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Ecovillages as a Development Model and the case of Api-Tourism in Sustainable Settlements

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Abstract: The study on ecovillages is characterized by the heterogeneity of its sources, being of great interest the delimitation of its theoretical and empirical framework for the knowledge of its structure, functions, and its pioneering perspectives together with its future in the light of international policies in sustainability. A methodological triangulation (structural, comparative and hypothetical-inductive) is used to develop the approach to the concept, evolution, status, and its role in the context of a green, circular, and sustainable economy. In addition, beekeeping as a fundamental activity within "Red Iberica de Ecoaldeas" (RIE) in Spain was examined through the realization of surveys and shown to be non-existent. Thus, api--tourism is considered as an applicable paradigm for the insertion of regenerative activities that are more in line with current demands and a tourism niche which potentially contribute to the Sustainable Development Goals (SDGs).

Keywords: Ecovillage; Environment; Green economy; Api-tourism; Sustainable development.

Ecoaldeas como Modelo de Desarrollo y el caso del Api-Turismo en Asentamientos Sostenibles

Resumen: El estudio de las ecoaldeas se caracteriza por la heterogeneidad de sus fuentes, siendo de gran interés la delimitación de su marco teórico y empírico para el conocimiento de su estructura, funciones y sus perspectivas pioneras junto con su futuro a la luz de las políticas internacionales. en sostenibilidad. Se utiliza una triangulación metodológica (estructural, comparativa e hipotético-inductiva) para desarrollar la aproximación al concepto, evolución, estatus y su rol en el contexto de una economía verde, circular y sustentable. Además, la apicultura como actividad fundamental dentro de la Red Ibérica de Ecoaldeas (RIE) en España fue examinada mediante la realización de encuestas y se demostró que es inexistente. Así, el api-turismo se plantea como un paradigma aplicable para la inserción de actividades regenerativas más acordes con las demandas actuales y un nicho turístico que potencialmente contribuye a los Objetivos de Desarrollo Sostenible (ODS).

Palabras Clave: Ecoaldea; Medio ambiente; Economía verde; Api-turismo; Desarrollo sostenible.

1. Introduction

Since the 1960s in the twentieth century, various social youth movements have increased interest in proposals for alternative community life, in natural environments and based on cooperation. The objectives of this return to the origins are multiple, but above all it highlights the improvement of sustainability, putting into practice an interaction with the environment based on the key principles of ecology, such as the promotion of a green economy. In later years (1980s and 1990s), these initiatives continued to consolidate and expand around the world, with numerous success stories in Europe, North and Latin America.

It is important to analyze their evolution and prospects, especially at a time when the debate on environmental degradation and the impact of human activity on the planet is more intense in the light of

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climate change and the depopulation of large areas of traditional rurality. It is time, therefore, to deepen the model of ecovillages or whether, on the contrary, they will continue to be a minority alternative way of life. Likewise, their study is especially relevant in the academic field, within the research on the new models of rurality, the new practices of sustainability.

Within the tourism literature, the concept of ecovillages and such tourism motivation is defined by Zeppel (2006) as those rural or semi-rural projects that link permanent residents of a community and their daily work with tourism aspects. These ecovillages give the visitor the opportunity to stay for a short period of time as a visitor or spend long stays as a volunteer. In addition to the daily activities practiced in the ecovillage, whether related to cultivation, livestock or beekeeping, educational activities, courses and seminars are promoted for those who simply want to learn about life in an ecovillage, become involved in a similar project, or start a new one (Borio, 2001). Sustainable tourism in international ecovillages has been a reality for some years now and a way to generate extra income for the residents of these sustainable settlements. An example is found in the ecovillage of *Pachamama* in Costa Rica (www.https://www.pachamama.com/eco-village), where a group of people regenerated and gave life to 200 hectares of pasture land, turning it into a green and healthy forest with thousands of trees and endangered species that host a great variety of wildlife, including butterflies, different types of bees, insects, monkeys, big cats and birds. Other examples can be found in Spain, where Aldeas Infantiles foundation organizes summer camps for young people between 16 and 24 years at *EcoGranja la Aldea* (https://www.laecogranja.org). Here they learn activities such as bioconstruction, sustainable agriculture, or cooking to build an ecovillage.

In this logic of sustainability and functional upgrading, api-tourism will be addressed, being defined as any trip - local, regional, national, or international - with the purpose of interacting with bees and learning about the culture that surrounds them, whether in natural or urban spaces (Porter, 2020). Furthermore, api-tourism is a tourism model that connects the traditional art of beekeeping and beehive products with the visitor (Wos, 2015) and can be the main motivating factor of the trip, (e.g., visiting the famous honey hunters in Nepal or api-routes in Slovenia) or secondary factor (Lemelin, 2020) offered within together with agritourism activities.

2. Literature review

Numerous studies on ecovillages were carried out from a sociological perspective. In this sense, there are studies related to the balance between individual and collective (Forster and Wilhelmus, 2005; Holleman and Colombijn, 2011; Jones, 2011), fulfillment of set goals (DePasqualin et al. 2008; Ergas 2010; Irrgang 2005; Kunze 2003; Kirby 2003; Mulder et al., 2006) or reconstruction of values and norms of the group (Nathan 2009; Wagner 2007; Wight 2008).

Also, there is no lack of perspectives that have approached aspects from a cosmological vision (Salamanca and Silva, 2016; van Schyndel Kasperr, 2008; Wagner 2008); or those of authors who address it in relation to the phenomenon of gentrification and whether ecovillages, as other urban communities, can be models of coexistence that help to fight this problem by constituting relational spaces in which community problems can be discussed and solved, solutions proposed and spaces of resistance to such gentrification created (Raynor and Bunce, 2020; Chitewere, 2010; Ergas, 2010; Litfin, 2014; Pickerill, 2016; Thompson, 2015). Finally, the concept of ecovillage and the possibilities of its transfer to urban spaces are addressed, concluding that they are not models that can transform the paradigm of community living, although they provide sustainable solutions at the local level (Blouin, 2007; Centgraf, 2009; Grizzuti, 2009).

According to Lockyer and Veteto (2015), ecovillages are experimental communities on alternative and sustainable living. They define the concept as one that combines minimum intrusion into the environment, social inclusion, and collective decision-making. In this line of endogenous development and minimal environmental impact, ecovillages often implement some of these mechanisms: shared housing and accommodation, local economy and currencies, connection with nature, strong social cohesion and forms of collaborative and more sustainable consumption such as communal workspaces, shared means of transport, food cooperatives, time banks and exchange of clothes and household goods, to mention only the most frequent.

As per Temesgen (2020), the economic structure of ecovillages is the key to their success or failure. Ecovillages with robust economics and good social networks are better equipped to successfully embrace alternative project financing channels and become self-sufficient. On the other hand, ecovillages that do

not have sufficient resources of their own are forced to resort to more conventional business and financing models in which profits must be generated for investors, with the obvious risk for these ecovillages of losing essential elements to the very concept of sustainability which is crucial to these communities.

Following Singh et al. (2019), early definitions of ecovillage were inspired by the Eastern philosophy of connection with nature and the Western sensibility of environmental protection, where the dilemma was to maintain the balance between personal space and community development.

The concept of ecovillages began to be used in 1976 due to the increasing academic interest in Findhorn (LeVasseur, 2013), the Scottish ecovillage founded in 1962 and one of those that has received the most scholarly interest. According to Kanter (1972); they imply not only the search for self-realization for the individual, but also an interest in political and economic change. Furthermore, there are religious motivations in many of these ecovillages and intentional communities, although the same author points out that the latter religious motivations are especially important in North America due to the country's own history and characteristics.

The phenomenon of ecovillages and the increase in publications on the subject, began to receive increasing academic attention in 1991 with the article by Robert and Diane Gilman (1991). Both, editors of the ecological magazine In-Context, made this publication at the request of Gaia Trust (*), delimiting the most detailed definition of ecovillage as a human settlement in which the activities developed are integrated into the natural environment without damaging it, in a way that supports a healthy development of individuals and can be replicated in different environments over time (Gilman, 1991, cited by Jackson, 1998).

For Gilman (1991) ecovillage implies:

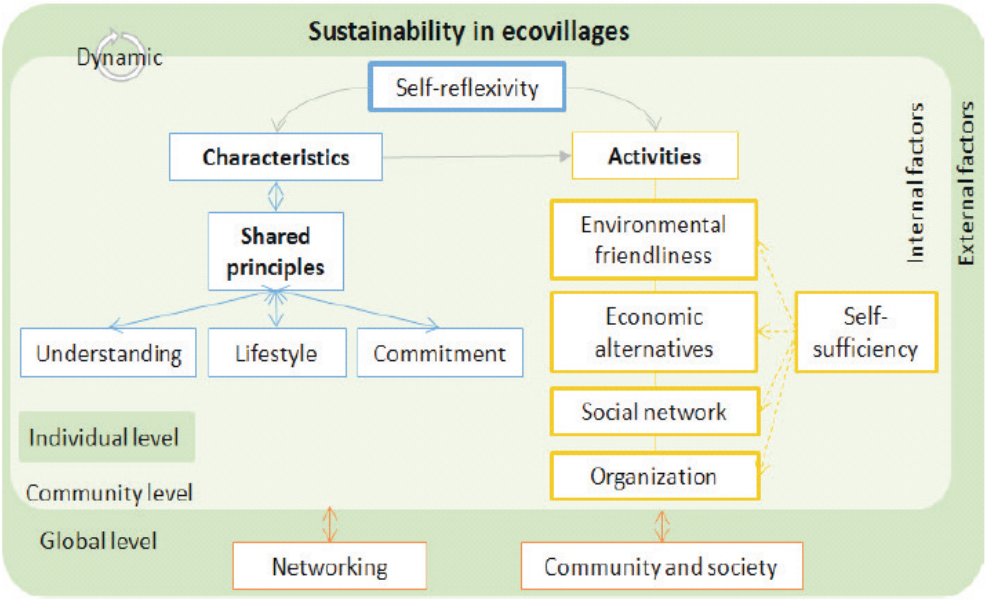
- Human scale. This means living in a community where everyone knows everyone else, so they cannot be too large population centers. The average size of an ecovillage ranges from 50 to no more than 250 people (Bang, 2005), although there are much larger ecovillages and smaller ones.
- In an inclusive settlement. All housing, leisure and recreation activities, food provision, social life and commerce are integrated in the same environment, unlike other urban environments where there are different residential areas, leisure areas and shopping areas. This does not necessarily imply that all inhabitants of the ecovillage work within the ecovillage. It is reasonable to assume that some will leave the community to work elsewhere, just as people from elsewhere may come to work in the village.
- All community activities are fully integrated into nature without harming it, which implies circular economy and recycling, use of renewable energies and no use of products that may be harmful to the environment.
- Healthy human development. Ecovillages are communities that take care of the physical, mental, emotional, and spiritual balance of their inhabitants.
- Sustainable over time, with an honest commitment not to exploit other people and communities or other forms of life, both in the present and in the future.
- Sustainable communities: whereby the concept also includes networks of ecovillages and communities that may not be based on geographical boundaries but share the above four principles. From this perspective, the term becomes much more inclusive. An ecovillage can be a rural settlement, but also an urban neighborhood. A city would not fit the definition of an ecovillage, but a city made up of many ecovillages can be considered a sustainable community.

In their strictest sense, ecovillages are communities living in isolated environments that share values of environmental sustainability, which are the basis of the commitment of their inhabitants. These values become in practice the use of renewable energies, self-supply of food, organic agriculture, organic gardening, and permaculture (Meijering, 2012). In short, a concrete example of sustainability in the body of academic literature (Waerther, 2014). They are fundamentally communities that intentionally share a vision of life and values and cooperate on an ongoing and continuous basis. Thus, early definitions share that ecovillages can have different meanings and purposes in different contexts and with different groups of people (Warburton, 1998), but that they typically share ecological values (Jackson, 2004).

Ecovillages can thus be defined as communities intentionally created to facilitate healthier human development and decrease the impact on the environment, considering the sustainability of their actions both in the present and in the future (Bang, 2005; Waerther, 2014. Therefore, they are not rigid organizations, but learning systems around sustainable and more environmentally friendly environments.

Waerther (2014) proposes a conceptual model of ecovillage that can be seen in Figure 7, and in which it is characterized by principles and values shared by all members of the community that produce a commitment of all around the shared way of life. Likewise, all activities are based on respect for the environment, interaction between people and self-sufficiency.

Figure 1: Sustainability in ecovillages



Source: Waerther (2016).

It should be noted that, in early academic work on ecovillages these are defined as social experiments, but successive research progressively shows that they are alternative models of living that aim not to deplete natural resources (Chitewere, 2006; Vazin, 2016). A rural community model conceptualized around a socially friendly, economically viable and ecologically sustainable community life and are thus a tangible proof that human beings can cooperate harmoniously both with other people and with the available natural resources. Therefore, ecovillages include dimensions of environmental care, viable economic alternatives social networks and human organizations that aspire to be self-sufficient to a greater or lesser extent (Ruiz-Escudero, 2012; Ruiz-Escudero, 2019), in fact, they all usually carry out ecological agriculture and other activities that allow them to be self-sufficient.

3. Evolution and trends of the ecovillage model

In terms of ownership, ecovillages differ substantially from one another in aspects such as the degree of private versus communal ownership since they tend to practice their ideals in their daily lives, which facilitates group cohesion and a sense of belonging (hence the nickname intentional communities). In addition, ecovillages have rules of conduct to ensure the alignment of individuals with community goals and peaceful coexistence. Common examples of community work are those in which the whole village participates in the same project: construction, communal dinners, parties, meditation, music, sports, theater, and gardening (Ergas, 2010). Each ecovillage has its own list of policies and rules, which can cover everything from the conditions for joining the community, design of the houses or when one can

leave the community. The rules tend to increase as the community is confronted with new or unusual situations (Kasper, 2008).

In terms of the visible organization of ecovillages, the physical characteristics of the communities attempt to reflect their ideals, which include respect for the environment, good quality of life and a strong sense of community. The design of ecovillages reflects the spiritual, social, and ecological lifestyle of the community (Bang, 2005). Therefore, it is not possible to speak of an ecovillage as a single or overriding design. However, there are some aspects to be shared such as design goals often revolve around systems thinking, healthy ecosystem and respect for other members of the community. In the same way, dwellings can vary substantially, from very small to very large, ascetic, or very comfortable, alternative, or conventional, always according to the personalities of their inhabitants (Singh et al., 2019).

In relation to the respectful interaction with the environment, the ecovillage is also associated with the feeling of belonging to the community, solving current problems that for authors such as Bauman (2001), translate into vertiginous changes in modern society accelerated by globalization which have led many individuals to feel excluded and uprooted, resulting in a greater "hunger" for security and feeling of belonging (Blackshaw, 2012). Ecovillages as "intentional communities" Taylor, 2003) allow the sharing of knowledge, goods, and services around a common purpose, offering wide opportunities for social interaction.

Regarding governance and conflict management, Van Schyndel Kasper (2008) conducted a comparative study of eight ecovillages in North America and found common elements in the way they interact and resolve their conflicts. Since informal social interaction plays a very relevant role in these communities, there is a set of rules and norms for all members of the ecovillage. Examples of this system of rules is the organization of periodic meetings whose purpose is not only for the group to meet, but also to resolve any doubts, conflicts, or misunderstandings. It is common in all communities, even those with few communal activities, for all members to participate in both community and private projects.

It is worth noting the marked differences in the academic literature on ecovillages in Latin America, which deals with spiritual aspects linked to pre-Columbian religions and cultures. Ecovillages, therefore, encompass socioeconomic, environmental, and cultural aspects (Acosta, 2013; Caudillo-Félix, 2012; SELBA, 2015).

According to Litfin (2012), the oldest predecessors of ecovillages come on the one hand from spiritual and religious environments, and on the other hand, from countercultural back-to-nature movements of the 1960s and 1970s (Mare, 2000); decades in which an important ecology movement was created, advocating the cultivation of one's own food and the construction of housing far from the urbanite society (Daloz, 2016).

From 1994 onwards, the focus of the movement changes, to be oriented towards the construction of global networks. The Global Ecovillage Network (GEN) is founded, defined as a network coordinated by The Gaia Trust, whose objective was "to support the development of human-sustainable settlements, assist in the exchange of information between different settlements and make information available to all".

At the beginning of the 21st century, the same network has developed the idea of using ecovillages as learning centers, showing the world the possibilities of sustainable living in communities. Thus, concern for training and knowledge sharing have always been at the genesis of this global movement. Many these ecovillages developed from GEN and numerous organizations and community initiatives, but also those that had to close due to lack of funds to grow and consolidate. For all these reasons, the educational aspect was considered important to generate income (Dawson 2006; Mare, 2000) and in 2005 a common educational program was launched for the whole network with the purpose of sharing experiences and knowledge on healthier and more environmentally friendly ways of living.

Recent trends consider teaching as a way of attracting followers to a way of life, reinforcing their own community logic to the extent that they can communicate their ideals and be an example to the outside world. Thus, communities such as Chickenshack created a wide variety of courses, from personal development to "outdoor" proposals and courses on ecological agriculture (Kirby, 2003).

Since the beginning of the 21st century, and in line with the trend of ecovillages towards communication and teaching of their "modus vivendi", different authors define them as "private initiatives" which seek to recover control over community resources, with broad shared values and which act as centers for research, demonstration and, in several cases, training (Dawson, 2009). Under this new definition, ecovillages will be a center of social and ecological innovation (Dawson, 2006) given that, ecovillages

also cultivate their socio-cultural dimension, taking an interest in indigenous and traditional cultures, and mastering their crafts, music, customs, and art (Walker, 2005).

More recent studies on ecovillages analyzes it in a more critical, less adaptive, but also much more ambitious perspective. Casey et al. (2020) consider ecovillages as intentional communities in unique contexts and designed to break with traditional models and the Dominant Social Paradigm. These communities create alternative social structures, which is why they can be defined as utopian projects (Cooper and Baer, 2018; Hong and Vicdan, 2015; Meijering, 2012). Furthermore, Litfin (2014) defines the purpose of ecovillages as designing a global innovative portrait of sustainable living for the 21st century because sustainability is no longer an option, but a basic norm for inhabiting our planet.

Nevertheless, some authors are more skeptical about its usefulness. According to Jackson (2004) the ideal ecovillage does not exist, it is only a possible new paradigm of a way of life yet to be developed and achieved. Garden (2006) considers that they do not actively participate or collaborate to promote sustainability outside their environment, they do not lobby international organizations, which seems to imply only a new lifestyle, rather than a change of social paradigm. Further, it does not seem confirmed that they can get rid of most of the problems of global society and achieve their goals, such as coexistence, which is not always easy or satisfactory. Fotopoulos (2006) conclude that the ecovillage movement is too simple and is often dominated by irrational and contradictory philosophies, making it more "part of the problem of the transition to a new society than its solution", since it can contribute to disorienting people with respect to the causes and possible ways out of the systemic crisis of our society.

4. Ecovillages: development in the global economy

Despite being defined as isolated communities, as "worlds within worlds" (Garden, 2006), some authors admit that ecovillages are too small to escape the gravitational pull of the large global economy (Mare, 2000; Andreas, 2013). Ecovillages, following Litfin (2014), aspire to have a certain degree of independence in their management, but that does not necessarily mean being able to become completely self-sufficient or remain isolated from other communities, as they are connected in social, economic, and political networks. For this reason, ecovillages have sought out active forms of community involvement through organizations such as the Global Ecovillage Network (GEN).

Initially GEN, which is also the largest association of ecovillages, had 25 representatives from communities around the world. It has subsequently split into associations by geographical zones such as GEN Asia and Oceania, ENA (Ecovillage Network of America) and GEN Europe (including Europe, Africa and the Middle East) and maintains important alliances with the United Nations ("Best Practices and Economic and Social Council"). The associative dimension of the movement has multiple connections in all continents, such as the Sardovaya network in Sri Lanka with more than 2,000 ecovillages, the Iberian Ecovillage Network (RIE), the Latin American Ecovillage Network, the Brazilian Association of Alternative Communities (Abrasca) and the Rainbow Network in Chile.

However, it is highly complex to have an updated list of ecovillages on a global scale. The volatility of many of these communities is compounded by the difficulty of classifying what exactly an ecovillage is and what other form of intentional communities does not include. Moreover, the data varies widely based on whether one adopts a more specific definition or a more inclusive and open definition. GEN affiliates can give an approximation, but there are many communities that do not participate in this global network.

The 2021 revision of GEN details 187 ecovillages in the Latin American network (CASA), 103 in Africa (GEN Africa), 170 in Asia and Oceania (GENOA) and 142 in North America (GENNA) and 18 in the Middle East (17 of them in Israel). Kasper (2008) states that it is impossible to know with certainty how many ecovillages exist in the USA alone, let alone worldwide. While Jackson (2004) estimates between 4,000 and 5,000 worldwide and Bates (2003) risks talking about 15,000, all this using a more inclusive definition that also takes into account urban environments.

Meijering (2012) conducted one of the first inventories of ecovillages in Europe, reaching the figure of 473 ecovillages in this continent. The spatial distribution found reflects a large number of communities established in the United Kingdom, Germany, and Northern Europe (395 communities inventoried), relatively few (both in number and proportion) in Southern Europe (64 communities inventoried) and even fewer in Eastern Europe (14 communities inventoried). The dynamism of ecovillages, their small

size and different typologies make precise figures difficult to obtain. The latest figure available from GEN counts 357 ecovillages, 89 of them in Spain alone. In its inventory, there are both rural and urban settlements and all kinds of categories (religious communities, indigenous, traditional, eco-farms, shared housing, restoration and transition communities and a long etcetera of modalities and typologies). A very interesting aspect on which to develop studies is precisely to delimit the differences and similarities between all classes.

In Eastern Europe, the scarce presence of ecovillages is attributed to a weaker civic involvement caused by the legacy of the former communist regimes, which did not favor intentional communities (Meijering, 2012). Meanwhile, many of the European communities consider themselves connected to the hippie movements of the 1960s and 1970s, committed to the struggle for equality and elimination of poverty and pacifism. The most common aspect of the communities studied is that their values combine political, environmental, and communal aspects. For the same reason, they have a commitment - tacit or expressed - to a better world and an alternative lifestyle to that of mainstream society. These ways of life are increasingly accepted and appreciated by society (Ray and Anderson, 2000).

5. Methods

The objectives in this study pursued to verify the implementation of sustainable and ecologically regenerative activities in ecovillages, in the case of the Red Iberica de Ecoaldeas (RIE), and the activity of beekeeping as a fundamental activity in this logic, analyzing api-tourism, as an applicable paradigm for the insertion of regenerative activities and more in line with the educational and informative activities of their way of life, as well as the current demand for ecotourism and agritourism.

In terms of methods applied, to examine the key concepts, evolution and categorization of the term "ecovillage" an extensive bibliometric analysis was carried out through the main academic publication databases ("Web of Science", "Scopus" and "Microsoft Academic").

Regarding the empirical framework, the comparative method was applied from the exploitation of secondary sources, and the structural and hypothetical inductive method, using the theoretical framework prior to the study of the case analysis, and a subsequent survey to all the ecovillages of the RIE network to contrast the premises on their functions and actions on sustainable and regenerative development. Surveys were carried out in eleven ecovillages in Spain and Portugal. Questions were aimed at finding out the level of knowledge on api-tourism and beekeeping in general and whether these practices were being practiced in these ecovillages. For the realization of the surveys carried out between the months of September and October 2021, the entire territory of the Iberian Peninsula where these ecovillages are located was taken into account, all of them collected and certified in the RIE, being these locations: - Valencia, Navarra, Huelva, Almería, Seville, Sevilla, León, Cádiz, Portugal, Madrid and Lugo- and were directed to the founding members or leaders of these, although these in turn recommended other new actors having thus, a snowball effect used for approaching individuals and aimed at low incidence populations (Krackhardt, & Porter, 1986).

6. Results

Results on ecovillages are extensive, both strictly academic and in numerous publications by the different ecovillage associations and groups. The number of academic publications on ecovillages has grown both in number of publications and citations, since the 1990s, with the greatest boom in publications on *ecovillages* between 2010 and 2014 and a total of 385 publications and 2178 citations up to September 2021 (Figure 6). Publications in Spanish on the concept "ecovillages" add up 82 academic publications between 2002 and 2021 ("Google Scholar").

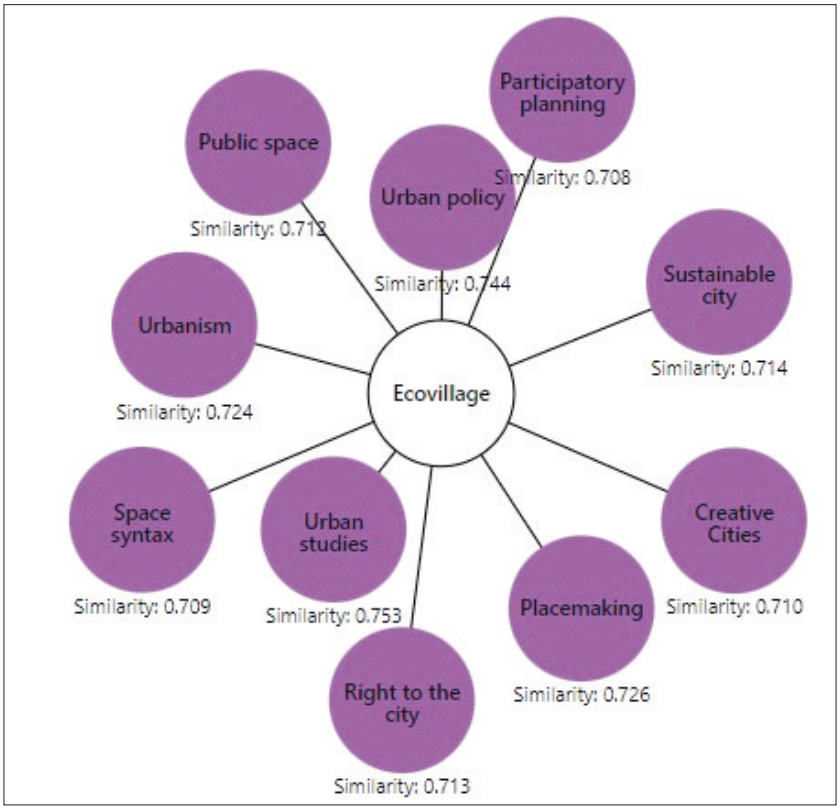
The concepts most directly related to ecovillages are those shown in Figures 2 and 3. A review of all academic publications on the topic through semantic searches in Microsoft Scholar finds frequent significant correlations (above 0.7) with concepts such as "urban studies", "urban policies", "placemaking", "urbanism" and "sustainable city", followed by "right to the city", "public spaces", "creative cities", " spatial syntax" and "participatory planning". In other words, these concepts appear frequently connected with ecovillages in the abstracts and full texts of academic papers and are interchangeable in publications.

Figure 2: Concepts most frequently associated with ecovillages

ECOVILLAGE: RELATED CONCEPTS	
Urban studies	0,753385127
Urban policies	0,74350667
Placemaking	0,726273298
Urbanism	0,723714709
Sustainable city	0,714210451
Right to the city	0,712953329
Public space	0,711986899
Creative Cities	0,710171402
Space Sintax	0,70879364
Participative Planning	0,708182395

Source: Own ellaboration using Microsoft Academic (2021)

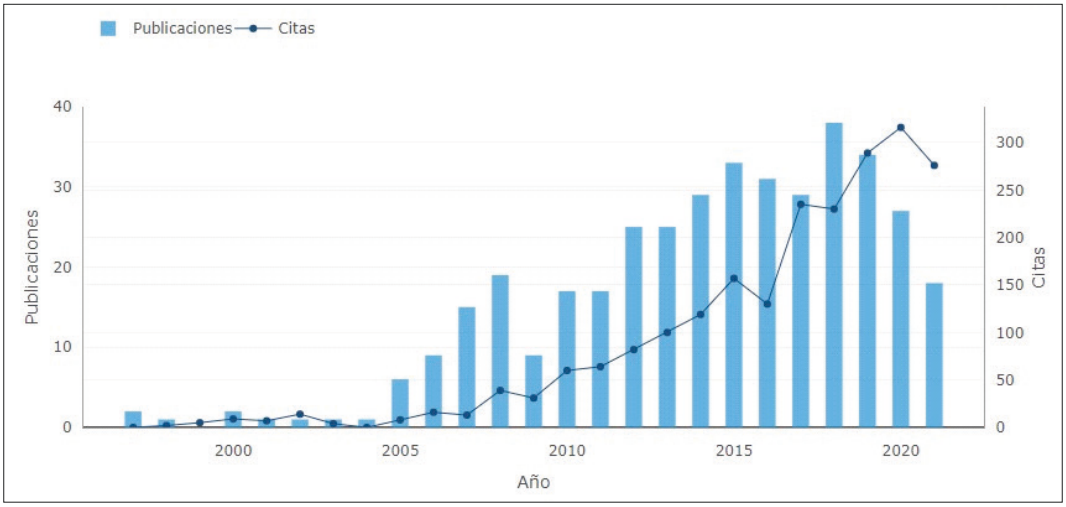
Figure 3: Graphic map of concepts most frequently related to ecovillages



Source: Own ellaboration using Microsoft Academic (2021)

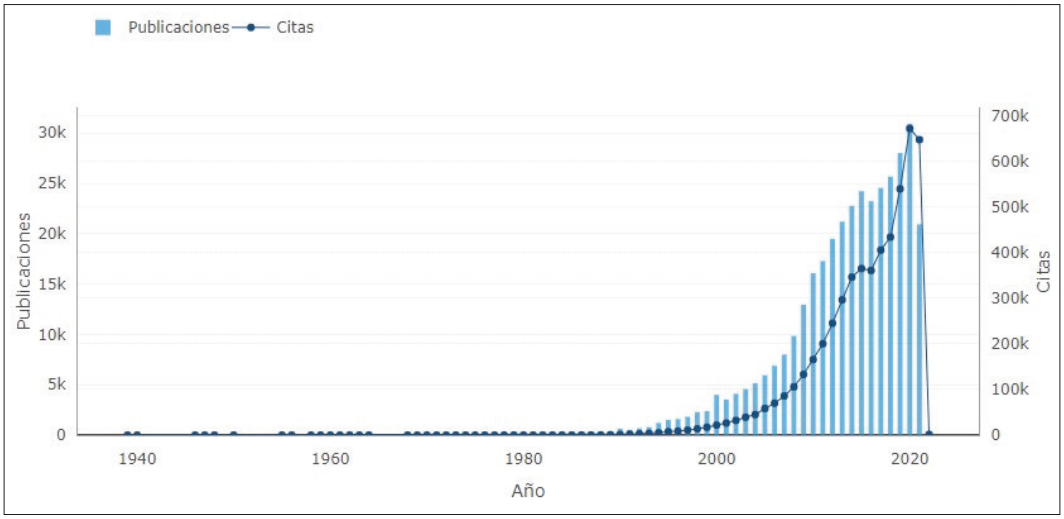
Similarly, when related concepts such as "ecoaldeas" and "ecovillages" area analyzed with the concept of sustainability through the graphs extracted from the number of publications and citations in Microsoft Academic, we can see that academic research on ecovillages (Figure 4) has a similar evolution to that of sustainability (Figure 5), evidently at very different scales. Both academic investigations (ecovillages and sustainability) maintain a growth in the number of publications as well as citations from the 2000s onwards, although the total number of publications on ecovillages / "ecovillage" reaches 390 in 2021 (reviewed on September 4, 2021, in "Microsoft Academic"), with a peak of more than 40 publications in 2018, from which interest in the topic declines. Sustainability research produced over 352,000 publications and continued in 2021 to grow in both, the number of publications and citations (reviewed September 4, 2021, in "Microsoft Academic"). Below graphs show how both concepts have evolved similarly since the 2000s.

Figure 4: Publications and citations about "ecoaldeas" / "ecovillages"



Source: Own ellaboration using Microsoft Academic (2021)

Figure 5: Publications and citations about sustainability in the academic literature



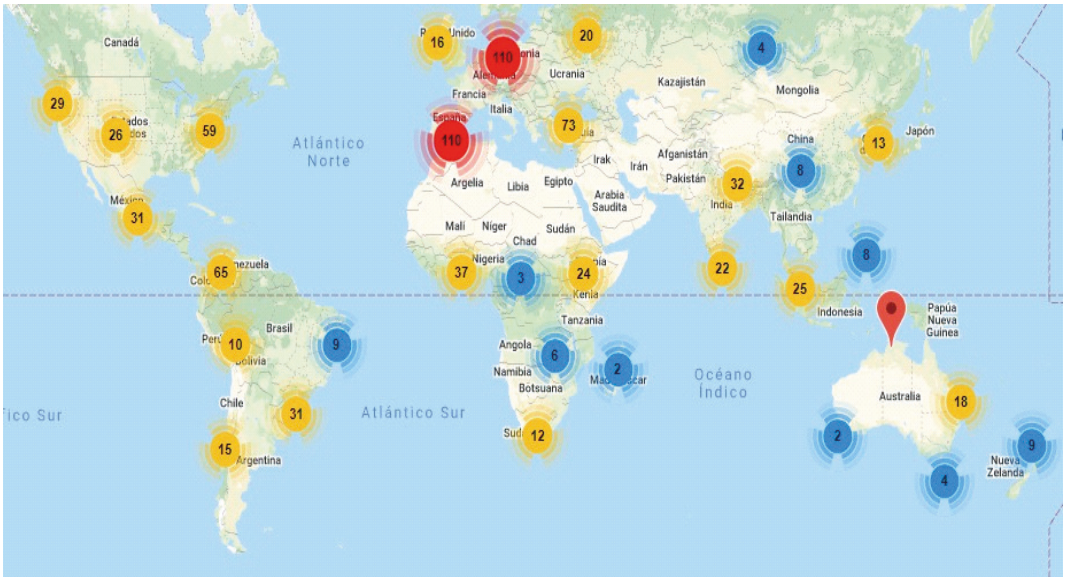
Source: Own ellaboration using Microsoft Academic (2021)

Thus, the literature review confirms that research on ecovillages is still a recent phenomenon. The term "ecovillage", translated into Spanish as "ecoaldea" began to be used in the 1990s (Wagner, 2012). According to this author, in his bibliometric on ecovillage research, it is not always easy to determine whether a given community is an ecovillage, since the very concept of ecovillage corresponds to a self-naming by the community itself, which may in some cases fit correctly into the parameters shared by the academic community when referring to ecovillage, or it may be a mere intentional community.

It is likely that there might be actual ecovillages not included in the studies and communities that cannot be categorized as such but which are included as so in the research papers. Wagner's (2012) bibliometric study confirmed the growing interest in the topic, with significant increases in studies since 2000. Most of the existing research uses the case study methodology -therefore qualitative- which makes it more challenging to find complete statistics on the number and categories of existing ecovillages. The author concludes that ecovillages exist all over the world. However, they are more prevalent in industrialized nations influenced by the predominant Western culture. Therefore, there are a significant number of ecovillages in Europe, North America, and Latin America and fewer in Asia, Africa, and Oceania.

In the case of Latin America, ecovillages combine an inspiration based on Western culture with pre-Columbian spiritual values, such as that of "*good living*" and return to mother earth, the concept in indigenous languages of "Sumak Kawsay", "Suma Qamaña" or "Sumakawsay" (Acosta, 2013; Salamanca and Silva, 2016). Subsequent works do not confirm Wagner's assertion, since the global networks of ecovillages are extensive in all continents, as can be seen in the updated map in Figure 6.

Figure 6: Ecovillages in the world



Source: Gobal Ecovillage Network (2021)

The bibliometric analysis on api-tourism, was carried out based not only on academic articles but also on other resources such as books, guides and other online academic sources. This review process followed a deductive character where the words "api-tourism" OR "apitourism" OR "beekeeping tourism" AND "tourism" OR "sustainable tourism" and others such as "agritourism" OR "rural" have been introduced in the combination of words from large databases such as WOS, Scopus and Google Scholar. The first filter resulted in more than 67,000 results in several languages, and the filter was narrowed down to the selection found in this article.

In addition to the selection of the definition and categorization of the concept, a pioneering relation was used where the contribution of api-tourism to the Sustainable Development Goals (SDGs) is shown and how this modality of tourism can be one of the most sustainable and regenerative modalities that can be found, being directly related to 15 SDGs.

7. The role of api-tourism activities in agritourism and contribution to the sustainable development goals (SDGS).

Within alternative tourism, agritourism is defined as a tourism activity that involves visiting a farm or agricultural area to learn firsthand what life is like for those engaged in these trades and to act as a catalyst for sustainable development (Pehin et al., 2022). Farms around the world seek to diversify their activities to stimulate their socio-economic conditions (Pehin et al., 2022) and thus bring tourists closer to the rural world.

Among the most popular activities within agritourism are plantation tours (e.g., on coffee or tea plantations), fruit, vegetable, and nut picking, dinners and events on the plantation itself, farm stays and volunteering, and more recently, visits to beehive apiaries. In recent years, visits to beehive apiaries have become one of the most enriching agritourism activities.

In addition, the practice of api-tourism can be closely related to 15 of the set of 17 sustainable development goals of the 2030 agenda:

- *End of Poverty*: There are several studies that allude to the practice of api-tourism as a factor that offers economic diversity (Wos, 2014; Popescu, 2017; Shiffer, 2014, Ghosh et al., 2020; Schouten et al., 2019) helping to build resilient livelihoods for rural communities.
- *Fight Against Hunger:* Pollination is essential for cultivated crop fields (Wratten et al., 2012; Klein et al., 2018). It is an ecosystem service that would be enhanced through the development of beekeeping-tourism projects, and which also improves the nutritional value of fruits, vegetables and seeds (Brockerhoff et al., 2017) thus contributing, to the food security of the planet.
- *Wellness and Healthy Living*: Several authors described how api-tourism, thanks to bees, contributes to *wellness and a healthy living* (Ghosh et al., 2020; Wos, 2014; Spevak, 2012; Lemelin et al., 2019; Shiffler, 2014; Abou-Shaara, 2019) through bee products derived from the hive for spa treatments and apitherapy. Additionally, the products offered by bees are studied in modern medicine to prevent different diseases, including cancer (Pasupuleti, et al., 2017). Even the use of bee venom (apitoxin) has been the subject of debate in the recent SARS-CoV-2 health crisis. (Welburn et al., 2020; Yang, 2020; Männle et al., 2020).
- *Quality Education:* Creative experiences and educational functions are very important aspects in the practice of api-tourism (Wos, 2014; as Arih and Korošec, 2015). Vocational training towards the management and care of bees favors equal employment opportunities, which can be focused on a sustainable tourism model that advocates regional development (Lemelin et al., 2019), training, and entrepreneurship in local communities.
- *Gender equality*: api-tourism promotes equality between women and men in the beekeeping sector (Pocol, 2015)
- *Clean water and sanitation:* Pollination offered by bees drives the regeneration of a great variety of plants and ecosystems, important for the improvement of water quality (Skorbiłowicz et al., 2018; Klein et al., 2018).
- *Clean Energy:* As indicated by Perrot et al., (2018), by improving crop production thanks to bee pollination, the number of oilseeds, used for the creation of biofuels, increases.
- *Decent Work and Economic Growth:* It is stated by (Arih and Korošec, 2015) that beekeeping and tourism practices require intensive labor, generate new jobs, and by bee pollination, agricultural production increases, which provides greater employment opportunities, which, in turn, implies an increase in the Gross Domestic Product (GDP) of a nation.
- *Industry, innovation, and infrastructure*: bees are elements of nature that often inspire human innovations, for example, in large-scale precise visual navigation elements (Bianco, 2004, Karaboga, 2005). Architecture based on beehives includes the honeycomb tourism accommodation of Honey Village in Mozirje, Slovenia and the creation of the "Artificial Bee Colony Algorithm"- optimization algorithm based on the intelligent honey-seeking behavior of bees (Karaboga, 2005).
- *Reduction of inequalities:* Api-tourism generates direct jobs in rural agritourism lodgings, and indirect jobs in restaurants and complementary offerings, such as stores along the honey routes, especially those concerning the rural world, because according to Schouten et al (2019), the generation of income through beekeeping and tourism improves the living conditions of those with lower incomes and diversifies livelihood opportunities in rural areas, thus reducing inequalities.
- *Sustainable cities and communities:* Thanks to beekeeping, this practice in cities could contribute to the improvement of the air, because of pollination and the increase in urban flora (Lorenz & Stark,

2015). Bees, as argued by Skorbiłowicz et al., (2018), can be important agents in bio-monitoring the natural changes that occur in urban areas as a consequence of anthropogenic activity.

- *Responsible production and consumption*: Honey is a complete, natural, and regenerative food, and tourism of this nature values responsible consumption and non-polluting production (Klatt et al., 2014; Popescu, 2017). Also, the overexploitation of fish can be reduced thanks to the promotion of a diet based on nutrients from plants, and some authors (Klatt et al., 2014; Amjad et al., 2017) relate this to bees, since pollination contributes to reducing food waste by improving the visual aesthetics of food (size, shape, and colors).
- *Climate actions*: point towards the use of bees and their products for environmental monitoring studies to help improve the understanding of climate impacts on honey production (Baez et al., 2019).
- *Life of terrestrial ecosystems of underwater life:* bees potentially contribute to the pollination of aquatic plants, such as the water lily, (Hirthe and Porembski, 2008; Maia et al., 2014, Amjad et al., 2017) and can enhance the plant-based resources commonly found in marine species (Amjad Khan et al., 2017).
- *Life of terrestrial ecosystems:* bees contribute to the planet's biodiversity through the ecosystem service of pollination of trees and plants, as already mentioned, so api-tourism can contribute to the conservation of forests, and in turn support reforestation initiatives (Arih and Korošec, 2015).

Table 2: Contribution of Api-tourism to SDGs

SDG	Authors	Details
1	Popescu, 2017; Wos, 2014; Shiffer, 2014; Ghosh et al. 2020; Schouten et al.,2019.	Api-tourism offers economic diversity helping to build resilient livelihoods for rural communities
2	Wratten et al., 2012; Klein et al., 2018;	Pollination is essential for farm fields ecosystem services and would be increased thanks to the development of beekeeping projects
3	Ghosh et al. 2020; Lemelin et al. 2019; Wos, 2014; Spevak, 2012; Pasupuleti et al., 2017; Welburn et al., Yang, 2020; Männle et al., 2020.	Api-tourism, thanks to bees, contributes to well-being and a healthy life. The products offered by bees are studied in modern medicine to prevent different diseases
4	Arih and Korošec, 2015; Wos, 2014	Creative experiences and educational functions are very important aspects in the practice of api-tourism
5	Pocol and McDonough, 2015	Equality is promoted in the beekeeping sector
6	Wratten et al., 2012; Brockerhoff et al., 2017	Pollination offers the regeneration of a wide variety of plants and ecosystems, important for improving the quality of water
7	Patel et al., 2020	By improving crop production the number of oilseeds, used for the creation of biofuels, is increased
8	Arih and Korošec, 2015	The increase in the Gross Domestic Product (GDP) is related to the pollination of bees with the improvement of agricultural production.
9	Bianco, 2014; Karaboga, 2005	Bees are elements of nature that often inspire human innovations
10	Schouten et al., 2019	The income generated by beekeeping improves the living conditions of those groups with lower incomes and diversifies livelihood opportunities in rural areas
11	Lorenz y Stark, 2015; Skorbiłowicz et al., 2018	Sustainability increases with the practice of beekeeping in cities
12	Amjad Khan et al., 2017; Klatt et al., 2014	The overexploitation of fish can be reduced by promoting a diet based on plant nutrients pollinated by bees.
13	Baez et al., 2019	Use of bees and their products for environmental monitoring studies
14	Hirthe and Porembski, 2008; Maia et al., 2014; Amjad Khan et al., 2017	Bees potentially contribute to pollination of aquatic plants such as water lilies and enhance plant-based resources commonly found in marine species
15	Arih and Korošec, 2015	Bees contribute to the planet's biodiversity through pollination ecosystem services

Source: Contribution to Api-tourism to SDGs. Authors.

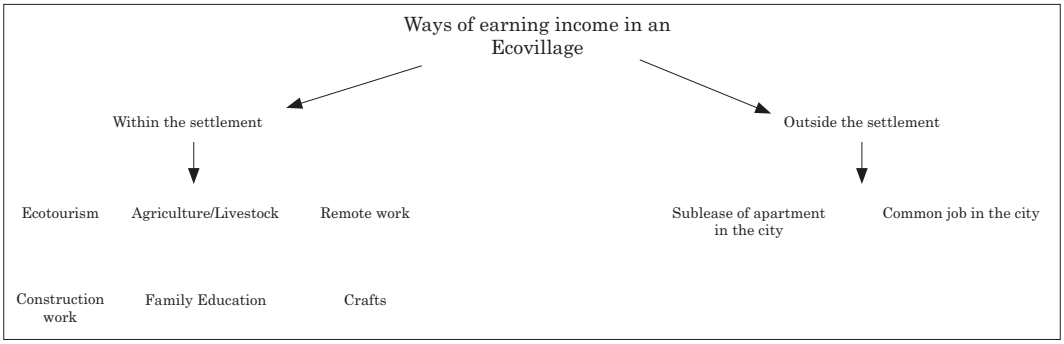
8. Productive activities within ecovillages: the case of the iberian Spanish network (RIE)

Among the usual productive activities in ecovillages: permaculture, agricultural activities, yoga, bio cooking, bioconstruction, beekeeping stands out. The benefits of beekeeping are multiple and have been applied by humans since ancient times, where products such as honey, propolis, and royal jelly stand out. However, as pointed out by Daberkow et al. (2009), this only represents 10% of the benefits offered by these insects, the remaining 90% being based on the ecosystem service of pollination.

Beekeeping is complementary to activities in the tertiary sector, those derived from the commercialization of the bee products, and activities of a tourist nature, in which case it is defined as *api-tourism*. The term api-tourism has been vaguely addressed by academic literature, being Wos (2014) the most cited and who identifies it as a model of sustainable tourism that unites the art of beekeeping and products of the hive with the visitor and which also connects traditional trades at risk of oblivion (Torres et al., 2020). More recently, Porter (2020) defines it as any trip, whether regional, national, or international, with the mere intention of interacting with bees and the culture that surrounds them, either in urban settings or in nature. Visitors will witness *in situ* the handling of a beehive, the different types of honeys that can be obtained, health techniques such as apitherapy, and other uses derived from the beehive and the world of bees. (Spevak, 2012; Wos, 2014).

Thus, beekeeping is an activity that registers a growing interest due to its contribution in the conservation of biodiversity and the environment, and several studies show that ecovillages in different parts of the world carry out the task of introduction and care of hives not only as an economic opportunity, but also as a method to pollinate their food crops and wild plants, in addition to providing them with valuable honey (Brecher, 2013; Rybakova, and Gomanova, 2014; Giulia, Borgo, and Gambazza, , 2017; Moravčíková and Fürjészová, 2018; Grewer and Keck, 2019; Temesgen, 2020; Ulug, Trell, & Horlings, 2021). Bees provide ecovillagers with a source of vitamins and healing materials, as highlithted by Moravčíková and Fürjészová (2018). Moreover, these authors add that it is an important material for the ecovillage's lighting (candles made from beeswax), use of creams and wound treatment, not to mention the pollination it provides to their fruit trees and other plants. As Plotnikova (2018, p. 209) also exposes, Smart Communities include ecotourism practices in rural areas and these are collected in a Strategy and Program for the development of the tourism industry, where in its first clause it includes beekeeping an element within the economic and provisioning activity.

Figure 7: Ways of earning income in an Ecovillage.



Source: Ways of earning income in an Ecovillage by Rybakova and Gomanova (2014).

After analyzing activities related to beekeeping and the world of bees on an international scale within ecovillages, with publications of diverse cases collected in countries such as the United States, Norway, United Kingdom, Ukraine, Russia, France, Germany and Japan, it is detected that, even being the second most important country after the United States in the number of ecovillages, according to a recent study by the academic Renau (2018), and by far the most prominent in Europe, in Spain there are, for the moment, no beekeeping or api-tourism projects in ecovillages. To arrive at this statement, members of the set of ecovillages that make up the Iberian Ecovillage Network (See Table 1) were consulted to analyze the causes more deeply.

Table 1: Characteristics of the ecovillages studied

Table 1. Brief characteristic of the ecovillages studied			Ecovillages Member of Iberian Ecovillages Network (Ecoaldeas.org)						
	Name	**Location**	**Public Email**	**web**	**Year of foundation**	**Accommodation**	**Legal Status**	**Number of members**	**Apiculture as activity**
1.	**Aldea de Olla**	Valencia (Spain)	reciclonstructor@gmail.com	NO	2012	Shared house + 2 houses	Association	6 Adults	NO
2.	**Arterra Bizimodu**	Navarra (Spain)	arterrabizimodu@gmail.com	http://arterrabizimodu.org	2013	Shared house 40beds y 4 chambers	Association	35 Adults 6 children	NO
3.	**Calabacino Alájar**	Huelva (Spain)	elcalabacino@gmail.com	NO	1992	No data available	Association	60 Adultsy 50 children	NO
4.	**Cortijo los Baños**	Almería (Spain)	info@cortijo-al-hamam.com	www.cortijo-al-hamam.com	2000	14 buildings 2 chambers	limited partnership	15 Adults y 1 Child	NO
5.	**Lakabe**	Navarra (Spain)	lakabeko@gmail.com	http://lakabe.org	1992	70 beds 2 chambers	Association	30 Adults 10 Children	NO
6.	**Los Portales**	Sevilla (Spain)	info@losportales.net	www.losportales.net	1984	2 chambers with 32 beds and 3 houses	limited partnership	40 Adults	NO
7.	**Matavenero**	León (Spain)	contacto@matavenero.net	https://matavenero.net/	1989	Shared house and 2 small houses	neighborhood meeting	50 Adults y 200 Children	NO
8.	**Molino de Guadalmesi**	Cadiz (Spain)	info@molinodeguadalmesi.com	www.molinodeguadalmesi.com	2004	25-30 beds in differnet buildings	cooperative and private farm	8 Adults	NO
9.	**Tamera**	Portugal	office@tamera.org	https://www.tamera.org/event-calendar/	1978	Tents, caravans, and some buildings	Association	170 Adults y 30 children	NO
10.	**Valdepiélagos**	Madrid (Spain)	victortorrevaquero@gmail.com	www.ecoaldeavaldepielagos.org	1995	30 houses	cooperative and neighboorhood meeting	60 Adults y 20 children	NO
11	**Proyecto O Couso**	Lugo (Spain)	info@dharana.org	www.proyectocouso.org	2013	Shared house and cabins	Foundation	No info	NO

Source: Ecovillages member of Iberian Ecovillages Network (Ecoaldeas.org) Authors.

Results show that beekeeping is currently not on the list of priorities of these sustainable settlements in Spain. Some cases, such as Molino de Gualdamesi, province of Cadiz, show that they had beehives in the past, but have stopped this practice. Others, such as Los Portales, province of Seville, show their interest in a future beekeeping project. In the case of Proyecto O Couso, there is a great potential since they are in an area where beekeeping is common due to the great melliferous flowering of its surroundings and the intention of its residents is to make it viable in the near future, in fact, they recommend a visit to the nearby Hornachuelos, a town in Cordoba, which already has an advanced beekeeping project. However, it is surprising not to have found greater interest in beekeeping and api-tourism, as activities inserted in the logic of circular and regenerative economy, on the part of the interviewees.

9. Discussion and conclusions

The first more exclusive definitions gave way more inclusive ones that contemplate many more modalities of ecovillages even in urban environments, so that sufficiently delimiting the scope of the research is fundamental and not always simple. The same scholars who pioneered the study of the ecovillage concept have come to consider it in later publications as a way of life difficult to achieve, perhaps utopian for some, but not impossible and although studies on ecovillages are valuable and numerous, the vast majority of them have been conducted from sociology and much less from other disciplines such as urbanism and planning, macro and microeconomics, psychology, anthropology or philosophy, to name but a few of the disciplines that can shed light on its possibilities and challenges. This would allow us to have a much more complete perspective on the possibilities for future development in the medium and long term.

On the other hand, most of the studies analyzed are qualitative, based on field studies and case studies, so there is a clear opportunity and need for quantitative studies to shed light on best practices that can be replicated, also to have metrics that allow adequate analysis and monitoring of the different modalities. Thus, future studies should analyze in greater quantity and quality the similarities and differences between ecovillages in different continents and sustainability practices. Although some authors consider that most of them are not alien to the Western and industrialized way of life -to which they try to be an alternative-, this is not easy to discern through detailed studies of the different cases concentrated in the same areas of the planet.

In their most exclusionary sense, ecovillages break fundamental paradigms of capitalist society such as private property, individualism and the accumulation of wealth in the hands of a few individuals to the detriment of the majority; however, for some authors they are not representative enough to speak of a new paradigm, but rather of an alternative modality within the various currents of ecocentrism and green economy. This last reflection links with the dissertations of recent works that are more critical of this phenomenon and tend to consider it as something residual and alternative, despite the fact that it is a way of life that presents very attractive opportunities in the current context, such as the challenge, in the specific case of Spain.

The growing interest in sustainability has increased studies on ecocentrism and green economy in all its forms. The review of the literature on ecovillages shows the current boom of this topic, which responds to old and new social and environmental concerns, but which would require further updating in terms of their functions and activities, as is the case of beekeeping and api-tourism, to find a greater resonance in which they could find current youth.

As for api-tourism as a business niche within agritourism, it is evidenced here that it is still to be exploited and worth being analyzed. This study has shown the eleven ecovillages belonging to the RIE, and none of which had or has interest in beekeeping. However, it should be noted that during the realization of this work projects of non-federated ecovillages and sustainable settlements were found where at least one of their residents is timidly beginning to show their knowledge of beekeeping to the outside world.

The role of beekeeping activities presents a hopeful future for humanity, since among the many tourism modalities existing today, it is beekeeping the one that possibly contributes the most to the SDGs, and is of academic interest, following Lockyer and Veteto (2015), the study of ecovillages and sustainable settlements as experimental spaces where both quantitative and qualitative methodologies can be used to demonstrate the socio-economic and environmental regenerative development of this type of tourism, both locally and globally.

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