



Contributions of rural ecovillages to the United Nations 2030 Agenda: evidence from research applied in the state of São Paulo

Contribuições das ecovilas rurais à Agenda 2030 das Nações Unidas: evidências de uma pesquisa aplicada no estado de São Paulo

Luciana Lima Domingues de SOUZA^{1*}, Candido Ferreira da SILVA FILHO¹, Josué MASTRODI¹

¹ Pontifical Catholic University of Campinas (PUCAMP), Campinas, SP, Brasil.

*Contact email: eco.lucianalima@gmail.com

Article received on March 11, 2022, final version accepted on November 4, 2022, published on December 8, 2023.

ABSTRACT: Ecovillages are social organizations derived from the pacifist movement of alternative communities and the counterculture movement for ecology and human rights in the 1970s. Such communities play a relevant social and environmental role, constituting possible proposals for a conscious transition towards a more sustainable society. In this context, based on examples of rural ecovillages in São Paulo, the present study aimed to analyze the main contributions of these social organizations to the implementation of the 2030 Agenda in Brazil. The study was exploratory and descriptive, based on a qualitative and empirical approach. Additionally, in the bibliographic and documental survey stage, field research was carried out involving semi-structured interviews with twenty members of six rural ecovillages located in the east of the state of São Paulo in 2020 and 2021. Collected data processing was based on Content Analysis, supported by Atlas.ti software. Despite the sample limitations of the study, the results suggest significant contributions of ecovillages to 16 of the 17 Sustainable Development Goals (SDGs), in which actions of restoration of native vegetation in continuous territories, water and food production, collective management, and equitable participation were detected.

Keywords: human settlement; sustainable development; rural ecovillages; 2030 Agenda; SDG 11.

RESUMO: As ecovilas são organizações sociais derivadas do movimento pacifista das comunidades alternativas e do movimento de contracultura pela ecologia e pelos direitos humanos da década de 1970. Tais comunidades detêm um relevante protagonismo social e ambiental, constituindo propostas possíveis de transição consciente rumo a uma sociedade mais sustentável. Nesse contexto, a partir da aproximação de exemplos de ecovilas rurais paulistas, o presente estudo teve o objetivo de analisar as principais contribuições destas

organizações sociais para a implementação da Agenda 2030 no Brasil. O estudo, de caráter exploratório e descritivo, baseou-se em uma abordagem qualitativa e empírica. Além da etapa de levantamento bibliográfico e documental, foi realizada uma pesquisa de campo envolvendo a aplicação de entrevistas semiestruturadas, com vinte membros de seis ecovilas rurais, localizadas no leste do estado de São Paulo, nos anos de 2020 e 2021. O tratamento dos dados coletados baseou-se na Análise de Conteúdo, com apoio do software Atlas.ti. Mesmo consideradas as limitações amostrais da pesquisa, os resultados sugerem importantes contribuições das ecovilas a 16 dos 17 Objetivos do Desenvolvimento Sustentável (ODS), em que ações de regeneração de cobertura verde em territórios contínuos, produção de água e alimentos, gestão coletiva e participação equitativa foram constatadas.

Palavras-chave: assentamento humano; desenvolvimento sustentável; Agenda 2030; ecovilas rurais; ODS 11.

1. Introduction

The escalating climate and social challenges and the depletion of natural resources on the planet, which impact development, are a growing and constant concern of society (Spring, 2016). Therefore, the United Nations has been addressing the subject in its various conferences. In 1987, the Brundtland Report was prepared, and sustainable development began to inspire countries in their search for growth compatible with planetary limits, in respect of the intergenerational pact (United Nations, 1987; Scarano *et al.*, 2021). Until then, it was believed that “economic growth”, measured in Gross Domestic Product (GDP) and per capita income was the same as “development” understood as progress.

In 1992, the Conference on Environment and Development, also known as Eco 92 or Rio 92, was organized by the United Nations (Bölla & Milioli, 2018). On that occasion, Agenda 21 was formalized by representatives of Member States. After Rio 92, governments at the regional level started to coordinate internally, with civil society, the necessary measures to materialize Agenda 21 in their countries (Malheiros *et al.*, 2008). In a cascading effect, Brazilian municipalities began to be directly involved in the Agenda, establishing their guidelines at the local level and closer to their citizens (Pinto, 2014).

Subsequently, in New York, at the General Assembly of the United Nations in 2000, the Millennium Development Goals (MDGs) were approved by representatives of 191 countries, who ratified the collective decision in Resolution N° 55/2, known as the United Nations Millennium Declaration (Rome, 2019). However, due to the severe environmental crisis (Rockström *et al.*, 2009), which caused climate change and extreme events (Spring, 2016), a new development paradigm, which included human and environmental dimensions, was necessary.

In 2015, the climate (UNFCCC), biodiversity (CBD) and desertification (UNCCD) conventions, established during Eco 92, institutionalized sustainability in the 17 Sustainable Development Goals (SDGs), as a new development paradigm by 2030 (Scarano *et al.*, 2021). As explained by Scarano *et al.* (2021, p. 8), “after a broad participatory process, in 2015 the UN adopted the 2030 Agenda, including 17 SDGs, subdivided into 169 goals that guide the implementation of the Agenda, with a projected scope for 2030”.

In September 2015, the 2030 Agenda was established, agreed upon by 193 Member States of the United Nations, which adopted the global agenda with segmented goals for sustainable development. However, despite the details of the agendas, it is necessary to question the effectiveness of sustainable

development actions in Brazil, aimed at facing socio-environmental challenges. This study attempted to re-discuss sustainable development from a social and political perspective, bringing this dialogue to the scope of rural ecovillages (Souza, 2022).

The social phenomenon of ecovillages has stimulated sustainable local development in the Global North (Dias *et al.*, 2017), promoting social awareness of lifestyle changes, in the co-creation of realities with less impact on the environment (Roysen & Mertens, 2016) and in the regenerative relationship of human and social tissues (Dias & Loureiro, 2019). In view of this scenario, the present study aimed to analyze the experiences of six rural ecovillages, located in the east of the State of São Paulo, during the 2020-2021 period, answering the following research question: what are the contributions of these rural ecovillages for the implementation of the 2030 Agenda in Brazil?

2. The social phenomenon of ecovillages

Ecovillages are community organizations that play a key social role, with high social, environmental and cultural capital (Global Ecovillage Network, 2022a), which has been suggested as a proposal for a conscious transition from modern capitalist society to a sustainable society, until then not achieved by public policies, business initiatives and class organizations that we know about (Souza, 2022).

The Global Ecovillage Network (GEN), an international entity that catalyzes the global movement of ecovillages and sustainable communities, defines an “ecovillage” as an intentional sustaina-

ble community, engendered by local participants, established in the four dimensions of sustainability (social, cultural, ecological and economic), through shared management and equitable participation of its members, with the aim of restoring social and natural environments (Global Ecovillage Network, 2022a). In Kunze (2015, p. 1, our translation), ecovillages are sustainable intentional communities, “self-governing, in which people live and work together on shared properties [...]. They often follow the principles of intentional communities of self-reliance and self-organization.”

Similar to what happens in the Global North, most Brazilian ecovillages are rural and intentional (Dias *et al.*, 2017), with urban profile ecovillages being rare. Table 1 sets out the four dimensions of sustainability within the scope of ecovillages (Global Ecovillage Network, 2022a).

In general, ecovillages form a network of relationships (Capra & Luisi, 2020) in a complex universe (Bölla & Milioli, 2018; Arrow *et al.*, 2000), integrated into a multidimensional system of sustainability (Santos *et al.*, 2012), to achieve the ultimate goal of regenerating social and natural environments (Reed, 2007; Robinson & Cole, 2014). Based on regenerative design¹ (Wahl, 2019) and circular practices (Boyes-Watson & Pranis, 2011), ecovillages have social (Roysen & Mertens, 2016) and low-impact environmental technologies to self-constitute and self-govern towards socio-environmental purposes. Furthermore, in “deep ecology” (Silva & Krohling, 2019), each individual must integrate with every living being on the planet (Reed, 2007; Robinson & Cole, 2014).

¹ Wahl (2019, p. 198) defines regenerative design as the “[...] practical way of proposing and implementing solutions in order to continue learning”.

TABLE 1 – The dimensions of sustainability in ecovillages.

Dimension	Description
Social dimension	<ul style="list-style-type: none"> • Conducting community operations according to the purposes of the entire group, generating trust, collaboration and unity, as well as encouraging empowerment. • Generation of a sense of belonging through community relationships, common projects, shared goals and social entrepreneurship.
Cultural dimension	<ul style="list-style-type: none"> • Purpose of respect and regeneration of cultures, awareness and education. • Regenerative cultures promote human support, care for each other and their communities, expanding the ethic of care for the entire planet.
Ecological Dimension	<ul style="list-style-type: none"> • Provision of alternatives to food security based on sustainable production of food, water, housing, transport and energy. • Integration of human beings with nature in order to expand biodiversity and conserve or regenerate ecosystems.
Economic Dimension	<ul style="list-style-type: none"> • Dissemination of practices and economic systems that contribute to the sharing of assets and resources, mutual and collaborative support, through network partnerships, which meet the needs of the population and local ecosystems. • Providing sustainable alternatives to the economy and the conventional monetary system, reviewing ways of thinking about wealth, income distribution, as well as a low-consumption and minimalist lifestyle. • Local currencies, circular economy, sharing economy, solidarity economy and cooperative culture, social entrepreneurship and property sharing are axes of ecovillages.

SOURCE: Global Ecovillage Network (2022a).

In regenerative cultures, self-knowledge, self-care and personal and collective development (Gaia Education, 2021a; 2021b) are important to overcome the human instinct of scarcity, fear, struggle for power and control, in order to prevent individualism from breaking with the human bonds of the community (Reed, 2007; Robinson & Cole, 2014). However, forming an ecovillage is a great challenge, and few are able to pacify their internal disputes and mediate the antagonistic relationships of its members (Gaia Education, 2021b). The “glue” or link that holds a cohesive community is the main purpose intended by the members since the foundation of these collective entities.

According to Sanford (2016), regenerative design is the conscientious assumption that each form of life is unique and is within other larger living systems, relating to each other in interdependence

and reciprocity. Reciprocity is necessary so that human intervention does not go beyond the limits of regeneration of nature's systems. Robinson & Cole (2014) mention that regenerative development and design have their roots in an ecological worldview, in which living entities go through the infinite interrelationships of ecological systems. Therefore, these authors use approaches and tools that support the coevolution of human and natural systems in a relationship of partnership, sharing and cooperation, in reciprocity and interdependence (Reed, 2007; Robinson & Cole, 2014).

Regenerative design has been present since the creation of authentic ecovillages (Global Ecovillage Network, 2022a), whether in its foundation and regulatory structure, or in its management, operations and relationships, internal and external. Based on regenerative design (Dias & Loureiro, 2019;

Wahl, 2019), these communities practice circular governance (Boyes-Watson & Pranis, 2011), which ensures the coherence and transparency of their processes, sociocratic shared management (Rau & Koch -Gonzalez, 2019) and the Deep Listening and Nonviolent Communication (NVC) equitable participation forums (Rosenberg, 2006; Boyes-Watson & Pranis, 2011). In addition, the implementation of regenerative design encourages participatory and circular² management, gender equality with female leaders, environmental education for adults and children and the recomposition of degraded areas for water production and Agroforestry Systems (AFS) in ecovillages.

Regenerative design must permeate the actions of the ecovillage from admission to exclusion (if applicable) of its members, and sustainability and regeneration are references in healing processes of the social, economic and natural fabric. However, sustainability *per se* is not enough to reduce the impacts and effects of climate change (Spring, 2016) already underway on the planet, as well as social inequalities and the segregation of the majority who do not have work, wealth and assets in the human society (Piketty, 2020). That is why, in ecovillages, reconnection and interconnection of human beings with nature, with themselves and with society is paramount for the community to achieve the complicity and trust necessary for group cohesion. With the treatment and healing of the associations, resilience is created, making communities perennial for their journey.

The trajectory taken by ecovillages to achieve this empathetic and compassionate configuration in the face of intense human coexistence includes

continuous improvement and learning new knowledge (Esteves, 2019), which drive change of habits, prejudices and views rooted in scarcity, fear and control (Bryant & Thomson, 2020). The more they experience these processes, the more the ecovillage and its members evolve in the regenerative, individual and collective journey, strengthening the human and social dimension of the community towards sustainable development, creating resilience for periods of crisis and challenges.

Because of all the specificities reported, it is not uncommon for ecovillage purposes to be reflected in the surrounding community, in a movement from internal to external, from the *locus* to the regional and bioregional, either through cultural, educational and ecotourism programs, or with the sale of surpluses from their agroecological community production, re-signifying relationships, showing solidarity and collaborating with each other (Dias & Loureiro, 2019). In addition to human, social and environmental regeneration, there is economic sustainability to sustain life, operated based on circular (Kirchherr *et al.*, 2017), solidarity (França Filho, 2008) and sharing economy (Curtis & Lehner, 2019), since the land acquisition, housing construction and investment in infrastructure and work tools.

3. Methodology

This study aimed to analyze and discuss the contributions of rural ecovillages to the 17 SDGs of the 2030 Agenda in Brazil. Given the complex fabric of these social organizations (Bölla & Milioli, 2018), priority was given to carrying out an explo-

² In ecovillage practice, using the term “circle” instead of “council” is common.

ratory and descriptive study, based on a qualitative and empirical approach (Gil, 2008).

The data collection method had a probabilistic nature and simple random sampling, consisting of rural ecovillages that formally responded to the Participation Letter. The initial purpose was to conduct semi-structured interviews with up to five participants³ from each ecovillage. In the end, between 2020 and 2021, a total of 20 participants were interviewed, including founders and residents of six rural ecovillages in the east of the state of São Paulo (Table 2), registered in the Global Ecovillage Network (GEN)⁴ database. This methodology is applied to smaller groups of participants, because the purpose is to understand processes and concepts that can stop the socio-environmental impacts in their particular reality, with regard to the 2030 Agenda and sustainable local development, and therefore, generalizations are not allowed (Hesse-Biber, 2017). Furthermore, along with the interviews, institutional material was collected from the

units of analysis, such as legal documents, maps, photos, videos and audios, CAR⁵ and CCIR⁶. These materials formed the *corpus* for analysis.

Figure 1 illustrates the spatial location of the ecovillages, obtained through the Google Maps[®] technological platform.

The research project was submitted for approval by the Research Ethics Committee (CEP) of Pontifícia Universidade Católica de Campinas (PUC-Campinas), registered in the CONEP system under N^o 39069420.0.0000.5481, and approved on 11/12/2020. The anonymity of the participants was guaranteed, each of them being assigned a “code-name” in an alphanumeric sequence, to name the respondents in the statements. Table 3 shows the profile data of the respondents, as well as the applied “codenames”. However, due to the Covid-19 pandemic, face-to-face interviews only took place in the SitiOM, São Luiz and Terra Luminous ecovillages, while in the other units, the interviews were carried out via videoconference.

TABLE 2 – Units of Analysis.

Unit of analysis	Location
Terra Luminious	Estrada da Fazenda Ribeirão Grande, Juquitiba/SP, CEP 06.950-000
SitiOM	Estrada Elias Alves da Costa, Vargem Grande Paulista/SP, CEP 06.730-000
São Luiz	Estrada de Servidão, Gleba 2, Barão Geraldo, Campinas/SP, CEP 13.083-100
IPEMA	Rua Beira Rio, no 43, Bairro Corcovado, Ubatuba/SP, CEP 11.680-000
Vila das Borboletas	Bairro Sarapéu dos Torres, Piedade/SP, CEP 18.170-000
Projeto Walden XXI	Estrada Doná Palestina, Bairro Palestina, Juquitiba/SP, CEP 06.950-000

SOURCE: elaborated by the authors.

³ Each participant signed the Informed Consent Form (TCLE) prior to the beginning of interactions with the researcher.

⁴ “GEN has consultative *status* within UN-ECOSOC (Economic and Social Council) and is a partner of the UNITAR-CIFAL initiative, which provides training in sustainable development for local government officials around the world” (Global Ecovillage Network, 2022a, our translation).

⁵ CAR is the rural environmental register that must be self-declared in the SICAR electronic system.

⁶ CCIR is the rural property registration certificate, in the electronic system of the Land Management System (SIGEF), which carries out land governance in Brazil.

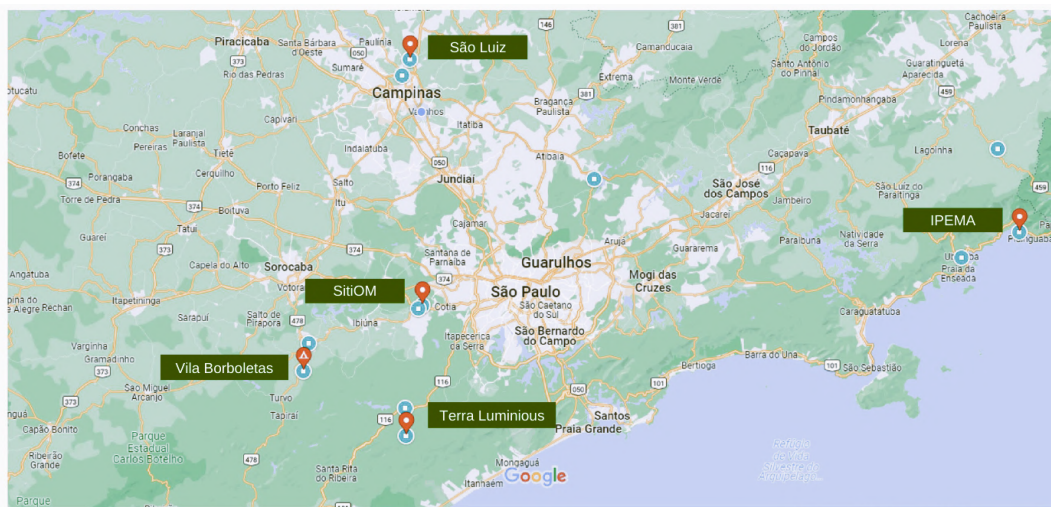


FIGURE 1 – Location of the units of analysis.

SOURCE: elaborated by the authors.

TABLE 3 – Profile of participants by ecovillage.

Codename	Gen-der	Age (years)	Professional area	Marital status	No of family members in the ecovillage	Role Resident (R) Founder (F)	Ecovillage
11	male	41	Computer Sciences	married	4	R	SL1
12	male	39	Electrical Engineering	married	3	R	SL1
13	male	40	Architecture and Urban Planning	single	1	F	SL1
14	male	31	Event Production	married	3	R	SL1
15	male	63	Ecotourism and Permaculture	widowed	1	F	PW2
16	male	30	Agriculture and Bioconstruction	married	2	F	VB3
17	female	37	Journalism	separated	3	F	SO4
18	female	45	Dentistry	married	4	R	SL1
19	male	43	Tourism and Psychology	married	2	F	SL1
110	male	34	Accounting	married	2	R	PW2
111	female	36	Physics	married	2	R	VB3
112	female	27	Pedagogy	single	1	R	SO4
113	male	36	Biology and Permaculture	married	4	R	SO4
114	male	36	Communication (incomplete)	single	1	R	SO4

I15	female	27	Product Design and Agriculture	single	1	R	SO4
I16	male	54	Environmental Consultancy	single	2	R	TL5
I17	male	54	Arts and Circular Organizational Consultancy	married	2	R	TL5
I18	female	49	Psychology	separated	2	F	TL5
I19	male	58	Architecture and Urban Planning, Permaculture	separated	3	F	IP6
I20	male	37	Astronomical Instrumentation Engineering	single	1	R	VB3

SOURCE: elaborated by the authors.
 NOTES: ⁽¹⁾ São Luiz Ecovillage; ⁽²⁾ Projeto Walden XXI; ⁽³⁾ Vila das Borboletas Ecovillage; ⁽⁴⁾ SitiOM Ecovillage; ⁽⁵⁾ Terra Luminous Ecovillage; ⁽⁶⁾ IPEMA Ecovillage.

The interviews lasted an average of two and a half to three hours per participant, totaling approximately 46 hours of recorded and transcribed audio. The 20 transcripts were inserted into the Atlas.ti[®] software together with the institutional material, totaling 147 insertions at the end. As a result, 3,620 quotations from the respondents were marked during the coding procedure, on the inserted material.

The processing of the collected data was based on the thematic-categorical method of Content Analysis (CA) proposed by Bardin (2016), whose *corpus* was organized and classified into categories, subcategories and codes with the support of Atlas.ti[®] software. Category “Agenda 2030” and subcategory “17 SDGs” were created. Each of the 17 codes (Bardin, 2016) was assigned a certain unit of meaning corresponding to the dynamizing⁷ vector that describes the respective SDG.

Analysis of the results was carried out by comparing the data collected in the field and the concepts raised in the theoretical framework. Through

this comparative analysis, it was possible to locate the concepts in the literature that supported the elements contained in the interviews, which were finally organized according to the development goal (SDG). Table 4 exposes the organization and classification structure of the data collected in the Atlas.ti[®] computer environment.

After the interviews, it was found that the units of analysis “Vila das Borboletas” and “Projeto Walden XXI” did not meet the assumptions of regenerative design and sharing economy, characterizing themselves as permacultural sites of a single owner, so they were not included in the analysis of the results, in section 4. The following ecovillages remained as units of analysis in this debate: SitiOM, São Luiz, Terra Luminous and IPEMA.

To ensure ethics and scientific rigor, the final verification of the entire process was carried out from the insertion of data into the Atlas.ti[®] software. Additionally, the quotations were evaluated, which were used to answer the research question. Finally, a

⁷ For the purposes of this study, it should be clarified that dynamizing vectors are the concrete actions of ecovillages and their members that enabled them to achieve a certain development objective.

last analysis of the collected and coded data was also implemented, to exclude possible redundancies with the support of Atlas.ti® tool “Redundant Codings”, which allowed the cross-analysis of repeated codes on the same text excerpts.

4. Results and discussion

As can be seen in Table 5, the total number of mentions per SDG was significant, with actions related to the themes addressed in SDG 11, 5, 15 and 4 being the four most cited actions, corresponding to a total frequency of 52, 362, 304 and 296,

respectively, in the four units of analysis (SitiOM, São Luiz, Terra Luminous and IPEMA).

SDG 11 corresponds to the goal of “making cities and human settlements inclusive, safe, resilient and sustainable” (Goals..., 2023b, p.1). In the four units of analysis, respondents mentioned, with a higher frequency of reports in interviews, SDG 11, among the 17 SDGs of the 2030 Agenda (Figure 2 and Table 5). Resources for the implementation of SDG 11 usually originate from the sharing economy, which ecovillagers promote to share expenses and risks of the social enterprise, and combine efforts in purchasing land, building housing and investing in work tools and infrastructure.

TABLE 4 – Categorization and coding applied to research.

Category	Subcategory	Code	Guidance
Agenda 2030	17 SDG	SDG 1	No poverty.
		SDG 2	Zero hunger and sustainable agriculture.
		SDG 3	Good health and well-being.
		SDG 4	Quality Education.
		SDG 5	Gender equality.
		SDG 6	Clean water and sanitation.
		SDG 7	Affordable and clean energy.
		SDG 8	Decent work and economic growth.
		SDG 9	Industry, innovation and infrastructure.
		SDG 10	Reduced inequalities.
		SDG 11	Sustainable cities and communities.
		SDG 12	Responsible consumption and production.
		SDG 13	Climate action.
		SDG 14	Life below water.
		SDG 15	Life on land.
		SDG 16	Peace, justice and strong institutions.
		SDG 17	Partnerships for the goals.

SOURCE: elaborated by the authors.

TABLE 5 – General frequency list of the 2030 Agenda, in order of magnitude.

Category	Subcategory	Code	Magnitude (or frequency)	Ranking (position)
Agenda 2030	17 SDG	SDG 11	452	1st
Agenda 2030	17 SDG	SDG 5	362	2nd
Agenda 2030	17 SDG	SDG 15	304	3rd
Agenda 2030	17 SDG	SDG 4	296	4th
Agenda 2030	17 SDG	SDG 13	247	5th
Agenda 2030	17 SDG	SDG 12	230	6th
Agenda 2030	17 SDG	SDG 17	210	7th
Agenda 2030	17 SDG	SDG 6	194	8th
Agenda 2030	17 SDG	SDG 2	189	9th
Agenda 2030	17 SDG	SDG 8	182	10th
Agenda 2030	17 SDG	SDG 3	158	11th
Agenda 2030	17 SDG	SDG 1	153	12th
Agenda 2030	17 SDG	SDG 16	135	13th
Agenda 2030	17 SDG	SDG 10	108	14th
Agenda 2030	17 SDG	SDG 7	10	15th
Agenda 2030	17 SDG	SDG 9	7	16th
Agenda 2030	17 SDG	SDG 14	--	17th

SOURCE: elaborated by the authors.

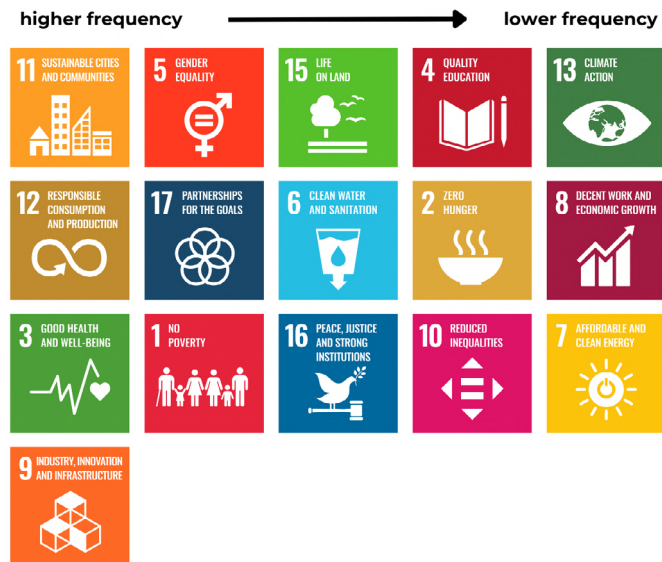


FIGURE 2 – The 16 SDGs implemented by the ecovillages, in order from highest to lowest frequency.

SOURCE: elaborated by the authors based on images obtained in Sustainable Development Goals (2023a, p. 1).

Among the 17 SDGs of the 2030 Agenda, only SDG 14, which concerns the protection of marine life, was not mentioned by the respondents. As for SDG 11, respondents from the SitiOM ecovillage cited this goal most frequently (225), followed by respondents from Terra Luminous (158), respondents from São Luiz (80) and IPEMA (26). In 85% of the quotes, respondents understood that a sustainable community is one that applies social, environmental and economic sustainability actions in its internal space and surroundings. Typically, ecovillages apply such actions through:

- recovery and conservation of forests and springs (Global Ecovillage Network, 2022b);
- land use and occupation supported by bioconstruction (Batista, 2018) and permaculture (Korže, 2018);
- growing one's own food without pesticides (Fávero *et al.*, 2008);
- application of low impact social (Roysen & Mertens, 2016) and environmental technologies, including for ecological treatment of effluents (Global Ecovillage Network, 2022b);
- use of composters, dry toilets and green roof, observing permacultural design (Korže, 2018);
- operation based on sharing (Curtis & Lehner, 2019) and solidarity economy (França Filho, 2008) for sharing the investments, costs and risks of the social organization;
- formation of networks and partnerships to achieve institutional purposes;
- gender equality;
- environmental education (Gadotti, 2005) and technical training; and

- regenerative design (Reed, 2007; Robinson & Cole, 2014; Wahl, 2019) to guide internal and external relationships.

As can be seen in the respondents' reports, the scope covered by SDG 11 was broad and fed back on other important goals of the 2030 Agenda, such as SDG 2, SDG 4, SDG 5, SDG 6, SDG 8, SDG 12, SDG 15 and SDG 17, demonstrating the interdependence of the dimensions of sustainable development as a multidimensional and systemic whole (Santos *et al.*, 2012; Sachs *et al.*, 2019). Figure 3 displays the graph that scales the participation of ecovillages in SDGs 11, 5 and 15, by total frequency presented.

In two more mature and consolidated communities in the social dimension (Souza, 2022), the ecovillages SitiOM and Terra Luminous, it was found that SDG 11 and SDG 15 were part of the members' daily work agenda, in actions for the recovery and conservation of forests and springs, AFS cultivation of one's own food, application of social technologies (Roysen & Mertens, 2016), ecological treatment of effluents, as well as regenerative design (Reed, 2007; Robinson & Cole, 2014; Wahl, 2019). This scenario can be explained by the fact that the members of both associations live together and work according to the concept of regenerative design (Dias & Loureiro, 2019; Wahl, 2019) within the ecovillage and for its institutional purposes.

In descending order, the Terra Luminous Ecovillage reached 115 in frequency of interview reports in SDG 15, with achievements that benefit terrestrial life, such as the purchase of new land for regeneration projects and monitoring of *Cinturão Verde* (Green Belt) in Jquitiba, in partnership with the Government of the State of São Paulo. Then SitiOM Ecovillage reached the frequency of 112, São Luiz 58 and IPEMA 24.

SDG 11, 15 and 5, per ecovillage

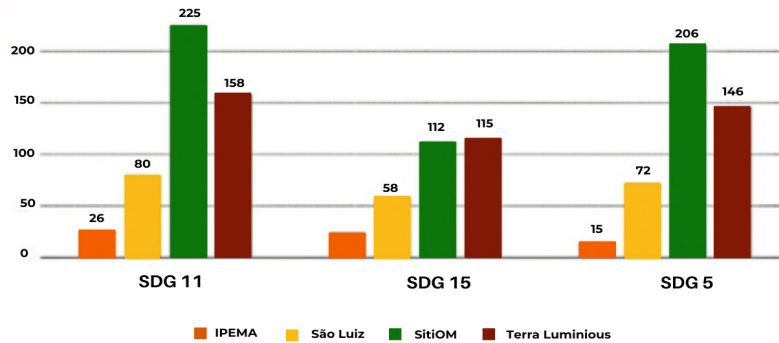


FIGURE 3 – Frequency of SDG 11, 5 and 15 per ecovillage.

SOURCE: elaborated by the authors.

Additionally, in the four units of analysis, the respondents indicated the agroforestry system planting technique (AFS) as the most used in the agricultural production of food without pesticides, for their own consumption and sale of the surplus (Global Ecovillage Network, 2022b). This planting technique was also mentioned because it allows the recovery of the soil and biodiversity (Fávero *et al.*, 2008), contributing to the achievement of the expected successes in “SDG 15 – Life on Earth”, in “SDG 2 – Zero Hunger and sustainable agriculture” and “SDG 8 – Decent work and economic growth”.

Table 6 indicates the interview excerpts that corroborated this understanding.

In the case of the report of participant I1, the recovery of riparian forest on the ecovillage property and its development for release for the implementation of AFS flowerbeds was indicated. This authorization was verified in the Rural Environmental Registry (CAR) of São Luiz Ecovillage, registered in the SICAR system under N° 35095020316719, which sets out the regularization of protected green areas in the Forestry Code – Law N° 12.651/2012⁸.

TABLE 6 – Interview reports on “sustainable community”.

I12	<i>We talk a lot about rubbish with the children, they recycle rubbish at SitiOM. There is also a worm farm and a bin. We talk to the children about not killing animals, not even the smallest ants, so that they become aware of this.</i>
I7	<i>Up to now, what was organically produced in the AFS was Just enough for our consumption. With the increase in demand and the partnership in the producers’ network, we had to increase one more AFS area to be able to distribute our products to the network. We managed to recover and regenerate all the Forest with native species.</i>
I1	<i>We managed to plant trees to restore the riparian Forest and now, with permission given by the municipality, and forest maturing, we will be able to start an AFS there as well.</i>

SOURCE: elaborated by the authors.

⁸ The Forestry Code – Law N° 12.651/2012 protects the Green cover of APP (Permanent Preservation Areas), tops of hills, watercourses and riparian forests.

Another point highlighted was the application of permaculture. This low-impact environmental technology is a common practice in the surveyed ecovillages. Permaculture (Korže, 2018), together with AFS, facilitated the regeneration of soil and green cover (Fávero *et al.*, 2008), and produced water (Meira *et al.*, 2013; Leal & Ribas, 2014). In this case, both technologies, permaculture and AFS, made up a socio-environmental “sustainability package” (Souza, 2022) with high added value, as it resulted in the regeneration of degraded soil and green cover, in addition to the production of water, food and income, through the commercialization of surplus (Global Ecovillage Network, 2022b) from agroforestry cultivation.

This “sustainability package”, carried out by all units of analysis, consolidated the achievement of SDGs 2, 6, 12 and 15 by the ecovillages in this study. Participant I13's speech was incisive in this regard. Asked about AFS food culture and permaculture, the participant highlighted the role of the ecovillage as a forest regenerator, producer of pesticide-free food and water: "our aerial photos clearly show our AFS growing and regenerating the land and vegetation of the Ecovillage [...] Yes, we are water producers here at SitiOM (I13)".

It was also found that the environmental regeneration initiatives were developed by the units

of analysis in partnership with the private sector, or agreements with the government, thus promoting SDG 17, with a total frequency of 210. The following reports supported this understanding (Table 7).

The report of participant I16 on the “Floresta Limpa” (Clean Forest) project explained the initiative that brought together the ecovillage and the surrounding community, with the aim of establishing Ecopoints for garbage collection and raising awareness about the importance of correctly disposing of the waste generated by each resident of the neighborhood. The action was led by Terra Luminious in partnership with Jucituba City Hall. In turn, participant I19 led IPEMA Ecovillage in partnership with Petrobrás to regenerate the Atlantic Forest Biome in the city of Ubatuba, in parallel with education and environmental awareness actions aimed at the surrounding community.

Terra Luminious Ecovillage also carried out the forest inventory project (fauna and flora) in partnership with biologists from UFSCAR⁹ and ESALQ¹⁰, which promoted the opening of new jobs and the creation of income for the surrounding population, contributing to the achievement of SDGs 8, 15 and 17. Participant I17's mention was assertive in this regard.

TABLE 7 – Implementation of SDG 15 and 17 by ecovillages.

I19	<i>Sometime later, when IPEMA was in operation, I managed to form a partnership with the City Hall of Ubatuba, which gave me the entire area of an abandoned garden, and I transferred the Institute there, IPEMA and Corcovado developed with Petrobrás a long forestry management and Jussara palm hearts planting project there [...].</i>
I16	<i>Concerning the Ecopoint, we signed a socio-environmental project agreement with the City Hall of Jucituba [...].</i>

SOURCE: elaborated by the authors.

⁹ Universidade Federal de São Carlos.

¹⁰ Escola Superior de Agricultura Luiz de Queiroz, of Universidade de São Paulo.

We have another social entrepreneurship project that involves fauna and flora monitoring with trap cameras, with the support of biologists and environmental engineers, who map, place identification signs and inventory the entire regenerated forest. This year, we considered inviting residents from our surroundings who found their lives meaningless. These people would arrive in the morning and spend the whole day there, receiving support and learning to see the forest from another angle. [...] Their reaction was very important, as they revalued the place where they live, and looked with admiration at the preserved, standing forest. [...] So, the result was great [...] and we decided to continue the project, because, much more than just workforce, we want that these people see things from a different perspective and embark on a new economic path (I17).

In this project, Terra Luminious Ecovillage was able to combine activities in the forest with a sustainable economy, in addition to enabling workers to give new meaning to their relationship with the environment, developing an economic activity that kept the forest standing simultaneously with the work of reconnecting humans to nature (Reed, 2007; Robinson & Cole, 2014), a weakened link with the urbanization process. This experience was important for the location, which precedes the Environmental Preservation Area (APA), where land use and occupation limitations are stricter according to the law.

Regarding SDG 6, the recovery of Ribeirão Anhumas, in the municipality of Campinas, was reiterated in interview reports from São Luiz Ecovillage. Participants expressed concern about the lack of public management on site and the contamination of the watercourse. São Luiz Ecovillage recently took the initiative to clean the stream, in addition to changing its corporate name to “Ecovila Raiz do Anhumas”, as it made the stream one of its

regeneration goals. This is corroborated in the report of participant I3:

The Ribeirão Anhumas is very polluted, despite the city hall saying that its water is 100% treated. However, the sewage treatment rules themselves depend on the river class [...] There was no improvement. The city hall has a treatment plant nearby, but we can tell by the smell, the foam in the water and the amount of garbage thrown into the river, that what they say does not match that statement [...] The Statute of São Luiz Ecovillage contains legal provisions on the care of Ribeirão Anhumas (I3).

Bioconstruction and recyclable construction (Batista, 2018) was reported by respondents from IPEMA, São Luiz and SitiOM. Bioconstruction, the agroforestry system (Fávero *et al.*, 2008) and permaculture (Korže, 2018) were the most cited low-impact environmental technologies in the sustainable use and occupation of land. In the case of permaculture, the total frequency was 198 and for bioconstruction the total was 100. The report of participant I4 exemplifies the practice: "I used most recycled material in the bioconstruction of my house".

On the other hand, “SDG 5 – Gender Equality” was achieved by the four units of analysis, totaling 362 reports in interviews. This result is based on female participation equivalent to male participation in leadership and management activities in ecovillages, as well as in projects carried out. Furthermore, the ecovillages Terra Luminious and SitiOM were founded by women, as can be seen from the report of participant I13: "I can sublet my house if I leave or stay temporarily outside the ecovillage, but only with the prior agreement of the founder, who is a woman".

Another example of gender equality can be seen in the SitiOM ecovillage, whose agroforestry area is led by a female participant, respondent I15:

On the other site, I chose to plant in a very degraded ravine. I planted in that ravine, and people from the surrounding community were watching me. The neighbors on the farm came and said: look, girl, this isn't going to work. But in the end it started to work out really well and the soil became soft and healthy again, and what I planted started to germinate. Then I started interacting with these people, because a relationship with the neighborhood and surrounding community began through planting (I15).

Regarding the economic sustainability bias, at the same time as the commercialization of the surplus (Global Ecovillage Network, 2022b) of agroecological production economically sustained the operations of rural ecovillages, on the other hand it generated an important type of food autonomy during the Covid-19 pandemic. According to participant I7, the production of CSA¹¹ in partnership with other small local producers emerged as a proposal during quarantine, becoming a pillar of economic sustainability for the community, given the increased demand for organic food in the city of São Paulo. Participant I13, in turn, spoke about food sufficiency, as can be seen in the excerpts of statements presented below.

They already have a distribution structure for their baskets, with customers in São Paulo for their baskets, but they say that they need more producers, as there is a lot of demand. And with the pandemic, demand increased. So, they invited us, as well as other farmers

in the region, to be part of this organic production network. (I7).

With the opening of new AFSs, a surplus will be generated that will be sold by the ecovillage. During the pandemic, with our AFSs, we had complete food autonomy, and this was very positive. We got food from SitiOM (I13).

Respondent I4, for example, who did not earn any wages to support his family during the pandemic, opened new AFS beds in the ecovillage and, together with his wife, designed and sold a CSA, which guaranteed their living during the period of the Covid-19 health crisis: This is all very new, we started producing and selling organic products in AFS a month ago. We are thinking about bringing in a type of CSA. We are carrying out a study in Nova Odessa, because there is a very interesting type of CSA there, where you can choose the type of basket you want. I want to bring this model to the ecovillage environment (I4).

The cultivation of agroecological foods enabled the agricultural functionality of rural properties, required in the Agrarian Reform Law (Brazil, 1993) and in the Federal Constitution (Brazil, 1988), and provided ecovillages with resilience, allowing them to sustain their operations during the pandemic. New partnerships and businesses emerged and involved food production, showing the importance of agroecology as a pillar in the economic sustainability and food autonomy of these collective entities, corroborating the achievement of SDG 2, SDG 6, SDG 8, SDG 12, SDG 15 and SDG 17. On the other hand, with the partnerships, ecovillages

¹¹ Community that Supports Agriculture (CSA).

strengthened the solidarity economy within their communities. A frequency of 248 reports was obtained in interviews across all analysis units.

The SitiOM ecovillage used volunteer services as labor in its operations, the supply and demand of which occurs through the *Worldpackers*^{®12} digital platform. Unlike other countries with legal systems different from the Brazilian system, this practice was perceived as potentially attracting legal risks, due to the informality in hiring volunteers, whose rules were not clearly agreed upon in writing, either regarding the conditions and the length of stay, or regarding the type of work to be carried out during the stay inside the property. In the case of ecovillages, volunteers have remained allocated uninterruptedly, in an unreasonable manner, in accordance with Law N° 9.608, of February 18, 1998¹³. The report of participant I7 was assertive in this sense: "There are two other resident volunteers. They have been with us since the beginning when I came here".

It is common for ecovillages, sustainable communities and permacultural sites (Dias & Loureiro, 2019) to receive national and foreign volunteers who visit the country in search of ecological tourism, exchanging their labor for accommodation, work and food. In the SitiOM and Terra Luminious ecovillages, this workforce was used for productive operations and the establishment of partnerships and

networking, strengthening the sharing and solidarity economy.

In turn, the Terra Luminious ecovillage managed to overcome economic problems during the pandemic. Participant I16 mentioned that all members took the opportunity to increase social interaction and invest in Terra Luminious' businesses, including participating in public notices. Before the end of the quarantine period, the ecovillage had won the tender for the international social organization "International Union for Conservation of Nature" (IUCN)¹⁴, obtaining sponsorship for the purchase of new land adjacent to its property, according to the report of participant I16:

Projects related to the environment are built for long-term duration, including when it comes to fundraising. In addition, we frequently compete for Brazilian and international tenders to raise funds for medium and long-term support for Terra Luminious. We were the ones who won the last IUCN notice and with the money we received, we bought a piece of neighboring land that was completely degraded to regenerate (I16).

An important aspect that was identified is that the results in resilience and performance of the 2030 Agenda were higher in communities that embraced the regenerative specificities of ecovillages (Reed, 2007; Robinson & Cole, 2014; Wahl, 2019), the

¹² A Worldpackers[®] is a collaborative platform that connects "hosts" and travelers from all over the world for indefinite travel experiences in exchange for work, food and accommodation.

¹³ Law N° 9608, of February 18, 1998, provides for voluntary service that, in order for the benefits of the legislation, such as unpaid activity and non-establishment of an employment relationship, to be ensured, the following must be observed: "art. 1 For the purposes of this Law, voluntary service is considered to be any unpaid activity provided by an individual to a public entity of any nature, or to a private non-profit institution, which has civic, cultural, educational, scientific, recreational or social assistance objectives, including mutuality; [...] art. 2 Voluntary service shall be carried out through the signing of a term of adhesion between the entity, public or private, and the provider of the voluntary service, which sets out the object and conditions for carrying out the referred service" (Brasil, 1998).

¹⁴ International Union for Conservation of Nature.

sharing (Curtis & Lehner, 2019), circular (Kirchherr *et al.*, 2017) and solidarity economy (França Filho, 2008). However, worse results were obtained in units that did not rely on these prerogatives.

Ecovillages already consolidated by the experience acquired over time and intense coexistence stand out for the support and acceptance that the sense of community exerts on their members and the surrounding area. Certainly, in situations of emergency or scarcity faced by individuals, it is in the community that their capabilities are enhanced and expanded (Sen, 2010); it is in the group that they evolve, just as it is in the *locus* that proposals for changes in policies and commands that can alter the status quo materialize and perpetuate.

5. Final considerations

This qualitative study with an exploratory and descriptive profile addressed the experiences of six rural ecovillages in São Paulo, seeking to analyze their contributions to the implementation of the 2030 Agenda and sustainable local development in Brazil. Despite the particularities of the research design, which include territorial sections and sample limitations, significant results were observed.

First, the fact that two of the six ecovillages covered in the study did not meet the “regenerative design” and “sharing economy” criteria, resulting in low resistance in facing crises and lower performance of the 2030 Agenda, mainly with regard to SDG 2, SDG 5, SDG 8, SDG 11, SDG 12 and SDG 17 deserves attention. This result exposed a connection between “regenerative design” and “sharing economy” with “Agenda 2030” and “resilience”

capable of perpetuating the actions of these agents in sustainable development and in the face of economic and public health crises, such as the Covid-19 pandemic, which is a significant contribution of the present study.

The incipient levels of “regenerative design” and “sharing economy” found in the unit of analysis, added to the informality of links with the ecovillage administration, favored the flight of residents and volunteers during the pandemic period, causing local depopulation, the decharacterization of the ecovillage for a “single owner” permaculture site and the interruption of income-generating productive activities (agroecology, events, education, hotels and ecotourism), negatively impacting the social, cultural, economic and environmental dimensions of Vila das Borboletas.

Furthermore, the reconfiguration to a “single owner” permaculture site concentrated the “assumption of risk” and “civil liability” for the socio-environmental enterprise in the figure of the “sole owner” of the property and in their economic capacity to comply with obligations and liabilities, without the typical apportionment of the sharing economy of ecovillages. With the resumption of production operations after the public health crisis, it will be important to verify what format and administration regime the unit of analysis will have.

Such impacts were not observed in ecovillages with “regenerative design” and “sharing economy”. In these units of analysis, it was found that financial resources came from the sharing economy practiced by ecovillages in collective investments (acquisition of land, infrastructure, housing and work tools), strengthening SDGs 2, 6, 11, 12, 15 and 17. Shared management and equitable sharing of expenses and

operational costs (energy installation, artesian wells, water treatment, for example) among residents made it possible to sustain these communities during the period of economic and public health crisis in 2020 and 2021. Furthermore, the resilience of these ecovillages was greater, due to the “assumption of risks” and sharing of “civil liability” by the members, who kept group cohesion in emergency deliberations to face challenges.

In the four units of analysis, potential risks were detected related to the introduction of voluntary labor to support ecovillage operations, either due to the informal way of hiring these people, some of whom from foreign countries, or due to the socio-economic imbalance that occurs when the number of volunteers exceeds the number of residents and employees in the ecovillage. Furthermore, the length of stay of volunteers within the properties, when higher than the turnover rate of residents and employees of the collective entity, may indicate a potential legal and economic risk factor, in addition to affecting the performance of the 2030 Agenda, in SDGs 2, 5, 8, 11, 12, 15 and 17. The lack of information and specialized and legal support that still permeates the national ecovillage movement contributes to the risk scenario.

Regarding SDGs 11 and 15, in two rural ecovillages that are more advanced in the human and social dimension, SitiOM and Terra Luminious, the routine actions of the collective entity, which include in their work agenda the recovery and conservation of forests and springs, as well as the application of social technologies in sociocratic processes of collective deliberation and in dynamics of Deep Listening and Non-Violent Communication deserve to be highlighted. This result was reinforced because

the members lived and worked within the ecovillages, under the specificities of regenerative design and also because of the institutional purposes.

On the other hand, the interviews also revealed that, in support of SDG 15, the entire sample was dedicated to the regeneration of green coverage in continuous territories, which exceeded in extent the natural areas of legal protection provided for in the Forest Code (Law N° 12,651, of 2012), as was the case with Terra Luminious, São Luiz and SitiOM ecovillages. Environmental regularization of green areas was the criterion most commonly met, according to the respondents, appearing as a pre-condition for the start of operations at the São Luiz ecovillage.

Above all, agricultural activity through the Agroforestry System (AFS), in addition to producing healthy food with low environmental impact, regenerated the green cover and produced water, as it incorporated principles of care from permacultural design. The agroforestry system was the low-impact environmental technology that brought together the largest number of cumulative positive factors of sustainability and regeneration actions in the social, economic and natural spheres, favoring the achievement of the 2030 Agenda and promoting resilience in the face of the health and economic crisis of the Covid-19 pandemic.

Thus, during the pandemic, ecovillages with internalized agroecological production, such as SitiOM and São Luiz, were favored in two aspects: first, due to the food autonomy of their members during the period of isolation; and, second, by the extra income generated due to the increase in demand for organic food in São Paulo, capital, arranged through partnerships with local farmers in

CSA agroecological supply networks. On the other hand, ecovillages Terra Luminious, IPEMA and São Luiz were the three units of analysis that developed partnerships with public authorities and the private sector in social entrepreneurship actions, for the regeneration of green coverage and environmental recovery on their site, contributing with SDGs 15 and 17 of the 2030 Agenda.

This study exposed the potential of ecovillages to strengthen local economies and communities, contributing to the creation of local income with the standing forest, in line with the regeneration of ecosystems, such as the Terra Luminious, São Luiz and IPEMA ecovillages. For the respondents, a sustainable community must observe regenerative dictates, as well as gender equality, quality education and the shared, circular and solidarity economy, just as ecovillages do, serving these collective entities as a parameter of quality of life, well-being, social justice, equitable participation, exercise of citizenship and shared management of common resources.

Another relevant finding is the connection between the factors “regenerative design” and “sharing economy” with “Agenda 2030” and “resilience”, which are capable of providing conditions for the perpetuation and support of these social agents in sustainable development and in facing critical situations economic and public health issues, such as the Covid-19 pandemic. In the national context, where ecovillages face economic, political and legal obstacles in the land regularization of their rural properties, obtaining financial support becomes an even greater challenge.

Finally, it would be interesting to combine the movement's catalyst institutions, such as the Global

Ecovillage Network (GEN), the Sustainable Settlements Council of the Americas – CASA Latina and the Sustainable Settlements Council of the Americas – CASA Brasil with the units of analysis, with the purpose of investigating and evaluating new economic and legal models, as well as low-impact social and environmental technologies developed by other communities and projects.

Acknowledgments

This study is funded by the Coordination for the Improvement of Higher Education Personnel – Brazil (CAPES) – Financing Code 001.

References

- Arrow, H.; Mcgraph, J. E.; Berdahl, J. L. *Small groups as complex systems: formation, coordination, development, and adaptation*. California: Sage Publications Inc., 2000.
- Bardin, L. *Análise de conteúdo*. São Paulo: Edições 70, 2016.
- Batista, B. S. Sustentabilidade na construção do Instituto Baleia Jubarte: técnicas de bioconstrução. *Colloquium Exactarum*, 10(1), 71-79, 2018. doi: 10.5747/ce.2018.v10.nesp.000161
- Bölla, K. D. S.; Milioli, G. Pensamento complexo, sociedade de consumo e perspectivas de sustentabilidade no universo e na dinâmica das ecovilas. *Sociedade em Debate*, 24(2), 55-81, 2018. Disponível em: <<https://revistas.ucpel.edu.br/rsd/article/view/1698/1180>>. Acesso em: out. 2022.
- Boyes-Watson, C.; Pranis, K. *No coração da esperança: guia de práticas circulares*. Porto Alegre: Tribunal de Justiça do Estado do Rio Grande do Sul, 2011.
- Brasil. *Constituição da República Federativa do Brasil*. 1988. Disponível em: <<http://www.planalto.gov.br/ccj>

- vil_03/constituicao/constituicao.htm>. Acesso em: jan. 2020.
- Brasil. *Lei nº 9.608, de 18 de fevereiro de 1998*. Dispõe sobre o serviço voluntário e dá outras providências. Brasília: DOU de 18/02/1998..
- Brasil. *Lei Federal nº 8629, de 25 de fevereiro de 1993*. Dispõe sobre a regulamentação dos dispositivos constitucionais relativos à reforma agrária, previstos no Capítulo III, Título VII, da Constituição Federal. Lei de Reforma Agrária. Brasília: DOU de 25/02/1993.
- Bryant, J.; Thomson, G. Learning as a key leverage point for sustainability transformations: a case study of a local government in Perth, Western Australia. *Sustainability Science*, 1(16), 795-807, 2020. doi: 10.1007/s11625-020-00808-8
- Capra, F.; Luisi, P. L. *Visão sistêmica da vida: uma concepção unificada e suas implicações filosóficas, políticas, sociais e econômicas*. São Paulo: Cultrix, 2020.
- Curtis, S. K.; Lehner, M. Defining the sharing economy for sustainability. *Sustainability*, 11(3), 567, 2019. doi: 10.3390/su11030567
- Dias, M. A.; Loureiro, C. F. B.; Chevitarese, L.; Souza, C. M. The meaning and relevance of ecovillages for the construction of sustainable societal alternatives. *Ambiente & Sociedade*, 20(3), 79-96, 2017. doi: 10.1590/1809-4422ASO-C0083V2032017
- Dias, M. A.; Loureiro, C. F. B. A systemic approach to sustainability - the interconnection of its dimensions in ecovillage practice. *Ambiente & Sociedade*, 22, 1-20, 2019. doi: 10.1590/1809-4422asoc0012R1vu19L1AO
- Esteves, A. M. Peace education for the anthropocene? The contribution of regenerative ecology and the ecovillages movement. *Journal of Peace Education*, 17(1), 26-47, 2019. doi: 10.1080/17400201.2019.1657817
- Fávero, C.; Lovo, I. C.; Mendonça, E. S. Recuperação de área degradada com sistema agroflorestal no Vale do Rio Doce, Minas Gerais. *Revista Árvore*, 32(5), 861-868, 2008. doi: 10.1590/S0100-67622008000500011
- França Filho, G. C. A via sustentável-solidária no desenvolvimento local. *Organização & Sociedade*, 15(45), 219-232, 2008. Disponível em: <<https://www.scielo.br/j/osoc/a/yjcPg73hsgNFQDVpZLpmfzj/?format=pdf&lang=pt>>. Acesso em: out. 2022.
- Gadotti, M. Pedagogia da terra e cultura de sustentabilidade. *Revista Lusófona de Educação*, 6(6), 15-29, 2005. Disponível em: <<https://revistas.ulusofona.pt/index.php/rleducacao/article/view/842>>. Acesso em: out. 2022.
- Gaia Education (Scotland). *Construindo comunidade e abraçando diversidade*. Edinburgh: Gaiaeducation, 2021a.
- Gaia Education (Scotland). *Habilidades de comunicação & tomada de decisão*. Edinburgh: Gaiaeducation, 2021b.
- Gil, A. C. *Métodos e técnicas de pesquisa social*. São Paulo: Atlas, 6. ed., 2008.
- Global Ecovillage Network. *About GEN*, 2022a. Disponível em: <<https://ecovillage.org/about/about-gen/>>. Acesso em: mar. 2022.
- Global Ecovillage Network. *Resources*, 2022b. Disponível em: <<https://ecovillage.org/resources/>>. Acesso em: mar. 2022.
- Hesse-Biber, S. N. *The practice of qualitative research: engaging students in the Research Process*. Los Angeles: SAGE Publications, 2017.
- Kirchherr, J.; Reike, D.; Hekkert, M. Conceptualizing the circular economy: an analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221-232, 2017. doi: 10.1016/j.resconrec.2017.09.005
- Korže, A. V. Permaculture for sustainable lifestyle. *International Journal of Inspiration & Resilience Economy*, 2(2), 34-39, 2018. doi: 10.5923/j.ijire.20180202.02
- Kunze, I. *Ecovillages: isolated islands or multipliers of social innovations?* Blog TRANSformative Social Innovation Theory (TRANSIT), 2015. Disponível em: <<http://www.transitsocialinnovation.eu/blog/ecovillages-isolated-islands-or-multipliers-of-social-innovations>>. Acesso em: abr. 2020.
- Leal, M. S.; Ribas, L. C. Contribuições para a proposta de uma política municipal de pagamento por serviços ambientais: o caso de Botucatu/SP. *Revista Floresta*, 44(3), 411-420, 2014. doi: 10.5380/rf.v44i3.30297
- Malheiros, T. F.; Philippi Junior, A.; Coutinho, S. M. V.

- Agenda 21 nacional e indicadores de desenvolvimento sustentável: contexto brasileiro. *Saúde e Sociedade*, 17(1), 7-20, 2008. Disponível em: <<https://www.redalyc.org/pdf/4062/406263697002.pdf>>. Acesso em: out. 2022.
- Meira, A. C. H.; Souza, D. S.; Senna, D. S. et al. *Capacitação de multiplicadores para o plantio de água: projeto plantadores de água*. Alegre: Ana Claudia Hebling Meira, 2013. Disponível em: <<https://ctazm.org.br/bibliotecas/capacitacao-de-multiplicadores-para-o-plantio-de-agua-261.pdf>>. Acesso em: out. 2022.
- Nações Unidas. *Our common future: report of the world commission on environment and development*. Oslo: UN, 1987. Disponível em: <<https://digitallibrary.un.org/record/139811>>. Acesso em: out. 2022.
- Objetivos de Desenvolvimento Sustentável. *Agenda 2030*. Brasília: IBGE, 2023a. Disponível em: <<https://odsbrasil.gov.br/home/agenda>>. Acesso em: ago. 2023.
- Objetivos de Desenvolvimento Sustentável. *Objetivo 11*. Brasília: IBGE, 2023b. Disponível em: <<https://odsbrasil.gov.br/objetivo/objetivo?n=11>>. Acesso em: ago. 2023.
- Piketti, T. *Capital e ideologia*. Rio de Janeiro: Intrínseca, 2020.
- Pinto, A. C. B. Desenvolvimento local: a comunidade como participante. *Revista Brasileira de Planejamento e Desenvolvimento*, 3(1), 165-175, 2014. doi:10.3895/rbpd.v3n2.3589
- Rau, T. J.; Koch-Gonzalez, J. *Muitas vozes uma canção: autogestão por meio da sociocracia*. Curitiba: Voo, 2019.
- Reed, B. Shifting from ‘sustainability’ to regeneration. *Building Research & Information*, 35(6), 674-680, 2007. doi: 10.1080/09613210701475753
- Robinson, J.; Cole, R. J. Theoretical underpinnings of regenerative sustainability. *Building Research & Information*, 43(2), 133-143, 2014. doi: 10.1080/09613218.2014.979082
- Rockström, J.; Steffen W.; Noone, K. et al. A safe operating space for humanity. *Nature*, Stockholm, 461(1), 472-475, 2009. doi: 10.1038/461472a
- Roma, J. C. Os objetivos de desenvolvimento do milênio e sua transição para os objetivos de desenvolvimento sustentável. *Ciência e Cultura*, 71(1), 33-39, 2019. doi: 10.21800/2317-66602019000100011
- Rosenberg, M. B. *Comunicação não-violenta: técnicas para aprimorar relacionamentos pessoais e profissionais*. São Paulo: Ágora, 4. ed., 2006.
- Roysen, R.; Mertens, F. Difusão de práticas sociais sustentáveis em nichos de inovação social de base: o caso do movimento das ecovilas. *Desenvolvimento e Meio Ambiente*, 39(2), 275-295, 2016. doi: 10.5380/dma.v39i0.46673
- Sachs, J. D.; Schmidt-Traub, G.; Mazzucato, M. et al. Six transformations to achieve the sustainable development goals. *Nature Sustainability*, 2(9), 805-814, 2019. doi: 10.1038/s41893-019-0352-9
- Sanford, C. What is Regeneration? Part 1 – a definition and some fundamental ideas. *Blog Management/Organization*, 2016. Disponível em: <<https://carolsanfordinstitute.com/what-is-regeneration-part-1/>>. Acesso em: ago. 2021.
- Santos, E. L.; Braga, V.; Santos, R. S.; Braga, A. M. S. Desenvolvimento: um conceito multidimensional. *DRd: Desenvolvimento Regional em Debate*, 2(1), 44-61, 2012. Disponível em: <<https://www.redalyc.org/pdf/5708/570862004004.pdf>>. Acesso em: out. 2022.
- Scarano, F.; Padgurschi, M. C. G.; Freire, L. et al. Para além dos Objetivos do Desenvolvimento Sustentável: desafios para o Brasil. *Revista Bio Diverso*, 1(1), 3-21, 2021. Disponível em: <<https://www.seer.ufrgs.br/index.php/biodiverso/article/view/120366/65547>>. Acesso em: out. 2022.
- Sen, A. *Desenvolvimento como liberdade*. São Paulo: Companhia das Letras, 2010.
- Silva, T. M.; Krohling, A. Um repensar ético sobre a sustentabilidade à luz da ecologia profunda. *Revista Eletrônica Direito e Sociedade - Redes*, 7(1), 15-60, 2019. doi: 10.18316/redes.v7i1.4301
- Spring, U. O. *Perspectives of global environmental change in the anthropocene*. In: Sosa-Nunez, G.; Atkins, E. (Eds.). *Environment, Climate Change, and International Relations*. Bristol: E-International Relations, 2016. p. 1-8.
- Souza, L. L. D. *O papel das ecovilas rurais no desenvolvimento local sustentável*. Campinas, Dissertação (Mestrado em Sustentabilidade) — Puccamp, 2022.

Wahl, D. C. *Design de culturas regenerativas*. Rio de Janeiro: Bambual, 2019.