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Ecovillages as a Solution to Global Challenges

Krista Bluesmith

Thesis in the Field of History

for the Degree of Master of Liberal Arts in Extension Studies

Harvard University

November 2023

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Abstract

Ecovillages are sustainability focused cooperative communities that strive to provide social and economic support to residents whilst utilizing regenerative design to minimize the environmental impact of settlements. Ideal elements of ecovillages include community-scale renewable energy systems, ecological design, organic farming, holistic health and nutrition, collective decision making, shared social support, and to varying extents, economic support. They are normally created with individuals of shared philosophy, often Earth based spirituality. As of 2021, at least 10,000 registered ecovillages exist worldwide with an estimated population of over 500,000 people, according to the Global Ecovillage Network. This research argues that the rise in ecovillages is a responsive solution to globally pervasive ecological, social, and financial risks and challenges.

This historic research outlines the history and development of the ecovillage movement and examines best practices for ecovillages from existing literature, case studies, and the author's experience. It shows why given the history of the movement, ecovillages may be best utilized most specifically by segments of the population that are housing or socially insecure, such as: youth, impoverished persons, elderly persons, housing insecure individuals, and political or climate refugees. This research concludes that despite the high failure rate of ecovillages, ecovillage development and scholarship has increased due to the movement's innovative and make sense solutions for pressing global challenges such as poverty reduction, the need for social cohesion, climate change mitigation, refugee housing, poverty reduction, housing for the homeless, and increased

quality of life. Furthermore, the low-carbon, low-cost and relatively high quality of life reported by ecovillage residents and supporting statistics reinforces the theory that ecovillages can provide material and social security to humans in a variety of valuable ways in an increasingly unstable world.

Author's Biographical Sketch

Krista Bluesmith is a filmmaker and songwriter taking aim at creating large scale global education platforms through entertainment. Her passion is understanding global problems and taking novel approaches to help solve them.

Dedication

Thank you to my family, and most especially Ken and Gabrielle who made my graduate degree possible.

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Chapter I.

Background/History

Ecovillages are generally understood as communities that actively pursue economic, social, and ecological sustainability[1] through the "harmless integration of human activities into the environment in a way that is able to continue into the indefinite future."[2] The term “ecovillage” was officially coined in 1995 by the Global Ecovillage Network as “an intentional or traditional community using local participatory processes to holistically integrate ecological, economic, social, and cultural dimensions of sustainability in order to regenerate social and natural environments.”[3] Ecovillages seek to address issues attributed to the environmental crisis and/or the loss of meaning of the development model of contemporary capitalist consumptive culture by embodying the solutions for a socially cohesive and ideally carbon neutral lifestyle. The movement is situated at the intersection of several climate mitigation transition discourses including co-housing, commons thinking, and degrowth. Each of these three philosophies emphasize reducing levels of production and consumption and are increasing cooperation in order to conserve resources and minimize environmental damage.[4] Ecovillages are increasingly recognized as meriting consideration in a swiftly shifting world, serving as

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[1] Hildur Jackson, “What Is an Ecovillage,” Working Paper (Gaia Trust Education Seminar, Denmark, 1998).
[2] Joshua Lockyer, “Community, Commons, and Degrowth at Dancing Rabbit Ecovillage,” *Journal of Political Ecology* 24, no. 1 (2017), doi:10.2458/v24i1.20890.
[3] Global Ecovillage Network, “About GEN - The Global Ecovillage Network (GEN) Bridges Countries, Cultures, and Communities!” https://ecovillage.org/about/about-gen/.
[4] Debbie V. S. Kasper, “Redefining Community in the Ecovillage,” *Human Ecology Review* 15, no. 1 (2008), https://msuweb.montclair.edu/~franker/EVI/EVIJournalArticles/kasper2008.pdf.

incubators for a sustainable yet modernized way of living. These communities actively work to embed both ecological and social regeneration into their daily customs while creating new models of well-being that do not depend on economic growth or consumerism.[5] Ecovillages do not adhere to a specific design or plan, but rather co-create community values and land use unique to geographic areas and social groups that form them.[6] There are, however, hallmark practices of ecovillages. Ecovillage norms are guided by permaculture principles, concepts coined by Bill Mollison, which are a series of ecological design concepts with social applications. Permaculture principles support sustainable and equitable democratic social models, self-sufficiency detached from wider economic ties as much as possible, communal work, organic food production, energy consumption being "off-grid" or carbon-neutral, and construction of structures with locally sourced renewable materials.[7] The fifth chapter of this research describes more specifically how permaculture principles interact with ecovillage structures.

As a result of these somewhat novel social and also indigenously inspired environmental solutions, the ecovillage model has sparked scholarly interest in how it might be "scaled up" or imported into new contexts even in the United Nations and other international agencies.[8] The United Nations has become involved with ecovillages as part

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[5] Rebeca Roysen and Frédéric Mertens, "New Normalities in Grassroots Innovations: The Reconfiguration and Normalization of Social Practices in an Ecovillage," *Journal of Cleaner Production* 236 (2019), doi:10.1016/j.jclepro.2019.117647.

[6] Maria A. Dias et al., "The Meaning and Relevance of Ecovillages for the Construction of Sustainable Societal Alternatives," *Ambiente & Sociedade* 20, no. 3 (2017), doi:10.1590/1809-4422asoc0083v2032017.

[7] Andy Kirby, "Redefining Social and Environmental Relations at the Ecovillage at Ithaca: A Case Study," *Journal of Environmental Psychology* 23, no. 3 (2003), doi:10.1016/S0272-4944(03)00025-2; Karen Litfin, *Ecovillages: Lessons for Sustainable Community* (Cambridge: Polity Press, 2014); Louise Meijering, Paulus Huigen, and Bettina van Hoven, "Intentional Communities in Rural Spaces," *Tijdschrift voor Economische en Sociale Geografie* 98, no. 1 (2007), doi:10.1111/j.1467-9663.2007.00375.x.

[8] Bijay Singh, Martina M. Keitsch, and Mahesh Shrestha, "Scaling up Sustainability: Concepts and Practices of the Ecovillage Approach," *Sustainable Development* 27, no. 2 (2019), doi:10.1002/sd.1882; Amsale K. Temesgen, "Building an Island of Sustainability in a Sea of Unsustainability? A Study of Two Ecovillages," *Sustainability* 12, no. 24 (2020), doi:10.3390/su122410585.

of its broader efforts to promote sustainable development and community building worldwide. According to its website, The United Nations recognizes ecovillages' potential to promote sustainable living and supports initiatives that promote the development of sustainable communities, including ecovillages.[9] The efforts of the United Nations and the Sustainable Development Goals (SDGs) and how ecovillages support them are covered in a later chapter of this thesis.

This paper argues that the rise in ecovillage interest and development is a response to pressing global social, ecological, and economic problems with most benefit for housing/food/socially insecure persons, refugees, and those committed to a carbon neutral lifestyle. The research implies that ecovillage numbers will likely keep increasing despite a high failure rate. The creation of an online community of ecovillages has increased awareness, popularity, and the sharing of ecovillage methods, thereby increasing the overall number of ecovillages.

This thesis reviews the basic history of the ecovillage movement, current trends of distribution, financing and economy in ecovillages, design, and other elements of note. Furthermore, social and environmental aspects will be analyzed including the increase of emotional meaning and satisfaction, energy use and economy, and demonstration of how these elements correlate to climate goals according to experts tracking them with the Sustainability Climate Goals (SDGs). International case studies follow supporting the argument of this paper by highlighting specific ecovillage trajectories and experiences. The implications of ecovillages models being able to be utilized to mitigate our global challenges are covered in later chapters, including a short analysis of ecovillages for

[9] United Nations, "Ecovillage Initiative: Achieving SDGs," United Nations Sustainable Development Goals, https://sdgs.un.org/partnerships/ecovillage-initiative-achieving-sdgs.

homelessness as well as the refugee crisis. The conclusion summarizes and lends support to the argument of ecovillage expansion in the past two decades being due to its novel applications to confront modern global challenges.

The term “ecovillage” itself dates to 1995, when the Global Ecovillage Network (GEN) was established, a guiding organization for the ecovillage movement who initially defined the term. GEN describes an ecovillage as "a community that uses local participatory procedures to holistically integrate ecological, economic, social, and cultural components of sustainability in order to regenerate social and natural surroundings.”[10] Ecovillages, what the author terms, “ecological lifestyle community models,” often focus on environmental stewardship, earth-based spirituality, social justice, and economic cooperation. Ecovillages broadly can be found in urban, rural, and suburban settings and can range in size from a few households to several hundred residents or more.[11]

According to the Global Ecovillage Network (GEN), there are around 10,000 ecovillages in 114 countries with a total population of over 100,000 people.[12] Ecovillages are a category of “intentional community,” described as a voluntary residential community that is designed to have a high level of social cohesiveness and teamwork.[13] According to the author’s experience, who has lived at several ecovillages, the elements that set ecovillages apart from other intentional communities are their overarching ecological emphasis and the development of interpersonal skills, as well as their

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[10] Soonkwan Hong and Handan Vicdan, “Re-Imagining the Utopian: Transformation of a Sustainable Lifestyle in Ecovillages,” *Journal of Business Research* 69, no. 1 (2016), doi:10.1016/j.jbusres.2015.07.026.
[11] Global Ecovillage Network, https://ecovillage.org/.
[12] Global Ecovillage Network, https://ecovillage.org/.
[13] Barry Shenker, *Intentional Communities: Ideology and Alienation in Communal Societies* (London: Routledge, 2012). Global Ecovillage Network, https://ecovillage.org/.

integration of regenerative practices into all aspects of life. These ethoses are embedded into the foundational psyche of ecovillage development through permaculture design, as was alluded to previously, which models both social and physical design for communities. Through a broad view of the literature, it is obvious that best practices for ecovillages have evolved through many iterations of both agricultural, design and social models, with lessons learned from the hippie movement onward to what constitutes best practices today which is still highly individualized by region and community.

Members of an intentional community typically share responsibilities and some degree of shared property, as well as a similar social, political, religious, or spiritual perspective.[14] Intentional communities have historically drawn inspiration from countercultural movements and endeavored to create alternatives to conventional society. Ecovillages also branch off from other forms of intentional community by specifically combining a highly supportive social-cultural environment with a low-impact ecological lifestyle.[15] Recruitment websites for ecovillage draw in would-be members, for example, with inquiry asking if people are seeking a sustainable, healthy and safe lifestyle, secure organic food source, renewable energy security, and promise a dream home and permanent vacation experience."[16] Related communal initiatives such as green neighborhoods, eco-developments, urban farms, and sustainability-focused co-housing communities may be formed in urban or suburban settings, but, do not have the same

[14] Diana L. Christian, *Creating a Life Together: Practical Tools to Grow Ecovillages and Intentional Communities*, with the assistance of Patch Adams (Canada: New Society Publishers, 2003).
[15] Christian, *Creating a Life Together, 52.*
[16] Earthworks Eco Village, "Eco Living Village at Earthworks Eco Village," http://www.earthworksecovillage.com/ecoliving.html.

level of shared decision-making, land-based farming practices, and community involvement as ecovillages.

Ecovillages can be said to be the latest iteration of a utopian vision of harmony and an egalitarian ideal that date back notably to the Pythagoras of Samos[17] as well as the sixth century B.C., when Buddhists created the first intentional communities known to history.[18] Historically, religious communities have been the most established form of intentional community. The early 19th century in America was marked by people seeking to create utopian societies with a focus on self-sustainability. In the book *Communes in America, 1975-2000*, author Timothy Miller overviews "intentional communities" describing the history, location, and characteristics of the many little-known eco-villages, co-housing, religious, and similar communities in America of the last quarter of the twentieth century.[19] According to author Yaacov Oved, since 1735 there has been a continuous and unbroken existence of non-family based communes in the United States, though simple intergenerational family homesteading and small farm communities were the dominant form of cooperative living.[20]

Oved notes that intentional communities, in general, attempt to offer solutions to issues of social isolation, lack of spiritual fulfillment, religious freedom, and address economic concerns.[21] The broad category of intentional communities includes many groups in the modern and historic context beginning with religious groups, monasteries,

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[17] Carl A. Huffman, ed., *A History of Pythagoreanism* (Cambridge: Cambridge University Press, 2014).
[18] Geoph Kozeny, *Visions of Utopia Volume I: Experiments in Sustainable Culture*, DVD (Rutledge, MO: Foundation for International Community, 2004).
[19] Timothy Miller, *Communes in America, 1975-2000* (Syracuse, NY: Syracuse University Press, 2019).
[20] Yaacov Oved, *Two Hundred Years of American Communes* (New Brunswick, NJ: Transaction Books, 1988),15-20.
[21] Oved, *Two Hundred Years of American Communes*, 15.

survivalist retreats, kibbutzim, ashrams, the co-living movement, housing cooperatives (as mentioned) and others.[22] The first communes in America consisted of religious sects, including immigrant German Anabaptists and American Shakers, Puritans, Iroquois Confederacy, the Luddites, the Amish, the Quakers, the Mormons, and others. All of these movements were reacting to the problems of their eras by adopting values believed to be morally superior according to Christian ideals.[23] The religious movements above were followed by numerous other sectarian, religious nonsectarian, and nonreligious communes. During the late twentieth century, communist ideals in the Soviet Block and China were emblematic of anti-capitalistic utopian fervor.[24]

Following the early American communal movement, utopian aspirations again reemerged more widely in United States the 1960s and 1970s as youths expressed profound unhappiness with the dominant institutions of economic consumerism and idealistically migrated to the country to build a better, nobler existence. This 'back-to-the-land' movement could be considered a prelude to the current ecovillage models.[25] With hindsight it seems rebellious ideology as a central tenet of the hippie back-to-the-land movement did not constitute a secure enough foundation for the complex social and financial requirements to sustain a sustainable community, which, as will be illustrated in this research, is complex. Subsequently, most of these early experiments failed primarily due to a lack of focus on strengthening a sound business foundation, funding, and other governance and social issues.[26] Even if they largely failed, communes of the 1960's and

[22] Oved, *Two Hundred Years of American Communes*, 21.
[23] E. C. Mare, *A Concise History of the Global Ecovillage Movement* (Washington, DC: Village Design Institute, 2000).
[24] Mare, *A Concise History of the Global Ecovillage Movement.*
[25] Mare, *A Concise History of the Global Ecovillage Movement.*
[26] Mare, *A Concise History of the Global Ecovillage Movement*.

1970's were fertile ground for evolving ideologies which seemed to have returned, renewed and transformed, with the emergence of ecovillages in the nineties. Ecovillage models seem to have evolved the specific weaknesses of previous eco-communal models and integrated the lessons learned into a continuing database of best practices.[27] As the author noticed through visiting ecovillages, the most notable difference of ecovillages versus hippie communes is wealth sharing is minimized within ecovillages versus the "all in" commune, where wealth is pooled. The author noticed in living at Tui Community in New Zealand, that the ecovillage structural models of ownership were well defined as well as systems of membership and exit strategy, as well as codified expectations for interpersonal skills, and robust guidelines for design and best agriculture practices. These mechanisms are foundational to well thought out ecovillage development.[28] In comparison to other communal housing projects, Ecovillages prioritize environmental consciousness, social group processing and responsible resource usage in the most comprehensive way possible.[29] The attempt to enact superior moral values of the modern age in response to the global crisis of climate change, and take self-responsibility for the net-zero challenge by living in harmony with the earth ties the modern ecovillage movement to its predecessors.

Supportive organizations such as the Global Ecovillage Network, Numundo, The Global Ecovillage Network, Communities Magazine, Willing Workers on Organic Farms, and others link ecovillage projects and provide expertise and post open positions

[27] Mare, *A Concise History of the Global Ecovillage Movement.*
[28] Christian. *Creating a Life Together*.
[29] Bella M. M. Marckmann, Kirsten Gram-Hanssen, and Toke H. Christensen, "Sustainable Living and Co-Housing: Evidence from a Case Study of Eco-Villages," *Built Environment* 38, no. 3 (2012), doi:10.2148/benv.38.3.413.

in many cases to a global viewership if they are lucky enough to find it, and the site is in an accessible language to them.[30]

The Global Ecovillage Network, which has acted as a centralizing force for the ecovillage movement, currently defines an ecovillage as "an intentional or traditional community using local participatory processes to holistically integrate ecological, economic, social, and cultural dimensions of sustainability in order to regenerate social and natural environments."[31] The Global Ecovillage Network also notes that to be defined as an ecovillage, the community should be locally owned and engage in participatory processes in all five dimensions of sustainability (social, culture, ecology, economy and whole systems design) to regenerate their social and natural environments. The Global Ecovillage Network (GEN) was created as an umbrella group in 1995 for ecovillages all over the world, and they have taken on a leading role the mission of identifying, assisting, and coordinating the efforts of communities to achieve social, spiritual, economic, and ecological harmony. They also promote the development of ecovillages.[32] The Global Ecovillage Network is an important entity in the development and facilitation of the ecovillage movement it will be an entity cited often in this research.

As of 2022, the United Nations has recognized ecovillage models as workable models towards achieving the Sustainability Development Goals due to their social aspects and low carbon lifestyle. Scholars examined as to whether ecovillages could provide the cure all if scaled up, to mitigate the climate crisis, and determined that

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[30] NuMundo, numundo.org., accessed February 23, 2023.
[31] Sky Blue, "Ecovillages and the FIC," *Communities: Life in Cooperative Culture*, May 24, 2016, https://www.ic.org/ecovillages-and-the-fic/.
[32] Bhawna Gesota, "Ecovillages as Models for Sustainable Development: A Case Study Approach," (Master's thesis, Albert-Ludwigs-Universitat, Freiburg and University of KwaZulu-Natal, Durban, 2008), https://www.yumpu.com/en/document/view/22110978/ecovillages-as-models-for-sustainable-development-.

ecovillages could indeed be considered flagship contexts where sustainability could be achieved.[33] The United Nations warns that urbanization endangers fresh water supplies, wastewater, and public health. The United Nations has established an Ecovillage Initiative for Achieving the Sustainable Development Goals (SDG's), which invites governments, UN agencies, businesses, and other stakeholders to collaborate in developing and implementing specifically an ecovillage approach to eradicating poverty, restoring the natural environment, and ensuring that all people's basic human needs are met.[34]

In conjunction with the United Nations the Global Ecovillage Network co-authored the Regenerative Development Aims, measurement tools highlighting the impact and practices of ecovillages and other community-led initiatives working to achieve the SDGs. GEN approached them through a model called the Ecovillage Map of Regeneration that mapped ecovillage practices onto corresponding SDG's while researching which local actions provide pathways to larger regenerative development.[35] GEN ecovillage educators also formalized the Ecovillage Design Mandala in 2004, systemic designs that incorporated practice-based relationships among social, economic, and ecological dimensions with an overarching cultural or spiritual worldview to create resilient futures and societies.[36] In 2017 in order to determine how ecovillages were

[33] Ciska Ulug, Elen-Maarja Trell, and Lummina Horlings, "Ecovillage Foodscapes: Zooming in and Out of Sustainable Food Practices," *Agriculture and Human Values* 38, no. 4 (2021), doi:10.1007/s10460-021-10213-1.
[34] UN Department of Economic and Social Affairs, "Ecovillage Initiative for Achieving the SDGs," accessed June 19, 2023, https://sdgs.un.org/partnerships/ecovillage-initiative-achieving-sdgs.
[35] Global Ecovillage Network, "The Ecovillage Map of Regeneration," https://ecovillage.org/ecovillages/map-of-regeneration/
[36] Belinda Gibbons et al., "An Investigation in the Sustainable Economic Practices of Ecovillages," Faculty of Business - Papers 1656 (University of Wollongong Australia, 2018), https://ro.uow.edu.au/buspapers/1656.

already assisting in achieving the SDGs and the Paris Climate Agreements, the Global Ecovillage Network (GEN) conducted an investigation into the impact of thirty diverse ecovillages across five continents. The investigation concluded that although ecovillages remain small in numbers, during the past decade studies have demonstrated that ecovillages profoundly shape our society in a variety of ways, such as by engaging in local politics or collaborating with governing bodies and community organizations.[37] It was noted that in order for these initiatives to be effective, it is essential they collaborate and engage with other types of climate action at the regional, national and global levels.[38] Figure 1 is from the Global Ecovillage Network's website that discusses how ecovillages interact with the sustainability climate goals and Paris Climate Agreements.

[37] Anne-Kathrin Schwab, "Die Multiple Krise," in *Transformation Im Ländlichen Raum: Ein Ökodorf Und Seine Wirkung in Der Region* (Wiesbaden: Springer VS, 2020); Laura B. Bochinski, "Alumni of Experimental Communities: Agents of Change at a Critical Time" (Master thesis, Prescott College, 2015); Rebeca Roysen and Anne-Kathrin Schwab, "The Potential of Ecovillages for Transitions in Rural Areas: A Comparison of Ecovillages in Germany and Brazil," in *Climate Adaptation: Accounts of Resiilience, Self-Sufficiency and Systems Change* (Bristol: Arkbound Foundation, 2021).
[38] Schwab, "*Climate Adaptation: Accounts of Resiilience, Self-Sufficiency and Systems Change."*

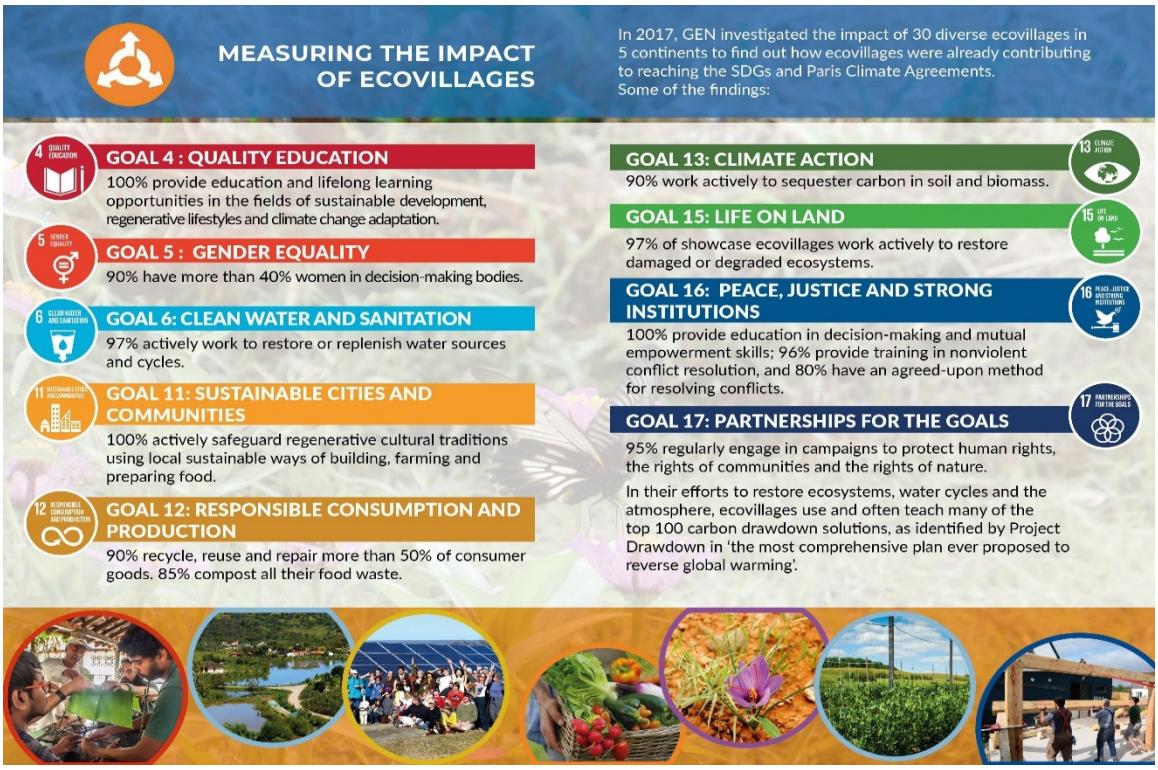


Figure 1. Contribution of Ecovillages to the UN Sustainable Development Goals.

Source: Siqueira, Gabriel. "Impact Ecovillages SDGs." Accessed July 1, 2023. https://ecovillage.org/annual-report-2018/impact-ecovillages-sdgs/.

Multiple organizations and scholars in addition to the United Nations are seeking to help define best practices of ecovillages and how they relate to global sustainability goals. In a 2018 review of twenty-seven different studies examining more than sixty ecovillages, ten criteria and 119 indicators (actions) in various categories and dimensions (social, ecological, economic, and cultural) were found to identify ecovillages as best practices and inspirational examples for how to live sustainably. This review outlines a framework for all communities that want to recognize themselves as ecovillages. "The ten criteria are as follows:

> 1) environmental protection and conservation; 2) provision of suitable and sustainable habitats (climate design); 3) social, individual, and spiritual capital; 4) a healthy lifestyle both physically and spiritually; 5) resource-saving mechanisms and effective transportation systems; 6) self-reliance and support of local economy; 7) water and wastewater management; 8) waste and scrap management; 9) human development and capacity building; and 10) foresight.[39]

The comparison of studies reiterate how ecovillages are actively making substantial micro-contributions the Sustainable Development Goals, as demonstrated by this series of impact analyses carried out by GEN in ecovillages across five continents.[40]

Ecovillages are both locally oriented and connected to a global network of other similar initiatives.[41] They serve not only as communal hubs for the communities they inhabit, but also link these same groups across borders and cultures on a grander scale using websites and networks.[42] Ecovillages utilize what can be called translocal networks (involving a sense of identity split between or blended from multiple locations, especially in multiple ethnic regions) to facilitate advocacy, engage with national entities, lobby governments of various scales, and form alliances with other organizations.[43]

The author, Krista Bluesmith, had personal experience with novel ecovillage models that incorporate alternative currency such as cryptocurrency and blockchain merged with an online trade directory and housing sharing within a multi-country network as a membership model showcase innovations that answer the need to hedge against the risks of our current landscape of global concern regarding fundamental

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[39] Shahrzad Barani, Amir H. Alibeygi, and Abdolhamid Papzan, "A Framework to Identify and Develop Potential Ecovillages: Meta-Analysis from the Studies of World's Ecovillages," *Sustainable Cities and Society* 43 (2018), doi:10.1016/j.scs.2018.08.036.
[40] Global Ecovillage Network, "Sustainability Assessment - the Sustainability Impact Assessment Tool," accessed March 22, 2023, https://ecovillage.org/resources/impact-assessment2/.
[41] Derk Loorbach et al., "Transformative Innovation and Translocal Diffusion," *Environmental Innovation and Societal Transitions* 35 (2020), doi:10.1016/j.eist.2020.01.009.
[42] Loorbach, "Transformative Innovation and Translocal Diffusion."
[43] Loorback, "Transformative Innovation and Translocal Diffusion."

economic, environmental and social systems collapse. Earth Nation, a startup project that Krista was the Media Director for, created by Dakota Kaiser, was a progressive ecovillage system doing just this, aimed to utilize blockchain technology with a participation model that allowed for ecovillages to join and be rewarded with the currency, participation, and an international voting body of members. He called this a Decentralized Autonomous Organization, or a DAO. Mr. Kaiser coded the programs and had this system live and running with members of Earth Nation being able to join the DAO by various means via multiple ways to engage; a small monthly fee, helping forward the project via media, bringing a partner ecovillage in, or putting up a profile to trade services and be paid in the currency which then allowed users to cash out or use to travel to the partner ecovillages, or purchase services from another user. Almost forty global ecovillages had joined this working ecovillage cryptocurrency model utilizing the currency he created, Equality Keys, which were on the crypto exchange and were actively traded. These types of systems, though still in development, may provide previously unconsidered solutions to some of the common challenges ecovillages face with remoteness, lack of mobility, and challenging social aspects such as divorce or fallings out, which are so often the cause of ecovillage failure. As the author was the media director of this organization for a time, she witnessed how social aspects of ecovillage development can often be the Achilles heel of even genius cooperative models such as Earth Nation. Theoretically, having a network of ecovillages that people can be members in minimizes the risks of buying into a specific location, and maximizes the benefits of this lifestyle, especially when considering the relatively inexpensive cost of buying into a cheaper location.

Organizations such as; Willing Workers on Organic Farms (WOOF), Numundo, (a network of impact centers that offer transformational experiences, jobs offered, and links to ecovillages), The Global Ecovillage Network, the Foundation for Intentional Community (FIC), and other organizations provide the information and connection portals for people to travel globally for fee or work exchange for listed communities, building a sense of international comradery and connection between ecovillages.[44] The author utilized the WOOF program in her twenties to travel around New Zealand working on farms and living in an ecovillage called Tui, where she took a Permaculture Design Course (a notch on the belt of any would-be ecovillage member). This "woofing" is a coming-of-age practice for many Western 'new ager's' in their early decades.

While interlocking networks of ecovillages are becoming more prominent in the sustainability movement, how the ecovillage movement in general embodies sustainable initiatives within broader society has yet to be adequately implemented in terms of reducing real carbon numbers. It is important to note that given the current scale of ecovillage development, they could be said to make an unsubstantial impact on a global scale.[45] Although data can demonstrate the popularity of this movement in recent years, it is also true that these communities have a very high rate of failure,[46] which will be explored in another chapter. What is significant in this introductory chapter is the theory of ecovillages and how this seed that has been forged in the historic scope can provide relatively low-cost and novel solutions and implications for homelessness, migration,

[44] Margo Lipman, and Laurie Murphy, "Make haste slowly: environmental sustainability and willing workers on organic farms," *Tourism: Experiences and Mobilities. Bristol* (2012): 84-98.
[45] Hong and Vicdan, "Re-imagining the utopian: Transformation of a sustainable lifestyle in ecovillages."
[46] Litfin, *Ecovillages: Lessons for Sustainable Community*.

climate change and other environmental or social issues which will now be explored further.

Chapter II.

Philosophy of the Ecovillage Movement

"The contentious character of postmodernity, as well as the desire to develop a simpler, meaningful, and sustainable lifestyle centered on participatory democracy within the local community, are driving this expansion."[47] It is often said ecovillages can be viewed as "laboratories for the future," evolving blueprints for a structural shift towards socioeconomic systems based on post-carbon technologies and the restoration of the commons, despite their diversity.[48] In addition, they share a radical approach to the environment, anchored in a holistic "cosmovision," an ideology pointing towards the psychedelic inspired movement of earth centered epiphone that views ecology, community development, science, and spirituality as interconnected, interdependent disciplines.[49]

Ecovillages often attract people who value independence and spirituality, renewable energy, waste reduction, and social justice. Limiting the use of natural resources, including frugality, local food production, and recycling resources are key factors for the movement. Ecovillages are often associated with voluntary poverty and hardcore environmentalism.[50] This is a recurring theme in *Communities Magazine*, a major ecovillage publication, where the articles often discuss how the ecovillage

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[47] Paul A. Cunningham, "Exploring the Efficacy of Consensus-Based Decision-Making," *International Journal of Housing Markets and Analysis* 7, no. 2 (2014), doi:10.1108/IJHMA-06-2013-0040.
[48] Graham Meltzer, *Findhorn Reflections: A Very Personal Take on Life Inside the Famous Spiritual Community and Ecovillage* (CreateSpace Independent Publishing Platform, 2015).
[49] Maddy Harland and William Keepin, *Song of the Earth: A Synthesis of the Scientific and Spiritual Worldviews,* 4 Keys to Sustainable Communities (Hampshire, UK: Permanent Publications, 2012).
[50] Alison Rosenblatt, "Shifting Our Views on Ecovillage Economics," *Communities* 141 (2008): 16.

movement can distance itself from the perception of being associated with poverty to attract people.[51]

Ecovillages are diverse. Some embrace and investigate technology, while others attempt to limit it. There are ecovillages with strict regulations and others with more lax philosophies. They often double as retreat centers, interacting with the larger community by sharing lodging, meals, and experiences.[52] Generally, an ideal ecovillage system would provide entertainment, engage in local commerce, trade, and be self-sustaining by some community-based product or hosting visitors in some regard. Autonomy and self-sufficiency are the key goals, and to "detach from the umbilical cord," of the larger society to eliminate the different networks generating dependence and helplessness, whether they be social, infrastructural, or economic networks.[53]

According to the author's experience living in multiple ecovillages, the feeling is reminiscent of a very large tribal group with the complications that arise with intimately close living and shared property and bonds. The specific attributes of an ecovillage are shaped by factors such as the local economy and culture, its geographical positioning, along with considerations related to common infrastructure, the development of the community, and processes involved in decision-making or governance.[54]

Ecovillages strive to provide innovative solutions in cooperation, communication and collaboration. In these areas; they serve as a hub for learning experiences while exploring how people can work together despite different cultural backgrounds with

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[51] Rosenblatt, "Shifting Our Views on Ecovillage Economics."
[52] Judit Farkas, "'Very Little Heroes' History and Roots of the Eco-Village Movement," *Acta Ethnographica Hungarica* 62, no. 1 (2017), doi:10.1556/022.2017.62.1.4.
[53] Farkas, "'Very Little Heroes' History and Roots of the Eco-Village Movement."
[54] Belinda Kathlyn Gibbons et al., "An Investigation in the Sustainable Economic Practices of Ecovillages," (2018).

progressive and vetted communication models such as Compassionate Communication, developed by Marshall Rosenberg.[55] Other scholars studying ecovillages have mentioned theoretical lenses of viewing ecovillages as an aspect of the degrowth movement,[56] a movement that advocates the transition toward more socially and environmentally just societies that proposes voluntary simplicity as a counterpoint for consumerism.[57] As has been mentioned, various communities embrace voluntary simplicity to differing degrees.

Distribution of Ecovillages Globally

It is important to note that the number of ecovillages and the definition of an ecovillage can vary substantially depending on the source. There is no universally agreed definition for what constitutes an ecovillage or how to count them, therefore different groups and sources may report different numbers. For example, indigenous communities that could fall under the definition of an ecovillage not tracked through may be absent from statistics. This makes the actual number of the increase of ecovillages hard to track as well. According to its Global Ecovillage Network's website, The Global Ecovillage Network (GEN) is a global network of around 10,000 sustainable communities in 114 countries and related projects that promote ecological harmony.[58] The ecovillages registered with GEN consist of five regional networks, a youth branch called NextGEN, and various national and bioregional networks. GEN includes both large networks like

[55] Robert H. Boyer, "Achieving One-Planet Living Through Transitions in Social Practice: A Case Study of Dancing Rabbit Ecovillage," *Sustainability: Science, Practice and Policy* 12, no. 1 (2016), doi:10.1080/15487733.2016.11908153; Ana M. Esteves, "Peace Education for the Anthropocene? The Contribution of Regenerative Ecology and the Ecovillages Movement," *Journal of Peace Education* 17, no. 1 (2020), doi:10.1080/17400201.2019.1657817.
[56] Giacomo D'Alisa, Federico Demaria and Giorgos Kallis, eds., *Degrowth: A Vocabulary for a New Era* (New York: Routledge, 2015).
[57] Serge Latouche, *Le Pari De La Décroissance* (Paris: Fayard, 2007).
[58] Global Ecovillage Network, accessed June 30, 2023, https://ecovillage.org/.

Sarvodaya, the Federation of Damanhur, and Network for Ecovillage Emergence and Development in the Sahel (REDES), as well as smaller ecovillages.[59] Ecovillages have been formed in most countries, and as has been mentioned are linked through websites, directories and webs of online networks allowing travelers, spiritual seekers, digital nomads, and naturalists to access them. Although this research did not find exact statistics, these new means of cooperating in the digital space can be assumed to be increasing exposure to the ecovillage movement. The count of ecovillages encompasses a variety of settlement types. These include villages in developing countries that rely on traditional ecological knowledge, like Colufifa in Senegal, and farming communes with sustainable living arrangements such as Svanholm in Denmark and Earthaven in the USA. Additionally, they feature experiments in eco-architecture, such as Auroville in India, and spiritual communities equipped with ecological infrastructures.[60]

[59] Global Ecovillage Network, "About GEN - the Global Ecovillage Network (GEN) Bridges Countries, Cultures, and Communities!," accessed March 31, 2023, https://ecovillage.org/about/about-gen/.
[60] Ana Margarida Esteves, "Radical environmentalism and 'Commoning': synergies between ecosystem regeneration and social governance at Tamera Ecovillage, Portugal." *Antipode* 49, no. 2 (2017): 357-376, doi:10.1111/anti.12278.

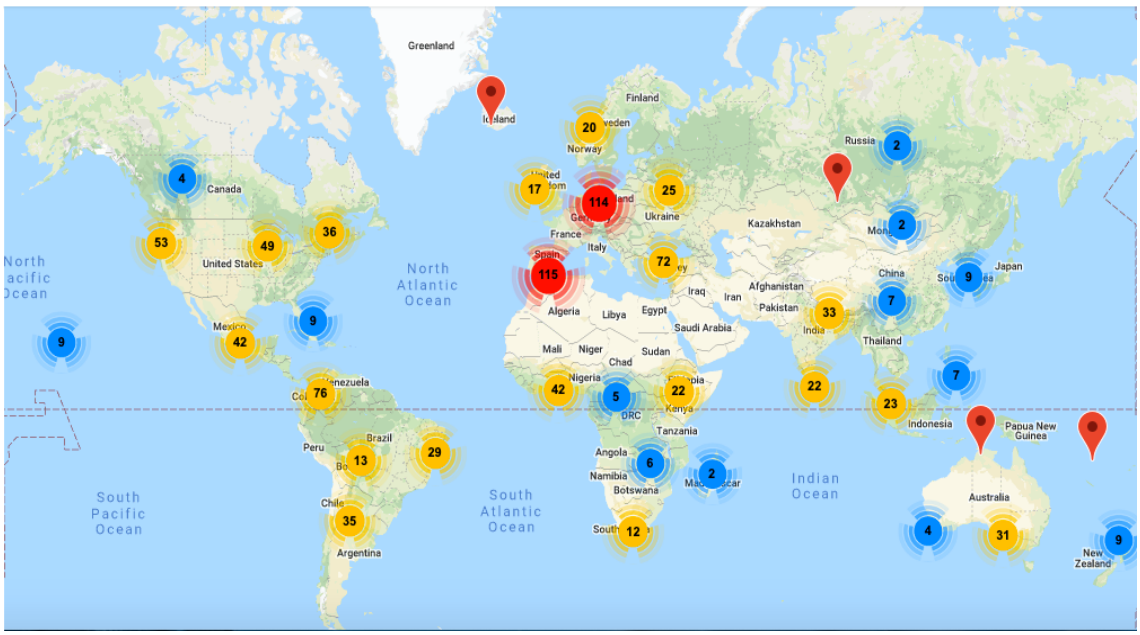


Figure 2. Charting a Path to Sustainability: The Global Ecovillage Network Map.

Source: Earth Haven. "Global Eco-Village Network (GEN)." Accessed June 20, 2023. https://earth-haven.com/global-eco-village-network/.

Chapter III.

Anatomy of an Ecovillage

Categories of ecovillages include rural, urban, and innovative models. Nogueira's comprehensive study of communities found that 80% inhabited rural locations while 5% existed in urban contexts, with an additional 12% claiming both environments.[61] Researchers note that that in small groups carbon neutrality is more easily achieved because as the size and complexity of ecovillages develop, their connection and interaction with the surrounding environment become increasingly complex.[62] Examples of increasing complexity include the need for central energy reserves and water systems.[63] Ironically, ecovillages may become attractive places to live due to their superior quality of life, leading to an increase in land and real estate values in the region as well as an increase in carbon emissions from an influx of tourists.[64] In order to effectively play their self-proclaimed part as catalysts for social transformation, ecovillages are required to engage with their external environments, including neighboring communities, local governing bodies, and abide by state and national legislation.[65]

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[61] Carla Nogueira, "A Procura Da Sustentabilidade Como Modo De Vida: Contornos E Tendências Das Comunidades Sustentáveis Em Portugal" (Master's thesis, ISCTE - University Institute of Lisbon, 2015)
[62] Simon Joss, "Eco-Cities: A Global Survey 2009," 129 (2010), doi:10.2495/SC100211.
[63] Jin Xue, "Is Eco-Village/urban Village the Future of a Degrowth Society? An Urban Planner's Perspective," *Ecological Economics* 105 (2014), doi:10.1016/j.ecolecon.2014.06.003.
[64] Samuel Mössner and Byron Miller, "Sustainability in One Place? Dilemmas of Sustainability Governance in the Freiburg Metropolitan Region," *Regions Magazine* 300, no. 1 (2015), doi:10.1080/13673882.2015.11668692.
[65] Mi Y. Kim, "The Influences of an Eco-Village Towards Urban Sustainability: A Case Study of Two Swedish Eco-Villages" (Master's thesis, Department of Earth Sciences, Uppsala University, 2016), http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-302636.

Rural ecovillages are situated in rural areas. This research will focus primarily on rural ecovillage models which utilize larger tracts of land to provide capacity for food self-sufficiency through sustainable biological farming, renewable energy, waste reduction and permaculture practices.[66] Findhorn Ecovillage in Scotland, and Damanhur in Italy, are examples of ecovillages in rural areas.

Some ecovillages can be categorized as innovative models such as TerraVie in Canada, a non-profit charitable organization that acquires, preserves and manages land for future generations but makes twenty-five percent of the land available for the development of viable communities.[67] This community simultaneously acts as a wildlife reserve. The Peace Community San José de Apartado in Colombia has formed a neutral village in the middle of an armed conflict zone, and its more than 1,000 peasants have resisted expulsion nonviolently for the past 18 years.[68] With 170 members and a Love School at its core, the Healing Biotope Tamera in Portugal has ecologically regenerated a 220 acre stretch of land that had been in the process of desertification.[69] Other examples of alternative ecovillages include the Syrian Initiative Craftsmanship Ecovillage, an ecovillage made by and for Syrian refugees in Sweden, Kitezh in Russia, which doubles as a foster care hamlet, and the EcoCampus which served as a catalyst for the solar panel developments in the region.[70] Ecovillages for use as refugee housing is detailed further later in this research.

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[66] Robert Gillman, "The Eco-Village Challenge," in *Living Together*, vol. 29 (Context Institute, 1991), https://www.context.org/iclib/ic29/gilman1/, 29.
[67] "Terravie." IC.org. Accessed July 14, 2023. https://www.ic.org/directory/terravie/.
[68] Christopher, Courtheyn. "Territories of peace: alter-territorialities in Colombia's San José de Apartadó Peace Community." *The Journal of Peasant Studies* 45, no. 7 (2018): 1432-1459.
[69] Esteves, "Radical environmentalism and 'Commoning,'" 357-376.
[70] Leila Dregger, "Ecovillages Worldwide—Local Solutions for Global Problems," *Communities: Life in Cooperative Culture*, June 11, 2016, https://www.ic.org/ecovillages-worldwide-local-solutions-for-global-problems/.

A comparative study of ecovillages sizes noted most have up to fifteen members (43.7%), 13.6% between 16-25 members, and 17% are large and boast over ninety-five full-time residents/members. Average size a majority (53%) have less than ten ha available for use. 21% possess a modest 11-30 ha range and yet impressively 10% own over 180 hectares. This affords them plenty of space in which they can execute their operations.[71]

Success and Failure Rate

Ecovillage development requires significant patience, persistence, commitment, negotiation, and compromise to overcome the numerous obstacles associated with development. 50 According to the footnoted study, the key to successful ecovillage formation is distinctly local factors rather than universal principles, site and situational specific, based on the local economy's needs and practices, and the demographic profile of the ecovillages themselves.[72] In her book *Creating a Life Together*, Christian notes that during the development of ecovillages a range of obstacles can arise, such as issues with financing, details of how to set up the property, or inadequate access to applicable sustainable technologies.[73] Furthermore, due to their limited size and distinctive set of standards and values that differ from mainstream culture, they often struggle when attempting to share their ideas with larger communities.[74] Neighbor issues and local

[71] Alex Haxeltine et al., "Conceptualising the Role of Social Innovation in Sustainability Transformations," in *Social Innovation and Sustainable Consumption Research and Action for Societal Transformation*, ed. Julia Backhaus et al. (London: Routledge, 2018), https://doi.org/10.4324/9781315201559.
[72] Gibbons et al., "An investigation in the sustainable economic practices of ecovillages," 4.
[73] Diana Leafe, Christian, "*Creating a life together: Practical tools to grow ecovillages and intentional communities*." New Society Publishers, 2003.
[74] Gill Seyfang and Adrian Smith, "Grassroots Innovations for Sustainable Development: Towards a New Research and Policy Agenda," *Environmental Politics* 16, no. 4 (2007), doi:10.1080/09644010701419121.

municipalities not supporting ecovillage aims through strict zoning laws or neighbor complaints are one of the primary ways ecovillages fail. According to her, as well as the author's experience, neighbors may be skeptical of the ecovillage's goals and values, increased traffic, noise or water use, a changing landscape, property value implications, and other concerns.[75]

An example of ecovillage failure due to complaints or prohibitive zoning is the ecovillage Bellyacres, in Puna, Hawaii. The author has been there. Founder Graham Ellis notes that the group of jugglers which started the ecovillage that expanded over decades, offering circus school to the wider community, was shut down due to a few neighbor complaints. He states, "the complaint driven system of enforcement has been at the root of our collapse."[76] He describes that often ecovillage developments are ignored when not in code compliance until any complaint, and that a neighbor having his television watching interrupted by applause for the expert jugglers was his reason to go to war with them and collapse the community. According to him, the community rallied and signed petitions, hundreds gave written testimony, and the group applied for a Planning Commission hearing. After five years of waiting, and the hope that this could be a test case for the legalization of sustainable community, the commission communicated to them that even frivolous complaints had to eliminate all non-compliant behaviors for fear of lawsuits.[77] This anecdote describes well the risk that would-be ecovillage founders often take. The risks are high. It was a challenge to find specific research and supporting evidence regarding building codes for ecovillages, but from the author's experience, in

[75] Christian, "*Creating a life together: Practical tools to grow ecovillages and intentional communities*."
[76] Graham Ellis, "My Struggle to Legalize Sustainable Living," *Communities: Life in Cooperative Culture*, October 1, 2015, accessed April 19, 2023, https://www.ic.org/my-struggle-to-legalize-sustainable-living/.
[77] Ellis, "My Struggle to Legalize Sustainable Living."

California the laws to build everything an ecovillage requires are often prohibitively expensive, not legal, and often gray/risk areas for designs that may include clay or alternative structures, small cabins, multiple houses, community kitchens, performance areas, etc.[78] Legal requirements for disability access, perfect fences, sprinkler systems, strict zoning disallowing additional units, and permits that cost hundreds of thousands of dollars are all prohibitive to development or can prevent the success of an ecovillage should any complaint emerge.[79]

Ecovillage expert Diane Leafe Christian notes that most internal new-community failures appeared to be the result of "structural" conflict, which refers to issues that develop when founders fail to explicitly put certain processes in place or make certain crucial decisions at the outset, leading to one or more omissions in their organizational structure.[80] She notes that these inherent structural issues appear to function like ticking time bombs. “The group explodes in major conflict several weeks, months, or even years into the community-forming process, which could have been largely avoided if they had dealt with these issues sooner.”[81] She notes that this also leads to a lot of interpersonal conflict, which exacerbates the initial structural conflict. When exploring governance models related to ecovillages, Christian relates that no matter how inspired and visionary the founders, only about one out of ten new communities actually get built. “The other ninety percent seemed to go nowhere, occasionally because of lack of money or not finding the right land, but mostly because of conflict. And usually, conflict accompanied

[78] Kristoffer, Jackson, "Why California is so expensive: It’s not just the weather, it’s the regulation." *USApp–American Politics and Policy Blog* (2016).
[79] Jackson, "Why California is so expensive: It’s not just the weather, it’s the regulation."
[80] Diana Leafe Christian, *Creating a Life Together: Practical Tools to Grow Ecovillages and Intentional Communities*, with the assistance of Patch Adams (Canada: New Society Publishers, 2003), 7.
[81] Christian, *Creating a Life Together: Practical Tools to Grow Ecovillages and Intentional Communities*.

by heartbreak. And sometimes, conflict, heartbreak and lawsuits."[82] These facts may account for the relatively low number of new ecovillage creation, and have given rise to the huge emphasis ecovillages employ in instituting strong structures to create success, especially in formalized ownership, membership, and governance protocols, usually embodied in the community by-laws.[83]

Christian also recommends writing down agreements for clarity. Agreements, from the most insignificant to the most legally and financially significant, must be in writing. The alternative "we're right and you're wrong (and maybe you're even trying to cheat us)" can destroy a community faster than you can say "you'll hear from our attorney."[84] In the author's experience, living at Earthhaven Ecovillage in North Carolina as well as Tui community in New Zealand, a common complaint focused on the consensus model of conflict resolution being time consuming and weak allowing decisions being hijacked by problem personalities, or inflexible viewpoints.

A summary of Christian's recipe for avoiding ecovillage failure includes; shared vision document, implementing equitable, participatory governance procedures, ensuring that significant legal and financial decisions are documented, learning effective group communication skills (including conflict resolution), choosing new members based on emotional maturity and shared values, and devoting the necessary time to learning the skills required for managing a community.[85]

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[82] Christian, *Creating a Life Together*, 5.
[83] Christian, *Creating a Life Together*, 5
[84] Christian, *Creating a Life Together*, 8.
[85] Christian, *Creating a Life Together*, 6.

In the failed ecovillage Gracelight, Christian describes scenario of a woman named Sharon who underestimated how much money would be required to finish land development before she could legally transfer title to each new community member

> Sharon anticipated that some members of the group would be unable to provide their portion of funding, but she relied on her intuition that it would all work out somehow. Sharon believed that describing her spiritual vision for Gracelight to potential donors was sufficient. She did not consider providing a business plan, a budget, or a financial disclosure sheet, nor did she demonstrate to potential investors how and when they might receive their money back. She failed to make it immediately clear to everyone that she was both a visionary and a land developer. She also failed to inform all parties from the outset that, as the developer, she would make all land-development decisions, that a procedure was required to determine who was in the group and who was not, and the types of decisions the group would make and those Sharon would make alone.[86]

This example is a typical case study for ecovillage failure. Overall, developing land for an ecovillage can be challenging, but with careful planning, strong leadership, and a commitment to community-building, Christian notes that many communities are able to successfully overcome these obstacles and establish sustainable and thriving ecovillages.

Governance Models

Ecovillages can take on various legal ownership structures, depending on the specific community and its members' preferences and their unique needs, values and visions.[87] Ecovillage governance models are based on both the land ownership structure and social governance structure of which common variations are detailed below. A social governance structure may contain community expectations, onboarding and offboarding procedures, as well as decision making protocols. Legal agreements and protocols for are

[86] Christian, *Creating a Life Together*, 6.
[87] Fellowship for Intentional Community. *Communities Directory: A Guide to Intentional Communities and Cooperative Living* (Fellowship for Intentional Community, 2000).

also ideally outlined in the bylaws.[88] The social and legal structures can vary. For example, a consensus-based decision-making system or a sociocracy model could be implemented in a community with a single owner, a pooled economy, or a nonprofit corporation. Each community has its own set of circumstances, there is no one-size-fits-all approach to ecovillage governance.

Most often ecovillage land is put within the legal structure of a land trust. This protection is often essential to the governance of an ecovillage because they provide a mechanism for collective land ownership.[89] According to the Global Ecovillage Network website, 68% of global Ecovillages are private nonprofit associations, 24% are cooperatives, and 8% are foundations. Each of these structures have their benefits and drawbacks.[90]

[88] Fellowship for Intentional Community, *Communities Directory: A Guide to Intentional Communities and Cooperative Living*.
[89] Fellowship for Intentional Community, *Communities Directory: A Guide to Intentional Communities and Cooperative Living*.
[90] J. J. Kroncke, "Disciplining Utopia," *Environmental Law (Portland, Ore.)* 49, no. 2 (2019): 453–511.

Some common ecovillage structures include:[91]

Nonprofit Corporation

In this structure, the ecovillage is organized as a nonprofit corporation, with a board of directors responsible for making decisions and managing the community's assets.[92]

Cooperative

In a cooperative structure, the members of the ecovillage own and govern the community collectively, each having an equal say in decision-making. This model promotes the values of shared responsibility and mutual support.[93]

Land Trust

In this type of structure, the land where the ecovillage is located is owned by a land trust. The people who live in the ecovillage lease the land and run the community as a whole. In a land trust model, the ecovillage collectively owns the land, and no individual owns a specific portion of it.[94] This model ensures the protection and preservation of the land for future generations when members die. This model provides the aim of ecovillages as equitable, as all member owners have equal access to resources and decision-making. An example of this is Common Ground Ecovillage in North

[91] Gwendolyn Hallsmith, "Ecovillage Infrastructure," *Communities: Life in Cooperative Culture*, September 7, 2012, https://www.ic.org/ecovillage-infrastructure/.
[92] Kroncke, "Disciplining Utopia," 453–511.
[93] Kroncke, "Disciplining Utopia,"
[94] Kroncke, "Disciplining Utopia."

Carolina where they use the limited-equity housing cooperative model where the dwelling units are owned by the cooperative and leased to residents.[95]

Limited Liability Company (LLC)

LLCs are a hybrid of a corporation and a partnership. It can be managed by members or managers, and the personal assets of members are protected in case of lawsuits or debts.[96]

Community Land Trust

A community land trust is a non-profit organization that holds land in trust on behalf of a community. Creating a Land Trust ensures that the land remains in the hands of the community in perpetuity, allows the community to manage and develop the land, and is never sold for development or other uses incompatible with community values. In general, the way in which ecovillages divide land frequently reflects the community's values and objectives, as well as the particular resources and constraints with which they must work.[97] Many ecovillages place the property within a land trust and still sell individual houses which are owned by individuals, often with specific rules for how transfer of ownership would work for the sale of a house.

Mechanisms such as “limited equity” can be employed where the group may decide to limit the amount of appreciation in co-op shares and home values to avoid members taking advantage of the appreciation and to keep the cost low for perhaps lower

[95] Kroncke, “Disciplining Utopia.”
[96] Kroncke, “Disciplining Utopia.”
[97] Kroncke, “Disciplining Utopia.”

income members that the group wants to have join the community such as a new family.[98]

A core of Ecovillage development and life is decision making protocols, which are a part of Social Governance Structures. One commonly cited governance model in ecovillages is the "circle model," which is based on the idea of "dynamic governance." This model, developed by the Findhorn Ecovillage in Scotland, "focuses on developing trust and cooperation among group members, and creating a sense of shared purpose and shared responsibility for decision-making."[99] Another model is Sociocracy, also known as "Dynamic Governance," which is a system of governance in which decisions are made by consensus rather than by majority vote.[100] It was first developed by the Dutch social reformer, Kees Boeke, in the 1940s and 1950s and then adapted by the eco-village Auroville in India, in the 1970s. It is a system of governance that is based on the principles of transparency, accountability, participation and effectiveness. In a system of community-based government, activities are normally organized and carried out through participatory democracy committed to consensus-based decision-making, which presents its own set of challenges.[101] Consensual decision-making is time-consuming, and participation levels tend to fluctuate over time.[102] A common criticism of participatory processes is that they potentially delaying decision-making and produce unsatisfactory

[98] Common Ground Ecovillage, "FAQs," accessed June 20, 2023, https://www.commonground.eco/faqs/.
[99] New Findhorn Association, "Collaboration Circle," accessed April 13, 2023, https://findhorn.cc/groups/collaboration-circle/.
[100] New Findhorn Association, "Collaboration Circle."
[101] New Findhorn Association, "Collaboration Circle."
[102] Frank Fischer, *Climate Crisis and the Democratic Prospect: Participatory Governance in Sustainable Communities* (Oxford: Oxford University Press, 2017).

final agreements that fail to reconcile competing interests.[103] An alternative to consensual decision making is illustrated by The Ecovillage at Ithaca, which is mentioned as a leading ecovillage. They employ a Governing Council model of governance, in which a small group of elected individuals make decisions for the community.[104] This model allows for efficient decision-making while still ensuring that the needs and opinions of all members are taken into account. This model provides minutia from having to be debated within the larger group, cutting down on meeting time. People with specialization in certain areas can be on certain councils, such as engineers being able to make a decision about the placement or method of water systems, or financially savvy members decide on distribution of funds for critical infrastructure.[105] These governance systems help to create a smoother experience in ecovillage life than previous generations of ecovillage governance models. The adaptation and growth of models such as this presumably can lead to higher ecovillage success rates and less interpersonal conflict, a major cause of ecovillage failure.[106]

Once land is acquired, ecovillages typically divide it based on values and objectives. This can involve creating and selling individual plots for members to build their homes, or it may involve developing shared areas, such as gardens, orchards, and other communal spaces. Some ecovillages use consensus-based decision making to

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[103] Rachelle Alterman, David Harris, and Morris Hill, "The Impact of Public Participation on Planning: The Case of the Derbyshire Structure Plan," *Town Planning Review* 55, no. 2 (1984), doi:10.3828/tpr.55.2.f78767r1xu185563.
[104] Frank Fischer, "Practicing Participatory Environmental Governance: Ecovillages and the Global Ecovillage Movement," *Climate Crisis and the Democratic Prospect: Participatory Governance in Sustainable Communities* (Oxford, 2017), https://doi-org.ezp-prod1.hul.harvard.edu/10.1093/oso/9780199594917.003.0009, accessed 3 Aug. 2023.
[105] Fischer, "Practicing Participatory Environmental Governance."
[106] Fischer, "Practicing Participatory Environmental Governance."

determine how land is divided and utilized, whereas others may use an approach such as the owner/buyer group determining the model of shared stewardship, and the bylaws (a set of legal and social agreements) can be written or modified in kind.[107] Legal decisions must be made in conjunction with local laws which can be a huge stumbling block and cause of ecovillage failure due to ignoring the laws or inflexible laws.[108]

An illustrative case of the transforming governance structure of an ecovillage that the author of this thesis, Krista Bluesmith, witnessed, is Harbin Hot Springs. This ecovillage was a veritable Disneyland resort for California hippies, which had the edifice of an ecovillage but the governance structure of a non-profit, "The Institute for Creative Living," who owned it, founded by a group of people living on the previously purchased land from the 1970's. According to anonymous resident reports, this non-profit made top-down decisions on conditions of residency. Harbin doubled as a hot springs retreat center, concert venue, restaurant, hotel, retreat venue, housing development, camping area and more. The author casually conversed with an anonymous resident there that stated the Institute for Creative Living created over time a booming retreat center with 120 residents who were, according to them, largely wishing that they could have more permanent security and ownership within the property, as well as a larger voice in collective decision making. Resentment regarding those in power emerged in the community. In 2008 there was a devastating fire that destroyed most of the ecovillage hot springs resort. According to the resident, a wealthy individual came in to rescue the project who has of now rebuilt critical infrastructure, but with the setback of the fire the

[107] Fischer, "Practicing Participatory Environmental Governance."
[108] Fischer, "Practicing Participatory Environmental Governance."

center has transformed it even more into being a profitable business, and less a communal ecovillage of shared risk, benefit, and security.

Financing an Ecovillage

Typically, ecovillages acquire land by purchasing it outright, leasing it, or entering into land-sharing agreements with existing landowners.[109] Financing is a major common hurdle. Ecovillages are most commonly financed by several founding members or an individual or group who wants to grow a specific mission, retreat center or business.[110] Widely in the literature it is noted that locations that are affordable can be remote and poses challenges for ecovillage residents in commute time for integration with a nearby town. A common story (according to author's anecdotal conversations) is land being inherited or acquired from older people who are landowners, with similar values to the upcoming group.

Although comprehensive research on the number of government funded ecovillages is not easily found, there is a program (mentioned in a previous chapter) from the Global Ecovillage Network who works with governments to encourage ecovillage development called the Ecovillage Development Programme.[111] The first Ecovillage Development Program from GEN, is the Pan-African Development Programme. Through this effort the Senegalese government has been implementing a radical national program to convert 14,000 villages into ecovillages.[112] Their site notes that a total of twenty two

[109] Fischer, "Practicing Participatory Environmental Governance."
[110] Fischer, "Practicing Participatory Environmental Governance."
[111] Global Ecovillage Network, "Ecovillage Development Programmes - Building Ecovillage Projects Around the World," accessed June 20, 2023, https://ecovillage.org/our-work/ecovillage-development/.
[112] Global Ecovillage Network, "Ecovillage Development Programmes - Building Ecovillage Projects Around the World."

governments have already expressed interest in developing ecovillage communities on a large scale.[113] A current initiative in Europe, the Iberian Ecovillage Network (RIE), and the regional government of Navarra are working together to pilot a large-scale ecovillage development that aims to reverse trends in rural depopulation.[114] The scaffolding process from GEN sends consultants to countries and helps them with the design process.[115] They then plan the site utilizing stakeholder input. This plan includes a fundraising plan and connecting with national governments and relevant NGO's. They then procure the needed elements, often low tech or sometimes technical and train the residents. GEN connects them to local NGO's and government resources for support.[116] GEN's system provides follow up celebrate wins, and helps communities onboard neighboring communities. Not all governments that are supporting ecovillage development are connected to GEN. For example, A government grant in the UK gave a Welch Lammas ecovillage project £350,000 grant to build a community building that can function as an education center.[117] Numerous governments finance eco-village research initiatives. Another example is the Swedish government who established the Ecovillages of Sweden Network in 2015, which provides ecovillages in Sweden with support and networking opportunities.[118]

[113] Global Ecovillage Network, "Ecovillage Development Programmes - Building Ecovillage Projects Around the World."
[114] Global Ecovillage Network, "Ecovillage Development Programmes - Building Ecovillage Projects Around the World."
[115] Global Ecovillage Network, "Ecovillage Development Programmes - Building Ecovillage Projects Around the World."
[116] Global Ecovillage Network, "Ecovillage Development Programmes - Building Ecovillage Projects Around the World."
[117] Green Building Press, "Pembrokeshire Eco Village Project Awarded Grant," accessed June 20, 2023, https://www.greenbuildingpress.co.uk/article.php?category_id=1&article_id=444.
[118] Permakultur Sverige, accessed June 30, 2023, https://permakultur.se/.

Government funding for ecovillage initiatives can be used for a variety of purposes, including land acquisition, construction, infrastructure development, training and education, research and expansion, promotion, and community engagement.[119]

The average cost of an ecovillage can range widely based on location, available materials for house construction, pre-existing infrastructure and more. In developed nations, depending on size, number of houses, and other factors, an ecovillage can cost between three to ten million dollars.[120] Costs can be reduced by retrofitting existing buildings to create an ecovillage, but this would depend on the condition of the structures and the extent of the necessary retrofitting. A few hundred thousand dollars to several million dollars may be required for retrofitting an existing property to host an ecovillage.[121] The cost of development is of course only one part of making an ecovillage. There are obviously ongoing costs, like utilities, maintenance, and repairs, that come with running a community. Solar panels or wind power for a community is a significant and long-term investment. Based on data from the U.S. Energy Information Administration (EIA),[122] the average retail price of electricity for residential customers in the United States significantly reduced per kilowatt-hour (kWh) for large solar systems and costs around $1,200 to $1,600 per year per individual. Average saving on solar

[119] Permakultur Sverige.
[120] Frederica Miller, *Ecovillages Around the World: 20 Regenerative Designs for Sustainable Communities* (Rochester, Vermont: Findhorn Press, 2018).
[121] Miller, *Ecovillages around the world.*
[122] U.S. Energy Information Administration, "Utility-Scale Solar Photovoltaic Costs Decline as the Technology Continues to Advance," Today in Energy, accessed June 30, 2023, https://www.eia.gov/todayinenergy.

versus electricity are significant, and the savings increase with larger systems and reduced use.[123]

Notable ecovillage author Diana Leafe Christian notes that a budget and extensive cost analysis is required to understand and fulfill county requirements for a site plan, roads, and utilities, the cost of each lot.[124] There are also liability risks to hosting an ecovillage and community events, which the author theorizes may be a common reason for the relatively low number of public ecovillages in places like California, where there is much more demand for ecovillages than exist. The large expense and challenge of realizing an ecovillage in the US is the reason many US citizens develop ecovillages in Central and South America, according to the experience of the author. These foreign locations provide other unique benefits and challenges beyond the scope of this research.

[123] U.S. Energy Information Administration, "Utility-Scale Solar Photovoltaic Costs Decline as the Technology Continues to Advance," Today in Energy, accessed June 30, 2023, https://www.eia.gov/todayinenergy.
[124] Christian, *Creating a Life Together*.

Chapter IV.

Economy in Ecovillages

Often countries use economic growth as a determinant of success. Ecovillages would philosophically be more in tune with an increasing interest in the "gross national happiness."[125] The economy of ecovillages is a complicated and varied subject, as ecovillages attempt to establish sustainable and self-sufficient systems while simultaneously tackling societal challenges such as economic inequality. According to the authors experience, Ecovillages can be regarded as one-of-a-kind locations that seek to embody and experiment with a full spectrum of what an alternative economic model might look like. As previously mentioned, ecovillage economies may include features other than markets and monetary flows in which human needs are met through multi-layered relational exchanges. Ecovillages have attempted to connect economic objectives with the overall well-being of people and most ecovillages have cottage industries, workshops or visitors to supplement member's income.[126]

Ecovillage economies are typically integrated into as well as dependent on the larger modern market economy. Financial agreements including financial sharing, membership fees, land/lot owning and labor requirements within communities vary widely, and can impact the economic profile of a given community.[127] Ecovillages all

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[125] Bjørn Grinde, "An Evolutionary Perspective on the Importance of Community Relations for Quality of Life," *The Scientific World Journal* 9 (2009), doi:10.1100/tsw.2009.73.
[126] Robert Hall, "The Ecovillage Experience as an Evidence Base for National Wellbeing Strategies," *Intellectual Economics* 9, no. 1 (2015), doi:10.1016/j.intele.2015.07.001.
[127] Gerda Roelvink, Katherine Gibson, and Julie Graham, "A Postcapitalist Politics of Dwelling: Ecological Humanities and Community Economies in Conversation," *Australian Humanities Review* no. 46 (2009), http://press-files.anu.edu.au/downloads/press/p39271/pdf/eh05.pdf.

promote and practice various degrees of communal sharing, which effects the type of economy an ecovillage may have.[128] These differences can be considered a spectrum of communal sharing with basic helpful sharing and collaborative work on one side, and fully pooled economies on the other, the classic "all in" commune.[129] For a non-pooled ecovillage, an economic savings resulting from ecovillage residency may take the shape of systems that promote valuable resource sharing and mutual support such as childcare, eldercare, cooking, free advice, direct trade between residents, small personal loans, and transportation.[130] Pooled economy communities where ecovillage residents share their income may lighten the load for those entering with less resources but may not be adequate to ensure the long-term economic viability of an ecovillage as resources can dry up. Often these ecovillages are more rudimentary.[131] In the positive perspective in more pooled eco-villages living expenses are often reduced by the pooling of expensive assets, the bulk purchase of building materials, and as has been mentioned, the communal cultivation of food.[132] Kommune Niederkaufungen, Bagnaia Ecovillage, and, on occasion, Svanholm Ecovillages he provides as examples of completely pooled economies.[133] At Bagnaia, for example, all members share ownership of buildings, land, and machines, and receive a standard monthly communal wage of 150 Euros.[134] Tamera

[128] Roelvink, Gibson, and Graham, "A Postcapitalist Politics of Dwelling: Ecological Humanities and Community Economies in Conversation."
[129] Roelvink, Gibson, and Graham, "A Postcapitalist Politics of Dwelling: Ecological Humanities and Community Economies in Conversation."
[130] Roelvink, Gibson, and Graham, "A Postcapitalist Politics of Dwelling: Ecological Humanities and Community Economies in Conversation."
[131] Oriana M. Price et al., "Finding Convergence: Economic Perspectives and the Economic Practices of an Australian Ecovillage," *Environmental Innovation and Societal Transitions* 34 (2020), doi:10.1016/j.eist.2019.12.007.
[132] Jenny Pickerill, "What Are We Fighting for? Ideological Posturing and Anarchist Geographies," *Dialogues in Human Geography* 7, no. 3 (2017), doi:10.1177/2043820617732914.
[133] Hall, "The ecovillage experience as an evidence base for national wellbeing strategies."
[134] Hall, "The ecovillage experience as an evidence base for national wellbeing strategies."

Ecovillage operates under a similar communal economy model.[135] Most ecovillages need to market and advocate for a balance of skills and a certain percentage of residents living outside the village in order to survive.

Shared work is an economic aspect of the culture of an ecovillage. Many ecovillages sustain by ecotourism, or having products to share with the larger community. Ecovillages import non-locally generated goods and services. This defies the ecovillage objectives of being a self-sufficient economy, decreasing its carbon footprint, and minimizing resource consumption, thereby implying reliance on the regional market economy.[136]

Economically, the practices of Ecovillages are frequently viewed as inspiring examples of the new paradigm and business model, which is commonly referred to as the sharing economy.[137] Social resource/volunteer sharing is a largely unquantified but significant economic benefit would be ecovillagers seek as the reward of community. Some examples of social resource are; shared care for the young or elders, sharing of food, shared labour and transport, free entertainment, mental health support and other social webs that provide economic advantage.[138] These benefits of ecovillage life are especially attractive for single individuals such as single parents or those without more traditional community support such as through religious affiliation, or perhaps family support.

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[135] Hall, "The ecovillage experience as an evidence base for national wellbeing strategies."
[136] Christine Bauhardt, "Solutions to the Crisis? The Green New Deal, Degrowth, and the Solidarity Economy: Alternatives to the Capitalist Growth Economy from an Ecofeminist Economics Perspective," *Ecological Economics* 102 (2014), doi:10.1016/j.ecolecon.2014.03.015.
[137] Hong and Vicdan, "Re-imagining the utopian: Transformation of a sustainable lifestyle in ecovillages."
[138] Flor Avelino et al., "Transitions Towards New Economies? A Transformative Social Innovation Perspective," TRANSIT Working Paper 3 (2015), http://www.transitsocialinnovation.eu/resource-hub/transitions-towards-new-economies-a-transformative-social-innovation-perspective.

Generally, ecovillages have minimum work requirements commonly in the range of four hours per week for long term residents, and longer hours for newer residents with visiting guests and "woofers" often working four to five hours per day for room and board.[139] Residents working side-by-side foster a strong sense of community and belonging, but in contemporary urban society, this has almost entirely disappeared.[140] Strong communal relations in ecovillages can promote cohesion and group identity, as evidenced by regular collective efforts such as the olive harvest in Tamera or the wheat harvest in Città de la Luce. Another example of collaborative work that fosters community and identity is Damanhur's construction of an expansive underground temple complex.[141]

Most ecovillages work actively to provide sustainable alternatives to the mainstream economy and monetary system and strive to maintain a community business which can provide even a minimum of paid employment, earning enough to cover their share of the community's expenses.[142] Offering employment to members however remains only possible if a community has a viable business or individual members in a position to hire within the community. Programs like Willing Workers on Organic Farms (that has been mentioned multiple times) are important entities to connect young travelers low on cash willing to do free hard labor that it takes to maintain an often organic food system to supplement the economic cost of the ecovillage.[143]

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[139] Grinde, "An evolutionary perspective on the importance of community relations for quality of life."
[140] Grinde, "An evolutionary perspective on the importance of community relations for quality of life."
[141] Hall, "The ecovillage experience as an evidence base for national wellbeing strategies," 33.
[142] Esteves, "Radical environmentalism and 'Commoning,'" 357-376.
[143] Helena Leonardo, "Ecovillages: Laboratories for Regenerative Cultures," *Primal Gathering*, August 5, 2021, https://primalgathering.co/blog/ecovillages-laboratories-for-regenerative-cultures.

Ecovillages can be said to be trying to implement what is termed the "circular economy," a systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution through a transition to renewable energy, ecological design, and materials. A circular economy decouples economic activity from the consumption of finite resources. Ecovillages in general promote the idea that a higher quality of life is a form of wealth that opposes the mainstream culture's value on ever increasing financial attainment. They view this materialistic view as an outcropping of capitalistic value that mirrors a larger global pattern that needs to be shifted at the micro level of individuals. These sustainable values are reflected by the commitment to local currencies, sharing, social entrepreneurship, often land based community products and collaborative forms of ownership, all economic aspects.[144] These methods encourage self-sufficiency and community resilience, lessen reliance on conventional banking systems, relieve unnecessary carbon heavy appliance duplication, and facilitate a more equitable sharing of communal resources. Due to the emphasis on sharing in ecovillages, according to some researchers, they might be called varied economies[145] where human needs are addressed through relational exchanges and non-monetary behaviors, emphasizing strong social bonds.[146]

The Findhorn Ecovillage in Scotland has introduced a local currency, the Eko, in order to foster economic autonomy and communal resilience.[147]

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[144] Helena Leonardo, "Ecovillages: Laboratories for Regenerative Cultures."
[145] J. K. Gibson-Graham, "Diverse Economies: Performative Practices for `other Worlds'," *Progress in Human Geography* 32, no. 5 (2008), doi:10.1177/0309132508090821.
[146] Susanna Waerther, "Sustainability in Ecovillages – a Reconceptualization," *International Journal Of Management and Applied Research* 1, no. 1 (2014), doi:10.18646/2056.11.14-001.
[147] Alex Walker, "Eko Local Currency," December 13, 2016, https://www.farnearer.org/2016/12/eko-local-currency-at-ekopia-alex-walker/.

Ecovillages frequently design visitor retreats that offer brief lodging stays and/or educational programs that support a general "pray-eat-stay-learn" (educational ecotourism) positioning.[148] Despite the possibility that these activities could produce profitable ecovillage returns, the literature indicates that onsite income from visitors typically not intended as main sources of commercial income to enable members to live comfortably without having to turn to supplemental outside employment.[149] This means that while they are not necessarily aimed at being successful businesses, they are significant for the reputational positioning of ecovillages (i.e., culturally attractive to visit and to consider for lifestyle and community reasons).[150]

[148] Kathlyn Belinda Gibbons, et al," An investigation in the sustainable economic practices of ecovillages." (2018).
[149] Gibbons et al., "An investigation in the sustainable economic practices of ecovillages."
[150] Gibbons et al, "An investigation in the sustainable economic practices of ecovillages."

Expense (* = required fees)	Dollars per month
*VCC Village Commons Co-op	$71.50
*DR Dues (only for DR members)	2% of income or $5.00 minimum
DRLT Lease Fees (For people renting tent platforms or for DR members who are leasing land. Cost given is based on 2,500 sq. ft leasehold; your lease size may vary)	$25.00
The above three costs are kind of like neighborhood association fees. For this you get the benefits of living in community as well as use of roads, paths, a common house, and access to DRLT land for nature walks.	
Rent and Utilities	**Dollars per month**
Rent (estimated; varies based on building and amenities)	$150–$450
Electricity (for a single person's small home) $9 access fee, plus $0.67/kwh	$20-80
Full Shower (indoor + outdoor)	$11.50
Humanure Co-op	$18.50
CASA Co-op	$5.00
There is a lot of variation in how folks choose to meet the above kinds of needs. You can belong to co-ops for phone, internet, showers, and toilet services, or you can provide your own or go without. Electricity, if desired, can be provided via an off-grid system.	
Other Expenses	**Dollars per month**
DRVC Vehicle Co-op mileage (Most vehicle rates are $.69 per mile; $.83 per mile for the truck). Cost given is based on 25 miles a week)	$50 average
Kitchen Co-ops (includes food, kitchen rent & utilities)	$8 – $11/day
Common House Kitchen (if you choose to eat on your own instead of joining a food coop – does not include food)	$65.00
Travel	Varies

Figure 3. Overview of Core Living Costs and Optional Expenditures at Dancing Rabbit Ecovillage.

Source: Dancing Rabbit Ecovillage. "The Cost of Living at Dancing Rabbit: How to Make Ends Meet." Accessed June 20, 2023. https://www.dancingrabbit.org/ecovillage-life/economy/cost-of-living/.

Ecovillage-based business development often includes collaborative learning; sharing of past professional experiences and skills among members, as well as retraining to create shared innovations where skill synergies exist.[151] A goal of ecovillage economic philosophy is attempting to keep profits and cash within community's coffers for potential future reinvestment. Along with collective bargaining/agreement, this calls for a high degree of mutual trust and acceptance among members regarding equal or equivalent efforts.[152] Keeping the ecovillage out of financial trouble can also be a source of concern, as in the case of Maitreya, Oregon, which struggled with rising debt.

There were a series of interesting ecovillages the author visited in New Zealand which were essentially group homes for slightly disabled people, which produced wood products supported. The products from these communities became a source of pride consumers could buy to support via the purchase of the handmade goods. The name of the community could not currently be located.

Despite the idealistic sharing economy and local currencies ecovillages pursue, ecovillages can realistically be expensive to build and maintain, and require an influx of real cash from savings or residents' off-site income to succeed, or grants.[153] According to research and the author's experience, ecovillages tend to largely rely on people with savings joining, people working online or offsite, and community businesses that continue to interact with local larger economies to survive.[154] A pattern the author notes is that ecovillages often have an aging problem, where mostly retired people join, leading

[151] Gibbons, "An investigation in the sustainable economic practices of ecovillages."
[152] Gibbons, "An investigation in the sustainable economic practices of ecovillages."
[153] Gibbons, "An investigation in the sustainable economic practices of ecovillages."
[154] Gibbons, "An investigation in the sustainable economic practices of ecovillages."

to a labor deficit or a lack of enough younger people to sustain the community. Ecovillages that end up with a large population of older people can have issues attracting young people who seek other young people to cohabitate with and raise families with. Residents of ecovillages are typically between the ages of forty and fifty.[155] In ecovillages, people of all ages are represented. Depending on the particular community, ecovillages can have different age distributions. For instance, according to the authors experience, some ecovillages have a higher percentage of children, whereas others might have a higher percentage of seniors.

Energy Production

In general, the voluntary simplicity ecovillage way of life reduces per capita consumption. According to research, ecovillage residents in the United States have witnessed a reduction in carbon emissions ranging from 63 to 71%.[156] It is of note that even in these ecovillage communities, there are obstacles to carbon neutrality. Obstacles include a lack of capital, the buy-in on a lifestyle of voluntary simplicity that needs to be adapted for true neutrality, and the limitation of the level of technological development currently available.[157]

A study notes[158] that often states in developed nations absorb a significant cost of the carbon-neutral transition, indicating that widespread adoption of solar, noted as the best option for energy generation, may be prohibitively expensive in cash strapped

[155] Gibbons, "An investigation in the sustainable economic practices of ecovillages."
[156] Jesse Sherry, "The Impact of Community Sustainability: A Life Cycle Assessment of Three Ecovillages," *Journal of Cleaner Production* 237 (2019), doi:10.1016/j.jclepro.2019.117830.
[157] Sherry, "The Impact of Community Sustainability: A Life Cycle Assessment of Three Ecovillages.
[158] Zita Szabó, Viola Prohászka, and Ágnes Sallay, "The Energy System of an Ecovillage: Barriers and Enablers," *Land* 10, no. 7 (2021), doi:10.3390/land10070682, https://www.mdpi.com/2073-445X/10/7/682.

nations. The chart below illustrates energy related outcomes demonstrating a one-year period. Each activity category's results are given, along with a total. The results from the ecovillage are between 47% and 80% lower than the national average, with the average reductions for each impact category being 67% for carbon output, 65% for eutrophication.[159] Eutrophication is the process that takes place when an environment experiences an influx of nutrients, leading to a significant increase in plant and algae growth within estuaries and coastal waters.[160] 77% for ecotoxicity (referring to the potential for biological, chemical or physical stressors to affect ecosystems), and 56% for cumulative energy demand.[161]

[159] Sherry, "The Impact of Community Sustainability: A Life Cycle Assessment of Three Ecovillages.
[160] Sherry, "The Impact of Community Sustainability: A Life Cycle Assessment of Three Ecovillages.
[161] Sherry, "The Impact of Community Sustainability: A Life Cycle Assessment of Three Ecovillages.

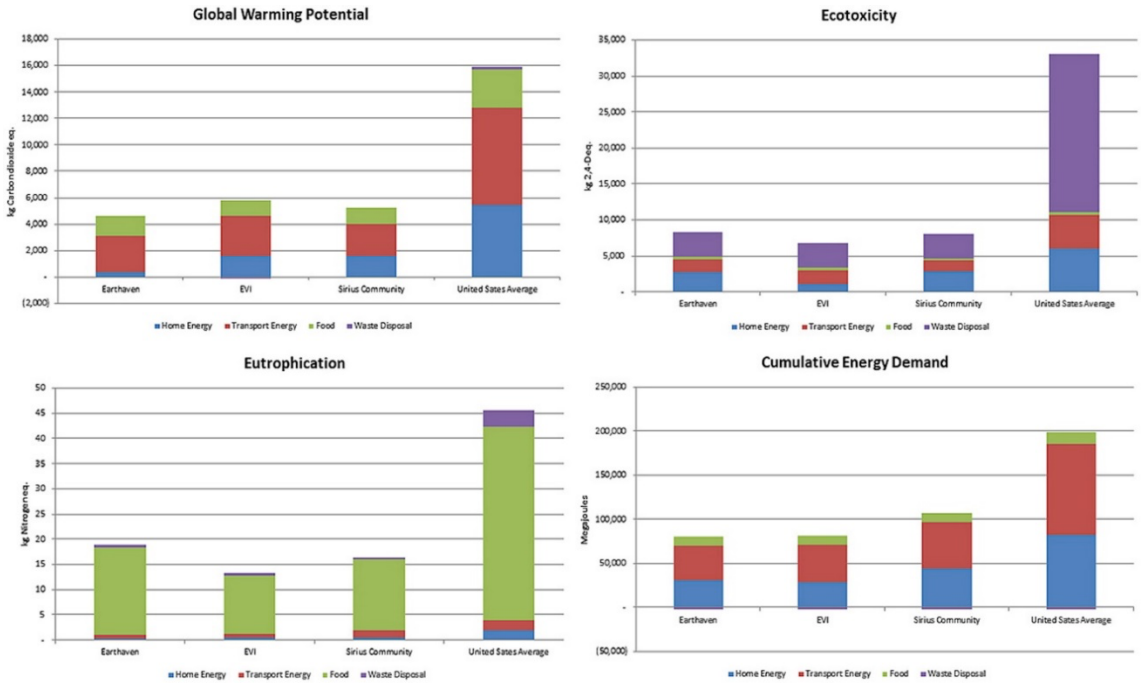


Figure 4. Ecovillage's Energy Reductions in Comparison to National Average.

Source: Sherry, Jesse. "The Impact of Community Sustainability: A Life Cycle Assessment of Three Ecovillages." Journal of Cleaner Production 237 (2019): 117830. https://doi.org/10.1016/j.jclepro.2019.117830.

The reduction of carbon emissions for an ecovillage resident is dependent on geography as obviously in a sunny environment such as the tropics less heat is needed, and more sun may be available for solar. A study by Singh et al.[162] found that ecovillages actively try to lower their energy usage by adopting energy-efficient practices and alternative energy sources into their everyday life. Alternative energy sources address the goal of both environmental and economic sustainability. The presence of an increasing number of ecovillages committing to alternative energy generation is evidence of the

[162] Singh, Keitsch, and Shrestha, "Scaling up sustainability: Concepts and practices of the ecovillage approach."

increased pressure towards constructive solutions to energy-related environmental issues. Matthew Daly, conducted sixteen distinct studies between 2000 and 2014. [163] These studies encompassed a total of twenty-three Ecovillage communities and included thirty measurements of ecological footprints. Comparing the carbon footprint of intentional communities around the world to national averages provides strong support for claims of greater environmental sustainability in these communities.[164] The ecological footprints (EFs) varied significantly among the different communities analyzed. Quayside Village Cohousing in Canada had the highest measured EF, which was considerably greater than the lowest footprint observed at Earthaven Ecovillage in the USA.[165] There was also a substantial difference when comparing these footprints to national averages. Earthaven's EF was significantly lower than the calculated EF for Buncombe County, the region where it is located. Similarly, the EF of Toarp ecovillage in Sweden was comparatively lower than the calculated EF for Oxie, a nearby "normal" Swedish town.[166] Notably, the Ecovillage at Ithaca stood out as it had undergone two separate studies conducted in different years (Figure. 5).

[163] Matthew Daly, "Quantifying the Environmental Impact of Ecovillages and Co-Housing Communities: A Systematic Literature Review," *Local Environment* 22, no. 11 (2017), doi:10.1080/13549839.2017.1348342.
[164] Daly, "Quantifying the Environmental Impact of Ecovillages and Co-Housing Communities: A Systematic Literature Review."
[165] Daly, "Quantifying the Environmental Impact of Ecovillages and Co-Housing Communities: A Systematic Literature Review."
[166] Daly, "Quantifying the Environmental Impact of Ecovillages and Co-Housing Communities: A Systematic Literature Review."

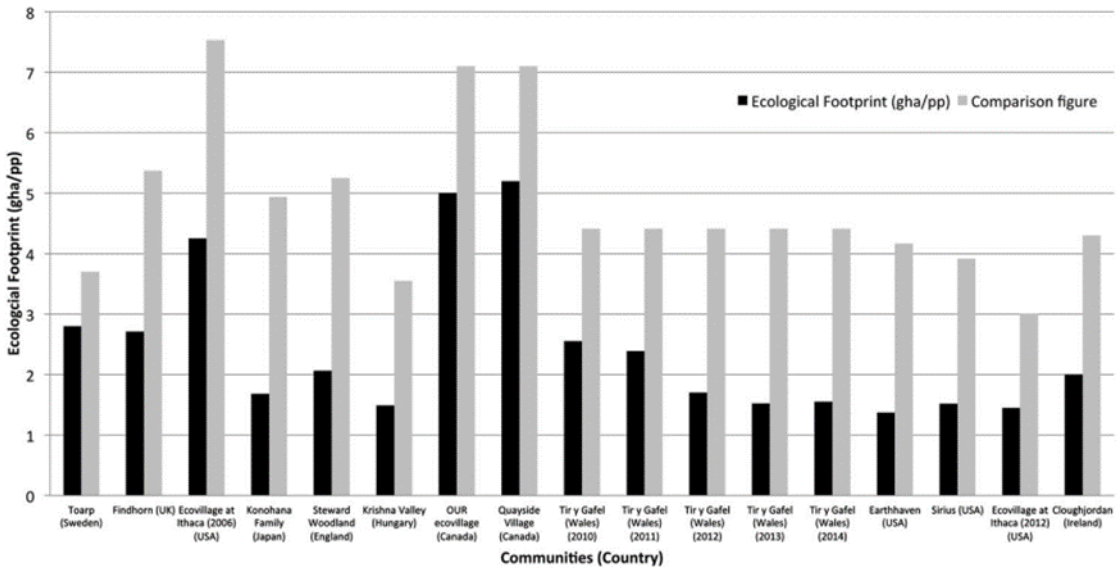


Figure 5. Variations in Ecological Footprints among Different Communities.

Source: Daly, "Quantifying the environmental impact of ecovillages and co-housing communities: a systematic literature review."

Ecovillages employ a variety of strategies to decrease consumption such as natural light or floor heating, solar, wind, and strategic design.[167] The majority of ecovillages have solar panels for electricity generation and have embraced sustainable building methods, such as insulation and natural lighting, to reduce energy usage in their dwellings, according to the report.[168] Moreover, ecovillages frequently promote the use of electric vehicles and bicycles, which have a significantly less carbon footprint than conventional gasoline-powered vehicles.[169] The level of off-grid living can vary significantly depending on the specific ecovillage and its ideals and resources.

[167] Daly, "Quantifying the Environmental Impact of Ecovillages and Co-Housing Communities: A Systematic Literature Review."
[168] Daly, "Quantifying the environmental impact of ecovillages and co-housing communities: a systematic literature review."
[169] Daly, "Quantifying the Environmental Impact of Ecovillages and Co-Housing Communities: A Systematic Literature Review."

Comprehensive and accurate statistics are lacking on how many ecovillages are off the power grid, but all literature reviewed for this research noted individual ecovillages do supplement their energy systems as much as possible with thoughtful building processes and available technology.

Many governments around the world offer subsidies, tax credits, and other incentives to encourage the adoption of solar energy. For example, in the United States, the federal government offers a 30% tax credit for residential and commercial solar installations through the Investment Tax Credit (ITC) program.[170] In Germany, the government provides a feed-in tariff program that pays a guaranteed price for solar energy fed into the grid.[171] In China, the government offers subsidies and loans for solar energy projects. In the year 2022, China has announced a plan to allocate $63 billion towards settling the subsidies that are owed to renewable energy companies.[172]

Wind energy is another alternative energy source sometimes utilized in places with regular windy and sunny weather conditions. An example of wind utilization is the Findhorn Wind Park project launched in the 1980's with the instillation of a 17-voltage, 75-kilowatt turbine.[173] This project has generated an incredibly dependable and effective source of energy that meets 20% of each household's needs at Findhorn.[174] Recent

[170] U.S. Department of Energy, "Homeowner's Guide to the Federal Tax Credit for Solar Photovoltaics," https://www.energy.gov/eere/solar/homeowners-guide-federal-tax-credit-solar-photovoltaics.
[171] Christoph Böhringer et al., "The Impact of the German Feed-in Tariff Scheme on Innovation: Evidence Based on Patent Filings in Renewable Energy Technologies," *Energy Economics* 67 (2017): 545, doi:10.1016/j.eneco.2017.09.001.
[172] "China Sets $63 Billion to Pay Subsidies Owed to Renewables Firms," Bloomberg News, https://www.bloomberg.com/news/articles/2022-03-14/china-sets-63-billion-to-pay-subsidies-owed-to-renewables-firms.
[173] "Renewable Energies," Findhorn Ecovillage, accessed March 28, 2023, https://www.ecovillagefindhorn.com/index.php/renewable.
[174] "Renewable Energies," Findhorn Ecovillage.

expansion of the project to include additional turbines has resulted in surplus energy that the villages export. This also led to an increase from 20% to 28% of residential energy needs being met by wind power.[175]

Research conducted on the Dancing Rabbit community, reported that its citizens had successfully lowered their ecological footprint to a remarkable 10% or less when compared with an average American.[176] This was largely achieved through abandoning exclusive ownership over goods, investing in skills which allow better collective resource management, as well as reducing waste and utilizing nearby resources.[177]

[175] "Renewable Energies," Findhorn Ecovillage, accessed March 28, 2023, https://www.ecovillagefindhorn.com/index.php/renewable.
[176] Kayla B. Jones, "Toward Sustainable Community: Assessing Progress at Dancing Rabbit Ecovillage" (Master's Thesis, Department of Anthropology, University of North Texas, 21/08/2015), https://digital.library.unt.edu/ark:/67531/metadc700019/.
[177] Boyer, "Achieving One-planet Living through Transitions in Social Practice: a Case Study of Dancing Rabbit Ecovillage," 47.

Chapter V.

Agriculture/Permaculture

Food production and agriculture are frequently central to the sustainability efforts as they can serve as both a source of sustenance and income for the community. The current globalized and industrialized food system seems to be a factor in the epidemic of obesity,[178] resulting in unsustainable behavior that prioritizes efficiency and profit margins over care for local communities and environments.[179] Researcher Alice Brombin states, "the primary purpose of ecovillages is to regenerate social and natural environments through communal living, thereby reestablishing a dimension of closeness with the land and the natural environment."[180]

Ecovillages use different methods for growing food and farming, which depend on their size, location, and what resources they have. A key feature of these communities is their commitment to growing their own food, which is part of a wider belief in food independence, fairness, promoting an alternative economic model centered around mutual aid, and the right to a fulfilling life. This includes freedom to set their own work schedules and sharing everyday tasks. So, being self-sufficient and growing their own food is a way for them to challenge mainstream cultures and lifestyles.[181] The focus of environmental ecology is primarily on achieving self-reliance in food production and

[178] Tomás Madrigal, ""We Are Human!": Farmworker Organizing Across the Food Chain in Washington," in *Mexican-Origin Foods, Foodways, and Social Movements: Decolonial Perspectives*, ed. Devon G. Peña et al. (Fayetteville: The University of Arkansas Press, 2017).
[179] Kevin Morgan and Roberta Sonnino, "The Urban Foodscape: World Cities and the New Food Equation," *Cambridge Journal of Regions, Economy and Society* 3, no. 2 (2010), doi:10.1093/cjres/rsq007.
[180] Alice Brombin, "Faces of Sustainability in Italian Ecovillages: Food as 'Contact Zone'," *International Journal of Consumer Studies* 39, no. 5 (2015): 468, doi:10.1111/ijcs.12225.
[181] Bob Ashley, *Food and Cultural Studies* (London, New York: Routledge, 2004).

implementing unconventional farming methods, including practices like permaculture and organic farming.[182] Organic or biodynamic farming techniques aim to minimize the use of synthetic pesticides and fertilizers and promote soil and ecosystem health and often include animal husbandry, such as the raising of chickens, goats, or bees. Food security and self-sufficiency are key aims and involve a combination of small-scale agriculture and food production, animals, as well as food preservation and storage for the winter.[183]

Bill Mollison defines permaculture taken from the hybrid of the words "permanent and agriculture" as "the purposeful design and maintenance of agriculturally productive ecosystems that possess the diversity, stability, and resilience of natural ecosystems."[184] Mollison's work and the permaculture principles strive to promote a harmonious interaction between humans, the land, and the environment. Permaculture Principles are a map for ecological, sustainable, and self-sufficient design concepts modeled from natural ecosystems.[185] Permaculture Principles include a variety of techniques, such as agroforestry, water management and composting, and are typically geared toward the creation of self-sustaining systems that require minimal inputs with stacked functions.[186] Though the permaculture principles are primarily meant to apply to food systems and land use, the concepts notably are applied to social practices. Permaculture Design courses are extensive manuals of all aspects of ecovillage design

[182] Ulug, Trell and Horlings, "Ecovillage foodscapes: zooming in and out of sustainable food practices."
[183] Ulug, "Ecovillage foodscapes: zooming in and out of sustainable food practices."
[184] Bill Mollison, *Permaculture: A Designer's Manual*, 2nd ed. (Tyalgum: Tagari Publications, 1988), ix.
[185] David Holmgren, *Permaculture: Principles and Pathways Beyond Sustainability* (Hepburn: Holmgren Design Services, 2002).
[186] Holmgren, *Permaculture: Principles and Pathways Beyond Sustainability*.

and usually includes methods related to; detailed site analysis, constructing gardens, learning about plants, soil health, and hands, water systems, on building projects.[187]

Permaculture Principles

"Permaculture is a philosophy of working with, rather than against nature; of protracted and thoughtful observation rather than protracted and thoughtless labor; and of looking at plants and animals in all their functions, rather than treating any area as a single product system."[188]

Observe and Interact

This principle highlights the significance of observing natural systems closely comprehend and interact with them in order to maximize the overlap of functions in the model. This approach is employed in ecovillages and land development inside ecovillages to construct sustainable and regenerative systems that reflect the natural environment's patterns and functions. The careful assessment of land use includes careful observation of the sun, where buildings will go, where gardens and animals would do best, soil studies, and many other considerations.[189] An example of optimal land utilization is the design approach at Auroville Earth Institute in India, which was founded and funded in the 1960's by a female guru and is now supported with grants from the Indian government.[190] The initial design utilized the observation and comprehension of

[187] Holmgren, *Permaculture: Principles and Pathways Beyond Sustainability*.
[188] Bill Mollison, *Permaculture Two: Practical Design for Town and Country in Permanent Agriculture* (Tyalgum: Tagari Publications, 1979), 1.
[189] Mollison, *Permaculture Two: Practical Design for Town and Country in Permanent Agriculture.*
[190] Apurva B. Dutta, "Auroville, a Town That Belongs to the Earth: In Conversation with Its Architects," May 20, 2019, https://www.stirworld.com/think-opinions-auroville-a-city-that-belongs-to-the-earth.

the site's natural processes, such as climate, hydrology, geology, and ecology. This knowledge subsequently informed the location of buildings, water management systems, and food production regions.[191] An anecdotal example of the principle in a social context from the author's experience is the failure to observe groups before offering feedback, and trying to take a leadership role, or change social dynamics and behavior before trust building and observation.

Capture and Store Energy

Capture and Store Energy is a principle that encourages the capturing and storing essential community resources such as water, food, and electricity.[192] An example of this is small lakes, water catchment, solar energy, and canning excess food. This notion is vital for developing self-sufficient and sustainable systems in ecovillages. Bill Mollison, one of the creators of permaculture, highlights the significance of this principle. He writes that "energy capture is the basic concept of permaculture, because without it nothing can be kept or saved."[193] He then describes specific use of swales, ponds, and other water harvesting techniques in order to store water and make it accessible during dry periods. The collecting and storage of rainwater is an application of particular note. Using rainwater harvesting devices, such as cisterns and swales, make it possible to collect and store rainwater for later use in irrigation and other non-potable applications.[194] This decreases the demand on ground and surface water supplies, and mitigates the

[191] Apurva B. Dutta, "Auroville, a Town That Belongs to the Earth: In Conversation with Its Architects," May 20, 2019, https://www.stirworld.com/think-opinions-auroville-a-city-that-belongs-to-the-earth.
[192] Mollison, *Permaculture: A Designer's Manual*, 17.
[193] Mollison, *Permaculture: A Designer's Manual*, 17.
[194] Mollison, *Permaculture: A Designer's Manual*, 17.

effects of drought and flooding.[195] The Auroville Earth Institute in India has built rainwater harvesting technologies, including rooftop catchment and underground storage, to meet the community's water demands.[196] Solar panels fall under this principle as well, creating power for the community, as well, solar thermal systems can be utilized to heat water.

Apply Self-Regulation and Accept Feedback

According to Mollison, this third principle refers to recognizing and working with the system's feedback loops and making modifications accordingly.[197] This notion is vital for the development of sustainable and regenerative ecovillage systems. Mollison explains how this principle is utilized by developing systems that replicate natural ecosystems and by studying and adjusting the system's feedback loops as necessary. Closed-loop systems are intended to recycle garbage and other communal resources, such as greywater and compost, tree debris, prevent overharvesting, add inputs where needed, and tend to needed changes in approach.[198] Utilizing closed looped systems decreases the need for foreign resources and helps to preserve the ecosystem's health.[199] For example, when the author of this research, Krista Bluesmith, was living on the community Tui in New Zealand, there was a bumper amount of seaweed that was harvested by the community to enhance the soil in the garden. Tui also used greywater treatment and composting, to address the community's water and waste management needs, adding

[195] Mollison, *Permaculture: A Designer's Manual*, 17.
[196] Dutta, "Auroville, a Town that Belongs to the Earth."
[197] Mollison, *Permaculture: A Designer's Manual*, 17. Mollison, *Permaculture: A Designer's Manual*, 17.
[198] Mollison, *Permaculture: A Designer's Manual*, 17.
[199] Mollison, *Permaculture: A Designer's Manual*, 17.

fertilizer for non-edible crops, decreasing the need for electricity and complex infrastructure. The utilization of agroforestry and diverse multi-crop hydrogen fixing agricultural systems and gardens are meant to mirror natural ecosystems.[200] Forests that double as food crops play multiple roles. They lead to soil protection, build wildlife habitat, and contribute to the self-regulating and resilient nature of the site.[201] Feedback and self-regulation have a social dimension as well where typically residents practice giving each other feedback as a social hygiene practice and assess themselves within the group utilizing models of Compassionate Communication.[202]

Obtain a Yield

"Obtain a Yield" entails designing systems that produce food, energy, and other resources while sustaining the ecosystem's health. This notion refers to the productive phase of communal efforts, the harvest of efforts of working systems, a fruiting tree, or visitor infrastructure that meets its goals.[203]

Use and Value Renewable Resources and Services

This principle involves prioritizing the use of renewable resources and services, such as solar and wind power or extra leaves from trees, excess manure, water, etc., and reducing dependence on non-renewable resources.[204] According to the author's experience, in a social sense this principle would be reflected in trying to match

[200] Mollison, *Permaculture: A Designer's Manual*, 17.
[201] Mollison, *Permaculture: A Designer's Manual*, 23.
[202] Christian, *Creating a Life Together*, 2003.
[203] Mollison, *Permaculture: A Designer's Manual*.
[204] Mollison, *Permaculture: A Designer's Manual.*

resident's interests and passions with needs other residents have. For example, people who love to watch young children can be utilized as free or low-cost caregivers.

Produce No Waste

This idea entails the design of systems that generate little to no waste. Permaculture ideally uses excesses within neighboring systems such as used newspapers being used to start fires, or treated human waste being used as fertilizer for non-food crops.[205]

Design From Patterns to Details

This principle involves designing systems based on the patterns and relationships found in natural systems.[206]

Integrate Rather Than Segregate

Rather to segregating various functions and elements, this idea encourages the design of systems that integrate them.[207]

Use Small and Slow Solutions

This principle involves designing systems that are small in scale and that change slowly, rather than large and rapid changes.[208]

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[205] Mollison, *Permaculture: A Designer's Manual*.
[206] Mollison, *Permaculture: A Designer's Manual*.
[207] Mollison, *Permaculture: A Designer's Manual*.
[208] Mollison, *Permaculture: A Designer's Manual*.

Use and Value Diversity

This principle involves designing systems that incorporate a diversity of species and elements, rather than monoculture.[209]

Use Edges and Value the Marginal

This principle involves designing systems that take advantage of the unique characteristics and resources found in the edges and margins of the system. This is especially evident in design of gardens that use weeds and specific plants for insect repellent.[210]

Creatively Use and Respond to Change.

This principle involves being open to change and evolution of the system and being able to adapt and respond to it.[211]

[209] Mollison, *Permaculture: A Designer's Manual*.
[210] Mollison, *Permaculture: A Designer's Manual*.
[211] Mollison, *Permaculture: A Designer's Manual*.

Chapter VI.

Social Aspects of Ecovillages

According to the documented experiences of various ecovillages of the four dimensions GEN identified as the core of ecovillages, implementing the social dimension effectively seems to be the most difficult due to that making collective decisions.[212] These group decisions must be made with initially strangers who will later become close neighbors with ongoing and reciprocal effects on one's way of life and livelihood. As a result, issues like values, compatibility, control, or privacy can lead to conflict and tension.[213] In contrast to work activities or professional development, individuals and families typically have little to no training in making decisions for a collective group.[214] Numerous ecovillages have embraced the dynamic form of government previously mentioned known as "sociocracy" to aid in member social cohesion.[215] Connective relationships are essential for a sense of belonging, especially since everyone involved has access to decision-making processes and exist in close quarters.[216]

Intentional communities strive for optimum social interactions within their daily practices and between their members. This might include reconfiguring and scaffolding

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[212] Anamaria Aristizabal, "Sociocracy to the Rescue at Aldeafeliz Ecovillage: How Sociocracy Can Help Communities, Part V," *Communities: Life in Cooperative Culture*, 2015, https://www.ic.org/community-bookstore/product/communities-magazine-166-spring-2015-community-for-baby-boomers/; Diana L. Christian, "The Seven Steps of Sociocracy—Putting It All Together," *Communities: Life in Cooperative Culture*, 2016.
[213] Aristizabal, "Sociocracy to the Rescue at Aldeafeliz Ecovillage: How Sociocracy Can Help Communities, Part V."
[214] Aristizabal, "Sociocracy to the Rescue at Aldeafeliz Ecovillage: How Sociocracy Can Help Communities, Part V."
[215] Aristizabal, "Sociocracy to the Rescue at Aldeafeliz Ecovillage: How Sociocracy Can Help Communities, Part V."
[216] Diana Leafe Christian, "Practical Tools to Grow an Intentional Community," November 6, 2007, https://8thlifepanama.org/es/joining-us/6-ingredients-forming-communities/.

how they share their time, support each other, shop, cook, preserve food, eat, or grow crops.[217] To create an optimum scaffolded social container requires agreement on expectations, rules and supportive infrastructures such as materials and resources needed for successful interaction.[218] For example, if there is a fruit harvesting and processing event, the harvesting materials need to be in place, and planning and responsibility need to be enacted to make a social event successful. Social cohesion requires practical knowledge and appropriate training so that all involved can be competent in performing community tasks efficiently together. A willingness to be participatory and learn new skills is a helpful element residents should ideally have for the social culture of an ecovillage.

Although it sounds utopian, and that is indeed the flavor, an exploratory survey on grassroots engagement in the global permaculture movement revealed considerable racial, socioeconomic, and gender-based barriers to entry and participation. The vast majority of individuals had White/Caucasian ethnicity, moderate to high purchasing power (measured as income), and high cultural capital (measured as education). Women (as well as non-Caucasians) were found to be significantly disadvantaged in terms of access to leadership and professional roles, despite the fact that the gender ratio of the movement's overall membership was balanced.[219] Researchers argue that the ecovillage

[217] Rafter S. Ferguson and Sarah T. Lovell, "Grassroots Engagement with Transition to Sustainability: Diversity and Modes of Participation in the International Permaculture Movement," *Ecology and Society* 20, no. 4 (2015), doi:10.5751/ES-08048-200439.
[218] Ferguson, "Grassroots Engagement with Transition to Sustainability: Diversity and Modes of Participation in the International Permaculture Movement."
[219] Ferguson, "Grassroots Engagement with Transition to Sustainability: Diversity and Modes of Participation in the International Permaculture Movement."

movement's inability to recognize or address such disparities has hindered its ability to achieve social change.[220]

Decision Making

A large part of the social aspect of the ecovillage model is decision making. Ecovillages use a variety of decision-making processes based on the governance structure of a given group. Decision making varies widely but is normally designed keeping with the general ethos of equality and a democratic voting model.[221] However, ecovillages may have a top-down structure for various decisions or a smaller leadership group deciding for example how the community is divided, financial decisions for large investments such as water and energy systems.[222] These processes are ideally illustrated in the bylaws. Intentional communities have developed conflict resolution strategies such as nonviolent communication, fishbowl, constellation, and forum.[223] In many ecovillages, residents are encouraged to communicate openly and honestly with one another and to respectfully address any conflicts or issues that may arise.[224] According to the author's experience, this may involve scheduling regular community meetings where residents can discuss any concerns or issues or working with a mediator or facilitator to facilitate open and honest communication. Diane Leafe Christian notes learning effective communication and teamwork techniques are critical for ecovillage success. "I think it a

[220] Ferguson, "Grassroots Engagement with Transition to Sustainability: Diversity and Modes of Participation in the International Permaculture Movement."
[221] Ferguson, "Grassroots Engagement with Transition to Sustainability: Diversity and Modes of Participation in the International Permaculture Movement."
[222] Ferguson, "Grassroots Engagement with Transition to Sustainability: Diversity and Modes of Participation in the International Permaculture Movement."
[223] Hall, "The Ecovillage Experience as an Evidence Base for National Wellbeing Strategies."
[224] Hall, "The Ecovillage Experience as an Evidence Base for National Wellbeing Strategies."

recipe for future structural conflict if communication and group process skills and conflict resolution techniques are not addressed early on."[225] She goes on to share that addressing these issues at the outset will enable processes to be in place for when things become tense. "When there is no fire, we will do drills."[226]

Numerous ecovillages, especially small communities, utilize consensus as a model for decision making. Larger communities may utilize systems that still allow everyone to be heard, but they may not be able to maintain a strict consensus. Consensus minus one prevents a community from being "held hostage" by a single individual.[227] Some research notes that consensus has fallen out of favor in ecovillages as the best model.[228] The Ecovillage at Ithaca discovered when a minority of residents strained the consensus process and caused tensions in the community that were only resolved when certain families left the community.[229] "In practice the adoption of the consensus process was seen as both a blessing and a curse, described variously as a beautiful process in theory, ponderous, and the tyranny of the minority."[230] In contrast to consensus, which aims to satisfy individual preferences, as was mentioned earlier, sociocratic principles advocate for decisions to be made by obtaining member consent, in other words, the chance to present a reasoned "no" or agreement that you can live with the decision.[231]

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[225] Christian, *Creating a Life Together*.
[226] Christian, *Creating a Life Together*.
[227] Grinde, "An Evolutionary Perspective on the Importance of Community Relations for Quality of Life"
[228] Diana L. Christian, "Busting the Myth That Consensus-with-Unanimity Is Good for Communities, Part II," March 20, 2013, accessed June 21, 2023, https://www.resilience.org/stories/2013-03-20/busting-the-myth-that-consensus-with-unanimity-is-good-for-communities-part-ii/
[229] Rachel Beck and Alison Ormsby, "A Case Study Analysis of Dancing Rabbit Ecovillage, Missouri," *Communal Societies: Journal of the Communal Studies Association* 36, no. 1 (2016): 1, https://www.thefreelibrary.com/A+case+study+analysis+of+dancing+rabbit+Ecovillage%2C+Missouri.-a0474768225
[230] Kirby, "Redefining Social and Environmental Relations at the Ecovillage at Ithaca: A Case Study," 328
[231] Gibbons et al., "An Investigation in the Sustainable Economic Practices of Ecovillages."

Learning governance together in an ecovillage can be a challenging social learning process because decisions about community policies will have long-term effects on the entire community such as housing designs, financial commitments, and resource use that can affect members' utopian ecovillage aspirations that aren't always shared by others.[232]

One scholar who had observed many decision-making meetings in ecovillages noted it is one of the most difficult aspects of community life. “We were most impressed by those groups that were able to listen deeply to each other, quietly sharing their concerns, ideas, hopes, and fears. These groups often meditate together to tune in to each other before getting down to business, and again after they have discussed an issue but before trying to reach agreement.”[233]

The Tamera ecovillage, another German ecovillage that is a “peace research and education center”, has conducted additional experiments with it in an effort to eradicate envy, a fundamental tenet of its peace research endeavors.[234]

Diversity and Inclusivity

A common ecovillage aim is making the community accessible and inexpensive for underrepresented groups, providing them with a safe and welcoming setting. Policies for inclusion are often in the bylaws and mission statements of ecovillages. An example is Findhorn Ecovillage in Scotland, which has a "Diversity and Inclusion Policy" and actively works to foster a culture of respect, belonging, and inclusion for all members.

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[232] Gibbons et al., “An Investigation in the Sustainable Economic Practices of Ecovillages.”
[233] Ferguson and Lovell, “Grassroots Engagement with Transition to Sustainability: Diversity and Modes of Participation in the International Permaculture Movement.”
[234] Hall, “The Ecovillage Experience as an Evidence Base for National Wellbeing Strategies,” 33.

The policy states, "We realize that everyone has a unique and valuable contribution to make, and we are committed to fostering an environment where everyone feels appreciated and accepted for who they are."[235]

[235] Findhorn Foundation, “Equality, Diversity and Inclusion Policy,” accessed March 28, 2023, https://www.findhorn.org/equality-diversity-and-inclusion-policy/.

Chapter VII.

Three Cases Studies

In China, the majority of ecovillage programs are government-led, supported by finances and laws, and designed to address a variety of increasingly severe rural conditions.[236] The initiatives, which are driven by preferential policies and monetary support, distinguish Chinese ecovillage growth within the context of the worldwide ecovillage movement. In the previous decades, the government initiated a poverty alleviation program and encouraged the ecological transformation of rural areas.[237] However, there are still several issues in China's rural areas, such as bad living conditions,[238] poverty,[239] and social issues like "rural hollowing,"[240] and farmland abandonment.[241] Large-scale development of ecovillages, or the so-called "ecological countryside" in the Chinese context, is seen as one of the most successful means of addressing the issues of the Chinese countryside and achieving sustainable rural development.[242] As a result, numerous ecovillage initiatives have been supported by the

[236] The State Council Information Office of the People's Republic of China, "Poverty Alleviation: China's Experience and Contribution" (Beijing, 2021), http://english.scio.gov.cn/whitepapers/2021-04/06/content_77380652.htm.
[237] The State Council Information Office of the People's Republic of China, "Poverty Alleviation: China's Experience and Contribution."
[238] Xi Meng et al., "Survey Research on Living Environment and Energy Consumption in the West Rural Areas of China," *Procedia Engineering* 121 (2015), doi:10.1016/j.proeng.2015.09.101.
[239] Yuehong Chen and Yong Ge, "Spatial Point Pattern Analysis on the Villages in China's Poverty-Stricken Areas," *Procedia Environmental Sciences* 27 (2015), doi:10.1016/j.proenv.2015.07.098.
[240] Jiansheng Liu et al., "Beyond Government-Led or Community-Based: Exploring the Governance Structure and Operating Models for Reconstructing China's Hollowed Villages," *Journal of Rural Studies* 93 (2022), doi:10.1016/j.jrurstud.2019.10.038.
[241] Tiechou Shi et al., "The Spatial Distribution of Farmland Abandonment and Its Influential Factors at the Township Level: A Case Study in the Mountainous Area of China," *Land Use Policy* 70 (2018), doi:10.1016/j.landusepol.2017.10.039.
[242] Xinzhang Sun, Shengkui Cheng, and Qingwen Zuo, "Ecological Countryside Project:A New Thought to Resolve Problems of Agiculture,Countryside and Farmer in China," *Research of Agricultural Modernization* 25, no. 2 (2004).

government in China. A historic overview of government funded pilot projects of ecovillage development in China is described below. These experiments support the thesis that ecovillages numbers have expanded due to their myriad benefits and promise, and China's pilot projects may have implications on other potential government funded ecovillage development for poverty eradication, homelessness, or other groups that need housing security globally.

China

Ecovillages in China emerged in the early 1980s, with a focus on alleviating poverty and enhancing living conditions.[243] The majority of these were originally known as ecological agricultural villages.[244] China's central government developed and promoted these projects as one of the solutions to rural problems.[245] Since most rural areas in China were dominated by agricultural output, economic growth tended to follow the path of the creation of agriculture. In addition to ecovillage development plans and policies, a series of national development standards were established to support ecovillage development: the National Ecovillage Construction Standard,[246] the National Demonstration Ecovillage Construction Indicators,[247] and the Guide for Construction of

[243] Dan Hu and Rusong Wang, "Exploring Eco-Construction for Local Sustainability: An Eco-Village Case Study in China," *Ecological Engineering* 11, no. 1 (1998): 167, doi:10.1016/S0925-8574(98)00032-9
[244] W. Shi, "The Essence of Ecovillage and Its Role in Environmental Protection," *Environmental Protection* 4 (1985).
[245] Sun, Cheng and Zuo, "Ecological Countryside Project:A New Thought to Resolve Problems of Agiculture,Countryside and Farmer in China."
[246] MEP, *National Eco-Village Construction Standard (Pilot)* 192 (Beijing, China: Ministry of Ecology and Environment of People's Republic of China, 2006).
[247] MEP, *National Demonstration Eco-Village Construction Indicators (Pilot)* (Beijing, China: Ministry of Ecology and Environment of People's Republic of China, 2014).

Beautiful Villages.[248] These rural development projects and the corresponding assessments in China are represented in Figure 6.

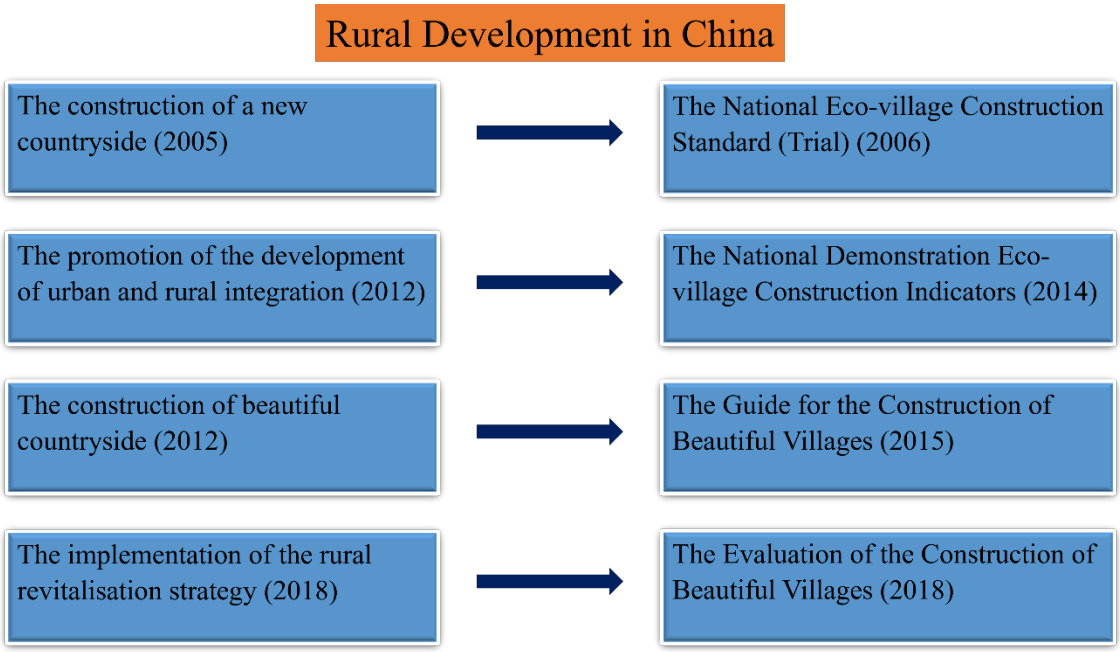


Figure 6. Integration Diagram of Rural Development, Eco-Village Development, and the Corresponding Assessments in China.

Source: Liu, Chenxi, Fan Wang, Xihong Gao, and Harry Smith. "Exploring Solutions to Improve the Evaluation of Development of Rural Villages: A Case Study of the Application of the Evaluation for the Construction of Beautiful Villages (ECBV) In a Village in South China." Sustainability 13, no. 2 (2021). https://doi.org/10.3390/su13020685.

According to several studies, these early iterations of Chinese ecovillage evaluation methodologies had numerous flaws, including an overemphasis on economic

[248] AQSIQ and SAC, *Guideline for the Construction of Beautiful Villages* (General Administration of Quality Supervision, Inspection and Quarantine of Standardization Administration of China, 2015), GB/T 32000—2015.

growth.[249] Studies note that these evaluations were developed more as a checklist for project acceptance than as an evaluation that completely evaluated the long-term sustainability performance.[250] These projects were initially developed in an effort to close the development gap between urban and rural areas as the central government initiated a series of policies and financial efforts to encourage ecovillage development in rural areas at the end of 2005.[251] Based on its favorable impact on rural economic growth in 2008, according to the government, the "Beautiful Village" program is regarded as the most effective and efficient rural development policy.[252] In China, an ecovillage is typically defined as "an agricultural ecosystem that maximizes the use of natural resources, enhances material circulation and energy conversion, and simultaneously develops ecological, economic, and social benefits within the framework of a natural village or administration."[253]

The development history of Zhenghu Village is compared to that of Findhorn Ecovillage, which is one of the first ecovillages and provides training and accommodation to approximately 3,000 people from fifty countries annually, and Konohana Family, which was founded in 1994 by twenty members at the foot of Mt. Fuji

[249] Li Wan and Edward Ng, "Evaluation of the Social Dimension of Sustainability in the Built Environment in Poor Rural Areas of China," *Architectural Science Review* 61, no. 5 (2018), doi:10.1080/00038628.2018.1505595.
[250] Chenxi Liu, Fan Wang, and Fionn MacKillop, "A Critical Discussion of the BREEAM Communities Method as Applied to Chinese Eco-Village Assessment," *Sustainable Cities and Society* 59 (2020), doi:10.1016/j.scs.2020.102172.
[251] General Office of the State Council of China, "Decision of the State Council on Implementing Scientific Outlook on Development and Strengthening Environmental Protection," State Council Document No.39 (2005), https://english.mee.gov.cn/Resources/Policies/policies/Frameworkp1/200712/t20071227_115531.shtml.
[252] Wang Weixing, "On the Construction of Beautiful Countryside: Current Situation and Countermeasures," *Journal of Huazhong Normal University* 53, no. 1 (2014).
[253] Zhang Dayu and Ouyang Wen, "Theory and Practice on Planning of Ecological Villages," *Journal of Beijing Institute of Civil Engineering and Architecture* 23, no. 1 (2007).

in Japan and practices organic agriculture to cultivate over 250 varieties of vegetables and grains within a similar Asian culture.[254]

An article by Reuters journalist Rajesh Chhabara in 2009 criticized the ecovillage movement in China accusing that much is more talk than action. "So much talk, conferences, seminars, summits and announcements – but what of the actuality? The major lesson from China to date is that big, high profile eco-towns stack up poorly against more modest efforts to make existing urban infrastructure more efficient."[255] He goes on to describe Huangbaiyu, chosen in 2003 as China's first ecovillage, sponsored by the Oregon based China US Center for Sustainable Development. He notes that these houses which intended to use ecobricks generally did not, went over budget, and were too expensive for local villagers even with grant supplements.[256] He describes that the local government abandoned the project.[257] His analysis noted that the government supplementing the transition to solar in cities such as Shandong, which has 99% of residents on solar in the city center may provide more realistic transitions to sustainability.[258] The article points to challenges in government and foreign funding of ecovillages as sometimes lacking key elements such as consulting locals and lack of transparency regarding failures.

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[254] Xihong Gao et al., "A Review of the Chinese Government Support and Sustainability Assessment for Ecovillage Development with a Global Perspective," *International Review for Spatial Planning and Sustainable Development* 10, no. 1 (2022): 51, doi:10.14246/irspsd.10.1_43.
[255] Rajesh Chabbara, "China's Eco-Towns: Green Communities – to Go Eco, Think Small," Feb 3, 2009 Reuters, accessed June 21, 2023, https://www.reutersevents.com/sustainability/environment/chinas-eco-towns-green-communities-go-eco-think-small/
[256] Chabbara, "China's eco-towns: Green communities – To go eco, think small."
[257] Chabbara, "China's eco-towns: Green communities – To go eco, think small."
[258] Chabbara, "China's eco-towns: Green communities – To go eco, think small."

Findhorn

The Findhorn Ecovillage in Scotland, known as the "mother of all ecovillages,"[259] was designated as a UN-Habitat Best Practice in 1998 as a model for holistic and sustainable living.[260] The recognition provided global exposure to the settlement. Findhorn's mantra is that, "people can live and work, play and learn, and express themselves here."[261] It has been added to the UN Habitat database of initiatives that are significantly improving living standards in cities and communities around the world.[262] One of the most notable aspects of its convergence of solutions is that it continues to promote sustainability from a variety of perspectives, including individual, social, cultural, economic, and ecological. The neighborhood is well-known for its houses made of recycled whisky barrels,[263] the Nature Sanctuary built of local stone and whisky barrel pieces, and experimental "small" houses, and eco-mobiles. New structures have passive solar features and 2.5 times the insulation required by Scottish building regulations.[264] The community has continued to experiment with innovative, energy-efficient construction systems, such as the "breathing wall," which eliminates the need for a vapor barrier and allows the fabric of the building to interact with the indoor climate in a beneficial way.[265] Moray Art Centre, a visual arts center that serves the region by

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[259] Litfin, *Ecovillages: Lessons for Sustainable Community*, 21.
[260] Litfin, *Ecovillages: Lessons for Sustainable Community*, 21.
[261] Findhorn Foundation, "Our Vision and Values," accessed May 21, 2023, https://www.findhorn.org/about-us/vision-mission-purpose/
[262] May East, "Current Thinking on Sustainable Human Habitat: The Findhorn Ecovillagecase," *Ecocycles* 4, no. 1 (2018), doi:10.19040/ecocycles.v4i1.107
[263] Matthew Knight, "Whisky Barrel Houses in Scotland Distill Art of Sustainable Living," July 21, 2016, CNN, https://edition.cnn.com/travel/article/green-whiskey-barrel-house-findhorn-scotland/index.html.
[264] Eco Arc, "Findhorn Ecovillage: A Nearly Zero Carbon Pioneering Settlement in Moray, Scotland," accessed March 28, 2023, http://ecoarc.co.uk/findhorn-ecovillage-a-nearly-zero-carbon-pioneering-settlement-in-moray-scotland/.
[265] John L. Talbott, *Simply Build Green: A Technical Guide to the Ecological Houses at the Findhorn Foundation* (Findhorn: Findhorn Foundation Development Wing, 1993).

providing exhibition space of city art gallery quality and multiple studios, opened in 2008. The arts center is regarded as a model of locally sourced materials and workmanship, with photovoltaic panels supplying electricity and ground source heat pumps supplying all heating. Between 2011 and 2014, Soillse, a new multi-generational zero-carbon cohousing development, was built. Its super-insulated, triple-glazed homes have their own biomass heating system. The 425mm thick insulated block was used for the first time in the UK at the co-housing development. The community has improved its nature corridors over the last two decades, with woods, orchards, and berry bushes separating individual areas, connecting them to the surrounding landscape, and providing biological orientation.[266]

In 2017, a carbon offsetting service was launched to compensate both guests and residents for their travel emissions. In 1989, the first 75 kW wind turbine was installed. The community was able to become a net exporter of electricity by 2006, thanks to four turbines totaling 750 kW (3 @ 225 kW, 1 @ 75kW).[267] Findhorn has 300 members and shares a range of transportation options, including cars and electric bikes, which are stationed at multiple locations throughout the northeastern region of Scotland.[268] The ecovillage is a zero-waste community. Residents have actively encouraged local governments to diversify an extensive recycling program in order to broaden the scope of recycling services available in the area (metal, glass, paper, plastics, batteries, and a clothing bank).[269] The Ecovillage Project, which has extensive gardens and a large food growing area, has also helped to grow local trading businesses, including a Community

[266] East, "Current thinking on sustainable human habitat: the Findhorn Ecovillagecase."
[267] Findhorn Ecovillage, "Renewable Energies."
[268] Moray Carshare, "About Us," accessed March 28, 2023, https://moraycarshare.org.uk/about-us/.
[269] Findhorn Ecovillage, "Renewable Energies."

Interest Company (CIC) retail business focusing on organic foods and ecological/Fair Trade products.[270] The ecovillage currently includes charities, non-profits, for-profits, co-ops, and social enterprises, as well as independent contractors, solar panel manufacturers, building firms, whole foods and craft stores, a printing company, and a charity that helps Russian orphans.[271] The Eko, Findhorn Ecovillage's local currency, was introduced in 2002 to aid in the localization of its economy. There are currently £20,000 worth of Ekos in circulation, and four issues have occurred. Many businesses will accept Eko in lieu of Sterling.[272] The Findhorn College partners with leading training institutions for personal and community empowerment, as well as offering space for independent research and field study, with over 2,000 participants each year for experiential learning to transform the world from the inside out, including "carefarming" (the therapeutic use of farming practices) and work with local youth.[273] Over the course of ten years, CIFAL Findhorn/Scotland hosted over one hundred seminars on topics such as climate change, renewable energies, biodiversity, low-carbon housing, SDGs, circular economy, green jobs, transition towns, local and bioregional food systems, hydrogen economy, and sustainable islands.[274] Gaia Education was founded in Findhorn in 2005 with the goal of providing sustainability education that promotes thriving communities within the planet's boundaries. It has been developing sustainable community curriculum since then.[275]

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[270] Findhorn Ecovillage, "Renewable Energies."
[271] BBC News, "Findhorn Eco-Community Marks 50 Years," November 16, 2012, https://www.bbc.com/news/uk-scotland-north-east-orkney-shetland-20358557
[272] Walker, "Eko local currency."
[273] BBC News, "Findhorn Eco-Community Marks 50 Years."
[274] Findhorn Ecovillage, "Resources," accessed March 29, 2023, https://www.ecovillagefindhorn.com/index.php/ecovillage-findhorn/resources
[275] Gaia Education, "History, Vision & Mission," accessed March 29, 2023, https://www.gaiaeducation.org/mission-vision-history.

India

Scholars have criticized that the vast majority of scholarly understanding of ecovillages for achieving sustainable transitions is based on observations from the Global North.[276] He argues the socioeconomic effects and challenges of establishing ecovillages in the Global South are quite different.[277]

Auroville, an ecovillage in Southern India, is an ecovillage that began with private funding and grants from philanthropists and foreigners. Foundations such as the Ford Foundation, has provided grants for these types of ventures since the 1950's, and now the Global Ecovillage Network, as was previously mentioned, hosts grants for development. Auroville is a five-decade experiment in land regeneration, biodiversity restoration, alternative building technologies, and alternative governance and economic models.[278] It is worth noting Auroville's accomplishments and challenges in achieving its founding goal of becoming a "city that the world needs."[279] Lessons from Auroville help to improve understanding of ecovillages as places to support alternative development strategies in the Global South.[280]

According to the studies, conflicts frequently occurred in the development process between the initial blueprint's interpretation and the citizens' later realities and

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[276] Felix Wagner, "Ecovillage Research Review," in *Realizing Utopia: Ecovillage Endeavors and Academic Approaches*, ed. Andreas Marcus and Wagner Felix, 81–94, https://www.environmentandsociety.org/sites/default/files/layout_issue8_new.pdf

[277] Dias et al., "The Meaning and Relevance of Ecovillages for the Construction of Sustainable Societal Alternatives."

[278] Tesia Walsky and Neelakshi Joshi, "Realizing Utopia: Auroville's Housing Challenges and the Cost of Sustainability," *Abacus* 8, no. 1 (2013), https://aurorepo.in/id/eprint/110/

[279] Auroville, "The Auroville Charter: A New Vision of Power and Promise for People Choosing Another Way of Life," accessed March 29, 2023, https://auroville.org/page/auroville-charter.

[280] Sarkar AN, "Eco-Innovations in Designing Ecocity, Ecotown and Aerotropolis," *Journal of Architectural Engineering Technology* 05, no. 01 (2015), doi:10.4172/2168-9717.1000161.

aspirations.[281] This is frequently cited as being rooted in Auroville's early goal of developing into a city of 50,000 people versus its current reality as an ecovillage of approximately 3000 people.[282] Auroville's Town Development Council holds regular meetings on topics such as place-making, water dimensions, and strategies for liveable cities and community planning.[283] Auroville is surrounded by rural communities such as Kuyilapalyam, Edayanchavadi, Alankuppam, Kottakarai, and Attankarai. The Auroville Village Action Group does outreach to assist these village communities in their efforts to achieve sustainability and find viable solutions to the problems of modern rural life in the relatively low-income area.[284] In 2005 they reported creating more job opportunities and higher living standards with improved health and sanitation facilities in the sub-region.[285] However, according to Jouhki, Auroville's regional development vision is top-down and there is disagreement with the leadership and residents.[286] As of 2022, petty arguments such as tree cutting became significant conflicts within the community, deteriorating the sense of comradery.[287]

The economic model of Auroville has succeeded in shifting members toward an economic model of increased trading and sharing.[288] The ecovillage however requires monetary assets to complete its numerous land and building projects, making the

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[281] Walsky, "Realizing Utopia: Auroville's Housing Challenges and the Cost of Sustainability."
[282] Walsky, "Realizing Utopia: Auroville's Housing Challenges and the Cost of Sustainability."
[283] Ministry of Human Reource Development Government of India, "Auroville Foundation: Annual Report and Accounts (2018-19)" (2019), https://aurovillefoundation.org.in/publications/annual-report/
[284] Auroville Social Research Centre, *Socio-Economic Survey of Auroville Employees* (2005)
[285] Auroville Social Research Centre, *Socio-Economic Survey of Auroville Employees* (2005)
[286] Jukka Jouhki, "Imagining the Other Orientalism and Occidentalism in Tamil-European Relations in South India" (Doctoral dissertation, University of Jyväskylä, 2006), accessed March 29, 2023, https://jyx.jyu.fi/handle/123456789/13431.
[287] *The Hindu, "*Auroville Residents Protest Uprooting of Trees for Contentious Crown Project," December 4, 2021, https://www.thehindu.com/news/national/tamil-nadu/auroville-residents-protest-uprooting-of-trees-for-contentious-crown-project/article37835625.ece.
[288] Rakesh Kapoor, "Auroville: A Spiritual-Social Experiment in Human Unity and Evolution," *Futures* 39, no. 5 (2007), doi:10.1016/j.futures.2006.10.009.

community dependent on donations and ongoing financial assistance for development. This seems a typical struggle with ecovillages with no external financing in the Global South. The Auroville Foundation is supported by the Central Government of India through Grant-in-Aid funds for Auroville management and operational expenses of the Foundation's Secretariat.[289] During the fiscal year 2018-2019, Auroville received approximately $2 million USD in Grant-in-Aid funding, and four million the previous year.[290] The economy of Auroville is currently based on manufacturing and services. Agriculture is a major industry, and there are approximately 100 small and medium manufacturing units, construction and architectural services, as well as research and teaching in a variety of fields, these efforts are all part of Auroville's service sector.[291] Tourism is a significant source of revenue for Auroville. Donations and income have not been consistent over the years, according to the Auroville Foundation's Annual Report.[292] As a result, Auroville's economic growth pattern has not been linear, and it does not resemble the conventional growth patterns associated with comparable development in terms of capitalization, finance, governance, and key issues such as distribution rules and ownership rights.[293] Auroville also benefits from the labor of neighboring communities. The majority of the jobs available to villages in Auroville are low-wage jobs.[294] It could be argued that the benefits of Auroville's progress have not been equally distributed

[289] Ministry of Human Reource Development Government of India, "Auroville Foundation: Annual Report and Accounts (2018-19)."
[290] Ministry of Human Reource Development Government of India, "Auroville Foundation: Annual Report and Accounts (2018-19)."
[291] Auroville Foundation, "The Auroville Universal Township Master Plan, Perspective," accessed March 29, 2023, https://www.auroville.info/ACUR/masterplan/index.htm.
[292] Henk Thomas and Manuel Thomas, *Economics for People and Earth: The Auroville Case 1968-2008* (Auroville, India: Social Research Centre, 2013).
[293] Thomas, *Economics for People and Earth: The Auroville Case 1968-2008*.
[294] Jessica Namakkal, "European Dreams, Tamil Land: Auroville and the Paradox of a Postcolonial Utopia," *Journal for the Study of Radicalism* 6, no. 1 (2012): 77, doi:10.1353/jsr.2012.0006.

among the surrounding communities, and that a sense of "us and them" still exists, as opposed to the stated goals of the community.

Auroville has worked hard to achieve self-sufficiency in food production from local farms, energy production from renewable sources like solar and wind, and waste management.[295] An example of Auroville structures are a Solar Kitchen that was constructed in 1997 as a major collective kitchen for the community. It serves around 1000 lunches daily, with 540 going to schools and service centers. Additionally, it feeds about 200 people in outlying communities and the Solar Kitchen staff also consuming meals.[296]

The Auroville Earth Institute, well-known for its Compressed and Stabilized Earth Block (CSEB) technology, incorporates natural and locally sourced dirt as a key component for building materials.[297] The institute has disseminated its knowledge and expertise in sustainable building technologies and land management practices through various means including training courses, seminars, workshops, manuals, and publications.[298] Through these channels, the institute has shared its insights with individuals from diverse backgrounds and countries, with a total of over 13,930 trainees educated since 1990, including 10,136 Indian trainees and 3,794 trainees from 92 other countries.[299] Despite the availability of acres of land in Auroville, the overall state of agriculture is stagnating and declining. This is largely due to the misconception that

[295] Abhishek Koduvayur Venkitaraman and Neelakshi Joshi, "A Critical Examination of a Community-Led Ecovillage Initiative: A Case of Auroville, India," *Climate Action* 1, no. 1 (2022), doi:10.1007/s44168-022-00016-3.
[296] Auroville: The City of Dawn, "The Solar Kitchen," https://auroville.org/page/the-solar-kitchen-av.
[297] Auroville Earth Institute, "Auroville Earth Institute Mission & Activities," accessed April 4, 2023, https://www.earth-auroville.com/earth_institute_activities_en.php.
[298] Auroville Earth Institute, "Auroville Earth Institute Mission & Activities."
[299] Auroville Earth Institute, "Auroville Earth Institute Mission & Activities."

agriculture is not as profitable as other business avenues.[300] As a result, the food produced within Auroville currently meet only about 15% of the demand, with the remaining 85% sourced from outside the community. However, by utilizing more arable land and focusing on self-reliance, Auroville has the potential to become self-sufficient in terms of food production.[301]

The main objective of Auroville was land restoration, in contrast to many human communities that have a negative impact on the environment. By preserving topsoil and collecting rainwater, the original inhabitants of Auroville were able to restore portions of the Tropical Dry Evergreen Forest in and around the community.[302] According to the latest available information as of November 16, 2020, the Auroville Foundation still needed to acquire approximately 17% or 210 acres of land in the urban area of Auroville to ensure integrated development.[303] However, the acquisition of land for development in Auroville has become increasingly challenging due to rising land prices and conflicts associated with land acquisition.[304]

Despite Auroville's success, whose population has grown significantly in the last few decades, it still faces the same challenges with ongoing financing, neighbor issues, and infighting that are common causes of ecovillage failure.[305] It is notable that the ecovillage is somewhat dependent on government grants, as was mentioned. The cost of

[300] Auroville: The City of Dawn, "Food and Community," accessed April 4, 2023, https://auroville.org/page/food-and-community.
[301] Auroville: The City of Dawn, "Food and Community."
[302] Paul Blanchflower, "Restoration of the Tropical Dry Evergreen Forest of Peninsular India," *Biodiversity* 6, no. 1 (2005), doi:10.1080/14888386.2005.9712755.
[303] Auroville: The City of Dawn, "Auroville Land," November 16, 2020, accessed April 21, 2023, https://auroville.org/page/auroville-land-491.
[304] Namakkal, "European Dreams, Tamil Land: Auroville and the Paradox of a Postcolonial Utopia."
[305] Ministry of Human Reource Development Government of India, "Auroville Foundation: Annual Report and Accounts (2018-19)."

sustainable technologies for energy production, solar waste recycling, expensive farm equipment, and the difficulty in organic farming versus using fertilizer are some obstacles that exist for ecovillage development in the Global South.[306]

[306] Namakkal, "European Dreams, Tamil Land: Auroville and the Paradox of a Postcolonial Utopia."

Chapter VIII.

Ecovillages: A Holistic Solution to Contemporary Crises

It is common knowledge that delaying global action on adaptation and mitigation risks missing a brief window of opportunity to secure a livable and sustainable future.[307] It seems despite the significant advances in global targets embodied in the Conference of the Parties (COP), an annual global Climate Change conference, as well as other strategic international efforts, current strategies fail to adequately address the pressing socioeconomic and environmental issues at hand. As global policy objectives continue to fall short of having a significant impact on global carbon emissions, it seems increasingly important to evaluate the bottom-up, localized projects that originate from civil society and collective citizen action.

Ecovillages for the Climate Crisis

Scholarship on the topic of ecovillage development as a low-tech solution for decarbonizing daily life and scaled up for mitigating climate change has increased in the last twenty years.[308] Ecovillage scholars argue that many climate solutions, such as soil regeneration, reducing unnecessary transport, and other local solutions rely on contextualized knowledge and practical experience, allow them to meet carbon goals

[307] "Climate Change 2022: Impacts, Adaptation and Vulnerability Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change" (Cambridge University Press, Cambridge, UK, 2022).
[308] Martina Schäfer et al., "Facilitating Low-Carbon Living? A Comparison of Intervention Measures in Different Community-Based Initiatives," *Sustainability* 10, no. 4 (2018), doi:10.3390/su10041047; Sherry, "The impact of community sustainability: A life cycle assessment of three ecovillages."

more effectively than top-down approaches.[309] Studies indicate that due to their local relevance and specificity these measures result in more productive and long-lasting outcomes.[310] Practices undertaken by ecovillages each day contribute to the reduction of energy consumption, support green industries and job creation, eradicate unsustainable patterns of production and consumption, promote respect for regeneration cycles, reduce reuse and recycle waste. Furthermore, these practices also encourage citizens on a global level as well as its members in local settings to actively participate.[311]

Ecovillage goals and outcomes can be viewed through the lens of the Sustainable Development Goals (SDGs). The SDGs are a set of seventeen goals established by the United Nations in 2015 to promote sustainable development and the abolition of poverty, inequality, and climate change. [312] Several of the goals, including Goal 11 (Sustainable Cities and Communities) and Goal 13, are related to ecovillages and sustainable living (Climate Action).

As evidenced by the *Washington Post's* report from April 15th, 2022,[313] ecovillages are being accepted and gaining increased interest and development as a proven model of sustainability against climate change. This article emphasizes the importance of creating a sustainable future from an ecological point of view, and placed

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[309] Christina Ergas, "A Model of Sustainable Living: Collective Identity in an Urban Ecovillage," *Organization & Environment* 23, no. 1 (2010), doi:10.1177/1086026609360324.
[310] Anna J. Wieczorek, "Sustainability Transitions in Developing Countries: Major Insights and Their Implications for Research and Policy," *Environmental Science & Policy* 84 (2018), doi:10.1016/j.envsci.2017.08.008.
[311] Kenneth Mulder, Robert Costanza, and Jon Erickson, "The Contribution of Built, Human, Social and Natural Capital to Quality of Life in Intentional and Unintentional Communities," *Ecological Economics* 59, no. 1 (2006), doi:10.1016/j.ecolecon.2005.09.021.
[312] United Nations, "Transforming Our World: The 2030 Agenda for Sustainable Development" A/RES/70/1 (2015), https://sdgs.un.org/publications/transforming-our-world-2030-agenda-sustainable-development-17981.
[313] Sanne Derks, "In Rural Spain, People Want to Bring Abandoned Villages Back to Life," *Washington Post*, April 15, 2022, https://www.washingtonpost.com/photography/2022/04/15/rural-spain-people-want-bring-abandoned-villages-back-life/.

emphasis on crafting an alternative to the "urban lifestyle that promotes individualism."[314]

In 2018, research conducted by the Global Ecovillage Network (GEN) revealed that thirty demonstration ecovillages across five continents are making tangible contributions towards achieving Sustainable Development Goals (SDGs). Ninety-seven percent of these communities actively work to restore damaged ecosystems and ninety percent store carbon in the soil or biomass,[315] while also striving to repair sources and water cycles. These practices coordinate to SDG15, SDG13 and SDG6.

Ecovillage initiatives are gaining agency to help shape discussions and offer strategies. The Global Ecovillage Network (GEN) platform has obtained consultative status at the UN Economic and Social Council (ECOSOC), been an active partaker of World Social Forum conferences, and continually sent representatives to climate summits or civil society exhibitions.[316] In recent years, numerous policy elites and academics have taken an increased interest in these initiatives due to their ability to instigate real-world experiments that promote more sustainable lifestyles.[317] Additionally, studies reflect evidence to suggest ecovillage initiatives create unique ways of organizing and delivering services that are in line with the Sustainability Development Goals.[318]

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[314] Derks, "In Rural Spain, People Want to Bring Abandoned Villages Back to Life."
[315] Gabriel Siqueira, "Global Ecovillage Network Annual Report 2018," Global Ecovillage Network, https://ecovillage.org/annual-report-2018/.
[316] Schäfer et al., "Facilitating Low-Carbon Living? A Comparison of Intervention Measures in Different Community-Based Initiatives."
[317] German Advisory Council on Global Change, "World in Transition: A Social Contract for Sustainability," Flagship Report (WBGU, Berlin, 2011), https://www.wbgu.de/en/publications/publication/world-in-transition-a-social-contract-for-sustainability.
[318] Gill Seyfang, *The New Economics of Sustainable Consumption: Seeds of Change* (London: Palgrave Macmillan, 2009); Rebecca White and Andrew Stirling, "Sustaining Trajectories Towards Sustainability: Dynamics and Diversity in UK Communal Growing Activities," *Global Environmental Change* 23, no. 5 (2013), doi:10.1016/j.gloenvcha.2013.06.004.

Socially, intentional sustainable communities have a profound impact on making progress toward the workable templates of the SDGs.[319] They provide education in sustainability-related topics (SDG4), ensure that women hold 40% of decision-making positions or higher (SDG5); promote local customs pertaining to sustainable construction and food production practices (SDG11); recycle/reuse more than half their waste products at least 90% of the time; and compost all food scraps with a success rate of 85%. 80% of the conflicts we face have established resolution procedures; 100% go through training in the decision-making process (SDG16), and 95% participate in campaigns that seek to protect human and natural rights (SDG17).[320]

Various countries have different perspectives on the implement ability of ecovillages as a climate change solution. One notable study offered a perspective that over the past century, Spain has experienced a mass exodus of people from rural areas that have caused cities to become overcrowded and polluted.[321] They highlighted that recently there is an emerging trend among young people in particular who are seeking out these same rural areas as spaces for sustainable development with regards to climate change.[322] The concept of ecovillages is congruent with the Buen Vivir Movement and post-development, offering a "radical reimagination on an ontological, spiritual as well as

[319] Carla Nogueira, João F. Marques, and Hugo Pinto, "Intentional Sustainable Communities and Sustainable Development Goals: From Micro-Scale Implementation to Scalability of Innovative Practices," *Journal of Environmental Planning and Management* (2022) doi:10.1080/09640568.2022.2106553.
[320] Communities for Future wiki, "Global Ecovillage Network," March 8, 2021, accessed April 12, 2023, https://wiki.communitiesforfuture.org/index.php?title=Global_Ecovillage_Network&oldid=1751.
[321] Catalan News, "Eco-Villages in Catalonia: The Rise of New Green Models in Times of Crisis," June 19, 2015, https://www.catalannews.com/life-style/item/eco-villages-in-catalonia-the-rise-of-new-green-models-in-times-of-crisis.
[322] Catalan News, "Eco-Villages in Catalonia: The Rise of New Green Models in Times of Crisis."

ecological, social and politico-economical level."[323] This trend towards ecovillage development in Spain is noted to help enhance communities' resilience.[324]

Scholars have increasingly considered the extent to which sustainability practices ecovillages are scalable and aligned with the climate goals.[325] The potential for scalability in these grassroots innovations varies greatly and includes stages ranging from identifying needs and generating ideas to implementation, transfer (scaling-up), and systematic change.[326]

Ecovillages for the Refugee Crisis

A current example of ecovillages being used for the global refugee crisis is GEN Europe sheltering Ukrainians in villages. "The Green Road of Ecovillages," is the name of the network of ecological communities and permaculture centers that provide refuge to Ukrainian refugees.[327] Some of the displaced people have relocated within Ukrainian ecovillages, while others have been relocated in ecovillages of other countries. The internal solidarity of the pre-existing ecovillage network and international support was noted as pivotal to its success.[328] This grew into a "beautiful project" with all the

[323] Arturo Escobar, "Degrowth, Postdevelopment, and Transitions: A Preliminary Conversation," *Sustainability Science* 10, no. 3 (2015): 453, doi:10.1007/s11625-015-0297-5.
[324] Mama D. Ujuaje and Marina Chang, "Systems of Food and Systems of Violence: An Intervention for the Special Issue on "Community Self Organisation, Sustainability and Resilience in Food Systems"," *Sustainability* 12, no. 17 (2020), doi:10.3390/su12177092.
[325] Nogueira, Marques and Pinto, "Intentional Sustainable Communities and Sustainable Development Goals: from Micro-scale Implementation to Scalability of Innovative Practices."
[326] Geoff Mulgan et al., "Social Innovation: What It Is, Why It Matters and How It Can Be Accelerated," Working Paper (University of Oxford, Young Foundation, London, 2007), https://youngfoundation.org/wp-content/uploads/2012/10/Social-Innovation-what-it-is-why-it-matters-how-it-can-be-accelerated-March-2007.pdf.
[327] Anastasiya Volkova, "Green Road of Ecovillages, Six Months into War," October 4, 2022, accessed June 21, 2023, https://www.resilience.org/stories/2022-10-04/green-road-of-ecovillages-six-months-into-war/.
[328] Volkova, "Green Road of Ecovillages, Six Months into War."

potential to become an example of sustainable development.[329] Anastasiya Volkova explains in the cited article how the ecovillages that took in the refugees expected the situation to be temporary, and donations provided mattresses, stoves, and food. They then improved the infrastructure, food security and entrepreneurship.[330] The Global Ecovillage Network donated greenhouses, tractors, gardening tools, water tanks, equipment for milking animals and cheese production, dehydrators, refrigerators, tools, washing machines, chainsaws, tools for home repair, water pumps, etc.[331] GEN Ukraine provides psychological support to children from displaced families through summer camps, fire circles, animal care and other therapeutic methods to help children forget the stress of war.[332] A bicycle program is described in the article where bikes from Denmark and the Netherlands are repaired and sent to these ecovillages hosting refugees.[333]

Green Grove in Ukraine is mentioned as a place that is implementing animal therapy and nature activities to help children recover from war trauma.[334] Ecovillages can offer a supportive and community-oriented environment that may be helpful in treating PTSD, even though they may not be specifically used to treat PTSD in refugees. Ecovillages may help to lessen the stress and isolation that can cause PTSD in refugees by fostering a sense of community and offering opportunities for social support and engagement.[335]

Following the devastating earthquake in ChengDu Province in 2006, Rob Wheeler, UN Representative for the Global Ecovillage Network, was asked to give a

[329] Volkova, "Green Road of Ecovillages, Six Months into War."
[330] Volkova, "Green Road of Ecovillages, Six Months into War."
[331] Volkova, "Green Road of Ecovillages, Six Months into War."
[332] Volkova, "Green Road of Ecovillages, Six Months into War."
[333] Volkova, "Green Road of Ecovillages, Six Months into War."
[334] Volkova, "Green Road of Ecovillages, Six Months into War."
[335] Volkova, "Green Road of Ecovillages, Six Months into War."

keynote speech on how ecovillages can and do rebuild after natural disasters in China. He put together a slideshow and did research on the efforts being made by the Sarvodaya and Auroville Ecovillages in Sri Lanka and India to rebuild and assist others in the wake of the devastating Tsunami that devastated South Asian coastal communities throughout the region in 2004.[336] The extraordinary efforts that followed made to reconstruct and restore the natural environment created long-lasting and effective improvements.[337]

Ecovillages have been utilized as a sustainable and community-focused refugee housing solution, however there are fine lines as to what constitutes helpful versus hurtful measures for refugee housing. Non-governmental organizations are outraged by Greece's costly new migrant camps, which are criticized for their poor living conditions, lack of transparency, and high costs.[338] The Greek government claims that the new camps are an improvement over the old ones, but NGOs argue that they are merely a way to spend EU funds without addressing the root causes of the refugee crisis.[339] The camps have also been criticized for their remote location, which makes it difficult for refugees to access services and find employment.[340]

Ecovillages for the Homelessness Crisis

In addition to pressing social and cost of living issues, unchecked urban population growth has created a global homelessness crisis. In 2021, the World Economic

[336] Global Ecovillage Network, “Climate Solutions - Communities Taking Action to Confront Climate Change,” accessed March 24, 2023, https://ecovillage.org/resources/climate-solutions/.
[337] Rob Wheeler, “An Ecovillage Response to Natural Disasters in Sri Lanka and India,” Global Ecovillage Network, accessed March 25, 2023, https://ecovillage.org/sites/default/files/files/an_ecovillage_response_to_natural_disasters.pdf.
[338] Niall P. Walsh, “The First "Maidan Tent" Is Built to Aid Refugees in Greece,” November 13, 2018., https://www.archdaily.com/905769/the-first-maidan-tent-is-built-to-aid-refugees-in-greece.
[339] Walsh, “The First "Maidan Tent" Is Built to Aid Refugees in Greece.”
[340] Walsh, “The First "Maidan Tent" Is Built to Aid Refugees in Greece.”

Forum reported that 150 million people were homeless worldwide.[341] In recent years, eco-villages have gained attention as a potential solution for chronic homelessness in developed nations. It is notable that there is a lack of articles and research specifically on ecovillages as a solution for the homelessness crisis, and I hope this research might inspire others to pursue this avenue of relief for the many unhoused in the world.

[341] Patrick Henry, "Innovative Projects Tackling Homelessness Around the World." World Economic Forum. October, 2021. https://www.weforum.org/agenda/2021/10/innovative-projects-tackling-homelessness-around-the-world/.

Conclusion

In conclusion, this research argues that the rise in Ecovillages is a responsive solution to globally pervasive social, ecological, and financial risks and challenges. Even given the difficulty of creating and ecovillage maintenance, they are a logical and viable options for groups wanting to practice a low carbon lifestyle for decreasing climate change, or individuals that are housing insecure to increase chance of home, food, and social security. Additionally, the creation of an online community of Ecovillages has increased awareness, popularity, and the sharing of ecovillage methods, thereby increasing the overall number of Ecovillages. This research has attempted to outline the development of the ecovillage movement and highlight the reasons for the increased interest and development of ecovillages, as well as highlighting the challenges to this movement developing faster. The main benefits of ecovillages such as increased social cohesion, climate change mitigation, refugee housing, poverty reduction, housing for the homeless, and increasing quality of life are obvious and major reasons for the increased attention of ecovillage development, not just as a small isolated solution, but a scalable concept that act as a blueprint for returning to a post-modern lifestyle that incorporates the best of the days of the human village, such as social support, food and housing security, with the benefits of the modern era.

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