From Austria to Türkiye: Guidelines for Sustainable Communities

Özge YALÇINER ERCOŞKUN[1,*], Alois HUMER[2]

[1] 0000-0003-2734-0374, *Gazi Uni. Faculty of Architecture, Dept. of City and Regional Planning*

[2] 0000-0003-0212-8609, *Austrian Academy of Sciences Institute of Urban and Regional Research*

Article Info	Abstract
	This study outlines critical guidelines for developing and presenting sustainable alternative living drawing from Austrian experiences to communicate sustainable visions and strategies effectively. It emphasizes the need for comprehensive content encompassing data analysis, future projections, and impact assessments to guide informed decision-making and eco- planning. As the first study in Austria to focus on ecovillages within the Global Ecovillage Network (GEN), it highlights their role as experimental hubs for fostering local resilience during 2023-2024. Additionally, the research examines the Transition Towns (TT) Movement, which advocates for low-carbon, socially equitable futures through resilient communities and participatory approaches. These networks, with their innovative responses to peak oil and climate change, provide Austrian models for Turkish eco-towns exploring alternative, sustainable lifestyles. The guidelines are derived from in-depth interviews, site visits, observations, and surveys of case studies, including Vienna, Lower Austria, Cambium GEN ecovillage near Fehring and the Eggenlend Food Neighborhood supported by TT Graz in Styria, Austria. The study employs a ranking system to prioritize themes and topics, offering a structured framework for advancing sustainable alternative initiatives.

1. INTRODUCTION

The content, planning, design, and display of a resilient eco-communities are critical for effectively communicating the vision and strategies for a sustainable future. These guidelines, derived from Austrian experiences, emphasize the importance of comprehensive content, including data analysis, future projections, and potential impacts, to inform decision-making and strategic planning. This empirical study is the pioneer in Austria to explore ecovillages within the Global Ecovillage Network (GEN), highlighting their role as living laboratories for developing innovative solutions for local resilience in 2023-2024 [1]. It also examines the Transition Towns (TT) Movement, which strives for a low carbon, socially just future with resilient communities and increased societal participation. Both networks, with their innovative approaches to peak oil and climate change, serve as Austrian role models for Turkish eco-towns seeking alternative lifestyles. The overarching bilateral approach for this empirical study was a one-year collaborative effort in the interdisciplinary work group on Sustainable Urban Regions (SUUREG) at the Austrian Academy of Sciences. This effort included shared discussion, reflection and investigation of case studies, themes and stakeholder contacts in the field of sustainable settlement development; and not least mutual learning about the Austrian and Turkish planning systems with the aim of enabling a transnational travelling of planning ideas [2].

2. METHOD

Methodologically, the following guidelines are structured based on main themes from interviews, site visits, observations, and surveys of case studies- Vienna, Lower Austria, Cambium GEN eco-village near Fehring and Eggenlend Food Neighborhood supported by TT Graz in Styria-Austria [3,4,5], with a ranking system from (a) to (l) reflecting the importance and sequence of each topic as verified through joint interpretation in the work group of SUUREG. The summarized interviews were analyzed using ChatGPT to identify

common themes and codes for qualitative analysis. All interview texts were input into ChatGPT, which identified recurring themes, ranked them highlighting topics from community building (a) and common ownership to collaborations and networks (l). This process demonstrates the advanced capabilities of machine learning, as AI like ChatGPT can analyze large datasets, understand human-made texts, and generate insights closely aligned with human cognition [6]. Study approach is to analyze transparency, bottom-up participation and collaboration. Transition Towns and Global Ecovillage Network are in the focus of the research for bottom-up participation for local resilience. Shared discussion, reflection and investigation of case studies, themes and stakeholder contacts were used for as methods to collect data from citizens and a platform to meet/collaborate with citizens. A collaborative approach helped the team composed of researchers, analysts and pioneers work smarter, more creatively and more effectively (Figure 1).
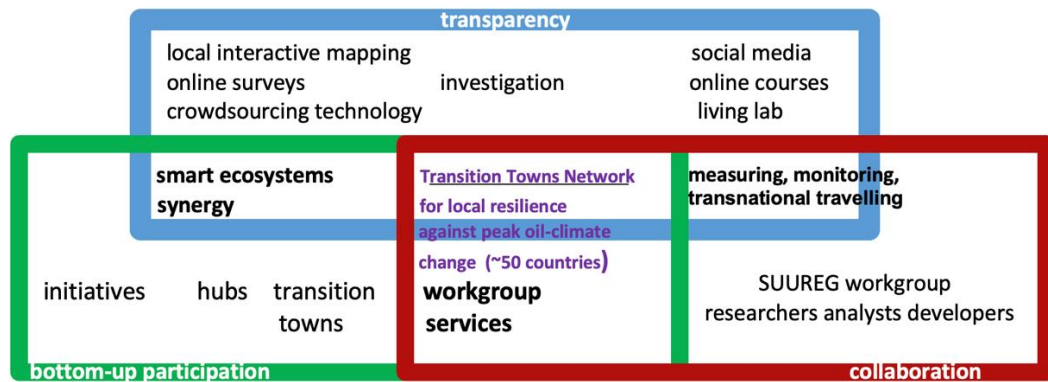

Figure 1. *Study Approach*

3. THEORETICAL FRAMEWORK

a) Community Building and Common Ownership:

The significance of trust and clear hierarchy in community advancement is evident in thriving societies, where seamless coordination and decision-making are keys. Shared ownership models enhance cooperation and unity, as seen in successful initiatives.

Cambium is a fully developed eco-village that has thrived for 9 years near Fehring, Graz, guided by the Dragon Dreaming method to align common dreams and create a vision [7].

Eggenlend neighborhood in Graz is a newer, lighter intentional community supported by TT Graz, focusing on sustainable food and community gardens. It is expected to grow as it continues its initiatives.

b) Motivation and Vision for Change:

The pursuit of ecological initiatives and sustainable community practices is driven by awareness of environmental threats, grassroots advocacy, and the recognition of conservation's long-term benefits. Progressive movements for social justice focus on personal liberty, equitable resource distribution, and empowerment to ensure fairness and equal opportunities.

Cambium community exemplifies these values with its eco-village, fostering openness, freedom, and interconnectedness among its residents. Their approach encourages trust and growth for all members, both adults and children.

Eggenlend community is motivated by a vision of providing healthy and affordable food for everyone, demonstrating their commitment to fairness and readiness for change in their neighborhood.

c) Dragon Dreaming and Vision Creation:

The Dragon Dreaming project management methodology is applied to project development with a holistic approach that enhances community engagement and sustainable outcomes, benefiting both people and the planet. This method supports integrating diverse groups by promoting dialogue, empathy, and a shared commitment to common goals while respecting individual differences.

For instance, Cambium adopted Dragon Dreaming in 2015, using it to shape their vision and foster their eco-village's growth. Similarly, the Eggenlend food community, starting in 2023, utilized Dragon Dreaming to coordinate their food project, clarifying their communal dreams, objectives, tasks, and vision. This approach underscores the transformative power of collaboration, innovation, and holistic thinking in achieving collective goals.

d) Sociocracy Impact on Decision-Making & Implementation:

Sociocracy and Dragon Dreaming enhance decision-making and community interactions by fostering trust, collaboration, and ownership. Sociocracy, which uses consent-based decision-making in circles, and Dragon Dreaming, with its structured yet flexible approach, improve cohesive action, problem-solving, and resilience by aligning decisions with shared values and diverse input. Challenges in implementing sociocracy across different levels-grassroots to governmental-underscore the need for adaptable frameworks, transparent communication, and continuous education. Addressing varying organizational cultures and power dynamics is crucial. Overall, sociocracy's potential to democratize decision-making and promote inclusivity can lead to more resilient and equitable communities, with effective training, feedback [8].

Cambium has benefited from professional guidance in sociocracy and community development, using interconnected circles instead of a hierarchical structure to facilitate autonomy and collaboration. Similarly, for Eggenlend food community, adopting sociocracy and working in circles could strengthen their decision-making processes and support their sustainability.

e) Financial Structure and Asset Pool:

Investigating asset pooling and autonomously managed financial systems highlights their potential to enhance investment performance, minimize risk, and ensure transparency and accountability. Effective financial decision-making requires balancing factors such as risk tolerance, investment objectives, time horizon, and market conditions, while aligning with sustainability goals. Barriers to collaboration, awareness-raising, and securing foundational funding stress the need for strategic partnerships, education, and innovative funding mechanisms. Cambium's financial model, operational since 2019, exemplifies these principles with a dynamic asset pool where community investors contribute and withdraw funds, supporting sustainability projects like photovoltaic installations and building renovations. Similarly, Eggenlend can leverage asset pooling and fundraising to build infrastructure, purchase equipment, and make long-term investments. Additionally, adopting a participatory budget model in Graz, where communities influence how funds are allocated for public amenities, could strengthen connections between private developers and local residents.

f) Knowledge of Transition Towns and Global Eco-Village Network:

Recognizing best practices in Austria and Europe highlights the need for thorough research and knowledge-sharing to adapt successful models to local contexts and address gaps in sustainable transitions. Collaborating with various initiatives is crucial for leveraging expertise and resources, fostering innovation, and tackling challenges through partnerships and cross-sector collaboration. Building positive relationships and identifying success factors require trust, open communication, and respect among stakeholders, with a focus on community engagement, leadership, inclusivity, and sustainability for effective transition efforts. GEN Austria offers eco-village design courses and organizes events through the Podium online series with partners. TT Austria is currently inactive due to the lead's health issues, while TT Graz is struggling with a

heavy workload on one leader. Ideally, a dedicated team would help address its goals. The Eggenlend community center supports both food neighborhood projects and TT Graz, enhancing collaboration.

g) Sustainability: Eco-Initiatives & Spatial Characteristics of Settlements

Incorporating sociocracy into sustainability efforts involves applying participatory decision-making, transparency, and distributed authority to enhance effectiveness, inclusivity, and adaptability in sustainability goals. Sociocratic principles align with ecological values like collaboration and stewardship, strengthening community and ecosystem resilience. Proximity and interaction within eco-initiatives build community and collective action, improving communication, collaboration, and resource-sharing for environmental and sustainable living issues. Research and collaborations within sociocratic communities show that sociocracy fosters trust, empowerment, and innovation, leading to better organizational resilience and sustainability outcomes.

Interviews have identified several successful eco-initiatives that showcase effective practices for sustainable urban development. Notable examples include TT Graz, Circular Wien, and the Sociocracy Center and Wohnprojekt Wien, which integrate community-led sustainability, circular economy principles, and democratic governance models. The Cambium Eco-village, TT Austria, and DorfUni highlight intentional communities and educational programs fostering resilience and sustainable living. The Auenweideproject [9], Klimaaktivprogram, BOKU's SoneC project, and Initiative Gemeinsam Bauen und Wohnen further contribute to sustainable development through co-housing, climate action, and collaborative initiatives [10].

Superblocks- traffic calmed neighborhoods like Vienna's Supergrätzl, reduce car traffic and prioritize walking, cycling, and public transport [11], helping ease congestion in areas like Graz's Eggenlend neighborhood. The 15-minute city concept promotes density and accessibility, creating greener, more vibrant neighborhoods with close-knit communities. To encourage active transportation, create safe, dedicated paths for pedestrians and cyclists, ensure connectivity and accessibility, and integrate these paths with public transit and urban planning. Community involvement and regular maintenance are essential. Implementing these principles in Eggenlend can improve public health, reduce congestion, lower emissions, and foster sustainable communities.

h) Urban Planning and Governance:

Urban planning and governance are essential for creating sustainable, resilient, and thriving communities in transition towns and eco-villages. Effective planning integrates sustainable practices like mixed land use, pedestrian-friendly design, green spaces, and efficient transportation to improve quality of life and reduce environmental impact. Mixed-use developments and compact, clustered designs, such as those at Cambium campus, support diverse, inclusive communities and enhance energy efficiency.

Effective governance in these communities involves democratic, transparent, and inclusive processes. Participatory decision-making, clear roles, and conflict resolution empower residents to shape their future and address challenges. Community-led initiatives, such as those in Austria, enhance public amenities and foster vibrant communities. The Eggenlend community center plays a crucial role in co-creation events and urban gardening, driving physical, cultural, and social changes.

i) Co-Housing and Sustainable and Affordable Construction:

Co-housing involves citizens collaborating to create and manage their own homes through means such as land trusts, associations, cooperatives, or co-housing units. This approach can reduce costs and provide personalized, locally appropriate solutions, complementing traditional housing methods. Co-housing initiatives promote sustainable practices, resource-sharing, and decision-making, reducing ecological footprints and enhancing social cohesion and resilience.

Near Vienna, projects like Wohnprojekt Wien, Bikes&Rails, Gleis21, and Auenweide serve as models for community-led housing. These can be replicated in Eggenlend, offering affordable housing for refugees, immigrants, low-income individuals, and young people in sustainable buildings. Children in co-housing and eco-villages develop holistically through nature connection, community involvement, and sustainable living skills, supported by environments like Cambium Eco-Village and Auenweide Co-Housing.

Sustainable building techniques, including passive solar design, renewable materials, and energy-efficient appliances, reduce environmental impact and improve indoor air quality. Modular construction can enhance urban density and feasibility for projects, such as affordable housing, training facilities, and commercial spaces, in places like Eggenlend and Cambium.

j) Local Farming / Permaculture and Food Cooperatives

Local farming in intentional communities boosts sustainability, reduces carbon emissions, and strengthens community bonds through shared work and food culture. It supports local economies, promotes biodiversity, and encourages healthy eating. Initiatives like "eat and buy local" and "Made in Graz" enhance local product distribution and job preparedness. Urban green spaces, such as "Edible Streets," improve rainwater management, biodiversity, and community well-being by transforming hard surfaces into natural environments. Cambium eco-village is mostly food self-sufficient, growing most vegetables and buying local bulk items. They prioritize organic food, sourcing items like olive oil from a Greek cooperative and collectively purchasing around 70-80 essential food items. In Eggenlend, the community center initiated a seed exchange and started building raised beds with neighbors to ensure access to healthy, affordable food.

k) Renewable Energy and Carbon Footprint

Renewable energy is essential for intentional communities in a post-carbon future. It promotes sustainability, reduces emissions and pollution, enhances resilience, and supports self-sufficiency. Economic benefits include job creation and long-term cost savings. Additionally, it fosters community engagement and equity. Cambium eco-village, repurposing an abandoned building, exemplifies low carbon impact with innovative eco-tech installations, attracting visits from mayors. Smart City Graz's project explores solar modules, cooling, urban solar power, integrated façades, mini-CHP facilities, and smart heat grids, moving towards a Zero Emission City with 100% renewable urban energy. Integrating industrial waste heat into district heating and the BIG Solar Graz feasibility study show that 500,000 square meters of solar collectors could meet 20% of local heating demand [12]. These initiatives could significantly benefit Eggenlend.

l) Collaborations and Networks:

Engaging with networks like GEN and TTs provides intentional communities access to global knowledge, resources, and support, facilitating the sharing of best practices and collaboration on sustainability projects. These partnerships amplify community impact and support broader sustainability and social justice efforts. Connecting with local governments is crucial for navigating regulations, accessing funding, and leveraging infrastructure. Building trust through open communication, aligning on shared goals, and demonstrating the value of community initiatives can overcome collaboration challenges. Involving diverse stakeholders in decision-making and advocating for policy changes and funding are essential for successful community-government partnerships.

Cambium eco-village has been featured on the GEN website since 2018. TT Graz engages with Eggenlend community center activities and aims to strengthen its initiatives through collaborations and expanding its team.

3. THE RESEARCH FINDINGS

Based on the Austrian experience, potential networks in Türkiye can be established by adapting strategic principles to fit the Turkish social structure, human relations, and legal infrastructure. Key insights include assessing Türkiye's socio-economic context to identify suitable sustainable community models, fostering a culture of cooperation and trust, and encouraging the creation of a unified vision for development. Promoting active participation and inclusivity in decision-making processes will enhance community engagement, while emphasizing collective efforts in developing sustainable infrastructure will build a resilient community framework. By adopting these principles, Türkiye can enhance its sustainable community development, leveraging successful strategies from Austria.

a) Community Building and Common Ownership:

In Turkey, interpersonal relationships emphasize mutual tolerance and support due to strong family ties. There are about 322,000 NGOs, with 2.1% focusing on environmental issues, including notable organizations like TEMA and WWF-Türkiye. Turkish property law allows various ownership types, and associations can buy or sell real estate with board approval. Eco-villages/farms are relatively rare and often face budget and adaptation challenges [13]. Successful projects need to integrate with global networks like GEN and TT.

b) Motivation and Vision for Change:

Eco-village initiatives in Türkiye, which began gaining momentum in the 2000s, are mainly found in the Aegean and Mediterranean regions. These initiatives face challenges such as social and economic issues, social security concerns, healthcare deficiencies, and neglect of agriculture, impacting their effectiveness. The Cambium eco-village is noted for its success, with a focus on personal development and community bonds. Similarly, the Eggenlend community's commitment to providing healthy and affordable food is highlighted as a model for Turkish eco-village initiatives.

In Türkiye, about 10 Community Supported Agriculture (CSA) and Slow Food communities exist, with notable ones being the Buğday Association Cumhuriyetköy Bahçe project and Güneşköy Bahçemiz. While there's no formal CSA network, informal efforts by organizations like Buğday Association and Çamtepe Ecological Life Center support around 1,000 people [14]. Local citizen council workgroups are active but not linked to larger networks like TT or GEN.

c) Dragon Dreaming and Vision Creation:

It sounds like Dragon Dreaming (DD) has proven quite effective in articulating and aligning communal visions. It is interesting that despite its limited use in Türkiye, it has been valuable in Cambium and Eggenlend. Integrating DD at the beginning of a project can indeed help in clearly defining goals and organizing tasks. It could be a great opportunity to revisit and apply those techniques to new projects.

d) Sociocracy Impact on Decision-Making & Implementation:

Introducing sociocracy into Türkiye's intentional communities could indeed be a game-changer, especially in addressing intra-group conflicts and enhancing decision-making processes. The idea of setting up a Sociocracy Institute and providing ongoing training aligns well with the successes seen in other regions like Vienna and Cambium. By implementing socioratic decision-making, communities in Türkiye could benefit from more structured and effective governance, leading to greater continuity and success. It sounds like a promising path forward for improving community dynamics and project outcomes.

e) Financial Structure and Asset Pool:

Crowdfunding, including equity-based (EBCF) and debt-based (DBCF) methods, provides an alternative to traditional funding sources and is regulated in Turkey under specific laws. Participation Banks, limited

in operations and unable to directly gather deposits, rely on profit and loss participation accounts. Çanakkale Municipality's participatory budgeting project in 2007 successfully funded local initiatives through community involvement [15]. Although asset pooling systems are unregulated in Turkey, they have potential for renewable energy, food cooperatives, and building cooperatives, with successful examples from Auenweide co-housing project and the Cambium eco-village demonstrating their viability.

f) Knowledge of Transition Towns and Global Eco-Village Network:

The GEN network is relatively unknown in Türkiye. Güneşköy, a GEN-Europe member since 2010, struggled with sustainability due to a lack of permanent residents. Transforming existing or abandoned villages into eco-villages could be more successful, though state support is often required. The Ecovillage Design Education (EDE) program, developed by GAIA Education, has been offered in Türkiye at METU (2007-2008), Abant İzzet Baysal University, and İstanbul (2015) [16]. In İstanbul, established by the İstanbul Permaculture Collective in 2018, appears inactive. Roof Farm, focusing on urban rooftop farms, is another notable initiative. Grassroots civil LA21 networks in Türkiye, evolving into volunteer citizen councils by 2006, align with municipalities. Promoting the TT movement is crucial for urban sustainability in Türkiye, especially post-Covid-19.

g) Sustainability: Eco-Initiatives & Spatial Characteristics of Settlements:

Establishing a Sociocracy Institute in Türkiye is a key recommendation for eco-initiatives. Promoting the TT Movement and exploring 24-hour eco-towns are essential. Urgent action is needed for energy-efficient solutions, sociocratic neighborhood projects, and constructing energy-certified model neighborhoods. Introducing co-housing and affordable housing for students, the elderly, refugees, and other vulnerable groups is also crucial.

Turkish cities need to improve transport and mobility strategies. Despite progress in traffic calming and bike/pedestrian-friendly planning, many cities still prioritize car-centric infrastructure. Immediate action is needed to implement superblocks, continuous bike lanes, pedestrian-priority areas, and expand light rail, metro networks, and bus connectivity.

Historically, old Turkish neighborhoods featured 15-minute urban environments, promoting pedestrian mobility and vibrant street life [17]. Post-Covid-19, embracing this model will create sustainable urban spaces, reduce accidents, and enhance safety, especially for children [18].

h) Urban Planning and Governance:

For sustainable urban development in TT's, it's crucial to promote compact urban forms, preserve open spaces, and reduce automobile reliance by encouraging public transit, walking, and cycling [19]. Effective waste and pollution reduction through reuse and recycling is also essential. Democratic governance and inclusive decision-making enhance community well-being, while affordable housing and social equity are key to cohesion. Austrian cities like Vienna and Graz exemplify these principles with their compact urban forms, open space preservation, and reduced car use. They serve as models for Turkish settlements, demonstrating effective planning and community engagement. In Türkiye, spatial planning should focus on permaculture zoning, infrastructure, and eco-villages with sustainable design and participatory governance.

i) Co-Housing and Sustainable and Affordable Construction:

In Türkiye, co-housing typically includes dormitories, elder care homes, and student hostels with private bedrooms and shared facilities, focusing on economic benefits and social interaction [20]. Unlike Austria's diverse co-housing examples, Türkiye's projects are more limited in scope.

Children in eco-villages and co-housing communities gain from a strong connection to nature, a sense of belonging, and flexible educational approaches. Austrian eco-villages like Cambium and Auenweide co-

housing project offer environments rich in nature, community, and holistic education, promoting environmental stewardship and personal growth. Developing co-housing in Türkiye could provide similar benefits for child development.

Sustainable building techniques for affordable eco-housing focus on energy efficiency and environmental friendliness. Austrian methods include proper insulation, energy-efficient windows, passive solar design, renewable energy, and water conservation. In earthquake-prone areas of Türkiye, co-housing should incorporate reinforced construction, seismic design, and durable, lightweight materials. Key features include energy efficiency, water conservation, waste reduction, and modular designs for easier recovery. Community involvement ensures the buildings address local needs while promoting environmental sustainability and safety.

j) Local Farming / Permaculture and Food Cooperatives:

In Türkiye, food cooperatives, associations, and networks are key for sustainable food practices and community engagement. Cooperatives focus on collective purchasing, associations address food security and waste, and networks strengthen local food systems. These initiatives have gained recognition since the Covid-19 pandemic (Table 1).

***Table 1.** Food cooperatives, associations, and networks* [21,22,23]

Associations:	Food Coops:	Food Communities and Networks:
Keçi Derneği	Ovacık Doğal Kooperatifi	Açık Gıda Ağı
TADYA/DBB/ Dört Mevsim Ekolojik Yaşam Derneği	İstanbul Temiz Hasat Tüketim Koop	Beyoğlu Gıda Topluluğu,
Muğla Çevre ve Arı Koruma Derneği (ÇARIK)	Kocaeli Yeryüzü Koop.	Etsiz Pazartesi
Buğday Derneği	Güneşköy Kooperatifi	Antalya Gıda Topluluğu
EKODER-Ekolojik Yaşam Derneği	İstanbul Yeryüzü Kooperatifi	Doğu Antalya Gıda Topluluğu
Ekoloji Kolektifi Derneği	Muğla İmece Evi Kooperatif Girişimi	İzmir Ege Üniversitesi Doğa ve İnsan Dostu Gıda Topluluğu
	İstanbul Kadıköy Kooperatifi	Zehirsiz Sofralar Ağı,
	İstanbul Boğaziçi Mensupları Tüketim Kooperatifi (BUKOOP)	Eskişehir Gıda Topluluğu
	Çanakkale Belediyesi Üretim ve Pazarlama Kooperatifi	Ekoloji Birliği
	Nilüfer Tarımsal Kalkınma Kooperatifi	SAKÜDA
	Anadolu'da Yaşam Tüketim Kooperatifi	İzmir Gıda Toplulukları (BİTOT, Güzelbahçe)
	Apikoop	Nilüfer Belediyesi Gıda Topluluğu,
	Beşiktaş Kooperatifi	Slow Food Halfeti

Most environmental efforts are focused within İstanbul, Çanakkale, İzmir, and the Western Mediterranean region. On the map, there are 29 marked green locations identified as eco-settlements, primarily consisting of local farms or residential properties (Figure 2).

Figure 2. *Eco-initiatives in Türkiye,* [23]

The following tables Table 2 and 3 outline various types and scales of strategic interventions for an energy descent post-carbon transition scenario in Turkish context. Most efforts concentrate on culture, planning, and adaptation, with infrastructure and buildings forming the next category. In terms of scale, there are more interventions in the middle category, while small and large interventions have an equal number. Good governance is essential in this context. The objective is to bring more people together to raise awareness of the TT and GEN networks, and to implement changes in both cities and villages.

Table 2. *Fields of interventions*

Themes	Culture	Policy	Adaptation	Planning	Infrastructure	Buildings	Financing	Education
Community Building and Common Ownership	■	■	■					
Motivation and Vision for Change	■	■	■					
Dragon Dreaming and Vision Creation	■	■	■					
Sociocracy Impact on Decision-Making	■	■	■					
Financial Structure and Asset Pool	■	■		■	■	■		■
TT and GEN	■	■						■
Sustainability and Eco-initiatives			■					
Urban Planning and Governance				■				
Co-housing and Affordable Construction				■		■		
Local Farming-Permaculture		■	■	■				
Renewable Energy and Carbon Footprint					■			
Collaborations and Networks	■							■

Table 3. *Scale of interventions*

Themes	Small	Medium	Large
Community Building and Common Ownership		☐	
Motivation and Vision for Change	☐		
Dragon Dreaming and Vision Creation		☐	
Socioracy Impact on Decision-Making			☐
Financial Structure and Asset Pool		☐	
TT and GEN		☐	
Sustainability and Eco-initiatives		☐	
Urban Planning and Governance			☐
Co-housing and Affordable Construction		☐	
Local Farming-Permaculture	☐		
Renewable Energy and Carbon Footprint			☐
Collaborations and Networks	☐		

k) Renewable Energy and Carbon Footprint

Since January 1, 2023, Turkish regulations require buildings over 5,000 square meters to achieve a minimum energy performance rating of "B" and use at least 5% renewable energy. Solar collectors are common, but solar panels remain costly. Collective heating is prevalent in the Aegean Region. While over 15 metropolitan municipalities have climate action plans, reducing residential carbon footprints needs more focus. Increased financial incentives, training, and adopting zero-emission smart city projects like those in Graz, along with carbon footprint measurements, are crucial for Turkish cities.

l) Collaborations and Networks:

In Türkiye, cities and municipalities are involved in EU projects and working with universities, with networks like Healthy Cities and the CittaSlow Movement leading city branding. However, the TT concept is largely unknown, and the Global Ecovillage Network (GEN) lacks visibility without a 24-hour eco-town example. Developing initiatives connected to these networks could enhance sustainable settlements and public participation.

WWOOF Türkiye, evolving from the TaTuTa project with UNDP support, is now part of the global WWOOF movement. Ecological Farm Visits are crucial for promoting sustainable practices such as food cultivation, composting, and renewable energy, with 66 hosts in Türkiye offering these educational programs (Figure 3).
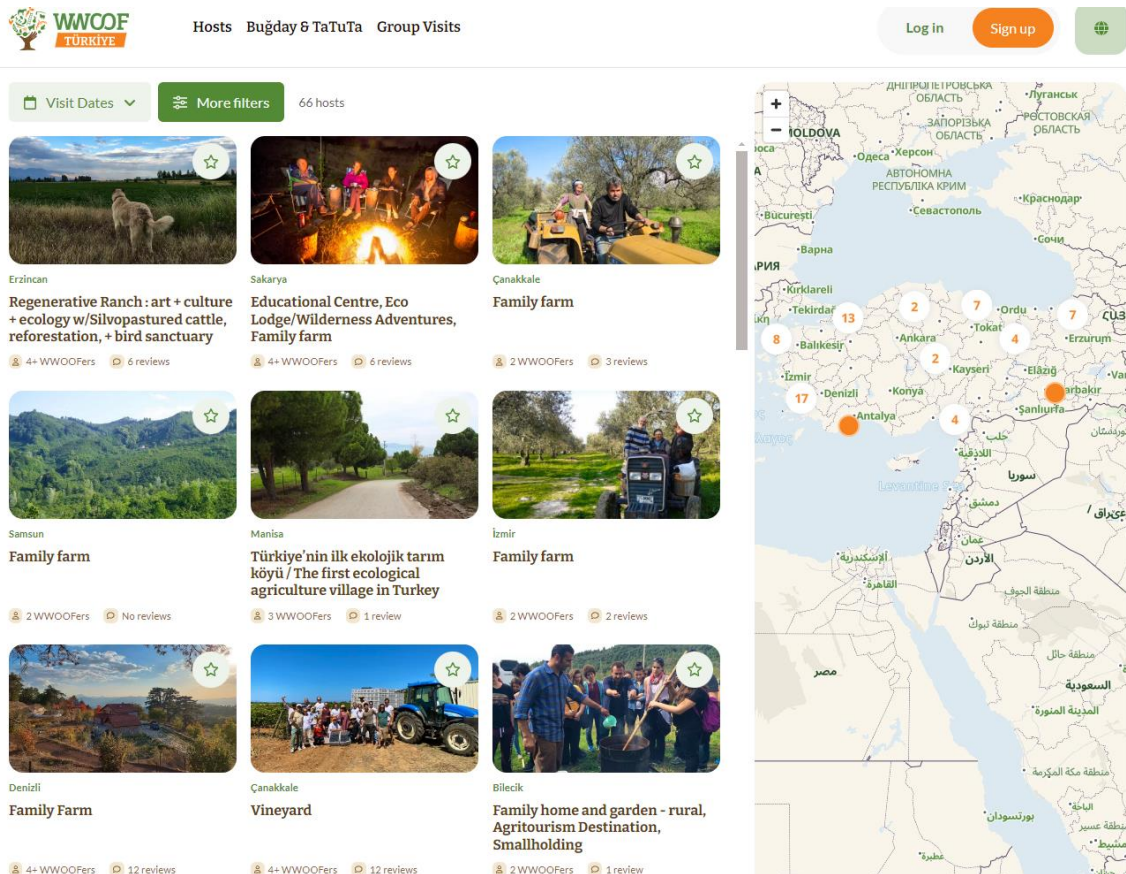
Figure 3. *WWOOF Türkiye host database,* [24]

4. CONCLUSION

The question arises: Do settlements connected to the TTs and Global Ecovillages networks represent resilient models and support the transition to low-carbon communities? Austrian examples suggest that co-housing projects act as mini-villages within cities. TT initiatives in urban areas like Graz focus on thematic projects and network connections rather than specific locations, fostering sustainable food collaborations across neighborhoods. The Cambium eco-village near Fehring is a successful intentional community, benefiting from expert support in community building, moderation, and sociocracy. Sociocracy, a key aspect of these projects, decentralizes decision-making, enhancing resilience and sustainability. Austrian co-housing and ecovillage projects also utilize the Dragon Dreaming method for initial vision building and sociocracy for governance. They serve resilient role models for transition.

In Türkiye, the primary challenge for intentional communities is not financial but a lack of clear vision and effective governance. Many are unaware of Dragon Dreaming, which could enhance community planning and development. Sociocracy is crucial for resolving intra-community conflicts and sustaining low-carbon communities. The success of Austrian projects highlights the importance of these methodologies.

Another critical factor is asset pooling, a financing method involving contributions from multiple individuals to support co-housing or eco-village investments. While Austrian laws facilitate asset pooling, it remains underutilized in Türkiye due to concerns about misuse and trust issues. Properly implemented, asset pooling could lead to successful outcomes similar to those seen in Austrian projects like Cambium and Auenweide.

Austrian initiatives, such as the 15-minute city concept, SuperGräztl design with participatory planning, and sociocratic neighborhoods, inspire local resilience against peak oil and climate change [25,26]. These strategies, crucial for establishing TT communities, emphasize food-related themes and participatory planning. They highlight key elements missing in the planning and design of Turkish cities. In line with

Healey [2], we should not expect to transfer these relevant ideas in identical shape from the Austrian towards the Turkish planning system, but we recommend and are confident that the core ideas found in Austria can work in adjusted way in Türkiye towards an overall more sustainable community development. "The move towards more localized energy efficient and productive living arrangements is an inevitable direction for humanity" [27].

CONFLICTS OF INTEREST

No conflict of interest was declared by the authors.

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