019**, *82*, 563–572. [CrossRef]
70. Järvenpää, A.M.; Kunttu, I.; Mäntyneva, M. Using foresight to shape future expectations in circular economy SMEs. *Technol. Innov. Manag. Rev.* **2020**, *10*, 7. [CrossRef]
71. Loizia, P.; Voukkali, I.; Zorpas, A.A.; Pedreno, J.N.; Chatziparaskeva, G.; Inglezakis, V.J.; Vardopoulos, I.; Doula, M. Measuring the level of environmental performance in insular areas, through key performed indicators, in the framework of waste strategy development. *Sci. Total Environ.* **2021**, *753*, 141974. [CrossRef]
72. A Participatory Systematization Workbook: Documenting, Evaluating and Learning from Our Development Projects. Available online: [https://digitalrepository.unm.edu/abya\\_yala/506/](https://digitalrepository.unm.edu/abya_yala/506/) (accessed on 22 September 2021).
73. Sistema de Información Multiterritorial de Andalucía. Available online: <https://www.juntadeandalucia.es/institutodeestadisticaycartografia/sima/datos/smex99.xls> (accessed on 2 December 2019).
74. INE. Instituto Nacional de Estadística—Historia. Available online: <https://www.ine.es/inebaseweb/71807.do?language=0> (accessed on 2 December 2019).
75. INE. Instituto Nacional de Estadística—Municipios. Available online: <https://www.ine.es/jaxiT3/Tabla.htm?t=33661&L=0> (accessed on 15 January 2010).
76. Sistema de Información Multiterritorial de Andalucía—Ficha Almócita. Available online: <https://www.juntadeandalucia.es/institutodeestadisticaycartografia/sima/ficha.htm?mun=04014> (accessed on 9 December 2019).
77. Junta de Andalucía. Available online: <https://www.juntadeandalucia.es/organismos/iaph/areas/formacion-difusion/reactivate/paginas/almocita.html> (accessed on 2 February 2020).

78. Morsetto, P. Restorative and regenerative: Exploring the concepts in the circular economy. *J. Ind. Ecol.* **2020**, *24*, 763–773. [[CrossRef](#)]
79. Muhl, D.D.; de Oliveira, L. Technologies for the circular economy in agriculture. *Iheringia Ser. Bot.* **2022**, *77*, e2022008. [[CrossRef](#)]
80. Zou, F.; Li, T. The Impact of Agricultural Ecological Capital Investment on the Development of Green Circular Economy. *Agriculture* **2022**, *12*, 461. [[CrossRef](#)]
81. Del Vecchio, P.; Secundo, G.; Mele, G.; Passiante, G. Sustainable entrepreneurship education for circular economy: Emerging perspectives in Europe. *Int. J. Entrep. Behav. Res.* **2021**, *27*, 2096–2124. [[CrossRef](#)]
82. Batova, N.N.; Tochitskaya, I.E.; Sachek, P.V. Circular economics in agriculture: Conceptual bases and implementation possibilities in Belarus. *Agrar. Ser.* **2021**, *59*, 277–291. [[CrossRef](#)]
83. Gkountani, V.A.; Tsoulfas, G.T. Circular economy and food production systems: Tracing linkages and exploring synergies. *Sci. Pap. Manag. Econ. Eng. Agric. Rural Dev.* **2021**, *21*, 2.
84. Yoshida, H.; Shimamura, K.; Aizawa, H. 3R strategies for the establishment of an international sound material-cycle society. *J. Mater. Cycles Waste Manag.* **2007**, *9*, 2. [[CrossRef](#)]
85. Zhu, Q.; Geng, Y.; Lai, K.H. Circular economy practices among Chinese manufacturers varying in environmental-oriented supply chain cooperation and the performance implications. *J. Environ. Manag.* **2010**, *91*, 1324–1331. [[CrossRef](#)]
86. Xuan, L.; Baotong, D.; Hua, Y. The Research Based on the 3-R Principle of Agro-circular Economy Model-The Erhai Lake Basin as an Example. *Energy Procedia* **2011**, *5*, 1399–1404. [[CrossRef](#)]
87. Rizos, V.; Behrens, A.; Van der Gaast, W.; Hofman, E.; Ioannou, A.; Kafyeke, T.; Flamos, A.; Rinaldi, R.; Papadelis, S.; Hirschnitz-Garbers, M.; et al. Implementation of Circular Economy Business Models by Small and Medium-Sized Enterprises (SMEs): Barriers and Enablers. *Sustainability* **2016**, *8*, 1212. [[CrossRef](#)]
88. Lombardi, G.; Gastaldi, M.; Rapposelli, A.; Romano, G. Assessing efficiency of urban waste services and the role of tariff in a circular economy perspective: An empirical application for Italian municipalities. *J. Clean. Prod.* **2021**, *323*, 129097. [[CrossRef](#)]
89. Wala, M.; Nowakowski, P. Investigating the economic efficiency of waste collection and transportation—Case study for urban and rural municipalities in Poland. *Transp. Probl.* **2020**, *15*, 93–105. [[CrossRef](#)]
90. Winans, K.S.; Kendall, A.; Deng, H. The history and current applications of the circular economy concept. *Renew. Sustain. Energy Rev.* **2017**, *68*, 825–833. [[CrossRef](#)]
91. Veleva, V.; Bodkin, G. Corporate-Entrepreneur Collaborations to Advance a Circular Economy. *J. Clean. Prod.* **2018**, *188*, 20–37. [[CrossRef](#)]
92. Didenko, N.; Skripnuk, D.; Ilin, I.; Cherenkov, V.; Taniev, A.; Kulik, S.V. An Economic Model of Sustainable Development in the Russian Arctic: The Idea of Building Vertical Farms. *Agronomy* **2021**, *11*, 1863. [[CrossRef](#)]
93. Morsetto, P. Targets for a circular economy. *Resour. Conserv. Recycl.* **2020**, *153*, 104553. [[CrossRef](#)]
94. Geng, Y.; Zhu, Q.; Doberstein, B.; Fujita, T. Implementing China's circular economy concept at the regional level: A review of progress in Dalian, China. *Waste Manag.* **2008**, *29*, 996–1002. [[CrossRef](#)]
95. Zhang, J.; Deng, W. Industrial Structure Change and Its Eco-environmental Influence since the Establishment of Municipality in Chongqing, China. *Energy Policy* **2010**, *2*, 517–526. [[CrossRef](#)]
96. Ilic, M.; Nikolic, M. Drivers for development of circular economy—A case study of Serbia. *Habitat Int.* **2016**, *56*, 191–200. [[CrossRef](#)]
97. Almeida-Guzmán, M.; Díaz-Guevara, C. Economía circular, una estrategia para el desarrollo sostenible. *Estud. Gestión Rev. Int. Adm.* **2020**, *8*, 34–56. [[CrossRef](#)]
98. Arbenz, M.; Gould, D.; Stopes, C. ORGANIC 3.0-The vision of the global organic movement and the need for scientific support. *Org. Agric.* **2017**, *7*, 199–207.
99. Bhunia, S.; Bhowmik, A.; Mallick, R.; Debsarcar, A.; Mukherjee, J. Application of recycled slaughterhouse wastes as an organic fertilizer for successive cultivations of bell pepper and amaranth. *Sci. Hortic.* **2021**, *280*, 109927. [[CrossRef](#)]
100. Bhunia, S.; Bhowmik, A.; Mallick, R.; Mukherjee, J. Agronomic Efficiency of Animal-Derived Organic Fertilizers and Their Effects on Biology and Fertility of Soil: A Review. *Agronomy* **2021**, *11*, 823. [[CrossRef](#)]
101. Vigoroso, L.; Pampuro, N.; Bagagiolo, G.; Cavallo, E. Factors Influencing Adoption of Compost Made from Organic Fraction of Municipal Solid Waste and Purchasing Pattern: A Survey of Italian Professional and Hobbyist Users. *Agronomy* **2021**, *11*, 1262. [[CrossRef](#)]
102. Batlles-de-la-Fuente, A.; Abad-Segura, E.; González-Zamar, M.-D.; Cortés-García, F.J. An Evolutionary Approach on the Framework of Circular Economy Applied to Agriculture. *Agronomy* **2022**, *12*, 620. [[CrossRef](#)]
103. Fogarassy, C.; Nagy-Pércsi, K.; Ajibade, S.; Gyuricza, C.; Ymeri, P. Relations between Circular Economic “Principles” and Organic Food Purchasing Behavior in Hungary. *Agronomy* **2020**, *10*, 616. [[CrossRef](#)]