

Eco-Villages as Sustainable Human Habitats: Challenges and Conflicts in Turkey

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Abstract

Faced with the effects of global warming, energy resource depletion, and other related social problems which have steadily worsened since the 1980's, people around the world have sought to create more sustainable, resilient and 'liveable' communities. Two approaches have been developed: The first is reformist - developing piecemeal changes in response existing problems -; the second is utopian - creating new environments from scratch. Eco-villages are consciously developed as sustainable communities, and as such, are an example of the utopian approach.

This study evaluates the creation of two eco-villages in Turkey facing physical, social, economic, and sustainability issues. Our research starts by discussing two well-known eco-village initiatives, which enables us establish the key features of eco-village initiatives generally. We then analyse these key features in the context of two eco-villages selected in Turkey, using publicly available information from websites, observations from site visits, and details from personal interviews conducted with the founders of each settlement. Our findings, which relate to the physical, social, economic, and sustainable aspects of the eco-villages, are subsequently tabulated and compared with the original two eco-village initiatives discussed. In closing, several recommendations are made for the ongoing success of the initiatives in Turkey.

Introduction

Recent environmental, social, and economic transformations in the world have increased the need for considering new perspectives about the future. The world has been increasingly faced with global warming, energy resource depletion, and social problems since the third quarter of the 20th century, and especially during the last twenty years. In the context of the current harmful results of these changes, people have started to search for the means to create more sustainable, resilient, and livable communities. In this process, some proposals have been developed for finding new alternative community models. Creating eco-villages as sustainable communities is one of these proposals. In these ecologically sustainable communities, residents embrace a new lifestyle based on some rules.

There are many studies about eco-villages and the means for them to reach their sustainability goals. One of these studies has been undertaken by Coomer (1981) who defines a sustainable society as follows; "Sustainable society is self-sufficient within the boundaries of its environment. This society is not a society that does not grow. It is a society that is only aware of the limits of growth and seeks different ways of growth." Based on this definition, it can be indicated that eco-village initiatives are based on the dream of creating a sustainable and self-sufficient community. Therefore, creating eco-villages as sustainable communities can be considered as an example of the utopian approach in the world. In general, utopias comprise a discontent with the present and propose to replace the present, with the future or past image that is thought to be better than the present. In other words, there are 'regressive utopias' which aim to revive the past, and 'progressive utopias' which try to replace the present with dreams of the future (Dostoglu, 2001). In some of these utopias aiming to revive the old times, everything is simple

as in primitive communal societies (Tümer, 1997). Since eco-villages generally reject a modern lifestyle and want to return to the traditional village lifestyle, they can be considered as 'regressive utopias'.

Utopias are often envisioned as impossible imaginary settlements. However, in history, some utopians have attempted to materialize their settlement proposals. These attempts have shown that it is possible to turn utopias into reality. For instance, Robert Owen's New Harmony, Ebenezer Howard's Garden City and Charles Fourier's Phalange are utopias, which turned into reality. In the past, most of these built utopian settlements have failed due to sustainability problems. These failures show that it is not easy to change the direction of current developments. Therefore, whether the eco-village initiatives can be successful in finding solutions to the ecological and social problems of the 21st century should be considered as another controversial issue. Eco-villages have also been built in Turkey, as initiatives based on the dream of creating sustainable and self-sufficient communities. However, although there are quite a number of studies on eco-villages in Europe and the United States, the literature on eco-villages in Turkey is scarce. The aim of this study is to discuss the history of eco-village development in Turkey and to evaluate the physical, economic and social sustainability problems of these villages. In this context, the different features of two eco-village initiatives in Turkey will be analyzed in detail, in comparison with two eco-villages from the world.

Methodology

Attempts to create eco-villages in Turkey first began in 2000 and have continued since then. There are ten eco-village initiatives in Turkey, which have generally been established in Turkey's western and southern regions. (Güleriyüz, 2013) (Figure 1). Some of these eco-village



Figure 1: Eco-villages in Turkey, 2013 (Gülyüz, 2013)

initiatives have failed. Others currently continue to function as sustainable settlements.

To select the eco-villages in Turkey to be examined in the study, the databases of an international eco-village network organization, GEN (Global Eco-village Network), and those of a local network organization for eco-villages in Turkey EKOYER (Local Network Organization for Eco-villages in Turkey) were checked. After this research, five eco-villages which are members of GEN and/or EKOYER were identified. Some eco-village initiatives are not members of such organizations and are developed independently. Due to the difficulties in identifying these initiatives within the scope of this study, only examples of eco-village initiatives that have a relationship with GEN and EKOYER were examined. As a result of these evaluations, it was discovered that the Dedetepe Eco-Farm initiative is a member of both GEN and EKOYER; Marmariç Eco-settlement and Buğday Çamtepe Ecological Life Center are members of only EKOYER, and Eko-Foça and İmece House are solely members of GEN. All five of the eco-villages in Turkey that have tried to become sustainable communities have been visited for this study (Table 1). Four of the ten initiatives (Garp Eco-Volunteer Settlement, Güneşköy, Pastoral Vadi, KNIDIA Eco-farm) have not been included in this study, since they focus on eco-tourism rather than trying to create a sustainable community. Lastly, although Bayramiç Yeniköy initiative aims to create a sustainable communal life, it was not included in this study as it was

not built when the research was conducted in 2011 (Table 2).

Following visits to these eco-villages, it was found out that there is no life in Eko-Foça. On the other hand, in İmece House, Marmariç Eco-settlement, Dedetepe Eco-farm, and Çamtepe Ecological Life Center, eco-villagers aimed to build sustainable settlements. From these four initiatives in Turkey, two eco-villages (Marmariç Eco-settlement and Dedetepe Eco-Farm) were selected as case studies for detailed review in this article. Compared with the other eco-villages in Turkey, they can be considered as "developed" eco-villages in the context of the built environment. In line with the research method and sample characteristics, a qualitative research technique has been chosen for this study to explore the concept of sustainability, and the challenges and conflicts of eco-villages through interviews. Structured face-to-face interviews were carried out in the settlements, and detailed photographs were taken to document the state of each eco-village. In this context, thirty-three questions related to the social, economic, and physical dimensions of sustainability were asked to each of the 21 people who were eco-villagers or eco-village founders.

Name	Establishment Year	Member of Organization	Aim
Marmariç Eco-settlement	2003	EKOYER	Creating a Sustainable Commune Life
Dedetepe Eco-farm	2001	GEN and EKOYER	Creating a Sustainable Commune Life
Eco-Foça Eco-village	2001	GEN	Creating a Sustainable Commune Life
İmece House	2007	GEN	Creating a Sustainable Commune Life
Buğday Çamtepe	2010	EKOYER	Creating a Sustainable Commune Life

Table 1: Eco-villages In Turkey which have been visited for the research (Source: Authors, 2019)

Name	Establishment Year	Member of Organization	Aim
Garp-Eco-volunteer	2003	GEN	No information
Bayramiç Yeniköy	2011	GEN and EKOYER	Creating a Sustainable Commune Life
Güneşköy	2000	GEN	Based on organic farming
Pastoral Vadi	2000	GEN	Based on eco-tourism
KNIDIA Eco-village	2000	GEN	Based on eco-tourism

Table 2: Eco-villages in Turkey which have not been examined in the research (Source: Authors, 2019)

In this study, firstly the eco-village movement and the concepts of sustainability will be examined in a general context by means of a literature review. Then, two world renowned eco-villages frequently referred to in literature, Ithaca in USA and Findhorn in Scotland, will be investigated according to their physical, economic, and social features. The purpose of this investigation is to highlight the means employed to build sustainable eco-villages. Thirdly, the two selected eco-villages in Turkey that have been visited and examined via personal interviews will be discussed. Through the interviews and visits, the findings concerning the physical, socio-cultural, and economic features will be exposed. In the evaluation and conclusion parts of the study, the two well-known eco-villages from the world and the two selected eco-villages from Turkey will be examined by means of tables in the context of sustainability, after which the challenges and conflicts of the two eco-village examples in Turkey will be evaluated.

Eco-Village Movement

The eco-village movement was born from the combination of the traditional ideas related to living together and environmentalist approaches of the 1960's and 70's. Eco-villages have been consciously developed for the common and particular purpose of building a sustainable community that can solve prevalent ecological, economic, and social problems. The expectation is that sustainable, peaceful communities, which are integrated with nature can change the unhealthy conditions of cities. The term eco-village (ecological village) has been explained by Robert and Diane Gilman in *Eco-villages and Sustainable Communities* (1991). According to the Gilmans, an eco-

village can be defined as "human-scale, healthy and sustainable development, full-featured settlement, and the harmless integration of human activities into the natural world" (Gilman, 1991a). Although there are many descriptions of eco-villages, there is no ideal and common definition because the features of all eco-villages are different from each other. In general, eco-villages are communities designed to be socially, economically, and ecologically sustainable. Although there is a general impression that eco-villages are built in rural areas, eco-villages can be built in urban, suburban, and rural contexts.

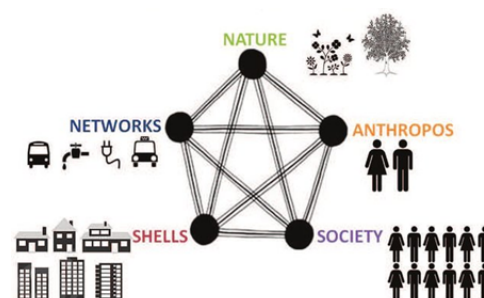


Figure 2: Five elements of Ekistics as designed initially by C.A. Doxiadis in 1942 (Fookes, 2008)

Eco-villages are human settlements which can be examined more thoroughly in the context of Ekistics, a scientific approach to the problems of human settlements. Developed by C.A Doxiadis from 1942 until his death in 1975, Ekistics considers human settlements from multiple perspectives and at various scales ranging from a future contiguous global city (ecumenopolis) to the elements of an individual dwelling. Based on five principles which

affect quality of life; Nature, Anthropos (human beings), Society, Shells, and Networks, Ekistics aims to explain the current state of human settlements and predict and improve their future development (Doxiadis, 1968) (Figure. 2). Eco-village settlements reflect the relationship between the five elements of Ekistics quite clearly.

Jonathan Dawson, in his book *Eco-villages: New Frontiers for Sustainability* has proposed five essential characteristics of eco-villages:

1. Eco-villages are not projects started by governments or corporations, but private citizens' initiatives. They are grassroots.
2. Eco-villagers value community living.
3. They are not overly dependent on government, corporate, or other centralized sources for water, food, shelter, power, and other basic necessities.
4. Eco-villagers have a strong sense of shared values, often characterized in spiritual terms.
5. They often serve as research and demonstration sites. Many offer educational experiences for others (Dawson, 2006).

However, this does not mean that all eco-villages are the same. Every eco-village has its own features and tries to find a way to create a sustainable community and a settlement in its own way. Some eco-villages focus on spiritual and social issues, while others focus on material and economic concerns. There is no one truth or way to reach the sustainability goals of eco-villages. Generally speaking, however, eco-villages reject modern lifestyles because their founders think that the current problems of the world can be solved by returning to traditional lifestyles, and by living in 'ecologically designed' villages. In other words, the eco-village movement has developed worldwide in response to the effects of the modern lifestyle on both our social and ecological environments. Although eco-village initiatives have been striving to embody the ideal sustainable community models, some have been unsuccessful in achieving their goals.

Christian (2003) has pointed out that while the number of eco-villages increased in North America between 1990 and 1995, only 10 percent of those eco-villages were successful in their aims. Analysing this situation, the authors concluded that the successful 10 percent had done the same five or six things right, whereas the unsuccessful 90 percent had made the same mistakes (Christian, 2003). Though limited to a consideration solely of North America's eco-village initiatives, Christian's research finds the most critical challenge to eco-villages is a 'structural conflict' caused by oppressive patterns arising from human relationships. These studies show how difficult it is for eco-villages to achieve their social goals.

There are many eco-villages in the world ranging in size from small settlements comprising around 50 residents up to towns of as many as 20,000 residents. It is difficult to calculate the number of eco-villages in the world, however, as some eco-village initiatives are members of some organizations which create a network between eco-villages, while others have no affiliation to any organization. The most popular network organization for eco-villages is GEN (Global Eco-village Network), the purpose of which is to exchange information among the

thousands of projects across the world identified as small, intentional, and traditional communities living in harmony with nature. The network also serves to promote projects, disseminating information about eco-villages globally.

Eco-Village Examples from around the World

Two world renowned examples of eco-villages widely discussed in the literature are the Ithaca eco-village in the United States, and the Findhorn eco-village in Scotland. These settlements can be considered as both 'developed' and 'sustainable' eco-villages because they have utilized certain methods for solving their sustainability problems. They are included in the scope of this study to identify the means for developing an ideal model for eco-villages.

Ithaca Eco-village, USA.

Ithaca Eco-village (EVI) is located in New York's Finger Lakes on a site 2.5 miles from the center of the city of Ithaca. The founders of EVI, Joan Bokaer and Liz Walker, united in 1990 to lead the "Global Walk for a Livable World" from California to New York City. The goal of the constructed eco-village in Ithaca was to create a "socially harmonious, economically viable and ecologically sustainable settlement" that would demonstrate that "human beings can live cooperatively with each other and with the natural environment" (EVI Housing Cooperative, undated). EVI can be cited as an example of eco-villages located in proximity to the cities. This location enables eco-villagers to take advantage of the social and economic opportunities to be found in cities.



Figure 3: Map of EVI based on an aerial photo
Source: (<https://ecovillageithaca.org/download/2014-map-of-evi/>)

EVI currently includes three co-housing neighborhoods that are named as FROG, SONG, and THIRD. FROG and SONG neighborhoods include 30 households, while THIRD neighborhood includes 40 households. A total of 167 people live in these neighborhoods. An organic vegetable farm, an organic berry farm, office spaces for cottage industry, a neighborhood root cellar, community gardens, and different natural areas also exist in the eco-village (Walker, 2005). Over 80% of the 175 acre site has been planned to remain as green space. The physical relationship between TREE, SONG and FROG

neighborhoods and the organic farms can be seen in Figure 3.



Figure 4: Ithaca Eco-village, a street in the SONG co-housing neighborhood Source: (<https://ecovillageithaca.org/wp-content/uploads/Song-Neighborhood-Aug-2007.jpg>)

Co-housing is defined as an intentional community of private homes clustered around a common site. Each home has traditional features, including a private kitchen and bathroom (Figure 4). Shared spaces feature a common building (called a ‘Common House’ in Ithaca Eco-village) that includes a large kitchen, dining areas, laundry room, library, and playroom. The houses, which share ecological-sourced hot water and heating systems, are constructed using environmentally friendly features such as passive solar collection, triple glazing, and super-insulation. EVI can therefore be seen as a contemporary housing model, attempting to recreate a sense of community and encourage an ecological, social, and sustainable lifestyle.

In EVI, the large Common House is sited centrally (Figure 5). It serves as an event venue for organizations (Figure 6) and provides shared facilities for eco-villagers. Organic farming generally plays an important role in employment in rural areas. Similarly, organic agriculture is key source of income for EVI. In fact, while 55% of the population of the EVI work in urban jobs or work remotely from home offices, 45% of the residents work in jobs directly related to sustaining EVI (Walker, 2005).



Figure 5: ‘Common House’ in Ithaca Eco-village Source: (<https://ecovillageithaca.org/live/>)

According to this information, it can be specified that more than half of the population of EVI still work in jobs that service the global economy. The eco-village movement defenders do not prefer this type of economic structure as they believe it to be in contradiction with a key aspect of the mission of the eco-village movement: to revive local economies.



Figure 6: A photo from an event for organizations in Ithaca Eco-village Source: (<https://ecovillageithaca.org/download/evi-introductory-slideshow/>)

EVI villagers have chosen consensus as the voting system for managing their settlement; a different approach to traditional village management and decision-making processes. To accept a proposal for the eco-village, all members have to agree. Choosing this voting system demonstrates that the eco-village management system gives equal importance to each member. Accordingly, there is no manager nor management group; instead, all members living permanently in the eco-village are deemed managers.

Findhorn Eco-village, Scotland

The foundations of Findhorn Eco-village settlement (Figure 7) were laid in 1962 by Peter and Eileen Caddy and Dorothy Maclean. These three founders took their children to the north of Scotland in 1962, arrived at a trailer park near the village of Findhorn, and began to live in a caravan. Together they created a small agricultural area for their personal food needs. Over time, it was cultivated and attracted much attention. As increasing numbers of people began to visit the garden, some moved in and started living in the settlement. This little group forms the core of today's Findhorn Eco-village. According to the 2013 census, 450 people live in the eco-village (findhorn.org). A total of 61 ecological buildings in Findhorn Eco-village have been designed according to ecological design principles, such as sustaining the integrity of both natural and managed ecosystems and the built environment through reliance on



Figure 7 : Findhorn Eco-village Settlement.
Source: (www.ecovillagefindhorn.com)

renewable resources, recycling and reusing of materials, and the efficient use of materials and energy.

According to its website, (www.findhorn.org), Findhorn Eco-village has developed its own ecological construction system through years of experience, including multiple experimental and ecologically-designed housing types. Houses in the village made from old whiskey barrels, a project begun in 1986, have gained a worldwide reputation (Figure 8). Moreover, such experiments in Findhorn Eco-village have enabled the development of a resource and training center to provide information on ecological construction to the public.

There are no completely self-sufficient building structures in Findhorn Eco-village. Nevertheless, it can be considered to have been successful in achieving ecological sustainability overall. As it is clear from the layout, Findhorn Eco-village has no relation to other settlements which are near to Findhorn; in fact, it is a closed residential



Figure 8: Whiskey Barrel Houses. Source: <http://tinyhouseblog.com/wpcontent/uploads/2010/04/barrelhouses.jpg>

area. Findhorn eco-village aims to be isolated from the outside world in social and physical contexts (Figure 9); however, many educational workshops and events on ecological issues take place in the Findhorn community, and many volunteers and visitors come from outside. Despite being contrary to the purpose of this eco-village initiative, there is constant communication between the

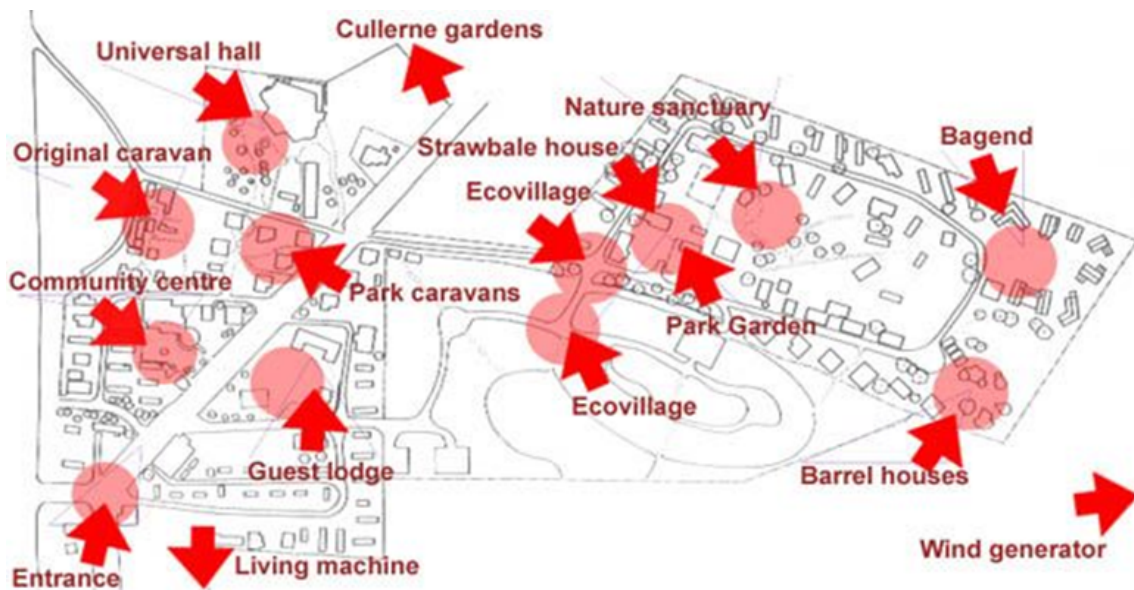


Figure 9: Map of Findhorn Eco-village
Source: (<http://www.ecohouseagent.com/findhorn-eco-village>)

eco-villagers and visitors. This relationship strengthens the connection of the eco-villagers to the outside world and contributes to the social sustainability of the settlement. Findhorn uses "echo" as its currency (Eco currency). The production of a new currency in Findhorn can be taken as an attempt to distinguish a radically defined connection with the outside world in economic terms, an initiative that is considered as a form of resistance to globalization. One Echo is equal to one Pound Sterling, and this equality does not change over time unlike other global currencies. In addition to using other conventional economic methods such as exchangeable currency, time purchases, goods exchanges and other forms of mutual aid are used.

Residents' food and beverage requirements are met from the products obtained through organic agriculture and livestock. More products are sold in the Phoenix Store, thereby providing additional income. Another income source of Findhorn Eco-village is eco-tourism, which is based on providing outside visitors with day tours, some of which include accommodation.

Findhorn Eco-village also pays attention to several important issues in the social context. Many different social and spiritual activities are carried out in the eco-village. The aim is to increase community and group activities, to strengthen its members' awareness of being a commune, to raise living standards and to ensure a healthy lifestyle. Issues or suggestions are described in detail to members and are opened to voting. In order to be considered valid, 90% of the community votes are required for all decisions (www.findhorn.org). In this way, Findhorn highlights the importance that is given to individuals in the community.

Eco-village examples In Turkey

Each of the following case studies in Turkey will begin with a brief community history, including an explanation of how the project has situated itself in the context of ecological, economic, and social sustainability. For each case study, a summary of the key sustainable lifestyle features of the eco-villages will be examined.

Dedetepe Eco-Farm, Turkey

Dedetepe Eco-farm is located next to the Mihli area, Çanakkale in Turkey. There are no active, livable traditional villages around the settlement within walking distance. In fact, the settlement is surrounded by forests. The buildings in the settlement (Figure 10) have various architectural styles, but it can be observed that they have all been built with traditional techniques and materials. On the site, there are eleven units such as a tent (B1) for daily meditations and meetings, a common dining hall (B2), a school for kids (B3), composting toilets (B4), five log houses for volunteers to stay (B5), a private house belonging to Aemdar family (the founding family of the Dedetepe Eco-Farm) (B6), and a Hamam (B7) (Figure 11). Although there are six residential buildings in the settlement, only three people and two children live permanently in the Dedetepe Eco-Farm.

In Dedetepe Eco-farm, uses renewable energy in an attempt by the founders to limit excess energy

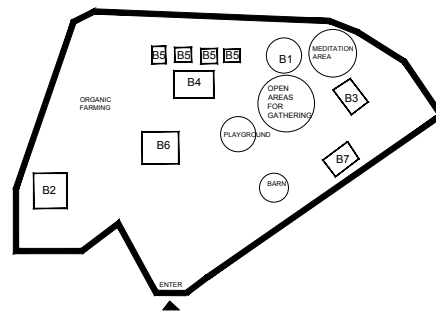


Figure 10: The Map of the Dedetepe Eco-Farm (Güteryüz, 2019)

consumption. Solar and wind sources provide electricity and heating the Hamam. Berkay Atik, a member of Dedetepe, has stated that solar collectors heat the water to be used in the baths in the settlement, and that they do not take a bath when the water cannot be warmed up using solar power. In fact, they only use hot water on days when there is sufficient sun to heat it (Personal interview with Berkay Atik, 2011).



Figure 11: Hamam, B7 Dedetepe Eco-Farm (Güteryüz, 2011)



Figure 12: Nomad Tent, Dedetepe Eco-Farm (Güteryüz, 2011)

The Dedetepe settlement has organic farming facilities. The produce (fruits and vegetables) is sold online, thereby contributing to the economic sustainability of the settlement. Olive and olive oil production are essential sources of income, as is the collection of fees from visitors

who attend educational courses in the farm's Ecological Living Centre.

Volunteers from different countries stay for a short time in Dedetepe. However, Berkay Atik has stated that this accommodation system is different from other types of traditional tourism and eco-tourism (Personal Interview with Berkay Atik, 2011). There is a nomad tent (Figure 12) and several public outdoor areas in the settlement, which are provided for social gatherings (Figure 13). And while the physical and architectural improvement of the settlement is remarkable, the current population is insufficient to create a communal life in Dedetepe Eco-farm. On the other hand, the founders' aim is to develop the commune is a long-term aspiration. They hope it will develop in time.

Marmariç Eco-settlement, Turkey



Figure 13: The outdoor gathering areas, Dedetepe Eco-Farm (Gülyüz, 2011).

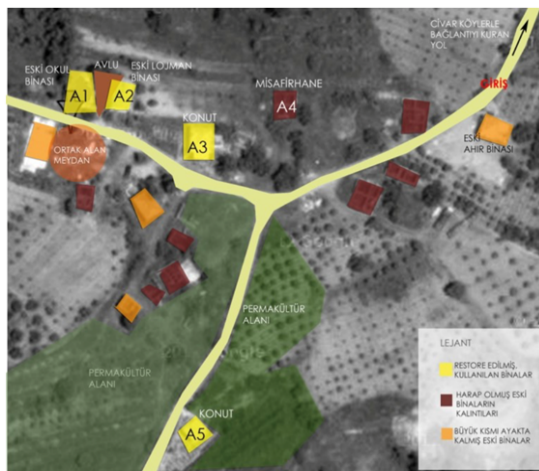


Figure 14: Map of the Marmariç Eco-settlement (Gülyüz, 2013)

Marmariç Eco-settlement is located in Dernekli village, a traditional village in Izmir province that was abandoned 20 years ago. The Marmariç eco-settlement initiative is an example of eco-villages whose residents aim to revive a traditional village in the form of a sustainable settlement. Accordingly, sustainability in this context includes the preservation of the unique local environment and lifestyle within the settlement and the buildings.

Since 2003, members have been continuing their activities that aim to establish an ecological life experience. There is revitalization in the area, the purposeful use of architectural heritage, as well as the construction of new housing. The members of Marmariç Eco-settlement have decided to restore the houses which were abandoned 20 years earlier (Figure 14). During visits to the settlement, buildings with different functions and plan types were identified in the area (Figure 15). Five restored units, four old buildings in good condition, and seven ruined old buildings were identified. Thirteen people live in the five restored units (A1), (A2), (A3), (A4), (A5), while they continue to restore the other buildings.

In the settlement, there is a common social area in the form of a courtyard. This common area is well-defined, containing a central bonfire area, demarcated by a round form surrounded with stones. This area can be described as "the square of the settlement" (Figure 16).

Marmariç Eco-settlement is economically dependent on a nearby city, and remains unable to break away and function independently; its members continue working in the city as well as in the surrounding rural areas. Many Marmariç members living in the settlement continue to work in the same jobs as they had done in the cities before settling in the rural area. Others offer courses which inform entrepreneurs about issues relating to sustainability and



Figure 15: Old School Building and Housing Unit, (Gülyüz, 2011).



Figure 16: The Square of the settlement, (Gülyüz, 2011).

permaculture, which serves as another source of income for the settlement. To understand the social relations of the community, it should be emphasized that the 13 people

who are the primary founders of the Marmariç initiative have been friends for a long time. This is important because Marmariç has limited communication with the surrounding traditional villages. In fact, there is a sharp socio-cultural distinction between the villagers who live in the surrounding traditional villages and the Marmariç eco-villagers. Politically, the Marmariç initiative is based on decision-making by popular vote. In their voting system, they follow majority rule, according to which proposals that have more than a fifty-percent support are accepted.

Marmariç members define the purpose of living in this settlement as "sharing life together." They have not chosen to realize their sustainable lifestyle dreams in a city. Instead, they have opted to live in a rural area since it is more organic and ecological, making it easier to create a more sustainable way of life.

Evaluation

Our evaluation of the environmental, economic and social issues common to all case studies are discussed thematically in this section. These discussions incorporate the detailed interviews on site, analysis of the challenges faced by the eco-villagers in Turkey, and the data from the tables that follow. In order to evaluate the four eco-villages discussed in the previous sections of this study, the general characteristics (Table 3), environmental (Table 4), economic (Table 5), and social (Table 6) features of the case studies - collected from literature review and from the personal interviews - have been compared through the tables.

Environmental Issues:

Population Problems: The eco-villages in Turkey are newly developing settlements. Thus, the number of people residing in the eco-village settlements varies (Table 3). Only the founders of the eco-village initiative permanently live in the settlement. However, in Ithaca and Findhorn Eco-villages, the number of members is sufficient for creating a commune. In this context, it can be said that Turkey's examples have some difficulties in reaching a sufficient number of members to create a community.

Physical Problems: In the examination of case studies, it can be seen that Ithaca and Findhorn eco-villages and the samples of eco-villages in Turkey have maintained a sustainable architectural and environmental development. The site visits to Marmariç and Dedetepe have demonstrated that these settlements have not experienced huge problems while they were being established. Furthermore, in the examples in Turkey, it has been observed that more housing structures have been built than the number of residents (Table 4). In Ithaca and Findhorn eco-villages, on the other hand, the number of residents and the number of houses are almost equal. New houses are built only when it is necessary. Therefore, it can be said that eco-village examples in Turkey do not manage their economies and time appropriately because they have constructed unnecessary buildings.

Economic Issues:

External Dependency in Economic Problems: In some cases, it can be said that external dependency contributes to the sustainability of settlements. For example, people living in the world-famous Ithaca eco-village can work in jobs that serve the global economy in the direction of their wishes. It can be argued that people being forced to leave their profession to deal with the issues of rural areas, with which they are unfamiliar, may cause adaptation problems and threaten the sustainability of the settlements. Thus, it can be stated that economic issues are one of the reasons that cause eco-villages to fail. To solve economic problems, eco-villages should be encouraged to evaluate the job opportunities that exist outside the settlement.

Eco-Tourism Problems: In the interviews, eco-village founders were asked: "What are your thoughts on eco-tourism?" All entrepreneurs responded negatively and stated that their eco-tourism practices are contradictory to the eco-village philosophy. From these evaluations, it can be concluded that eco-village founders in Turkey generally ignore the idea of eco-tourism, whereas examples like Ithaca and Findhorn Eco-villages fully implement it (Table 5). Clearly, however, the income which is obtained from eco-tourism can contribute to the economic sustainability of eco-villages.

Social Issues:

Social Cohesion Problems with the Surrounding Area: During the visits to eco-village formations and in interviews, it was found out that the founders of the initiative were ignored by traditional villagers living in nearby settlements, as the latter thought that the eco-villagers do not belong to rural life or to the countryside.

Intra-group Conflicts: Conflicts within the group have arisen due to the disagreements among the people living in the eco-village.

Social Adaptation Problems of Eco-villagers: Eco-village initiatives are usually established by people who have lived in the city for many years. From this point of view, it can be said that adaptation problems are natural in a rural settlement formed by individuals who are accustomed to living in the city. Researchers have some proposals for preventing uneasiness caused by adaptation problems.

	Established	Location	Climate	Population	Land Size
Ithaca Eco-village	1991	New York, North America	Temperate Climate	167	70.8 hectare
Findhorn Eco-village	1962	Scotland, United Kingdom	Ocean Climate	450	12.1 hectare
Marmariç Eco-settlement	2003	İzmir, Aegean Region, Turkey	Mediterranean Climate	13	2.2 hectare
Dedetepe Eco-farm	2001	Çanakkale, Aegean Region, Turkey	Mediterranean Climate	5	3.0 hectare

Table 3: General Characteristics of Case Studies

	Architectural Approach	Specific Residential Type	Energy Production Systems (%)	Organic Agriculture Percentage of Qualification
Ithaca Eco-village	Vernacular and Innovative	Co-housing	Solar and Wind Energy %100 and above	%50
Findhorn Eco-village	Vernacular and Innovative	Barrel House and Experimental Houses-Stone House	Solar and Wind Energy %28	%50
Marmariç Eco-settlement	Vernacular and Innovative	Stone House, Wooden Bungalows	Solar Energy and Coal	not calculated
Dedetepe Eco-farm	Vernacular and Innovative	Wooden Houses, Nomad Tent	Solar and Wind Energy	not calculated

Table 4: Environmental Characteristics of Case Studies

	Currency	Specific Economic Facilities	Eco-tourism	External Dependence
Ithaca Eco-village	Global Currency	Organic Agriculture and Other Professions	Yes	Dependent
Findhorn Eco-village	'Eco' Currency	Ecological Training Courses, Accommodation	Yes	Not Dependent
Marmariç Eco-settlement	Global Currency	Ecological Training Courses, Organic Agriculture	No	Dependent
Dedetepe Eco-farm	Global Currency	Accommodation, Organic Agriculture	No	Dependent

Table 5: Economic Characteristics of Case Studies

	Manager	Decision-making System
Ithaca Eco-village	Non-identified Management Group. All members are managers.	Consensus, Union of Votes
Findhorn Eco-village	Identified Management Group	Majority of Votes (%90)
Marmariç Eco-settlement	Non- identified Management group. All members are managers.	Majority of Votes
Dedetepe Eco-farm	Non-identified Management group. All members are managers.	Consensus, Union of Votes

Table 6: Social Characteristics of Case Studies

In their proposals, they generally argue that the members who are accepted as eco-villagers should try to adapt to the eco-village lifestyle in a truly social, psychological, and physical way.

Management and Decision-Making Problems: It is a controversial question whether this kind of management is the right approach for the eco-village initiatives that are in the process of being established. In the examples in Turkey, incomplete and inaccurate application of management issues have been identified (Table 6).

Conclusion

It has to be stated that there is no single or ideal way to reach the sustainability goals of eco-villages. All eco-village initiatives have their own features and specific solutions for their problems. According to the problems facing the eco-villages indicated above, some general recommendations can be made.

In literature related to Ithaca and Findhorn, the eco-villagers have indicated that while they were building their settlements, they faced economic and social challenges rather than physical problems. As regards this issue, personal interviews conducted for this study in Turkey indicate that the technical and physical problems could be solved more quickly and easily than social and economic ones.

It can be stated that while creating an eco-village and designing houses, an integrated renewable energy system and a sustainable economic system is necessary. However, it can also be emphasized that often the most critical issue is how to resolve social conflicts. Personalized interviews have demonstrated that the most critical problems facing eco-village enterprises in Turkey were related to social and economic issues.

In addition, eco-villagers have many problems with their management and intra-group relationships. It can be said that similar to the world's successful eco-villages, the newly developed eco-villages in Turkey have serious structural conflict problems. For solving these problems it can be suggested that the recording of agreements and decisions about management and property has to be written. This method can prevent conflicts and confusion within the group.

Another problem is a misperception of the eco-tourism concept by the eco-villagers in Turkey. Considering some successful eco-tourism practices around the world (as in Ithaca and Findhorn eco-villages), implementing the eco-village initiative can make a significant contribution to the economic sustainability of eco-villages in Turkey. In fact, eco-tourism practices in Turkey can be greatly improved.

In the interviews, the eco-villagers mentioned another challenge: the adaptation problems of the eco-villagers themselves. After the new eco-villagers who had lived in the city for years started living in rural areas isolated from the city, they had to change their habits. In fact, they could not continue their jobs, which they had done in the city previously. One of the main aims of eco-villages is being socially and economically independent from the outside of the settlement. However, while the eco-villages are being built, the eco-villagers face many social challenges and economic problems. Socially, refusing all their old lifestyle reduced newcomers' sense of belonging to eco-villages. It can be suggested, then, that in the building stage of eco-villages, new inhabitants should benefit in a limited way from the economic and social opportunities of the city. It is likely that if people living in eco-villages are not isolated from their social and professional lives, adaptation problems can be reduced.

A question about traditional villages was asked to eco-village founders during the interviews: "If you did not have a chance to live and set up in an eco-village, would you want to live in a traditional village?" Significantly, all the founders answered 'no' in response. The founders think that eco-villages and traditional villages are very different from each other in physical, social, and economic terms. It can be assumed that eco-villages are conscious communities established according to concepts such as sustainability and ecology. However, completely ignoring and excluding traditional village settlements, which can sustain themselves for years in a healthy way in the countryside, could be considered as a superficial attitude that prevents the development of eco-villages and their integration into the local area.

Eco-village initiatives may adopt a traditional village awareness mission in their surroundings by interpreting the social elements of traditional villages. Turkey still has a significant number of traditional villages that can sustain themselves. However, it has been observed in recent years that the young population living in traditional villages has decreased and migration towards the city has increased. This migratory movement causes both rural and urban problems, and traditional villages and cities experience sustainability problems just like eco-villages. To solve these problems, new eco-village formations, traditional villages, and cities should share their opportunities and

experiences, adopting the idea of cohabiting together without excluding each other.

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