

Research Article

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Eco Village; Social Sustainable Stability with the Eco-cities

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Abstract: *Ecovillages and eco-cities have emerged as a solution to the devastation of the relationship of man with nature. These ideas came into existence in the early 1990s as a step forward to improving human lives through social equity, ecological integrity, sustainable living, and economic viability. With the rapid increase of population and infrastructure developments, these eco-solutions aims to achieve the establishment of a sustainable framework for achieving sustainable goals. The study area focuses on the small-scale model i.e. ecovillages, focusing on its social context and its co-relation with eco-cities. Some sustainable features that these ecovillages can help improve are green roofs, rainwater harvesting, and the use of sustainable materials in buildings. The study includes examples of eco-cities and ecovillages from around the world focusing on its social sustainability aspect and the innovative solutions they offer for creating sustainable communities in Punjab, Pakistan. The targeted slum areas have a high potential to achieve this goal as the people of the slum lack the recognition of identity in society, they also lack the basic necessities to transform their lives. Improvising these areas can bring better reforms in society and take a step forward in achieving the sustainable goal.*

Key Words: Ecovillage, Social Sustainability, Pakistan, Slum Areas, Architecture for the Poor

Introduction

"Every generation needs a new revolution" – Thomas Jefferson.

Sustainable communities are becoming more and more necessary as global issues like social inequality, urbanization, and climate change worsen. Findhorn, which was founded in Scotland in 1962, is among the most well-known early instances in the West. It started out as a tiny spiritual community and developed into a flourishing eco-village that showcases ecological building methods and sustainable living (Barton, 1998). In alternative to the conventional lifestyle, ecovillages have emerged as a compelling solution for the strained environmental degradation, social inequalities, and climate change. An intentional community that aims for both environmental sustainability and a peaceful way of life is represented by eco-villages. These communities have a long history that is entwined with self-sufficient living habits and larger social movements. The social inequality in classes has set boundaries in social sustainability. The sustainable development goals of 2023 indicate that the world is far behind in achieving its sustainable goals of environmental and social responsibilities which are established for 2030 (Jackson, 1998).

In response to the widely publicized unsustainability of the global sociotechnical system, many intentional communities throughout the world, including ecovillages and co-housing communities, have clear aims of living in an environmentally sustainable manner and are actively working towards these goals. In the academic and grey literature, academics and community members have made a number of claims that intentional communities are significantly improving towards sustainability goals, especially

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with regard to environmental impact. This evaluation was conducted because there is a scarcity of literature reviews that completely summarize existing quantitative studies on intentional communities. The research included 16 distinct studies involving 23 communities and 30 footprint measures, published between 2000 and 2014. This is a higher number of studies than any other literature review on this subject. Taken together, these studies provide strong support for claims of greater environmental sustainability within these communities, and they highlight the need for more research and exploration into the role that sustainability-oriented intentional communities can play in the transition to more sustainable sociotechnical systems (Goh et al., [2023](#)).

Ecovillage: New Solution of Sustainability

Ecovillages are deliberate settlements created with the fundamental idea of sustainable living in mind. Social cohesiveness, community involvement, and ecological practices are given top priority. What exactly is an ecovillage, and is there any meaning to a single term that aims to include such a wide variety of social, cultural, and ecological circumstances?

According to Gen, "ecovillages" are human-scale communities in the North or the South that can be either rural or urban and aim to establish sustainable living role models. They usually include four dimensions—the social, ecological, cultural, and spiritual—into a comprehensive, holistic approach that promotes both individual and community growth, and they arise in accordance with the traits of their respective bioregions. The goal of the rise of ecovillages is to stop ecological balances from degrading. There is now a more organic way of living. In 1995, ecovillage gained popularity during the biennial "Ecovillage and Sustainable Habitats" event held in the fall at Findhorn, Scotland. 25 delegates from across the world started this, and later, Denmark's Gaia Trust promised to sponsor it for the first five years. Over 70 countries on all of the main continents are covered by these communities that identify as ecovillage. Characters such as Diana Leafe, Sim Van der Ryn, Jonathan Dawson, and Robert Gilman Christian scholars have made significant contributions to the study of ecovillage and have impacted architectural practices throughout the world. They have offered useful advice on creating and maintaining ecovillages that address governance and community dynamics (Bayulken & Huisinigh, [2015](#)).

Key Characteristics of Ecovillages

- ▶ In collaborative governance; the residents of the community are involved in the decision-making to foster a sense of ownership.
- ▶ Sustainable practices; implementation of renewable resources, waste management, and organic agriculture.
- ▶ Shared values; (Basiouny, [2020](#)).

Understanding Social Sustainability

Understanding social sustainability within the context of ecovillages and Eco-cities includes investigating how these communities build social cohesiveness, equality, and collective well-being while encouraging environmentally friendly behaviors. Mutual support and a strong sense of belonging are fostered by these activities, and they are essential components of sustainability and long-term resilience. Eco-cities and ecovillages both understand how important it is to serve a variety of demographics while advancing equality and inclusivity. They also seek to increase community resilience by empowering locals via involvement and education. By emphasizing these elements, ecovillages, and Eco-cities help to create a more comprehensive understanding of sustainability that takes a holistic approach to ecological, social, and economic factors, opening the door to more vibrant and healthy communities (Yuliya Strizhakova, [2024](#)).

Creating an inclusive society that puts human needs first so that people can prosper socially and economically is known as social sustainability. In contrast to the expansive, somewhat impersonal character of metropolitan areas, ecovillages frequently highlight smaller community settings, fostering interpersonal ties and collaboration (Yuliya Strizhakova, [2024](#)).

Nonetheless, Eco-cities seek to duplicate the robust social networks seen in ecovillages by incorporating the concepts of ecological living into more expansive metropolitan regions. Eco-cities may



provide urban settings that support social sustainability by giving priority to public areas, encouraging social interaction, and guaranteeing fair access to resources. Social sustainability and ecovillages' all-encompassing way of life, in which residents actively engage in shared duties, decision-making, and group activities, are strongly related (Daly, [2017](#)).

Methodology

The data collected through case studies examples from around the world of ecovillages focusing on social sustainability aspects. The measures they have taken for community enhancements and better reforms and planning. The research paper findings and its outcome.

Case Studies

Ithaca's Ecovillage

One noteworthy example of an ecovillage that has effectively included social sustainability in its structure is the ecovillage at Ithaca, New York. The community was founded in 1991 and consists of more than 100 homes that share resources and practice cooperative government. Through group meals, workdays, and social gatherings, the ecovillage fosters social interactions that strengthen ties within the community and support systems (Dawson, [2016](#)).

Aspects of Social Sustainability

In ecovillages, social sustainability is demonstrated by:

- ▶ **Community Engagement:** Frequent get-togethers and cooperative initiatives promote a feeling of community and shared accountability. In order to address concerns of social justice and representation, many ecovillages make an effort to incorporate a variety of groups.
- ▶ **Education and Advocacy:** To encourage sustainable habits in the larger society, ecovillages frequently take part in educational programs.

Tamera Portugal

Tamera is one of the biggest and oldest eco-villages in Europe, having started out as a small group in 1978. Only two hours from Lisbon, it is situated on 335 acres (1.36 km²) in the Alentejo area of southwest Portugal. By establishing Healing Biotopes as hubs for studying and simulating a new planetary civilization with solid ethical underpinnings, the society hopes to construct Terra Nova and envision a future free from conflict and characterized by unrestrained love. "A self-sufficient, sustainable, and replicable community model for nonviolent cooperation and coexistence between humans, animals, nature, and Creation for the future of peace for all" is the mission statement of Tamera, a peace research village. The settlement, which now has 200 residents, draws tourists from all over the world (DIAS et al., [2017](#)).

Masdar City

Abu Dhabi's Masdar City is an example of an Eco-city that aims to reduce its environmental impact. Notwithstanding its difficulties, the city uses renewable energy, sustainable transportation, and cutting-edge waste management techniques. The development of public areas that foster social interactions and community involvement programs highlights social sustainability (Zhu et al., [2015](#)).

Aspects of Social Sustainability

Important components of Eco cities' social sustainability include:

- ▶ **Public places:** Social contact and community cohesiveness are fostered by well-designed public places.
- ▶ **Affordable Housing:** Social justice is promoted by making sure that housing is available to people of all income levels.
- ▶ **Participatory Planning:** Addressing community needs and promoting a sense of ownership are two benefits of involving locals in urban planning procedures.

Literature Review

Paper/Source	Year	Summary/Abstract	Key Elements of Social Sustainability
Sustainability Evaluation in Ecovillages (Bissolotti et al., 2006)	2006	This paper presents a methodology for evaluating the sustainability of ecovillages across ecological, social, and other dimensions.	<ol style="list-style-type: none"> 1. Harmony and balance between people and their relationship with the natural environment. 2. Social performance is one of the core dimensions of sustainability, alongside ecological, economic, and other factors. 3. User satisfaction with the sustainability and management of the ecovillage community.
A Systemic Approach to Sustainability – The Interconnection of Its Dimensions in Ecovillage Practices (DIAS & LOUREIRO, 2019)	2019	Ecovillages view sustainability holistically, but social sustainability is more challenging than ecological sustainability and is foundational for ecological practices.	<ol style="list-style-type: none"> 1. Political, economic, and cultural aspects. 2. Social sustainability as a sustainability foundation for ecology.
Sustainability in Ecovillages – A Reconceptualization (Waerther, 2014)	2014	Sustainability in ecovillages is a dynamic, context-dependent concept with interdependent factors organized into environmental, economic, social, and self-sufficiency dimensions.	<ol style="list-style-type: none"> 1. Combining individual and community life. 2. Providing a sense of belonging, security, and stability. 3. Sharing trust, knowledge, and opportunities for interaction. 4. Mutual support and communication.
A Sustentabilidade Em Ecovilas: Desafios, Propostas E O Caso Da Ecoovila 1 – Arcoo (Cunha, 2010)	2010	This paper develops a framework for analyzing the sustainability of ecovillages in Brazil, based on theories of sustainable development, solidarity economy, and ecovillage practices.	Social aspects related to solidarity economy and ecovillage practices (not explicitly stated).
Ecovillages: A Practical Guide to Sustainable Communities (Bang, 2005)	2005	This book provides a comprehensive guide to planning, establishing, and maintaining sustainable ecovillage communities, including case studies of successful examples.	<ol style="list-style-type: none"> 1. Tools for social design, leadership, and conflict management. 2. Case studies highlighting social and community characteristics. 3. Practical guidance and resources.
Ecovillages, Environment, and Sustainability Practice (Rohana et al., 2021)	2021	This paper examines the sustainability practices of ecovillages, focusing on energy efficiency, organic food, telework, and social media.	<ol style="list-style-type: none"> 1. Employment and telework opportunities. 2. Human interaction and cooperation. 3. Limited reliance on social media.
Sustainable Living and Community Building in Ecovillage at Ithaca: The Challenges of Incorporating Social Justice Concerns into the Practices of an Ecological Cohousing Community (Chitewere & Taylor, 2010)	2010	Ecovillage at Ithaca emphasizes environmental sustainability but struggles to incorporate social justice concerns into its practices.	<ol style="list-style-type: none"> 1. Community engagement with equity and social justice. 2. Inclusivity concerns for minorities and the poor. 3. Overlap with environmental justice movements.
The Social Sustainability of Cities: Diversity and the Management of Change (Caulfield et al., 2001)	2000	This paper discusses policies and processes for achieving social sustainability in diverse urban environments.	<ol style="list-style-type: none"> 1. Policy reforms and democratic governance. 2. Support for diverse populations. 3. Integration of diverse cultural practices. 4. Fiscal equalization, community cohesion, and equitable transportation.



Paper/Source	Year	Summary/Abstract	Key Elements of Social Sustainability
A Model of Sustainable Living: Collective Identity in an Urban Ecovillage (Ergas, 2010)	2010	This case study examines how urban ecovillage members negotiate their identity and goals within regulatory and consumer constraints.	<ol style="list-style-type: none"> 1. Collective goals for ecological sustainability. 2. Everyday actions and work towards sustainability. 3. Negotiation of goals within political and social contexts.
La estructura social de comunidad y su aporte en la búsqueda de la sostenibilidad: El caso de Ecoaldeas (Cunha, 2010)	2010	Ecovillages represent a community-based approach to environmental sustainability and serve as a model for restructuring human settlements.	<ol style="list-style-type: none"> 1. Strong social motivation for community living. 2. Community-oriented structure. 3. Focus on quality of life and social cohesion.
Redefining Community in the Ecovillage (Kasper, 2008)	2008	Ecovillages provide insights into social sustainability by rejecting the dominant Western worldview in favor of recognizing human-ecosystem interdependence.	<ol style="list-style-type: none"> 1. Expanded notion of community. 2. Recognition of human-ecosystem interdependence.
Eco-cities: A Global Survey 2009 (Joss, 2010)	2010	This paper presents a global survey of 79 eco-city initiatives, analyzing their key features, definitions, and implementation challenges.	<ol style="list-style-type: none"> 1. Public participation. 2. Social justice.

Ecovillage Communities in Pakistan

“Promise me, whatever you design. You will take the risk of doing it for humanity – Frank Gehry”

Constraints of the Slums

Pakistan as a third-world country holds a huge percentage of people living in slums. According to UN-HABITAT, 32 million people are living in slums in different areas of Pakistan. These areas are deprived of the basic necessities of life and are living in unhealthy conditions. Though the number is high, they are still a minority when it comes to having basic citizen rights (HABITAT, [2014](#); UNICEF, [2020](#)).

Living for 25 years in Pakistan, observing the urban challenges. It is a step forward in establishing the concept of ecovillage in Pakistan. The slum areas in Pakistan have a high potential of establishing a social connection with the eco-cities and can be a milestone for the development of eco-cities. Usually, these areas are outside the city domain. As discussed in this research paper, the beginning always starts from a small-scale model i.e. an ecovillage which is further implemented on a large scale i.e. an Eco city. The thresholds in this ecovillage are further discussed below as what measures are taken which comprehend in social sustainability. People living in the slums are illiterate and have no jobs, they usually go to the cities for small work and even begging. They suffer through many challenges like housing, starvation, health-related issues and even being deprived of the right to education. Improving their lives through social interaction and connection with the city can help them adapt to a sustainable society and later be modified into a large-scale model (Shafiq et al., [2007](#)).

The Thresholds of Ecovillage

- ▶ Social interconnectivity
- ▶ Educational framework
- ▶ Economic structure (Samuel, [2021](#))

Social Interconnectivity

When developing a social connection, a dialogue needs to be generated. For a dialogue to be generated, there has to be a narrative that needs to be set. The difference between a village and a city is far away from a speech dialogue. Firstly, the people living in a village have to have a similar mindset. Community engagement activities can help enhance the social connection.

Educational Framework

Due to the lack of education, children are forced to follow in the footsteps of the elderly and are unaware of the skills they can acquire and what education can bring to them. A small voluntary camp for children can help them gain a basic education and even a skill that can help them cope with the city.

Economic Structure

Economic structure has a very high potential and can rigidly hold a community as a strong pillar. The areas outside the cities can be used as a source of agriculture and livestock. The urban context of Punjab is of land rich in agriculture and the increasing infrastructures have deprived the land of its origin (Sohail, [2019](#); Ahmed, [2016](#)).

Infrastructure of the Ecovillage

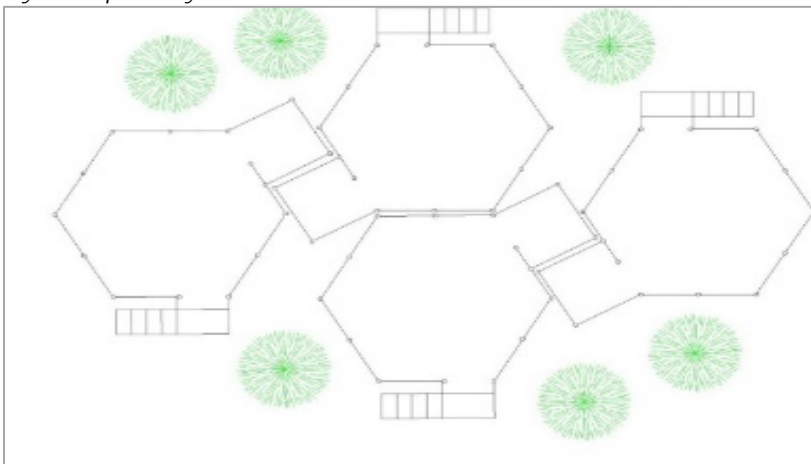
Factors of Sustainability

- ▶ Rainwater harvesting
- ▶ Solar energy
- ▶ Green spaces
- ▶ Vernacular design (Khan et al., [2021](#))

Design Prototype

Figure 1

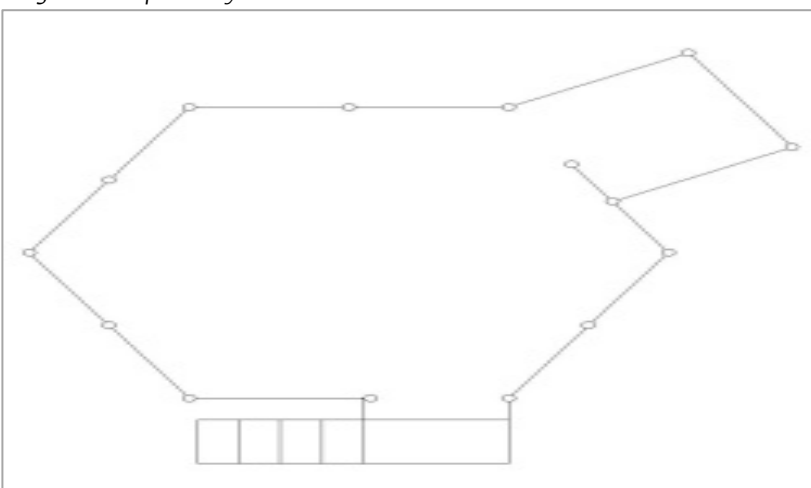
layout – primary data



The community layout of single-unit houses joined together in clusters showcasing a strong connection. The structure is a beehive and the material used is bamboo.

Figure 2

single unit- primary data

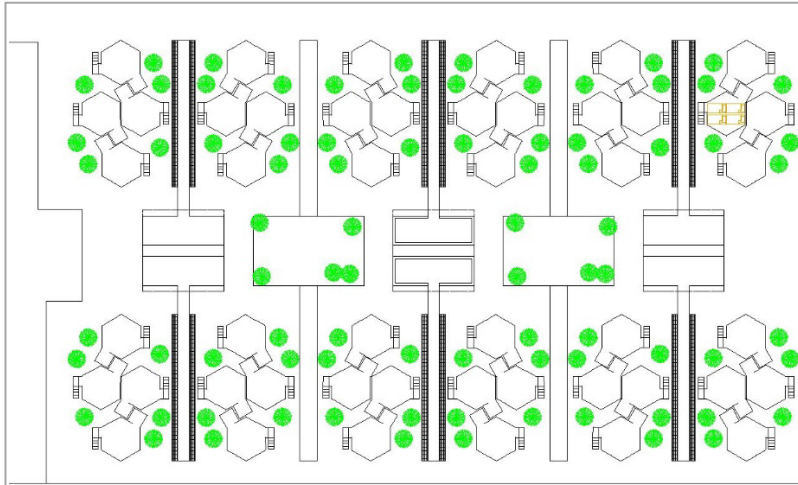




The unit is a studio house design with a single bathroom attached. This unit is for a single family of five people. Since the people in the slums are adapted to living in tents, replacing their fabric structure with a stronger structure secures them of safety. The rooftop will have solar panels and the system of rainwater harvesting will be incorporated in the foundation.

Figure 3

Master plan – primary data



Four units joined together in a cluster containing a pathway in between. The center contains an activity area where social gatherings will be held. Small park spaces for the children to play.

Building Typology

The barn; contains farm animals that will be looked after by the people of the community and later be used for the meat trade.

School; in the school, the children will be given basic education and skills by city volunteers which will help them in the future.

Agriculture market; the harvested crops will be put up for trade with the city. The system of vertical farming will be used as it is time-saving and efficient. The parent member of the family will be equipped with handling this and will work as an employee of the government (Van Delden et al., [2021](#)).

Handicraft market; the products from the skills taught to the people of the community will be showcased and put up for selling. The handicraft market has a high potential.

Discussion

From the study, an ecovillage can be designed for the people of the targeted areas of the slum as they hold great potential. The government should play a vital role in this infrastructure establishment as it will have a positive impact on the economy. Overall the condition of the state will also improve by providing them with their basic rights. The studies show how these ecovillages have proven to be a great success for the community. These ecovillages have not only improved the lives of the people but also provided them with great opportunities. These villages are a source of a strong connection with nature and also social interaction.

Challenges

As every great idea needs to be implemented, there are certain factors that pull down with heavy anchors. The challenges of this ecovillage prototype are listed as follows:

- ▶ Since the slums are illiterate people and are very conscious of their existing houses, it will be a challenge to convince them to replace with more stable structures with their land ownership
- ▶ The government may not fund the project since the land is owned by the government and the people living there are considered an illegal resident.
- ▶ Due to a lack of educational exposure, the children may not be keen enough to acquire knowledge.

Conclusion

The social sustainability between an ecovillage and eco-city as discussed in the research, going through examples from the world can set a great prototype in the district of Punjab Pakistan. The prototype design focuses on social gathering spaces where the people of the community can interact. The design blends with its people and the surroundings which is a key element of an ecovillage. The constraints of the slum discussed can be resolved by the measures taken and enhance the quality of life of the community. This model contains the sustainable factors of ecovillage which can be expanded into eco city. This proposal will bring forth career opportunities for the community, increase the literacy rate of the country, bring economic stability, increase the ratio of skilled labor, promote low-cost sustainable housing design, and improve the lives of the lower middle class. The government should also step forth to introduce programs for the well-being and help build this infrastructure. They should work on the land policies and land allotment for these people. These people should be provided with a better life and all the rights of the citizens of the other class community. This ecovillage can be the backbone of the Eco-city in terms of zoning and design principles. The positive results of this ecovillage will be that people of the slum will walk with confidence and the barrier between the city and this ecovillage will be broken. This ecovillage helps shape them with social connection with the outer world and groom them.



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