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Ecovillages and Transition Towns: Practices of Sustainable Settlements in Urban and Rural Austria

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Abstract: This study investigates sustainable settlements—in terms of low-carbon settlements and communities transitioning from oil dependence to local resilience—in urban and rural areas of Austria. The objectives of this study are twofold: First, to examine the Global Ecovillage Network (GEN) and Transition Towns Network (TTN) as platforms for alternative lifestyles for urban and rural planning and, second, to comprehend the socio-spatial factors influencing the development of future transition settlements. This study provides updated insights into the concepts of the Global Ecovillage Network in a rural context as well as transition culture in an urban context. In two case studies, we focus on one Global Ecovillage Network (GEN) member, the Cambium Ecovillage near the village of Fehring, Styria, and one Transition Town Network member, Graz, the capital city of Styria. Using transdisciplinary and participatory methodologies, we examine the specific local contexts of these sustainable settlements. Ultimately, the findings of the study about facilitating participatory land use frameworks can be extrapolated from the Austrian context to the broader European context. Conclusions drawn from the results will inform potential future urban and rural land use initiatives concerning ecovillages and transition towns across Europe.

Keywords: Austria; Dragon Dreaming; Global Ecovillage Network; PPGIS; sociocracy; Transition Towns Network

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1. Introduction

Urban policy and planning face the task of addressing multiple crises through the redevelopment of the built environment, including climate change mitigation, energy supply challenges, resource consumption, and land use issues. While climate change and oil crises compound on a global scale, there is an urgent need to develop resilient solutions at the local level, particularly against food and energy shortages [1]. Consequently, strategies such as re-ruralization, suburban retrofitting, transition towns, ecovillages, and localized bioregional economies have gained prominence in urban planning discussions, aiming to address urban transformation processes [2]. In the pursuit of solutions for Energy Descent Futures, which involves the shift to renewable energy sources, it is crucial to examine grassroots networks promoting low-carbon settlement models [3,4].

The COVID-19 pandemic revealed the critical need for food and energy self-sufficiency, highlighting vulnerabilities in global supply chains [5]. COVID-19 led to worker movement restrictions, shifts in consumer demand, the closure of food production facilities, limitations

on food trade policies, and financial strain throughout the food supply chain. The pandemic era has brought about significant challenges in food sustainability. The research stresses the importance of strong community networks to ensure supply security during crises [6,7].

The European Green Deal emphasizes that "citizens are and should remain a driving force of the transition to sustainability" and underscores the necessity of creating conditions that empower citizens and foster effective public participation [8]. Achieving sustainability transitions requires transformative changes in production and consumption systems, impacting all aspects of our lives. Addressing questions of distributive and procedural justice within this transition is a significant challenge, necessitating the full creative potential and active involvement of all sectors of society, including citizens.

Ecovillages and intentional communities share a mutual objective of nurturing the planet, promoting sustainable growth, and fostering a sense of interconnectedness within their community. Decision-making processes often involve the use of sociocracy, and they typically establish asset pools to support their long-term financial sustainability. Dawson [9] identifies five key traits of ecovillages. First, ecovillages are grassroots initiatives typically established by private citizens rather than by governments or corporations. They emphasize communal living and a shared sense of values, often with a spiritual focus. Additionally, these communities strive for independence from centralized systems for essential resources such as water, food, shelter, and energy. Many ecovillages also serve as research and demonstration sites, providing educational experiences for others interested in sustainable living. Well-known ecovillages globally include Findhorn in Scotland, Sieben Linden and Zegg in Germany, Damanhur in Italy, Tamera in Portugal, Crystal Waters in Australia, Auroville in India, and Ithaca in the United States.

Intentional communities encompass a collective of individuals who choose to reside together with a unified objective of advancing their mutual principles. This involves pooling resources and adopting collaborative methods of governance, presenting either an idealistic portrayal of novel settlement configurations or a critical perspective on the prevailing circumstances they seek to transcend. These communities may take shape as spiritual communes or ecovillages, where inhabitants strive to diminish their ecological impact. Crucial to their advancement is the communal mechanism of dedication and decision-making frameworks, as highlighted by Rubin, Willis, and Ludwig [10].

If economic growth relies on cheap energy, what happens when oil production peaks and petroleum extraction declines? Rob Hopkins, an activist behind the Transition Towns Network, advocates for a new bottom-up approach to economic development that is more localized and nurturing. Shifting the focus from sustainability to resilience, he calls for a rethinking of how local communities provide food, housing, and energy for themselves. The terms transition town, transition initiative, and transition model describe grassroots community projects focused on enhancing self-sufficiency to mitigate the impacts of peak oil, climate crises, and economic instability. This is primarily achieved through localization strategies, particularly in food production and energy use. The Transition Towns Network, now encompassing thousands of initiatives worldwide (there were 992 groups registered and 21 hubs in 2024), supports communities in establishing their own energy companies, local currencies, food systems, and more. This movement exemplifies 'localization as economic development,' emphasizing the power of community collaboration on local streets and in neighborhoods [11].

Transition Town initiatives, which have proliferated globally since 2005, aim to create low-carbon, socially just communities that are resilient to resource shortages and extreme weather events. Transition groups focus on values and principles such as respecting resource limits, promoting inclusivity and social justice, adopting subsidiarity in decision-making, maintaining balance, fostering collaboration and experimentation, and envisioning

positive futures. These principles guide their efforts to address global challenges at the local level through community-led actions.

The Transition Towns Network encourages participation for various reasons, including building community connections, making an environmental impact at the local level, feeling empowered to address global issues locally, catalyzing sustainability projects, acquiring new skills, and creating a sense of belonging and purpose. Successful transition projects are characterized by a balance between intellect, emotion, and action. This holistic approach, emphasizing both rational planning and emotional engagement, is key to their effectiveness in creating resilient and sustainable communities [12,13].

Hopkins' philosophy rests on three main pillars: global environmental sustainability, human well-being, and social justice. He defines resilience not merely as maintaining current models and practices but as a fundamental reevaluation of infrastructure and systems to foster a more sustainable, resilient, and enriching low-carbon economy. His vision advocates for transformative changes in food, energy, and housing, aiming to inspire local communities and initiatives to broaden participation and facilitate collective learning. In his "Transition Handbook," Hopkins outlines various activities to connect people, foster social hubs, and raise awareness, including strategies for effective communication and meetings [11]. Despite its inclusivity, the movement has faced criticism for its lack of diversity and its emphasis on awareness over experiential learning. Achieving a balance is crucial for practitioners to enhance both resilience theory and practice [13].

The Transition Town Network holds significance as a global, community-led, grassroots approach driven by numerous local initiatives. Seyfang and Haxeltine argue that community-based activities in the Transition Towns Network as a grassroots innovation offering immediate benefits such as cost savings, enjoyment, and social interaction are more effective in engaging a broad public [14]. They suggest that immersive and enjoyable activities can serve as a gateway to educating individuals about topics like climate change and peak oil, although experiential learning is not necessarily a prerequisite for lifestyle change.

Nicolosi and Feola highlight that place, space, and scale significantly shape the nature, dynamics, opportunities, and limitations of transition initiatives [15]. The Transition Town Network's spatial strategy combines geographically widespread and localized elements with support from its Steering Group. It uses spatial proximity (living close by) to access high-quality resources and broad networks, which are essential for acquiring complementary, lower-quality resources. This flexible transition model allows initiatives to focus on local issues, innovate, or exclude topics that may not be relevant. The success of this grassroots approach depends on sustaining participation despite limited budgets, ideological conflicts, and competition with other groups. A strong attachment to place and a shared history are crucial, while a favorable setting and motivated activists provide a strong advantage [16].

The principles of the Transition Towns movement align closely with degrowth ideals, emphasizing community self-sufficiency, social justice, inclusiveness, and voluntary simplicity [17,18]. Pioneering initiatives like Totnes, Kinsale, Lewes, and Brixton in the UK demonstrate practical examples of these principles in action, with a focus on permaculture, local food production, ethical business, and alternative housing arrangements [19].

The Transition Town movement has also faced criticism for its lack of focus on equity and implementation in the Global South [20]. Nevertheless, the transition approach serves as a catalyst for communities to explore and create their own visions for a positive post-carbon future, encouraging proactive participation and responsibility [21].

Steinwender examines transition initiatives (TIs) in Austria, focusing on three case studies: TI Tirol, TI Vöcklabruck, and TT Friesach [22]. These initiatives are seen as community groups working within the multi-level perspective, employing the Transition Town (TT)

concept to advocate for alternative lifestyles and production methods. The thesis explores the concept of TIs and addresses the challenges they face, placing them within the context of post-political theory. This theory suggests that addressing issues like climate change requires more than just individual actions or traditional political approaches. The thesis finds that while TIs in Austria are effective at the local level with hands-on initiatives, social economy endeavors, and awareness-raising, they often neglect broader political and economic actions necessary for structural change. Despite aiming to move beyond middle-class environmentalism, their potential to fully transition into Transition Towns remains uncertain.

Urban policy and planning efforts to address global crises, including climate change, energy scarcity, and resource management, often neglect the potential of grassroots networks and community-led initiatives in fostering resilient local solutions. While the Transition Towns Network and Global Ecovillage Network have demonstrated success in promoting low-carbon lifestyles and community resilience, academic literature exploring their application remains limited. Additionally, existing studies inadequately address the spatial dynamics, socio-economic dimension, and scalability of these initiatives within diverse urban and rural contexts [23–28]. This highlights the need for further exploration of how such grassroots innovations can inform sustainable urban and rural transformations, examining the transition from oil dependency to local resilience in Austria's urban areas and rural areas, focusing on sustainable settlements and communities of the Global Ecovillage Network and the Transition Towns Network. Both networks offer valuable solutions to peak oil and climate change, serving as role models for new eco-towns in Europe seeking alternative, sustainable lifestyles and post-carbon futures in urban and rural contexts.

This research addresses themes such as socio-economic dimension, community governance, and the transformative potential of grassroots innovations in both urban and rural settings. Employing expert interviews, participatory mapping, and insights from a Dragon Dreaming workshop, this study investigates communal visions and actionable pathways for achieving sustainability and resilience. We aim to forward an understanding of how Global Ecovillage Network and Transition Towns Network initiatives foster resilience within urban and rural contexts and offer policy recommendations for integrating grassroots resilience strategies into urban and rural planning. By presenting ecovillage and Transition Town approaches, this study aims to enhance awareness of grassroots innovations as essential contributors to low-carbon, equitable, and sustainable futures. Furthermore, it aspires to provide actionable insights for policymakers, urban planners, and community activists to integrate grassroots resilience strategies into broader participatory planning frameworks.

The article proceeds as follows: In the following section, we present our Austrian case studies and outline our methodology. First, we consider the key themes identified from expert interviews in various contexts in Styria, Austria, noting how these are embedded in intentional communities in urban areas and ecovillages in rural areas. Next, we present the outcomes of our Dragon Dreaming workshop. Third, we examine the socio-spatial effects of the Global Ecovillage Network and Transition Towns Network eco-initiatives using a participatory mapping approach. In our concluding discussion, we return to energy and food self-sufficiency and the avenues for alternative lifestyles in urban versus rural neighborhoods.

2. Case Study Areas

In the following, the two case studies in Styria, Austria, are presented. The rural case is part of the Global Ecovillage Network in the municipality of Fehring. The urban case is part of the Transition Towns Network in the municipality of Graz.

2.1. Global Ecovillage Network: The Case of Cambium Ecovillage

The Global Ecovillage Network is an organization that connects and supports regenerative communities worldwide. It facilitates collaboration among various stakeholders, such as policymakers, NGOs, activists, and individuals, to promote strategies for transitioning to resilient and ecologically harmonious communities. The Global Ecovillage Network consists of five regional networks and a youth arm called NextGEN, comprising approximately 10,000 communities and projects globally.

One of the Global Ecovillage Network's platforms is Global Ecovillage Network Austria, which aims to inspire and facilitate community living in harmony with the biosphere. The Global Ecovillage Network Austria focuses on knowledge exchange, online education, and promoting eco-friendly community culture. They organize ecovillage design courses online and have developed an online platform called Podium for hosting events [29].

In Austria, several community projects, including Cambium, Cohousing Pomali, and Hasendorf, are experimenting with alternative living arrangements. Cambium is a unique Global Ecovillage Network member ecovillage, while Cohousing Pomali in Wöbling is an intentional community established in 2013 with a focus on sustainability and communal living (Figure 1). Owned by a cooperatively owned limited liability corporation, Cohousing Pomali emphasizes both communal and individual well-being, with an openness to spirituality [30,31]. Wohnprojekt Hasendorf is a sustainable cohousing community in Lower Austria, featuring 25 adults and 12 children. The 4500 m^2 property includes building and agricultural land. Located near Krems, the project is well-connected to Vienna, with public transport links to the city in 45 min. The focus of the community is on environmental sustainability and solidarity [32].

Figure 1. Cambium Ecovillage, self-archive.

Cambium–Leben in Gemeinschaft is an intentional community or ecovillage located in a former military area near Fehring in Eastern Styria, Austria. Over seven years, the barracks on the site have been transformed by the community's members to suit their needs. They purchased the land in 2019 after initially renting it for two years. Currently, 40 adults and 15 children live in Cambium, with plans for future development [33].

Cambium's favorable carbon footprint is low due to its repurposing of existing buildings. Permaculture techniques like swales and regenerative rotational grazing contribute to its environmental stewardship, furthering its commitment to sustainability.

Cambium features eco-tech plants and installations. A plant features a greenhouse, an indoor wetland, and a green wall that treats wastewater using plants, extracting valuable nutrients like phosphorus and nitrogen from the treated water. This water can then be reused for fertigation on-site [34]. The system collects domestic wastewater from sources such as toilets, showers, and the kitchen in the Cambium residential building. The home-scale biogas plant in Cambium is the first of its kind in Austria (Figure 2). It processes kitchen waste and black water through co-digestion to produce biogas for cooking and

fertilizer (Figure 3). The system includes temperature monitoring linked to a data logger and continuously tests the biogas components (CH_4, CO_2, H_2S) and pH levels [34].

In Cambium, permaculture principles are applied through techniques such as creating swales in the orchard for rainwater collection and passive irrigation. These swales, aligned along contour lines with level bottoms, help to regulate water flow, prevent erosion, and capture organic matter and nutrients. This method not only aids in irrigation but also serves as a tool for flood prevention.

Additionally, Cambium practices regenerative rotational grazing with their sheep (Figure 4). This agricultural approach involves moving the sheep to different pasture areas regularly, carrying their fences with them. By managing livestock in this manner, Cambium promotes soil health, human and ecosystem well-being, community resilience, and food sustainability. Integrating livestock and cropping, the sheep graze and deposit manure on fields, completing a closed nutrient loop that enhances plant and animal diversity and microbial life in the soil [35]. Studies suggest that regenerative rotational grazing leads to increased springtime grass production and higher topsoil carbon storage compared to conventional grazing methods [36].

Figure 2. Greenhouse bio-treatment in Cambium (self-archive).

Figure 3. Home biogas organic liquid fertilizer in Cambium (self-archive).

Figure 4. Swales in the orchard of Cambium (self-archive).

2.2. Transition Towns Network: The Case of TT Graz

Graz, located in Styria and Austria's second-largest city following Vienna, had a population of 339,810 as of 1 January 2024, with 303,270 having principal-residence status. The larger urban zone of Graz recorded a population of 665,390 in 2021, also based on principal-residence status. The city is renowned for its vibrant educational scene, housing four colleges and four universities, attracting over 60,000 students.

Transition Town Graz is a grassroots movement established in 2014 to promote urban development in Graz, Austria, with a focus on the local economy, solidarity, and ecological sustainability [37]. TT Graz members concentrate on various aspects such as healthy food, green spaces, mobility, housing, and energy. The group meets regularly in the pre-clinic at the University of Graz and welcomes participants with different roles like visionaries, specialists, supporters, networkers, and bloggers. Their mission is guided by 17 principles aligned with the Local Agenda Graz 2030, covering issues from poverty eradication to environmental sustainability and social justice.

TT Graz collaborates with several organizations, including Urban Gardening Forum, Sustainable in Graz, and others. In 2024, they were engaged in two projects: Theater Laboratory: ACT for a Future Food System, which combined expert input with theatrical methods on sustainable nutrition, and The Mosaic of Good Food for All, a campaign critiquing the food system and promoting participatory approaches for fairer and more sustainable food in Graz.

The TT Graz team consists of three administrators and four project employees. Their Facebook page has 909 followers, and recent activities demonstrate collaboration with Stadtteilarbeit Eggenlend, a community center in the Eggenlend district of Graz [37]. Events like Culturekitchen, Cooktogether, and Repair Café have been organized in the past two years, along with hosting poster exhibitions on climate change from Styrian universities. Eggenlend is an area in Graz formed by the residents, unofficially connecting parts of the Eggenberg and Lend districts. TT Graz, in partnership with the Eggenlend community center, has initiated a fresh endeavor focused on establishing a community garden.

The Eggenlend neighborhood, located to the north of Graz near the train station, was chosen as the primary focus area for the case study. The informal boundaries of Eggenlend link segments of the Eggenberg and Lend districts in Graz, not delineated by official city administration borders. This designation emerged from local residents following discussions about their neighborhood in 2011.

2.3. Comparing the Two Case Studies

The Global Ecovillage Network and the Transition Town Network each support grassroots sustainability efforts, though their structures and focal points differ. The Global Ecovillage Network operates internationally, fostering intentional eco-communities like

Cambium in Austria, which exemplifies ecovillage living with a strong commitment to environmental stewardship. Cambium emphasizes permaculture, regenerative grazing, and eco-technology, such as biogas plants and wastewater treatment systems. These methods help reduce environmental impact by repurposing land and employing sustainable water and waste practices. Cambium's approach to eco-living focuses on self-sufficiency within a rural community, with a practical emphasis on circular resource use and community resilience, creating a model for others seeking regenerative community lifestyles.

Conversely, Transition Town Graz is part of the Transition Town Network, focusing on urban resilience and sustainable development. Unlike Cambium's ecovillage model, TT Graz works within Graz's existing urban environment to support local food, green spaces, mobility, and energy solutions, aligning with the Local Agenda Graz 2030. TT Graz members are dispersed over a large city, while Cambium activists form their own isolated eco-settlement unit. Through events like Repair Cafés and community gardens, TT Graz collaborates with residents and local organizations to tackle urban challenges related to climate action, sustainable food, and community cohesion. This urban model is more adaptable to densely populated areas, engaging residents in incremental, community-led sustainability initiatives without requiring full relocation or lifestyle change.

Both Cambium and TT Graz emphasize sustainability transitions but adapt their approaches to their specific contexts. Cambium showcases rural eco-living through intensive, closed-loop practices, enhancing biodiversity and soil health via permaculture and rotational grazing. TT Graz, by contrast, leverages existing urban structures to address local sustainability issues through partnerships, educational events, and neighborhood projects. These case studies highlight how the Global Ecovillage Network and the Transition Town Network provide frameworks for regenerative living that can be adapted to both rural and urban settings, making sustainability accessible to diverse communities.

3. Materials and Methods

We combine several analytical and participatory approaches to ensure a comprehensive understanding of how sustainable solutions to self-sufficiency are cultivated in the two case study communities. This integrated approach provides a framework for addressing both rural and urban dimensions. The analytical aspect ensures that planning is grounded in data and evidence, offering a clear understanding of current land use, resources, and socio-economic conditions. The participatory component fosters community engagement, allowing local stakeholders to actively participate in shaping the solutions.

Specifically, we employ a range of multi-method techniques, including in-depth expert interviews, a Dragon Dreaming workshop, and Public Participation GIS (PPGIS). Our multi-method approach reflects a well-rounded and innovative strategy for tackling complex spatial challenges. The expert interviews provide specialized knowledge, ensuring that the project process is informed by the latest insights and best practices across fields. The inclusion of a Dragon Dreaming workshop adds a creative and collaborative layer, fostering visioning and collective problem-solving while encouraging community stakeholders to co-create actionable plans aligned with their shared dreams and goals. The use of PPGIS introduces a spatial perspective into our investigation of sustainable practices in the case study communities. These diverse methods allowed for the integration of various perspectives and data types, enhancing the depth and breadth of our analysis. It is crucial to highlight the added value these methods bring, as their synergy fosters more inclusive, participatory decision-making and results in more robust, context-specific planning outcomes.

3.1. Expert Interviews

Ten expert interviews were conducted between October and December 2023. The interviews were conducted one by one. Five of them were conducted face to face, two interviews were conducted online, and three were answered via email. These interviews sought to capture a broad range of perspectives to urban-rural planning and sustainability. The interviews were conducted as semi-structured interviews designed to explore the respondent's thoughts and perspectives on particular subjects in depth. While the questions were prepared in advance, we had the flexibility to rearrange, omit redundant questions, or add new ones during the interview.

The participants were selected according to the related key themes such as ecovillage, transition town, cohousing, and sustainable participatory planning. They included an environmental science expert and geographer, a specialist in social ecology and economy, a cohousing architect, and a sociocracy expert who collaborated with a transition consultant. Other interviewees were a political science and media expert, another cohousing architect, a professor of community planning and landscape design, a sociocracy and sociocratic neighborhood expert, a futurist and social researcher, an energy and climate protection manager, and a consultant specializing in sustainability and sociocracy.

The interviews revealed key insights on various dimensions critical to planning low-carbon communities. In terms of approach and involvement, experts emphasized the value of inclusive, community-driven processes, advocating for strong municipal ties and networks to foster collaboration and ensure local buy-in. Regarding success factors and challenges, the importance of clear governance structures, resource allocation, and long-term vision were highlighted, alongside barriers such as bureaucratic inertia and limited public engagement. The Transition Network was seen as an effective model for linking communities, promoting resilience, and facilitating knowledge exchange, while top-down governance was critiqued for being rigid and disconnected from local needs. Experts underscored the need for strong asset pools that include both financial and social capital and praised methods like Dragon Dreaming and Sociocracy for enabling participatory decision-making and fostering community cohesion. These inputs collectively offer valuable clues for shaping the future of low-carbon communities, with a focus on participatory governance, resilience-building, and environmental responsibility.

After summarizing all interviews, a content analysis was conducted to identify recurring topics. The analysis was assisted by an explorative use of an open-access language model (ChatGPT 4, OpenAI) to identify common themes and codes in the interview materials [38]. The anonymized interviews were entered into ChatGPT's command text window and asked to find common themes and codes for qualitative analysis. Common themes in content analysis help organize data, reveal patterns, and guide interpretation. They simplify complex information, highlight key insights, and improve research validity, making it easier to develop theories and inform decision-making. Themes are essential for understanding trends and supporting further research.

3.2. Participatory Mapping

To understand the spatial practices and development wishes of the residents of these two case study areas, a PPGIS survey was conducted in both communities. PPGIS refers to a family of digital participatory mapping methods used to capture citizens' spatial knowledge as geographic information [39–42]. Contemporary PPGIS approaches are typically administered through online surveys combining mapping tasks with conventional survey elements.

In this study, a PPGIS survey was developed in collaboration with key actors from both the Eggenlend and Cambium communities using the Maptionnaire PPGIS tool (Figure 5).

Knowledge needs of the communities were identified in an iterative process together with contact persons from both communities, and the final survey items, formulated by the first author, were tested and feedbacked by community members. The overall aim of the survey was to understand the current preferences and future expectations of these communities regarding their functions as transition towns. To support local capacity-building, it was agreed that the survey results would be shared with both communities.

A joint survey was developed to target the two resident groups in both case study areas: residents of the urban neighborhood participating in Eggenlend-Graz projects and the rural Cambium Ecovillage residents. The survey was divided into two parts based on these groups. Questions for Eggenlend focused on the local food environment, while those for Cambium covered topics related to sustainable living, working, and services in rural areas. In addition to these mapping questions, the survey included conventional, non-spatial items such as multiple-choice and open-ended questions. These covered the respondents' socio-economic and demographic background as well as preferences for living, working, parking, shopping, and schooling. The survey was available to answer in German and in English.

The data collection took place in February–March 2024. In Eggenlend, the data collection relied on convenience sampling and the distribution of the survey through existing local networks. In Cambium, contact persons distributed the link to the survey to all adult community members.

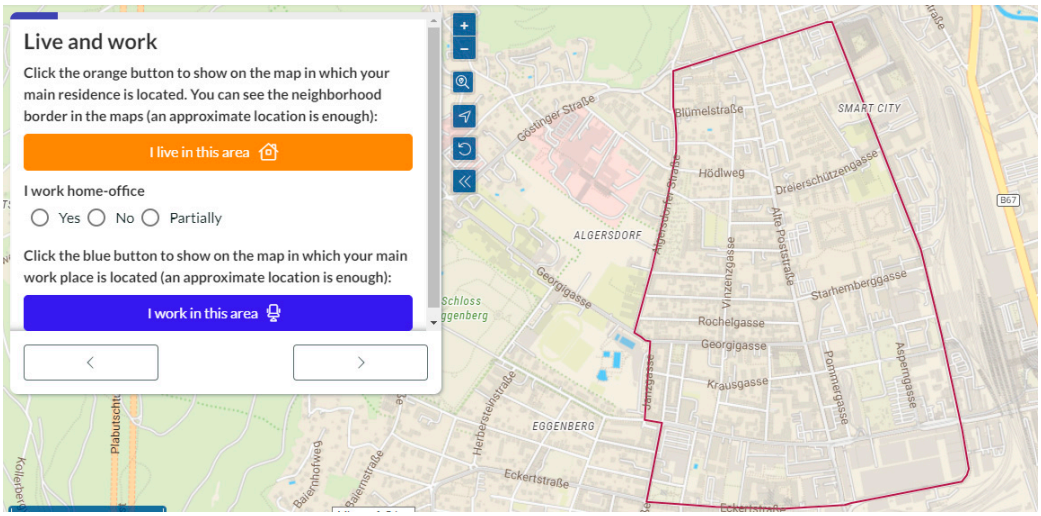

Figure 5. The mapping view of the Cambium survey (Maptionnaire citizen engagement tool).

3.3. Dragon Dreaming Method for Project Management

Dragon Dreaming is a collaborative project management method developed by John Croft and Vivienne Elanta in 1990, drawing from Deep Ecology, Indigenous knowledge, and modern science to integrate personal growth, community building, and environmental service. This approach has facilitated over 8500 projects in 53 countries, with more than 200 certified facilitators worldwide [43]. Central to Dragon Dreaming is the Dream Team, composed of Dreamers, Planners, Doers, and Celebrators, representing the diverse qualities needed for project success. The method begins with dreaming, where participants identify shared visions, fostering unity and direction. Through reflective activities like force field analysis and open discussions, team members align their goals, cultivating a supportive atmosphere to energize and advance the project.

The process moves through distinct phases—Dreaming, Planning, Doing, and Celebrating—each requiring 25% of resources to maintain balance [44]. In the Planning Phase, participants articulate their dreams, outline actionable objectives with strategic steps,

and use tools like the Karabirrdt-spider web diagram to visualize tasks and dependencies. Clear roles are assigned to ensure effective task management, while regular celebrations provide moments of reflection, unity, and rejuvenation. Celebrating embodies the guiding principle, "If it is not fun, it is not sustainable," reinforcing joy and fulfillment as core components for long-term project success [45].

In November 2023, we organized a Dragon Dreaming workshop at Stadtteilzentrum Eggenlend with assistance from the community center coordinator, bringing together a diverse group of participants, including specialists in environmental science, social management, architecture, and agriculture.

The summary of our methodology scheme is presented in Table 1.

Table 1. Methodology scheme.

1. Integrated Approach
1.1 Analytical Component • Grounded in data and evidence. • Focuses on current land use, resources, and socio-economic conditions. • Utilizes tools like content analysis and surveys.
1.2 Participatory Component
• Community engagement through participatory methods. • Actively involves local stakeholders in shaping solutions • Methods: Dragon Dreaming workshops and PPGIS surveys.
2. Multi-Method Techniques
2.1 Expert Interviews
• Conducted with ten diverse experts from October to December 2023. • **Methods:** Face-to-face, online, and email interviews, field trip • **Focus:** Ecovillages, transition towns, and participatory planning.
• **Findings:** • Emphasis on community-driven processes and municipal collaboration. • Identified barriers: bureaucratic inertia and limited engagement. • Highlighted tools: Dragon Dreaming, Sociocracy, and alternative living models.
2.2 Participatory Mapping (PPGIS)
• **Aim:** Capture spatial knowledge and community preferences. • **Tool:** Maptionnaire • **Case Studies**: Eggenlend (urban) and Cambium (rural). • **Approach:** Iterative survey development with community feedback. Focused on local food environments (Eggenlend) and sustainable living (Cambium). Surveys translated into German for accessibility. Data collection through convenience sampling and local networks.
2.3 Dragon Dreaming Workshop
• Organized in November 2023 at Eggenlend Community Center. • **Participants:** Specialists in environmental science, social management, architecture, and agriculture. Phases: Dreaming, Planning, Doing, and Celebrating • **Outcomes:** Co-creation of actionable programs. Visioning and collective problem-solving.
3. Data Analysis
3.1 Content Analysis of Expert Interviews
• **Process:** Summarized interviews. • Conducted qualitative analysis to identify recurring themes. • Used OpenAI for exploratory theme identification. • **Themes:** Participatory governance, resilience-building, environmental responsibility. • **Outcomes:** Insights on asset pools, governance structures, and community cohesion.
3.2 PPGIS Survey Analysis
• Mapped residents' spatial practices and preferences. • Combined spatial and conventional survey elements. • Enabled insights into demographic trends, living preferences, and sustainability practices.
4. Outcomes and Added Value
• **Inclusivity:** Methods ensured diverse participation from experts and communities. • **Participatory Decision-Making:** Fostered community ownership of solutions. • **Synergy of Methods:** Balanced expert guidance, spatial accuracy, and community input. • **Scalability:** Methodology applicable to other rural-urban transition areas.

4. Results

4.1. Results of Expert Interviews

The participants of the expert interviews offered valuable inputs, with an environmental science expert and geographer providing data on ecological concerns, while a social ecology and economy specialist contributed insights into sustainable social systems. The cohousing architects shared experiences in community-driven housing design, and the sociocracy experts provided knowledge on democratic governance structures. Contributions from a political science and media expert, a professor of community planning and landscape design, and a futurist enriched the conversations with insights on political dynamics, landscape integration, and forward-looking societal trends. The energy and climate protection manager added a critical perspective on sustainability measures, while the consultant specializing in sustainability and sociocracy offered comprehensive solutions for organizational resilience and sustainability. These interviews contributed crucial inputs for shaping inclusive, resilient, and forward-thinking community development strategies.

The interviews provided a wide range of inputs essential for shaping the future of sustainable, low-carbon communities in urban and rural contexts. Experts highlighted the importance of integrating multi-stakeholder involvement and local engagement through approaches like Dragon Dreaming and sociocracy, emphasizing collaborative governance models for community building. Municipal ties and networks were identified as critical for the success of such projects, with participants stressing the need for strong platforms for collaboration and effective transition networks. Discussions around resilience focused on bottom-up community empowerment and flexibility in the face of crises, contrasting with challenges posed by top-down governance approaches, which were seen as less adaptive. The asset pool in community planning—encompassing natural, human, and financial resources—was identified as a key factor for long-term success. The potential of cohousing was also explored, offering inclusive and sustainable living models.

Shared themes and codes were identified from our interviews (Table 2). The first theme is sociocracy. Sociocracy is essential in ecovillage and cohousing settings, offering a structured and inclusive approach to decision-making that promotes equality, transparency, and conflict resolution. This method empowers all members to have a voice, enabling decisions that reflect the collective vision of the community [46]. By fostering collaboration, sociocracy strengthens the resilience and sustainability of these close-knit communities, making them adaptable and community-driven.

Originating from sociological ideas by Auguste Comte, sociocracy was later applied to collective decision-making by Kees Boeke in the 1920s and was formalized by Gerard Endenburg in the 1970s. Endenburg's Sociocratic Circle Organizing Method, grounded in cybernetics and systems thinking, includes principles like consent-based decision-making, circle organization, double linking, and open choice in role selection [47,48]. This system encourages error-based learning, flexibility, and efficient resource use. Over time, sociocracy has evolved into terms like holocracy and Dynamic Governance, spreading globally across various sectors, including NGOs, schools, hospitals, and sustainable communities, to create more inclusive, effective organizations [47,49].

The adoption of sociocracy in community and organizational contexts has reshaped decision-making by promoting inclusive and transparent processes that encourage collective ownership and trust. Sociocracy enhances community dynamics by enabling efficient decision-making; however, it faces challenges, particularly in scaling across political hierarchies and varying organizational levels. Community members express that sociocracy improves social well-being through bottom-up governance and transparent structures, although cultural adaptation and resource limitations remain barriers. Overcoming these

obstacles could involve tailored sociocracy training, increased resource access, and building supportive networks to foster widespread adoption.

Table 2. Common themes and codes.

Common Themes	Common Codes
Sociocracy Impact on Decision-Making and Implementation:	Adoption and impact of sociocracy in various contexts. Challenges and advantages of applying sociocracy in different settings. Examining how sociocracy influences decision-making processes. Examples of efficient decision-making and its impact on community dynamics. Challenges in applying sociocracy at different levels (bottom-up, political). Individual views on the role of sociocracy in social well-being. Recommendations for overcoming obstacles and improving sociocratic processes.
Community Building and Common Ownership:	Importance of trust and transparent hierarchy in community development. Common ownership structures and their role in fostering collaboration
Motivation and Vision for Change:	Motivations for pursuing eco-projects and transitioning to sustainable communities. Vision for change, emphasizing individual freedom and equal access to resources.
Dragon Dreaming and Vision Creation:	Utilization and impact of the Dragon Dreaming process in vision creation. Merging groups with different dreams and values. Personal experiences and reflections on specific projects like Cambium and Dragon Dreaming.
Sustainability: Eco-Initiatives and Spatial Characteristics of Settlements	Integration of sociocracy into sustainability projects. Relationship between sociocracy, eco-projects, and resilience. Neighborly proximity and direct communication in eco-initiatives. Specific examples of partnerships and research outcomes in sociocratic neighborhoods
Knowledge of Transition Towns and Global Ecovillage Network:	Awareness and lack of known best practices in Austria or Europe. Cooperation with other initiatives and platforms. Building healthy relationships and success factors in transition initiatives
Urban Planning and Governance: Cohousing and Sustainable Construction:	Green influence on urban planning. Challenges in language and narrative of the transition, especially in the Graz context. Implementation of cohousing projects and their impact on sustainability. Sustainable construction practices and energy-efficient features.
Financial Structure and Asset Pool:	Exploration of asset pools and self-organized finance. Decision-making on finances, minimum investment, and return policies Challenges in collaboration, awareness, and the need for basic funding.
Collaborations and Networks:	External collaborations and interactions with networks like GEN and Transition Towns. Municipal and regional ties, challenges, and best practices in collaboration.

The other common theme, SoneC, or Sociocratic Neighborhood Circles, is an EU-funded initiative (2020–2022) that spans seven European countries to promote bottom-up decision-making for socio-ecological solutions in local communities. By applying sociocracy, SoneC encourages active neighborhood participation and shared responsibility in alignment with the UN Sustainable Development Goals and the European Green Deal. The project, inspired by Indian Neighborhood Parliaments, organizes neighborhood members into smaller circles that regularly collaborate on goals like biodiversity, climate action, and clean energy [50]. Leaders from each circle, overseeing 20–40 members, form a broader network to coordinate actions and connect with local governments. Drawing from Elinor Ostrom's "Governing Commons" principles, SoneC emphasizes local, collective resource management without central control, ensuring local government representatives participate in circles for consultation and oversight [51].

In sustainable development, sociocracy synergizes with eco-initiatives like Transition Towns and the Global Ecovillage Network by supporting resilience and sustainability within sociocratic neighborhoods. The Dragon Dreaming process also aids in vision creation by aligning varied community values and motivating eco-projects focused on common ownership and resource access. Successful cohousing models and sustainable construction practices reflect sociocratic principles in urban planning, with asset pools and self-organized finance supporting financial sustainability. Collaboration with platforms like the Global Ecovillage Network enables knowledge sharing, but overcoming

funding barriers and ensuring awareness remain crucial for scaling these sociocratic and eco-initiatives across regions. Overall, these insights provided clues for designing ideal low-carbon communities, blending urban and rural needs while fostering networks of support and environmental consciousness.

Person L, Person E, and Person H from Soziokratiezentrum emphasized the benefits of sociocracy for its decision-making efficiency, member participation, and maintaining intrinsic motivation, particularly through transparent and flat hierarchical structures. Trust among members is crucial, with community-building and common ownership fostering solidarity and cooperation. While not a solution for financial issues, sociocracy can enable co-financing solutions, such as the solidarity box used in cohousing projects. The implementation of sociocracy benefits from guidance, with tailored approaches necessary for each community.

Person R encountered sociocracy through a school organizational change and uses it occasionally for moderation in her scientific work. In the Erasmus+ project SONEC, they explored adapting India's neighborhood parliament model for Europe, but it has not been applied yet due to different administrative contexts. Sociocracy works well in social settings like community gardens, improving self-organization, but its application in political contexts is untested and challenging, particularly in involving all community members. SONEC considered both top-down and bottom-up approaches, with bottom-up being more difficult as it requires convincing power-holders to redistribute power to the people.

According to Person H, trust and well-defined hierarchical systems play a crucial role in propelling communities forward, as demonstrated by the smooth coordination and effective decision-making observed in successful societies. Establishing a community with a shared commitment to sustainability and the ability to take collective action is highly beneficial as a fresh endeavor. The influence of shared ownership models on promoting collaboration is evident in the enhanced feeling of solidarity and joint accountability cultivated among individuals striving for mutual objectives.

The asset pool theme is noted as one of the key focuses. The asset pool[1] is a unique financial model that bypasses traditional banking by operating without interest or rent charges, emphasizing transparency and independence. Investors deposit funds into specific projects, similar to a savings account, with a minimum of 10% held in cash reserves to manage withdrawals, which are typically processed within three months. Managed by an accountant and overseen by a trustee, this system is governed by a detailed bond contract that ensures regulatory compliance. It functions as a solidarity-based financial cycle, allowing investors to support meaningful projects with the option to withdraw funds as needed. By encouraging new investments and managing withdrawal timing, the asset pool balances risk and financial sustainability, with active project members contributing an initial amount as a buffer against potential losses [52]. Active project members, like those residing in Cambium, contribute an initial amount as a safeguard in case of losses.

Person C is a founding member of Project Cambium, focusing on social ecology and economic organization. The community of 40 adults prioritizes diversity and social innovation, hosting various groups and camps. They aim for climate neutrality and utilize an asset pool system for finance. Dragon Dreaming and sociocracy have shaped their vision and organizational structure, with a shift towards holacracy for efficiency. Acquiring new members remains a challenge, with a year-long process currently in place. Maintaining sustainability involves acknowledging members' motivations and fostering collaborations with the municipality, habitat networks, and other ecovillages. He indicates that intentional communities provide longer lifespans, enhanced child development, access to nutritious food, and close proximity to nature.

Person C asserts that the asset pool represents a type of self-organized financial structure integrated with the Habitat system. Contributors to this pool have a vested interest in enhancing its security and reliability compared to other forms of self-organized finance. Moreover, it serves as a political stance aimed at reducing the influence of the financial sector. Notably, investors receive a fixed percentage to combat inflation and have transparency regarding the utilization of funds. Withdrawals are feasible within three months without financial constraints, as there is no minimum investment requirement. Participants in the Cambium project are encouraged to contribute a minimum of 2000 Euros, and decisions regarding fund allocation are made collectively by the residents.

Person C states that one of the two groups that merged in Cambium did Dragon Dreaming to find their vision of the project, which was to create a new form of village. Last year, they conducted a new Dragon Dreaming process and found out that they had different dreams and different values about their desires to live (some people love this house—like Person C; others struggle to live in military barracks).

The Transition Towns Network itself was another common theme. Person M recently joined the board of trustees of the Transition Network, aiming to revive Transition Austria. He emphasizes a strategic role due to his board position. The network, undergoing changes, focuses on community empowerment and inclusivity. In Europe, transition initiatives are most active in France, Belgium, Switzerland, and Germany. The network operates with a sociocratic structure, emphasizing collaboration. Sustaining the network requires dialogue, support, and adherence to governance models like sociocracy. Maintaining grassroots involvement is crucial, especially in urban areas. Person M notes the challenge of transitioning away from Rob Hopkins' influential role within the organization. Hopkins' concept has gained widespread traction, even beyond his initial expectations.

Person D is deeply involved in urban planning and transition initiatives in Graz. He contributed to the Transition Forum in 2015 and the Transition Hub in 2016, aiming for a broader approach than traditional Transition Towns. Transition Town Graz's focus includes social-ecological transformation and inclusivity. Graz's expertise lies in food production, community gardening, and collaboration with the food sovereignty movement. Despite funding constraints, they engage in consulting and smaller projects, often in partnership with community centers in marginalized areas, addressing issues such as green spaces and access from gender and intersectional perspectives.

4.2. Results of Dragon Dreaming Workshop

On 25 November 2023, a workshop at Stadtteilzentrum Eggenlend was organized with support from the community center coordinator and featured diverse participants, including experts in environmental science, social management, architecture, and agriculture. Moderated by the authors, the session introduced the Dragon Dreaming method and its four phases: dreaming, planning, doing, and celebrating. Participants identified their roles, shared their project visions, and articulated six key objectives for the "Eggenlend food community" during the planning phase (Figure 6). Tasks were discussed, with plans for future meetings to address this and fundraising. Participants found the method engaging and acknowledged challenges in defining objectives, concluding to discuss the next steps.

The workshop resulted in a comprehensive list of dreams and goals for creating a resilient food community in Eggenlend. Participants envisioned healthy, affordable food access for all, more community gardens, and strong connections between residents and local farmers, emphasizing solidarity and empowerment. Goals included establishing regular activities, fostering participation through low-threshold structures, defining quality-of-life indicators, and developing resources for community engagement. Overall, the workshop aimed to build a supportive framework for sustainable food practices and community cohesion in Eggenlend.

Figure 6. Dragon Dreaming Workshop in Graz.

4.3. Results from Participatory Mapping Surveys

4.3.1. Cambium Ecovillage

Seventeen of the 32 residents at Cambium Ecovillage (53.1%) participated in the online map survey between 24 February and 7 April 2024.

Respondents provided insights into their favorite places within Cambium Ecovillage, citing reasons such as enjoying tasty food in the forest, witnessing beautiful sunsets, and using the pond for swimming and ice skating (Figure 7). They appreciated the peacefulness of the protected strawboard, the convenience of picnic areas, and the serenity of forest walks. Other highlights included the ability to have outdoor meals, engage in relaxed conversations in nourishing gardens, and appreciate the tranquility of the sheep area and yurt in the forest. Participants also valued communal spaces like the sweat lodge for ceremonies and newly renovated private rooms, which foster spontaneous interactions and independent play for children.

Figure 7 displays problematic areas identified by the residents. These include concerns over the aesthetics and functionality of the main building, particularly its noise levels and lack of sound insulation. Participants expressed discomfort with the chaotic layout and untidiness of areas like the garage and workshop spaces, along with disordered entrance areas and corridors. These issues detract from the initial impression and overall comfort of Cambium, reflecting dissatisfaction with the former military barracks' architectural layout and the challenges posed by road and workshop areas.

In response to the question about staying in their present home or moving, the survey revealed that opinions were evenly split among the respondents. Seven individuals, constituting 41% of the participants, expressed a desire to relocate within the Cambium Ecovillage. Similarly, another group of seven people, also comprising 41%, indicated their intention to remain in their current residence. One person, or approximately 6%, expressed a preference for moving elsewhere. Lastly, two respondents, accounting for about 12%, remained undecided about their future living arrangements. It seems that the Cambium community is deeply attached to their location and prefers to make changes only within their homes inside the ecovillage. They transformed Cambium from an abandoned military site into an ecovillage, investing significant effort and developing a strong connection to the place.

When asked about their preference for living in a house constructed from sustainable materials such as straw, clay, wood, or earth, the majority of respondents expressed strong interest. Specifically, 13 individuals, constituting 76% of those surveyed, indicated a desire to live in such eco-friendly homes. Three respondents (18%) expressed satisfaction with

the sustainability of their current building. One person did not provide a response to the question.

Based on the survey responses, the vast majority of residents (64.7%) expressed a desire to continue living in the Cambium Ecovillage, specifically in the southwest forest area. Only one respondent preferred relocating to Gleisdorf instead. Furthermore, there is significant interest (70.5% response rate) among residents to work within the ecovillage itself.

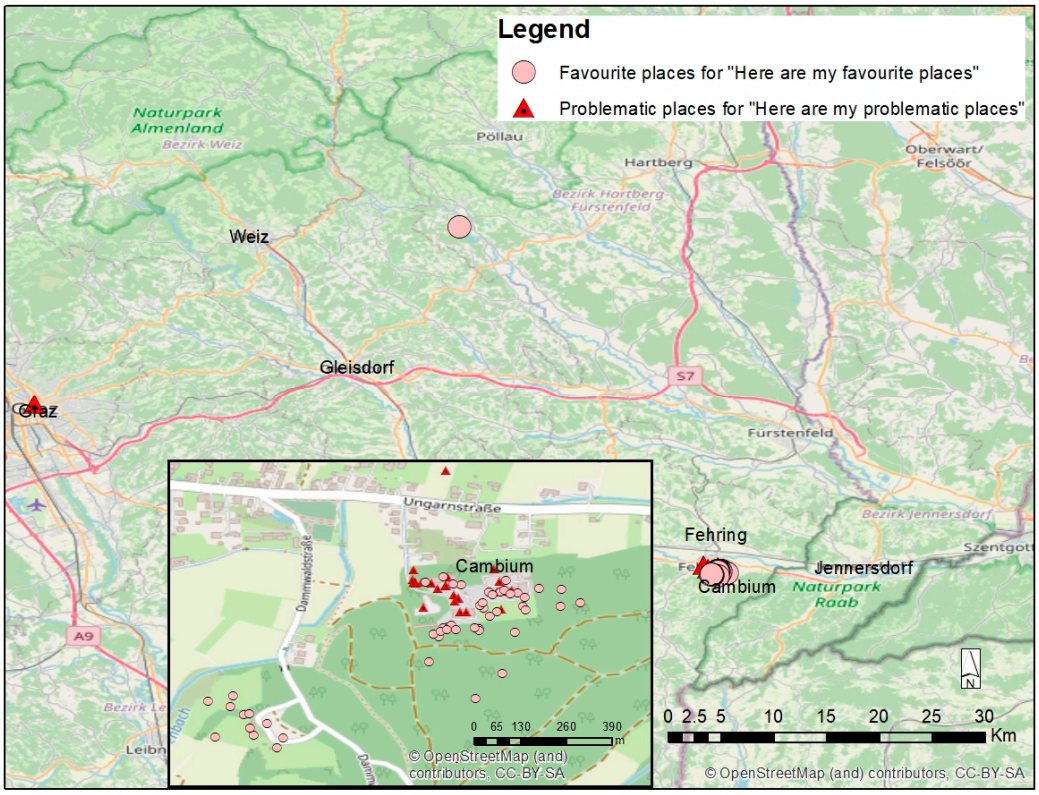

Figure 7. Favorite and problematic places mapped by the respondents of the online map survey conducted in February–April 2024 in Cambium Ecovillage.

According to the survey results, an overwhelming majority (82%) of residents expressed a desire for preschools and primary schools to be located within the Cambium Ecovillage. Ideally, these educational facilities should be situated near the entrance and the main road to the north. Additionally, residents envision educational facilities near the southern forest area.

There is also a strong desire (76.4% response rate) for bus stops to be strategically placed within and around the ecovillage. Residents have also proposed the establishment of a training center, currently nonexistent, within the workshop structures close to the main entrance and inside the main building. This center is envisioned to support educational and vocational training initiatives within the community.

The top three most important topics for respondents and their settlement's future well-being are permaculture-productive land use, children's growth and engagement, and renewable energy/energy self-sufficiency. Following closely are local/organic food consumption, food cooperatives, and affordable ecological housing, each with six points. Sharing-lending and community engagement/public participation tied with five points each, while climate change garnered four points. Neighborhood support networks and assistance services, essential goods manufacturing, and sustainable mobility/traffic on local roads all received one point each. The other option was selected three times (Figure 8).

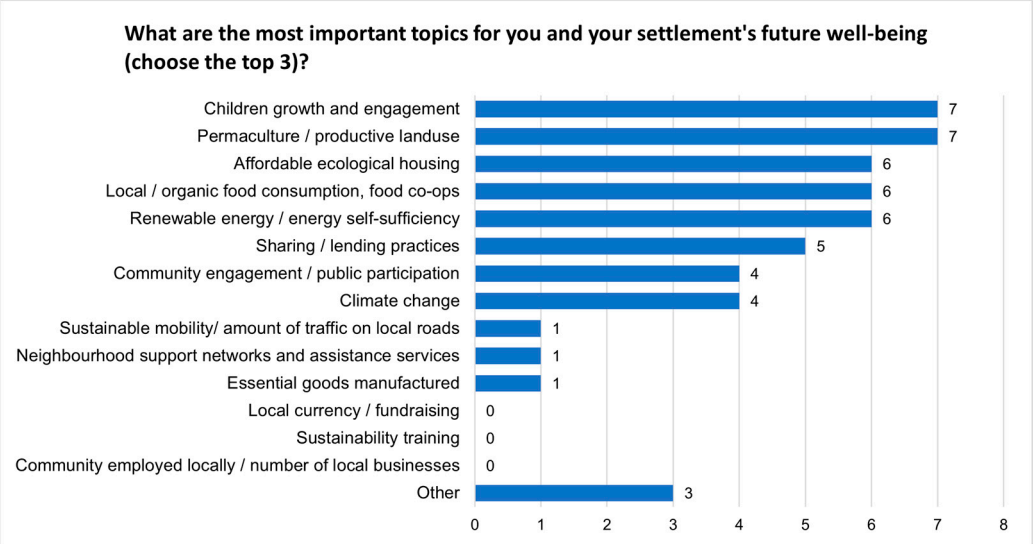

Figure 8. Most important topics for the settlement's future well-being in Cambium.

4.3.2. Transition Town Graz

The survey attracted 14 respondents from the Eggenlend neighborhood and 8 respondents living in another neighborhood yet actively involved in projects specific to the Eggenlend community center.

The respondents identified 41 favorite places and 33 problematic areas in Eggenlend and its surroundings (Figure 9). Favorite spots include Schloss Eggenberg (1.2 km), Auster Sport and Welnessbad (1 km), Oeverseepark (2.6 km), Naturerlebnispark Spielbergweg (3.7 km) forest, and Stadtpark (3.9 km). The problematic places have been mapped in the neighborhood near Jugendzentrum Eggenlend, Peter Tunnergasse and Vinzensgasse, Alte Poststrasse/Starhembergg, Eggenberger Allee, Franz Pratter Strasse, and the main train station. Also, problematic areas are found at Smart City Science Tower (1 km) and near the towns of Waltendorf (6.7 km) and Wetzelsdorf (3.1 km) (Figure 9). The responses to why certain places are favored highlight personal preferences for locations such as balconies, community gardens, wellness centers like Auster, large parks like Schloss Eggenberg, and various local parks and forests. These places are cherished for activities such as swimming, walking, running, reading, picnicking, enjoying nature, meeting friends, and taking photographs. Key features appreciated included natural beauty, peacefulness, seasonal changes, and opportunities for social interaction and physical activities. The responses to why certain problematic areas were disliked highlight issues such as uncleanliness, lack of greenery, poor building aesthetics, and dense development.

When asked whether they would choose to stay in their present home for the next five years or prefer to move elsewhere, 12 respondents indicated they would stay (54.5%), one respondent expressed interest in moving within the neighborhood (4.5%), and six respondents would prefer to relocate elsewhere (27.2%).

When asked if they would like to live in a house constructed with sustainable materials such as straw, clay, wood, or earth, 13 respondents answered yes (59%), while seven respondents said no (31.8%). Six of the residents expressed a desire to live near Schloss Eggenberg in the future (the response rate is 27%).

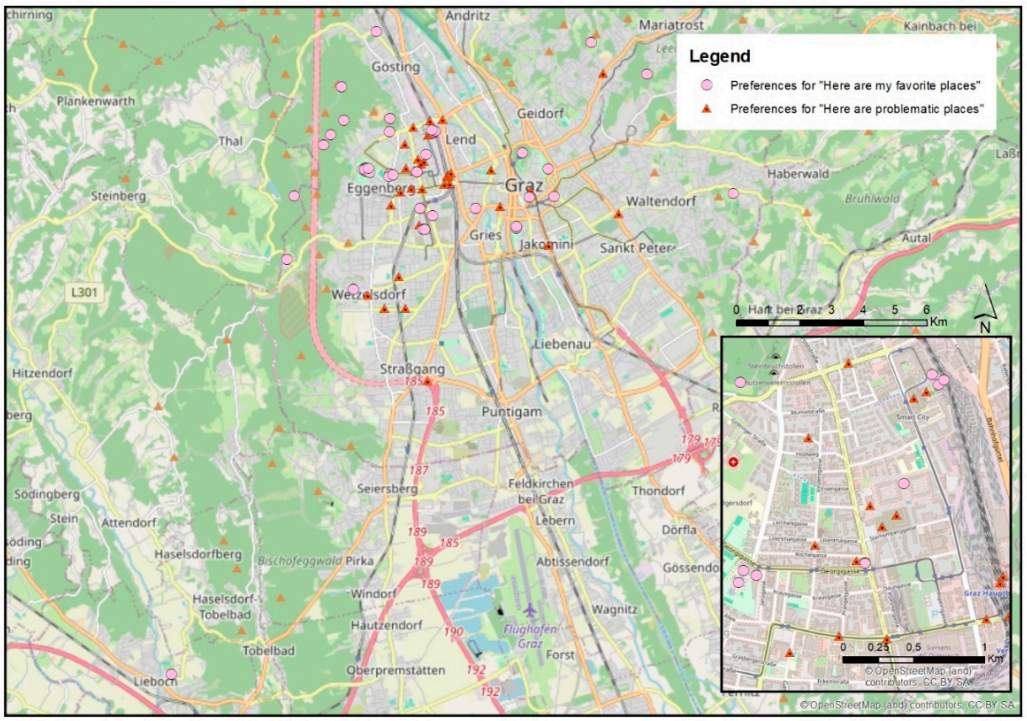

Figure 9. Favorite and problematic places.

The top answers for the most important topics for you and your settlement's future well-being included access to affordable, ecological housing; consumption of local, organic food; participation in food cooperatives and sustainable mobility; and local traffic volume. Following closely are concerns about renewable energy—energy self-sufficiency and climate change. Neighborhood support networks and permaculture-based land use emerge as another key group of concerns, along with practices like sharing and lending within the community and supporting the local economy. Community engagement and sustainability training represent the next level of priorities. Finally, respondents also expressed interest in ensuring the local manufacture of essential goods and fostering the healthy growth of children (Figure 10).

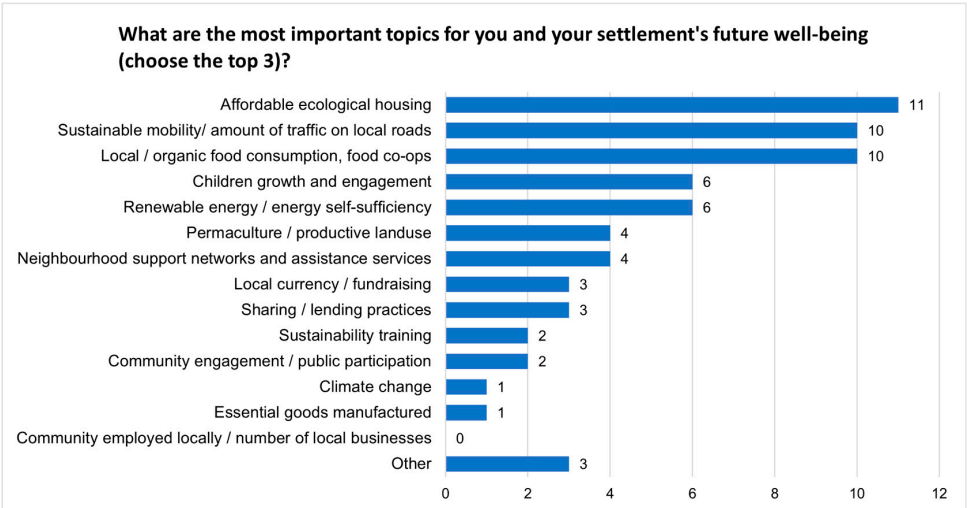

Figure 10. Most important topics for the settlement's future well-being in Graz.

5. Discussion

The results from expert interviews revealed a rich tapestry of insights on sustainable community development, emphasizing collaborative governance, asset pooling, and ecological design. Experts from diverse fields, such as environmental science, social ecology, and cohousing architecture, provided actionable perspectives on building resilient and inclusive communities. The sociocracy framework, highlighted as a key governance model, emerged as a common thread across discussions and was praised for its ability to foster transparent decision-making, participation, and adaptability. Insights from projects like Cambium Ecovillage and the SoneC initiative underscored the value of sociocratic principles in achieving long-term community cohesion, particularly when integrated with innovative financial models like the asset pool. These frameworks align with broader movements like Transition Towns, offering replicable templates for low-carbon, community-oriented living.

The participatory mapping survey at Cambium Ecovillage further illuminated the tangible outcomes of these principles in action. Residents' deep attachment to their ecovillage and preference for sustainable housing materials reflect a shared commitment to ecological values and collective well-being. However, challenges such as inadequate building functionality and disordered communal spaces highlight areas for improvement. These findings emphasize the need for iterative processes and resident-driven adaptations, reinforcing the value of community participation in addressing practical and ecological concerns. The balance between preserving historical structures, like military barracks, and meeting modern sustainability needs remains a delicate but essential endeavor.

The Dragon Dreaming workshop and similar participatory meetings, as demonstrated in the Eggenlend case study, provide structured pathways for aligning community visions with actionable goals. The workshop successfully articulated objectives for establishing a resilient food community, integrating low-threshold engagement strategies, and fostering solidarity. This approach reflects a growing recognition of the interplay between local food systems, social empowerment, and ecological resilience. The challenge lies in translating these visions into sustained action, requiring robust follow-up mechanisms and financial support. The workshop also underscored the power of community-led processes in building momentum for long-term ecological and social initiatives.

Cambium and Eggenlend offer insightful examples of how various factors can shape sustainable community development from social, cultural, and economic perspectives. From a social perspective, both communities prioritize collective decision-making and active participation, fostering a sense of shared responsibility and connection among residents. This collaborative approach strengthens social cohesion as community members work together to address common challenges, such as food security, waste management, and energy consumption. From a cultural perspective, these initiatives promote values of sustainability, self-sufficiency, and environmental stewardship, which are deeply embedded in the daily practices of community life. In Cambium, for instance, the emphasis on permaculture and ecological education not only equips residents with practical skills but also nurtures a cultural shift towards more sustainable lifestyles, enhancing collective resilience. Economically, both communities aim to reduce dependency on external systems by developing local economies that prioritize resource sharing, local production, and fair trade. The focus on sustainable agriculture, such as the permaculture garden in Cambium and local food networks in Eggenlend, helps create an alternative economic model that is less reliant on global supply chains, fostering local jobs and supporting a circular economy. Through these mechanisms, social collaboration, cultural transformation, and economic localization, Cambium and Eggenlend provide concrete examples of how communities can build resilience, reduce ecological footprints, and promote long-term sustainability.

Spatial design plays a critical role in fostering sustainability by shaping the way people interact with their environment and with one another. In both Cambium and Eggenlend, the layout of spaces is carefully planned to encourage interaction, shared resources, and proximity to nature, which are key to sustainable living. In Cambium, the ecovillage's spatial design emphasizes a close connection between living spaces, communal areas, and the surrounding natural environment. The intentional community is structured to promote walkability and cycling, reducing reliance on cars and encouraging sustainable transport options. Common spaces, such as the community kitchen, seminar areas, and guest facilities, are strategically placed to foster social interactions and collaboration. At the same time, residential units are designed to be compact, minimizing land use while enhancing the sense of community. The integration of green spaces, such as the permaculture garden and the surrounding forest areas, not only supports ecological sustainability but also offers residents opportunities for hands-on environmental education and engagement with nature. In Eggenlend, the spatial layout supports local food production and consumption by situating gardens, community centers, and shared food spaces in close proximity to residential areas. This spatial proximity encourages the direct exchange of resources and knowledge, further strengthening social bonds. Urban farming, local food networks, and collaborative meal projects within Eggenlend are designed to reduce transportation emissions and reliance on global supply chains by prioritizing short food chains. The presence of communal spaces, such as shared kitchens and meeting areas, promotes cooperation, knowledge-sharing, and the development of local skills. Additionally, Eggenlend's design embraces the principles of adaptive reuse and sustainable building practices, integrating natural materials and energy-efficient technologies into its infrastructure. Both communities illustrate how thoughtful design can help reduce ecological impact, promote local resilience, and build a stronger sense of community. The layout of shared spaces and proximity to nature in both Cambium and Eggenlend are key to fostering social interaction, cultural exchange, and local economic activities, all of which are essential components of a sustainable, thriving community.

Overall, the findings from interviews, workshops, and surveys converge on the necessity of blending innovative governance models, ecological planning, and participatory engagement to achieve an alternative lifestyle environment and sustainable community development. Sociocracy, complemented by practices like Dragon Dreaming and asset pooling, emerges as a cornerstone of inclusive decision-making and financial sustainability. These insights lay a foundation for designing adaptable, low-carbon communities that balance urban and rural needs, fostering networks of support and environmental stewardship. However, challenges like balancing historic preservation with modern needs, the complexity of governance models, and scalability hinder wider adoption. Sociocracy and participatory methods require significant training, and localized systems can be vulnerable to external pressures and crises. Financial barriers, resource constraints, and the need for continuous adaptation further limit their broader applicability. Addressing these challenges is crucial for ensuring the long-term viability and wider impact of these community models.

6. Conclusions

This study has approached practices around Austrian transition towns from two complementary perspectives—focusing on expert views and examining the functioning of two case study communities through a digital participatory mapping survey. The purpose of the expert interviews was to gather diverse expert perspectives to inform a comprehensive approach to urban-rural planning and sustainability. The interviews aimed to explore key themes such as ecovillages, transition towns, cohousing, and sustainable participatory planning. Through these discussions, experts highlighted critical factors for building low-carbon communities, emphasizing the importance of inclusive, community-driven

processes, strong governance structures, and collaboration. The insights also underscored the value of methodologies like Dragon Dreaming and Sociocracy, as well as the potential of cohousing and green rating systems in promoting sustainable practices. This research was carried out following the COVID-19 pandemic and the energy crisis in Europe. These crises underscored the need for a shift toward sustainable living in both urban and rural areas, emphasizing the importance of food and energy self-sufficiency. Strengthening existing community networks and international collaborations to promote ecological initiatives in neighborhoods enhances social connections and fosters success in socio-spatial aspects.

In the preceding sections, we explored two interrelated aspects—social and economic themes of transitions in Austria. Firstly, we examined the role of sociocracy in decision-making and its spatial manifestation through SoneC sociocratic neighborhood circles. While trust, solidarity, and cooperation were emphasized by some interviewees, the resources available to them almost always influenced the alternative lifestyles they adopted. The asset pool model, often employed by associations for cohousing and ecovillages, enables project funding with less risk than private loans and accumulates significant funds for initial structures and infrastructure. Cambium used the Dragon Dreaming method to define their project vision, which was to create a new form of village. Dragon Dreaming is a participatory project management method designed to establish a strong vision during the initial phase of eco-communities.

Second, we examined the role of eco-initiatives and spatial sustainability via online map surveys. Interviewees stressed the importance of sustainability, communal living, and innovative financing models within affordable cohousing communities, alongside showcasing next-generation examples as mini-villages in the city. Moreover, joining a Transition Towns Network offers the advantages of community support, knowledge sharing, and resilience building. Members benefit from resource pooling, advocacy opportunities, and inspiration while also gaining a sense of belonging and amplifying their impact through collective action. Being part of this global movement provides both a local focus and a broader perspective on sustainability challenges and solutions. Also, being part of the Global Ecovillage Network offers advantages such as access to a supportive community focused on sustainable living practices, opportunities for knowledge exchange and skill-sharing through workshops and events, and connections to a global network of like-minded individuals and communities.

Additionally, Global Ecovillage Network membership facilitates resource sharing, collaborative projects, and advocacy efforts aimed at promoting ecological awareness and resilience on a broader scale. Ecovillages hold promise as significant hubs for testing sustainability initiatives and offer policymakers a blueprint for advancing sustainability transformations. The collective identity of communities influences their efforts to distinguish themselves from mainstream society, even as they face pressures to conform to it. While ecovillages once prioritized escaping technology and preserving communal ideals and independent practices, we now observe a swift evolution of community identities, cultures, and eco-technologies [53]. Eco-technologies, including renewable energy systems, water conservation methods, green building practices, and sustainable agriculture techniques, are essential for intentional communities to minimize environmental impact and promote self-sufficiency. These technologies enable communities to generate clean energy, conserve water resources, construct eco-friendly buildings, and cultivate food sustainably, fostering a more harmonious relationship with the environment and enhancing resilience. Additionally, eco-technologies serve as educational tools, empowering community members to innovate and collaborate with municipalities toward a more sustainable future.

Pursuing energy and food self-sufficiency aligns with the aspirations of alternative lifestyles focused on sustainability and resilience. This involves transitioning to renewable

energy, promoting local food production, embracing practices like permaculture, living off the grid, adopting minimalist principles, and building resilient communities. These efforts aim to reduce reliance on external resources, minimize environmental impact, and foster a deeper connection to the natural world.

By demonstrating the diverse manners in which these transition processes unfold in rural, urban, and peripheral areas, we have also highlighted the various alternative lifestyles emerging through the intricate interaction of relative advantage and communal spaces within different geographic settings. These results indicate a need for a paradigm shift in thinking about alternative lifestyles towards a spatial organization for both urban and rural areas post-COVID-19 pandemic and energy crisis, emphasizing community living and sustainable practices. Transitioning to alternative sustainable living involves adopting renewable energy sources, resource efficiency, green transportation, sustainable agriculture, circular economy practices, community engagement, education, and awareness. It also requires advocating for supportive policies, ensuring equity and social justice, and building resilience to environmental challenges. This holistic approach promotes environmental stewardship, social equity, and economic viability for present and future generations.

Lastly, we have emphasized the significance of employing a variety of methods to achieve a holistic understanding of transition processes in both rural and urban contexts. We integrated several analytical and participatory techniques, utilizing multi-method approaches such as in-depth interviews, a Dragon Dreaming workshop, and digital participatory mapping. For example, the PPGIS methodology combines geographic information with participatory techniques, empowering communities to visualize and share their local knowledge and fostering discussions about place-based issues in context-sensitive decision-making. The combination of these diverse methods enriched our analysis by incorporating multiple perspectives and data types, highlighting the importance of varied methods in qualitative research.

The practices of Cambium and Eggenlend offer valuable insights into sustainable planning and land use within intentional communities, highlighting the integration of sociocracy and asset pooling for effective community governance. Cambium's approach emphasizes participatory planning, balancing ecological preservation with community needs, and fostering shared ownership through collaborative decision-making. Eggenlend demonstrates the importance of adaptive land management, integrating local food production and shared infrastructure to promote resilience and sustainability. These practices showcase how intentional communities can align land use with broader environmental and social objectives while ensuring equitable access to resources and decision-making power. Building on these experiences, action plans and policy recommendations should focus on facilitating participatory land use frameworks at local and regional levels. Specific measures include implementing planning and design policies that support mixed-use developments, providing financial incentives for shared infrastructure projects, and promoting local production. Municipalities can also create legal frameworks to enable shared land ownership and management models inspired by Cambium and Eggenlend. Additionally, pilot projects that integrate these practices in other regions can serve as proof of concept, demonstrating the feasibility of combining Austria's approaches with local contexts to support sustainable and inclusive community development across Europe.

Austria's sustainable community initiatives, such as Cambium and Eggenlend, offer valuable insights for addressing common challenges across Europe. These communities demonstrate the importance of grassroots engagement, localized economic models, and spatial planning in fostering sustainability. Other European countries can adopt similar policies to encourage local participation in decision-making, support urban farming and circular economies, and integrate sustainable design into urban and rural planning. Rec-

ommendations include establishing local sustainability hubs, incentivizing volunteerism, promoting urban agriculture, and creating compact, green urban spaces. Additionally, encouraging shared resources through community kitchens and alternative communal living can strengthen social ties and reduce environmental impacts. To scale these approaches across Europe, national governments and the EU should align policies that create supportive environments for sustainable communities. This includes integrating local initiatives into broader EU sustainability frameworks, such as the European Green Deal, and facilitating knowledge-sharing across borders. Public education campaigns and media initiatives can further promote cultural shifts towards sustainability, making it easier for communities to adopt eco-friendly practices.

Sociocracy and asset pooling are essential frameworks for fostering resilience and sustainability in intentional communities. Sociocracy promotes inclusive decision-making through consent-based governance and interconnected circles, enabling communities to address conflicts, enhance trust, and ensure equitable participation. Austria's success in using sociocracy for cohousing and ecovillages, such as Cambium, demonstrates its effectiveness in creating harmonious and efficient communities. Similarly, asset pooling, which involves the collective management of resources, enhances affordability, promotes social equity, and supports local development, particularly in areas like renewable energy and housing. Austria's collaborative models offer a strong foundation for intentional communities across Europe to adapt these approaches to their unique cultural and policy contexts.

To combine Austria's experience with the local challenges of other European countries, communities can focus on aligning these methodologies with regional policies, fostering cultural sensitivity, and investing in training and capacity-building programs. Practical steps include establishing support networks, incentivizing sociocracy and resource-sharing practices through grants and subsidies, and piloting scalable projects. Austria's case illustrates the potential to align with broader sustainability goals, offering operational recommendations and pathways for other regions to create equitable and resilient community-led initiatives.

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Note

[1] Vermögenspool in German.

References

1. Newman, P.; Beatley, T.; Boyer, H. *Resilient Cities Responding to Peak Oil and Climate Change*; Island Press: Washington, DC, USA, 2009; pp. 85–130.
2. Wheeler, S.M. *Planning for Sustainability: Creating Livable, Equitable, and Ecological Communities*; Routledge: Oxon, UK, 2004; pp. 79–150.
3. Ercoskun, O.Y. (Ed.) *Green and Ecological Technologies for Urban Planning: Creating Smart Cities*; IGI Global: Hershey, PA, USA, 2011; pp. 8–16.
4. Ercoskun, O.Y.; Karaaslan, S. Next-generation urban design guides for sustainability of small towns: A case study on Gudul, Turkey. *Urban Des. Int.* **2011**, *16*, 105–124. [CrossRef]
5. Aday, S.; Aday, M.S. Impact of COVID-19 on the food supply chain. *Food Qual. Saf.* **2020**, *4*, 167–180.
6. Cotugno, F. Energy Self-Sufficiency: More Than an Environmental Issue. Available online: https://www.infrajournal.com/en/w/eng-needed-autonomia-energetica (accessed on 9 June 2022).
7. Schorn, M.; Franz, Y.; Gruber, E.; Humer, A. The COVID-19 Pandemic: Impetus for Place- and People-Based İnfrastructure Planning. *Town Plan. Rev.* **2021**, *92*, 329–334. [CrossRef]
8. EEA 2023. Available online: https://www.eea.europa.eu/publications/the-case-for-public-participation (accessed on 21 October 2024).
9. Dawson, J. *Ecovillages: New Frontiers for Sustainability, Schumacher Briefing No. 12*; Chelsea Green Publishing: White River Junction, VT, USA, 2006.
10. Rubin, Z.; Willis, D.; Ludwig, M. Measuring success in intentional communities: A critical evaluation of commitment and longevity theories. *Sociol. Spectr.* **2019**, *39*, 181–193. [CrossRef]
11. Hopkins, R. *The Transition Handbook*; Green Books: Devon, UK, 2008; pp. 40–58.
12. Transition Network Website. Available online: https://transitionnetwork.org/about-the-movement/what-is-transition/principles-2/ (accessed on 13 February 2024).
13. Sellberg, M.M.; Borgström, S.T.; Norström, A.V.; Peterson, G.D. Improving participatory resilience assessment by cross-fertilizing the Resilience Alliance and Transition Movement approaches. *Ecol. Soc.* **2017**, *22*, 28.
14. Seyfang, G.; Haxeltine, A. Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions. *Environ. Plan. C Gov. Policy* **2012**, *30*, 381–400. [CrossRef]
15. Nicolosi, E.; Feola, G. Transition in Place: Dynamics, Possibilities, and Constraint. *Geoforum* **2016**, *76*, 153–163. [CrossRef]
16. Feola, G.; Nunes, R. Success and Failure of Grassroots Innovations for Addressing Climate Change: The Case of the Transition Movement. *Glob. Environ. Change* **2014**, *24*, 232–250. [CrossRef]
17. Khmara, Y.; Kronenberg, J. Degrowth In The Context of Sustainability Transitions. *Search A Common Ground J. Clean. Prod.* **2020**, *267*, 122072. [CrossRef]
18. Barnsteiner, A.; Humer, A.; Schorn, M. Postgrowth in sustainable urban planning practice (Postwachstum in der nachhaltigen Stadtplanung). *RaumPlanung* **2023**, *222*, 27–32.
19. Longhurst, N. Towards an 'Alternative' Geography of Innovation: Alternative Milieu, Socio-Cognitive Protection and Sustainability Experimentation. *Environ. Innov. Soc. Transit.* **2015**, *17*, 183–198. [CrossRef]
20. Poland, Blake. Available online: https://www.researchgate.net/profile/Blake-Poland/publication/244887916_The_transition_handbook_from_oil_dependency_to_local_resilience_by_Rob_Hopkins/links/555c9a1508ae9963a1120753/The-transition-handbook-from-oil-dependency-to-local-resilience-by-Rob-Hopkins.pdf (accessed on 7 November 2023).
21. Burnett, G. Available online: https://southendintransition.co.uk/2008/03/18/the-transition-handbook-by-rob-hopkins-reviewed-by-graham-burnett/ (accessed on 7 November 2023).
22. Steinwender, D. Transition Towns in Österreich: Untersuchung über die Umsetzung des Konzepts, Erfolge und Schwierigkeiten/vorgelegt von David Steinwender. Master's Thesis, Karl-Franzens-Universität, Graz, Austria, 2018.
23. GEN Global Ecovillage Network. Available online: https://ecovillage.org/ecovillage/leben-in-gemeinschaft/ (accessed on 8 May 2024).
24. Kenis, A.; Mathijs, E. (De) politicising the local: The case of the Transition Towns movement in Flanders (Belgium). *J. Rural. Stud.* **2014**, *34*, 172–183. [CrossRef]
25. Connors, P.; McDonald, P. Transitioning communities: Community, participation and the Transition Town movement. *Community Dev. J.* **2011**, *46*, 558–572. [CrossRef]
26. Mahlabani, Y.; Shahsavari, F.; Alamouti, M.Z. Eco-village, amodel of sustainable architecture. *J. Fundam. Appl. Sci.* **2016**, *8*, 1835–1847.
27. Xue, J. Is eco-village/urban village the future of a degrowth society? *Urban Planner's Perspective. Ecol. Econ.* **2014**, *105*, 130–138.
28. Casey, K.; Lichrou, M.; O'Malley, L. Prefiguring sustainable living: An ecovillage story. *J. Mark. Manag.* **2020**, *36*, 1658–1679. [CrossRef]
29. Available online: https://pomali.at/ (accessed on 11 December 2023).
30. Hausknost, D.; Haas, W.; Hielscher, S.; Schäfer, M.; Leitner, M.; Kunze, I.; Mandl, S. Investigating patterns of local climate governance: How low-carbon municipalities and intentional communities intervene in social practices. *Environ. Policy Gov.* **2018**, *28*, 371–382. [CrossRef]
31. EU Youth Portal, Wohnprojekt Hasendorf. Available online: https://youth.europa.eu/volunteering/organisation/62089_en (accessed on 18 November 2024).

32. Cambium Website. Available online: https://www.cambium.at/ (accessed on 23 January 2024).
33. Houseful Website. Available online: https://houseful.eu/news/new-tech-recycles-domestic-wastewater-and-kitchen-waste/ (accessed on 24 January 2024).
34. Pastureproject Website. Available online: https://pastureproject.org/about-us/regenerative-grazing-benefits/ (accessed on 24 January 2024).
35. de Otálora, X.D.; Epelde, L.; Arranz, J.; Garbisu, C.; Ruiz, R.; Mandaluniz, N. Regenerative Rotational Grazing Management of Dairy Sheep Increases Springtime Grass Production and Topsoil Carbon Storage. *Ecol. Indic.* **2021**, *125*, 107484. [CrossRef]
36. TT Graz Website. Available online: https://transitiongraz.org/ (accessed on 1 February 2024).
37. TT Graz FB Website. Available online: https://www.facebook.com/groups/TransitionGraz/?ref=share&mibextid=KtfwRi (accessed on 1 February 2024).
38. Sen, M.; Sen, S.N.; Sahin, T.G. A New Era for Data Analysis in Qualitative Research: ChatGPT! *Shanlax Int. J. Educ.* **2023**, *11*, 1–15. [CrossRef]
39. Fagerholm, N.; Raymond, C.M.; Stahl Olafsson, A.; Brown, G.; Rinne, T.; Hasanzadeh, K.; Broberg, A.; Kyttä, M.A. Methodological Framework for Analysis of Participatory Mapping Data in Research, Planning, and Management. *Int. J. Geogr. Inf. Sci.* **2021**, *35*, 1–28.
40. Brown, G.; Kyttä, M. Key Isues and Research Priorities for Public Participation GIS (PPGIS): A Synthesis Based on Empirical Research. *Appl. Geogr.* **2014**, *46*, 122–136.
41. Brown, G.; Kyttä, M. Key issues and priorities in participatory mapping: Toward integration or increased specialization? *Appl. Geogr.* **2018**, *95*, 1–8. [CrossRef]
42. Sieber, R. Public Participation Geographic Information Systems: A Literature Review and Framework. *Ann. Assoc. Am. Geogr.* **2006**, *96*, 491–507. [CrossRef]
43. DD in Action Report. Available online: https://aktywnekobiety.org.pl/wp-content/uploads/2018/10/DRAGON_DREAMING_IN_ACTION-ENG.pdf (accessed on 18 January 2023).
44. DD Workshop Report. Available online: http://www.dragondreaminginstitute.org/documents/DDI_WorkshopHandbookV01.pdf (accessed on 17 January 2023).
45. DD e-Book. Available online: https://dragondreaming.org/wp-content/uploads/2020/01/DragonDreaming_eBook_english_V02.09.pdf (accessed on 17 January 2023).
46. Rau, T.J.; Koch-Gonzales, J. Many Voices One Song: Shared Power with Sociocracy. *Socioracy All* **2023**, 200–248.
47. Available online: https://soziokratiezentrum.org/ueber-soziokratie/ressourcen/ (accessed on 5 December 2023).
48. Available online: https://www.sociocracyforall.org/ (accessed on 4 December 2023).
49. SoneC, 2022, Sociocratic Neighbourhood Circles in Europe. Available online: https://sonec.org/wp-content/uploads/SoNeC-Concept-Layout-Englisch-Abridged-V3.pdf (accessed on 11 December 2023).
50. Commons. Available online: https://ncnworld.org/ (accessed on 18 December 2023).
51. Vermögenspool Website. Available online: https://www.vermoegenspool.at/eng/ (accessed on 4 November 2024).
52. Ulug, C.; Horlings, L.; Trell, E.M. Collective Identity Supporting Sustainability Transformations in Ecovillage Communities. *Sustainability* **2021**, *13*, 8148. [CrossRef]
53. Smith, A. The transition town network: A review of current evolutions and renaissance. *Soc. Mov. Stud.* **2011**, *10*, 99–105. [CrossRef]