

## DIMENSIONS OF SUSTAINBLE RURAL DEVELOPMENT IN MOUNTAINOUS AND LESS FAVORED AREAS - EVIDENCE FROM GREECE

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**Abstract.** The aim of this paper is to classify research, policy priorities, and development objectives in mountainous and less favored areas into a conceptual framework of sustainable rural development. The classification of sustainable development is based on the three main pillars: economic development, environmental conservation, and societal equity. Under the pillar of economic development, the role of agrotourism and the role of mountainous agricultural food products are considered. Under the pillar of environmental conservation, the role of environmental protection and the role of the agricultural landscape maintenance are presented. Under the pillar of societal equity, the contribution of women and the role of young farmers are considered. Finally, the conceptual framework developed is used to classify, analyze, and evaluate the latest research findings from Greece.

**Key words:** Greece, sustainable, rural, development, less favored areas

### Introduction

The importance of "sustainable rural development" was first given its present emphasis in the Brundtland Commission Report (World Commission on Environment and Development, 1987) forcing the concept to the top of the agenda for the United Nations and forcing most national and international bodies to adopt permanent promotion of growth and sustainable development. The concept of sustainable development has since evolved, and three important distinct pillars of sustainable development have been recognized. These are economic development, environmental conservation, and societal equity. The three pillars, might in times conflict with each other as an economy evolves and grows. However, they are considered to be of equal weight and importance in securing the maintenance of sustainable growth and development.

Emphasis is usually given on economic development which is a relatively easily measured and well understood parameter and it indirectly depends on the other two pillars. In addition, without economic prosperity mountainous and less favored areas are often abandoned. However, it is important to promote balanced

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development in all three pillars that constitute the framework of sustainable rural development. Under this consideration, the dimensions of sustainable rural development are presented and recent research on rural development is classified, so that future research efforts can be brought together under a unifying framework, that of sustainable rural development (Figure 1). The conceptual framework provides a clear classification of research and policy objectives, providing a useful tool for researchers as well as for policymakers at the local and national level for supporting actions that can promote sustainable rural development.

In most rural communities of the developed world, agricultural production has a less important role as the driving force of economic development. A variety of rural multi-activity products and services are replacing agricultural production in the E.U. mountainous and less favored areas, reducing the leverage of strictly agricultural products to one of multiple rural activities (Loloudis, 1999). Income uncertainty is one of the main contributing factors for this change (Huffman, 1980; Mishra, Goodwin, 1997). Farmers all over the world are seeking diversification of their household farm's activities in search for higher returns of their labor and capital. In this context, a special emphasis into agrotouristic activities and mountainous agricultural food products is given as a means to substitute traditional agricultural activities with more profitable ones (Figure 1).

Agrotourism was introduced and has evolved with a variety of actions in the E.U. countries. In Western Europe, the development of agrotourism actions initiated during the 1950s (Opperman, 1996). While, in most Mediterranean countries and in Greece the concept of agrotourism was introduced during the last decades, mainly due to particularities of the agricultural structures and the socio-economic development of rural areas, accompanied by a slow economic growth implementation of structural changes (Tsartas, Thanopoulou, 1994).

The desire for higher standard of living in rural areas along with the understanding that conventional tourism in its present form is not sustainable, has motivated alternative models of tourism, such as agrotourism and ecotourism, which can be friendlier to the environment. In addition, urbanization in the developed world has increased peoples' desire to spend leisure time in rural areas and closer to nature (Sharpley, 2002). Especially after the Rio summit (UNCED, 1992), agrotourism as a source of sustainable rural development has been promoted by policymakers (WTTC et al., 1996) and by the academic community (Hunter, 1997; Butler, 1999; Sharpley, 2000; Cohen, 2002; Hardy et al., 2002; Liu, 2003). In this context, various types of agrotourism are among the most discussed and widely implemented strategies for sustainable rural

development (Anthopoulou, 2000). Rational implementation of agrotourism favours the creation of new jobs and increases the income of existing farmers (Anthopoulou, 2000; Papageorgiou, 1998) which can contribute to improved quality of life for the rural population.. In addition, as has been revealed by many studies, agrotourism contributes positively since tourists are patronizing local stores and participating in local activities (Apostolopoulos, Sonmez 2001; Briassoulis, 1993; Butler, Stiakaki, 2001). Moreover, agrotourism facilitates the promotion of local agricultural products. It also gives the opportunity to women at developing their own enterprises. For example women can produce handicrafts and local agricultural products, such as jams, candies, herbs, and liquors which can be sold to tourists.

Agrotourism is a characteristic example of a combination of rural economic development with the protection and the promotion of the local environment. Agrotourism is an activity, which does not act competitively against the natural resources. On the contrary, it contributes in the awareness both of the local residents and the visitors about the environment and the cultural heritage of a region. At the same time, agrotourism activities can spread during all seasons, thus reducing the problem of seasonality, one of the main problems regarding conventional tourism, but also the farming sector.

Mountainous agricultural food products, being produced in an environmentally friendly manner, safe for human health and of higher nutritional quality compared to “mass” produced agricultural products (Ilbery, Maye, 2005) can improve farmers’ incomes, since they sell at a premium. Higher quality is assured through lower volumes of production and better control during production and processing (Ilbery, Maye, 2005). These are products that are mostly produced in less favored areas, typically in small-size farms, using traditional production techniques, and in mountainous and less favored areas with traditional landscapes. The increasing demand for these mountainous products can help maintaining the local population and protecting the traditional lifestyle and landscape (Gilg, Battershill, 1998). Moreover, such products aid in the preservation of traditional knowledge and cultural heritage (Tregear, 2003; Labrianidis, 2004). The European Union supports these enterprises with economic and legislative measures.

The second pillar of sustainable rural development consists of environmental conservation, which is considered to be the cornerstone of sustainable development. Without environmental conservation, development can not be “sustainable”. Two important research and policy dimensions of environmental conservation in mountainous and less favored areas are analyzed: environmental

protection and preservation of the agricultural landscape (Figure 1). Environmental protection is often seen as a competing force against economic development. For example, regarding tourism in protected areas, there are two competing forces between tourism development and environmental conservation. That is, the same environment, which attracts tourists and tourist investments, can be destroyed by them, resulting in the further diminution of tourism (De Olivera, 2003). Therefore, what is needed is a sustainable approach to tourism, which will contribute in environmental protection. Sustainable tourism in protected areas is a theme that is increasingly investigated all over the world (Arnberg et al., 2002). The increasing interests of urban people to visit the countryside and their sensitivities to the environment are considered important preconditions for the formulation of a new model of development in the rural areas, in the content of which the possibilities for sustainable development and promotion of the landscape's elements can be accomplished.

Another dimension of environmental conservation is the conservation of the agricultural landscape. All landscapes have one unique "quality" which makes them unique from the other landscapes (Scottish Natural Heritage, 2002). This "quality" is more than the sum of various individual characteristics that constitute the landscape, and though it is easy to comprehend it is difficult to replicate and to conserve. For agricultural landscapes, important defining characteristics can be natural elements or elements of agricultural cultivated systems. The conservation of such characteristics is of great importance all over the E.U., as many of them are extinct due to abandonment or to transformation of traditional cultivated systems towards heavily industrialized cultivation techniques.

The third pillar of rural development constituted societal equity which includes research and policies regarding the role of women and of the younger generation are investigated (Figure 1). Nowadays, rural development is more connected than ever with enterprising in the countryside. Among the reasons for which enterprising in the countryside is promoted is the fact that it gives an occupational opportunity to women, providing them with economic independence and autonomy (Hermans, 1983; Iakovidou, 2000). In this context, the role of women as a "standby" labor force was "discovered" and her integration in the professional world was promoted (Gidakou et al., 1999). The maintenance and continuation of a social structure depends on the dynamics and the perspectives of the following generations. Thus, youngsters of the countryside farmers and rural workers, provide the hope for the adoption of innovations and the promotion of formulations that diversify the economic activity in the region (Papadaki-Klavdianou, Yiasemi, 1991). In addition, the

existence of young and, more importantly, their participation in rural development has proved to be of great importance for ensuring endurance and viability. As far as the agricultural sector is concerned, the young age is directly linked to innovation, adoption of new cultivation and management techniques and to upgrading the agricultural occupation which is top priority of the E.U interests.

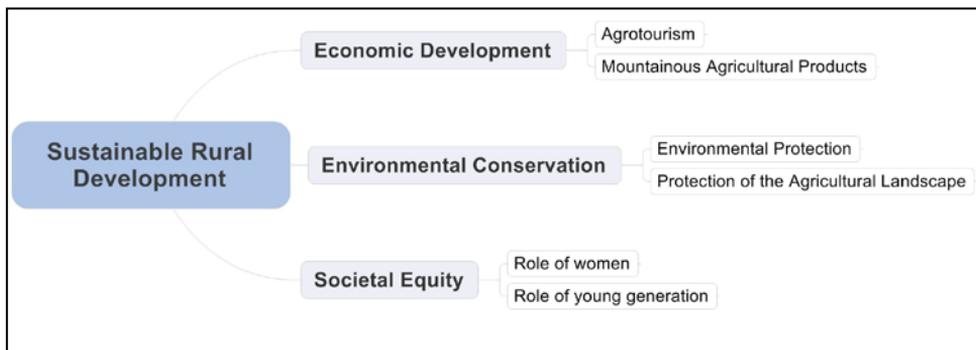


Figure 1. Dimensions of Sustainable Rural Development

### **The role of agrotourism in rural development in Greece**

The role of agrotourism in promoting economic development has long been recognized (Briassoulis, Straaten, 1999). Agrotourism is recognized as one of the most important alternative sources of income for farmers (Huylenbroeck, Durand, 2003). Most of the recent studies that investigate the role of agrotourism in Greece have also underlined the importance of agrotourism in rural development (Table 1) (Papageorgiou, Alebaki 2008; Sdrali et al., 2008; Stamatopoulou, 2008).

A novel approach to tourism and rural development concerns congress agrotourism or congress tourism in rural areas. Sdrali et al. (2008) have investigated the role of congress tourism in the rural development of the Delphi area in Greece (Figure 2), and its connection with traditional forms of agrotourism. Congress tourism is viewed as an alternative tourist practice and thus suitable as a form of agrotourism when applied in rural areas. The area of Delphi is mountainous with small multi-segmented farms without proper organization and the absence of enterprising farm practices that result in reduced productivity and shrinkage of rural sector in the medium-term. Moreover, there are no facilities for processing and standardization of local products and there is

a difficulty in adoption of new techniques and innovations in the local economy. On the other hand there is an always-increasing tourist flow due to the Delphi archeological site, which provides a good opportunity for the area's development. Congress tourism has only recently been developed in the region. Using a survey, the authors conducted interviews on a sample of 160 individuals. Questions concentrated on the role of congress tourism in promoting sustainable rural development along the three pillars of sustainable rural development. An important result of the survey was that congress tourism has contributed in a medium rate in the area's development and in the improvement of the residents' quality of life. According to the survey results, congress tourism has created new chances for seasonal occupation, without although the creation of new full-time jobs. Thus, younger residents in the area are still seeking job opportunities elsewhere. Moreover, the individual and family incomes have increased in a medium rate. The results of the analysis conducted show that local residents believe that congress tourism has contributed in the organization of cultural events, which have become internationally famous and in the protection of archeological area, an important component of the landscape of the area, although not directly related to the agricultural landscape. In addition, most of the local residents consider that congress tourism has contributed positively in all efforts related to the conservation of the environment. The negative impacts of congress tourism that are emphasized in the research findings concern mostly the fact that congress tourism has resulted in an increase of prices, in sound pollution to overcrowding, and in reduction of the sense of safety in the area. Although these three negative impacts are considered a normal consequence of tourist development they are definitely contrary to the notion of sustainable development.

The key role for the support and the participation of people in the tourist industry is to obtain benefits from their involvement with the tourist industry, mainly in terms of increased incomes through economic development (Getz, 1994; Ryan, Montgomery, 1994; Haralampopoulos, Pizam, 1996; Korca, 1996; Brunt, Courtney, 1999; Perdue et al., 1999; Gursory et al., 2002; Tosun, 2002). Involvement with congress tourism can form a profitable activity and investment, especially when the people involved reside in the area in which congress tourism is promoted, since the economic benefit is diffused in the local community, which is more concerned about the other pillars of sustainable rural development.



Figure 2. Map of Greece with study areas

On two different studies in the Prefecture of Florina, Greece (Figure 2), the development of agrotourism in the area was investigated, as well as the contribution of agrotourism to the economic development of the local community (Papageorgiou, Alebaki, 2008) and the economic development of the local community as well as the wider area (Stamatopoulou, 2008). Analysis of the data collected through surveys revealed that agrotourism accommodations appeared in the region during the 1990s. A characteristic example of this delay is the fact that the first agrotourism accommodation was established in 1996, despite the fact that the Regulation for Subsidizing Agrotourist Acts had been established since the 1980s. Until 1996, only some passing tourists visited the area with the main attractions being the unique ecology of the area and observation of migratory birds, there is, thus, only a decade of economic development in the region that has been affected by agrotourism. The prefecture of Florina is a classic case of a mountainous, less favored area, where the

residents increasingly abandoned the area and the few people that remained were in their majority farmers with no alternative income generating activities. Since the 1990s, the increased demand for food and accommodation services has led to a respective increase in supply, especially in some newly developed agrotourism destinations. Most of the capital required for the agrotourism investments in the traditional village of Nymfaio came through personal financing and bank loans (Stamatopoulou, 2008). On the other hand, in other villages of the region most guesthouses were built with the aid of the Community Innovation Leader (Papageorgiou, Alebaki, 2008). Therefore, both private and public funding was necessary for the economic development of the region, depending in large part on the particular circumstances and major driving forces of innovation in each case. Therefore, it is best if both private and public sources of funding are available in order to maximize the opportunities for economic development in a mountainous and less favored area.

Finally, the studies showed that the development of agrotourism had many positive impacts in the local area. First, it supports the local market as the owners of the guesthouses use the area as a base for the production of traditional food products. Second, the visitors have the opportunity to taste and buy traditional products increasing further the demand for a well-developed local market. Third, new jobs were created providing the opportunity for work and additional income to local people. The conclusion is that through agrotourism a wider rural and economic development can be achieved.

Table 1. Summary presentation of studies and their results

	Study area	Methodology	Aim of the survey	Results
Sdrali et al. (2008)	Delphi area	Personal interviews with questionnaire in 160 residents	-Investigation of the role of congress tourism in the rural development and its connection with traditional forms of agrotourism	-Medium contribution to rural development -increase in seasonal occupation -increase in prices -sound pollution -reduction of sense of safety
Papageorgiou and Alebaki (2008)	Prefecture of Florina	Personal interviews with questionnaire in 30 businessman	-Investigation of development of agrotourism in the area	-Positive impacts in the local area
Stamatopoulou et al. (2008)	Nimfaio village, Prefecture of Florina	Personal interviews with questionnaire in 6 businessman	- Investigation of the development of agrotourism in the area and -investigation of its impacts in the wider area	-Positive impacts in the local area - rural and an economic development in the wide area

### **The role of mountainous agricultural food products in rural development in Greece**

Mountainous agricultural food products are an important source of income for farmers, creating demand for a differentiated agricultural product (Byers, Sainju, 1994, Nastis, 2009). Most of the products with a designation of PDO (Products of Designated Origin) or PGI (Products of Geographical Indication) in Greece come from mountainous and less favored areas (Vakoufaris, Kizos, 2008).

In Greece there are 64 PDO and 23 PGI products (as of February 26, 2008). Furthermore there are 20 Products of Protected Appellation of Higher Quality (PAHQ) and 8 Products of Controlled Appellation (PCA) wines. According to Vakoufaris and Kizos (2008) there are some products, which have huge produced areas (e.g feta cheese PDO with 114.379 Km<sup>2</sup>), while other are produced only in one rural community (oil Thrapsno PDO, Cherries Tragana Rodochoriou PDO) and as a result many of the products and of the produced areas, are unknown to most consumers. Moreover, all products except of three (Aigina Nuts, Megara Nuts and Vavrona-Mesogeion-Markopoulo Figs PGI) are mostly produced in less favored areas while 48% of them are produced exclusively in less favored areas. In addition, 24 of 64 PDOs exist only in island areas and 3 of them exist both in island and inland areas, while 10 from 23 PGIs exist only in island areas. Additionally, 14 wines are produced only in islands. Furthermore, 12 of the products are produced only in one Prefecture while the other are produced in more than one Prefecture. The existence of one of the above-mentioned protection and designation appellations may actually involve specific practices and specializations in the production activities, which are related with specific geographical areas or with a special product, but there are also cases where the signs have no specific meaning. If, however, the products are recognized as “quality” products, they can consist a development opportunity for the region and for the involved enterprises. In most cases, establishment of a PDO or PGI status for a local product has resulted in an increase in prices, increase in production, attraction of visitors to the area, and hence, creation of jobs, maintenance of rural population in the region, and increase in local incomes (Nastis, 2009). Mountainous agricultural products, thus, provide an additional source of economic development for a region, especially a mountainous and less favored area.

Table 2 Classification of Greek mountainous agricultural food products

	PDO	PGI	PAHQ wines	PCA wines
Number of products	64	23	20	8
Exist only in islands	24	23	14	
Exist both in island and inland areas	3			
Produced only in one Prefecture	12			
Produced in more than one Prefecture	103			

Source: Vakoufaris and Kizos (2008)

### **The role of environmental protection in rural development in Greece**

The conservation of the environment is considered to be among the major preconditions for sustainable rural development. The existence of environmental problems in the countryside and people's awareness about them should be the base for whatever management plan which aims at sustainable rural development in the area. In a characteristic case study in the Palm Forest of Vai, Crete (Figure 2), 17 possible existing environmental problems are assessed along with peoples' perception about them (Tabakis et al., 2008). The Palm Forest of Vai is a protected area of unique aesthetic value, which however faces a number of environmental problems. The data were gathered through a survey of 385 individuals who live in the area. From the analysis conducted in Tabakis et al. (2008) concluded that there are two groups of problems: The first group includes problems that arise from illegal actions, while the second group includes infrastructural problems that hinder the area's environmental protection. Regarding the first group, the following problems are considered: First, even though the area has been characterized as a Permanent Shelter of Wild Life, hunters not only hunt in the surrounding area but there are many cases in which they hunt in the Protected Area. Moreover, there are many cases in which wild animals found gaps in the hedging of the protected area and they cause damages to the Palm Forest. Furthermore, the area of the Palm Forest has been reduced due to land clearings, which took place in 1957 in order to be transformed in agricultural land, a classic case of economic development contradicting environmental protection and a main problem of environmental protection in many regions of the developed world. Some other probable environmental problems were fires, plant diseases, and insect infestations. In addition, a great number of tourists could be a problem for the area due to overcrowding, destruction of the landscape, and pollution. People's perception about the main environmental problems is presented in Table 3.

Table 3. People’s Perception about environmental problems that arise from illegal actions in the Permanent Shelter of Wild Life of Vai, Crete

Problem	People’s Perception about the environmental problem				
	Very small problem	Small problem	Medium Problem	Big Problem	Very big Problem
Hunters hunt in the area surrounding and inside the Protected Area	59,0%	14,3%	10,9%	9,1%	6,8%
Damages caused by wild animals	63,4%	14,0%	8,6%	7,3%	6,8%
Reduction of Palm Forest due to land clearings	42,1%	26,5%	16,6%	8,8%	6,0%
Fires	57,7%	19,2%	5,2%	9,9%	8,8%
Diseases and Insects	27,3%	23,4%	19,0%	12,7%	17,7%
Lack of police protection	43,4%	13,2%	12,7%	14,8%	14,8%
Waste disposal	45,7%	20%	11,9%	10,1%	12,2 %
Great number of tourists	48,3%	21,0%	17,1%	6,5%	7,0%

Source: Tabakis et al. (2008)

As far as the second group of is concerned, those related to infrastructural problems, it was found that the deficiency of medical facilities, the deficiency of information kiosks about the protected flora and fauna, and the deficiency of food facilities were the major problems which hinder the environmental protection and sustainable rural development of the area (Table 4).

Table 4. People’s Perception about infrastructural problems in the Permanent Shelter of Wild Life of Vai, Crete

Problem	People’s Perception about the infrastructural problem				
	Very small problem	Small problem	Medium problem	Big problem	Very big problem
Deficiency of food facilities	24,7%	26,5%	23,9%	13,2%	11,7%
Deficiency of medical facilities	13,0%	13,2%	22,3%	30,1%	21,3%
Deficiency of information kiosks	15,3%	31,2%	19,5%	15,8%	18,2%

Source: Tabakis et al. (2008)

The study by Tabakis et al. (2008) concluded that the managers of the protected area should be informed and efficient regarding the conservation and the protection of the environment. They should also take into account the perceptions and beliefs of local peoples regarding the area’s problems in order to promote rural development. Solving the above-mentioned problems is considered as probable means for sustainable rural development. Thus, the existence of a legal framework for the environmental protection of rural areas does not suffice. It is paramount that the proper infrastructure exists for the

appropriate implementation of the legal framework which guarantee environmental conservation in an area.

### **The role of the agricultural landscape in rural development in Greece**

An important consequence of the abandonment of agricultural activities has been the resulting modification of the rural agricultural landscape. Protection of the countryside and sustainable rural development require the formulation of a new developmental model for rural areas, which includes the preservation of the agricultural landscape as another dimension of environmental protection. Two characteristic case studies of agricultural landscape conservation and its role in sustainable rural development in Greece are presented: The first one aims at detecting the elements of the rural landscape that will be useful in the formulation of the aforementioned developmental model. The second case study focuses on specific agricultural practices, such as cultivation terraces, which give a special character to the rural landscape. More specifically, it attempts to investigate the agricultural practices related to the conservation of cultivation terraces.

The first study was conducted in two island areas, North Karpathos and South Kithnos (Figure 2) in Greece by Papaefthiou et al. (2008). These two island areas have a long history, local tradition and a unique agricultural landscape, with many elements of the landscape still in good condition. The study focuses on unique elements of the rural landscape, such as windmills, watermills, and seasonal dwellings, and then allows the discrimination of their existence in three distinct time periods: i) the construction, conservation, and exploitation period, ii) the abandonment period, and iii) the period during which the elements are reconstructed, reused, or recreated. The third period is of main importance as it is the base in which the developmental model is formulated. Analytically, the study shows that in North Karpathos there are productive agricultural activities, strictly connected with the agricultural landscape, such as honey bee cultivation, olive cultivation, and the cultivation of arid fruits and vegetables that could be further developed, providing positive impacts for sustainable rural development. Moreover, given the diverse local tradition, a model of agrotourism could be developed for the region as part of a larger plan of sustainable rural development. Furthermore, alternative types of tourism activities, such as hiking, mountain climbing, congress tourism, could be developed as well. Finally, buildings such as windmills, watermills, and abandoned traditional dwellings, could be transformed into restaurants, guesthouses, and folklore museums providing additional activities for tourists visiting the region and additional sources of income for local residents. In the same context, seasonal dwellings

could be revitalized and used as guesthouses accommodating tourists all the year round, providing them with the opportunity to take part in agricultural production activities.

The second study conducted in the island of Lesbos (Figure 2) by Kizos et al. (2008) focuses on the existence of cultivation terraces as special characteristic of the “traditional” Greek rural landscape. Nowadays, new cultivation terraces are not constructed, so the case study investigates the conservation of the already existing ones. Analytically, the implemented practices regarding the conservation of the cultivation terraces are investigated. Data for the study came from secondary sources and were also gathered through personal interviews from 30 local farmers, who have adopted an E.U.- subsidized program aiming at the conservation of cultivation terraces. Results of the analysis indicate that the enrolled farmers are accustomed with the function of cultivation terraces and their viewpoints about them are very positive. All of them believe that the cultivation terraces are an important element of the landscape and most of them (76%) recognize that the cultivation terraces are currently of lower functional quality compared to the past. Moreover, all of the farmers questioned believe that protection of the cultivation terraces are an important part of environmental protection, since they contribute to soil conservation and protection from soil erosion. In addition, all of the farmers questioned believe that the cultivation terraces are a part of the local cultural heritage and that their destruction will cause several changes to the rural landscape, including soil erosion and reduced water retention.

As far as the general practices of farmers are concerned, the study shows that the cultivation terraces have lost their initially role as a means of creating agricultural land. The majority of agricultural households who conserve the cultivation terraces are those which consider farming as a hobby rather than as their main source of income. Thus, farmers who enroll in the subsidized program are those who are not able to enroll in any other subsidized programs aimed at farming. Furthermore, this is a group of households with high non-farming incomes, who nevertheless cultivate their farms and recognize the environmental value of the cultivation terraces. In this context the cultivation terraces has lost their original role and they have mainly a decorative role now, nevertheless important for environmental protection directly and economic development indirectly. The study concluded that in order for cultivation terraces to achieve their conservation role, they should reestablish their original role. Only then will the cultivation terraces continue to exist without subsidies, resulting in the conservation of the rural landscape and contributing to the rural development

(Kizos et al., 2008). Thus, it is clear that sustainable environmental preservation may, in some instances, require continuous public funding and support.

### **The role of young farmers on societal equity in rural development in Greece**

An important dimension of sustainable rural development concerns the younger generation. The young of the countryside consist the most hopeful group for the adoption of innovations and the promotion of formulations that diversify the economic activity in the region. This is especially true in mountainous and less favored areas where the lack of employment opportunities drives many young people to seek employment in urban locations, abandoning the countryside and thus contributing to its economic demise. The subject of education and training are of great importance for rural areas, including training regarding the adaptation to the new conditions of competition, the increased demand for quality and safe products, and for the conservation of the environment. In a characteristic case study from Greece conducted by Alexopoulos et al. (2006), it has been shown that young Greek farmers are seeking consulting services and are interested in training opportunities, highlighting both their desire to remain in the rural areas and the main factors that can aid towards their decision to stay and seek employment in the region. In another study which took place in 7 Prefectures of Greece, namely Evia, Iraklio, Ioannina, Korinthia, Trikala, Rodopi, and Chios (Figure 2) similar conclusions have been reached. More specifically, from a sample of 900 young adults living in rural areas of the aforementioned areas, 66,2% were male and 33,8% female. The average age of young farmers was 39,1 years and their educational level was relatively low, as 33,1% had only finished primary school, 24,3% had finished high school, 40,3% had finished secondary school and only 2,4% had finished a university. Moreover, only 19,5% of young farmers used a computer for their entertainment or for their work. Regarding their opinions and attitudes, the majority of young farmers (76,5%) consider that it is very important to have access and be able to acquire specialized knowledge in order to farm efficiently. Among the subjects that young farmers believe to be very important are those relevant to subsidies, means of financing, and environmental protection. Furthermore, the study shows that almost all young farmers consider the existence of an extension worker which will lead them as useful. However, only 47,4% of them are willing to pay in order to acquire that information. Finally, 52,9 % of the young farmers are not willing to pay for their training and only 34,6% are willing. Therefore, even though young farmers recognize their role at sustainable rural development and can point in the right direction, policies need to be implemented that will create a support network which can educate and train them in issues directly related to farming techniques or to environmental protection.

### **The role of women in rural development in Greece**

Finally, another important dimension of sustainable rural development under the pillar of societal equity concerns the role of women. As has already been mentioned, rural development is also connected with enterprising, which due to its complex role in creating employment opportunities, consists of a strategy for prevention of countryside abandonment and increase of non-farming incomes. The role of women in economic activity has increased in most countries around the world. As far as Greece is concerned, the role of women in the economic life has also increased (Iakovidou, 2000). Two characteristic case studies are described, both of from the Region of Central Macedonia. The first one is from the area of Voras Mountain-Vegoritida Lake and the second one is from the area of Paiko Mountain (Figure 2). The two study areas have the same geomorphologic conditions, the same remoteness to urban areas, and in both of them the rural element is prevalent. However, there are some important differences between the two areas regarding the existence of alternative tourism (Spanoudaki, 2008).

The results of the analysis performed on a sample of enterprising women from the region indicate the following: First, there are several enterprises, which although officially belonging to women, are actually operated by male relatives, such as their husband or son. This is mainly due to tax reasons or to the fact that the male has another job position in the public sector as well and cannot legally own the enterprise. Regarding the profile of the women that own enterprises, the study has revealed that the average woman's age is 43.7 years, their educational level is relatively low, and only 16% of them have attended training related to their enterprise. As far as their marital status is concerned, the study has revealed that about 88.2% of them are married and the main reason for their relocation in the area was their marriage. Finally, 70.5% of the women have stated that they don't have a second job, 12.5% have stated that they help in the family farm, and 11.6% that they are also responsible for household work.

Regarding the types of the enterprises owned by women in the rural areas investigated, the studies has revealed that in the area of Voras Mountain-Vegoritida Lake 23.7% are agrotourism accommodations (guesthouses), due to the existing trend for the development of alternative tourism in the area. In the area of Paiko Mountain a great number of enterprises cover "emergency needs" such as small groceries and general stores. The majority of women, 63%, stated that the main incentive for enterprising was economic independence and 47.9% also stated their desire for self-employment as a reason for enterprising. Finally, the survey showed that the established enterprises have already improved the

women's position in the family. Moreover, the mentioned improvement is shown to be greater in the area of Voras Mountain-Vegoritida Lake than in the area of Paiko Mountain, as more women in the former region have stated that their situation has improved very much both in their family and in the local society. Furthermore, 61% of women consider that the role of their enterprise in providing services to local residents and in contributing to the family's incomes is very important. In addition, women's enterprises create new job positions, contributing, thus, in the development of the local economy. Thus, policies promoting enterprising by women in mountainous and less favored areas can have the desired effect of sustainable rural development.

### **Conclusions**

This paper develops a structural framework of six dimensions of sustainable rural development in mountainous and less favored areas based on three main pillars: economic development, environmental conservation, and societal equity. Under the first pillar, the role of agrotourism and the role of mountainous agricultural food products were investigated as the two main dimensions that can promote economic development. Under the second pillar, the role of environmental protection and the role of the agricultural landscape were investigated as the two main dimensions that can promote environmental conservation. Under the third pillar, the role of women and the role of young farmers were investigated as the two main dimensions that can promote societal equity.

Agrotourism is an important potential source of income for farmers, promoting rural multi-activity that can diversify their sources of income. As was pointed out by the case studies of Greece, agrotourism, when properly established can aid in the maintenance of local population in the area, environmental protection, and economic development.

Mountainous agricultural food products are another dimension of economic development and an important source of additional income for farmers. Processed agricultural products that promote the characteristics of a region, when combined with quality characteristics, are an important source of revenue, especially for small scale farms in less favored areas. The designation of PDO and PGI can, in addition, increase the prices of these products, while at the same time increase their demand.

Environmental protection is another important element of sustainable rural development, for many the most important, as is it is interlinked with the notion

of sustainability. Using a case study from Crete, the various issues that are being faced are typical of most underdeveloped rural regions, both in Greece and elsewhere.

The conservation of the particular agricultural landscape and the unique identity it gives to a region is another element of environmental conservation. Cultivation terraces, a common agricultural technique in areas with high inclines around the world is a cultivation technique that is labor intensive and unable to modernize. However, its protection is vital in order to preserve both the landscape as well as its functions. Measures to promote their conservation are mainly focusing on subsidies, as was pointed out in the case study survey results.

The role of the younger generation of farmers and their requirements for the maintenance of people in the rural areas should not be omitted. A typical characteristic of less developed rural areas is the lack of a young generation. The needs of this young generation should not be overlooked as they are the most important element of creating a sustainable rural region.

Finally, the importance of women in societal equity is undeniable; however it is only recently developing in rural areas with enterprising women. Female enterprises provide an important way of promoting societal equity as women have a more important position in the family and in the local community. However, measures aimed at promoting enterprising women are sometimes exploited and the main problems were presented in the case study.

The structural framework developed provides an important conceptual tool, both for researchers and policymakers alike, in analyzing and implementing the set of tools that are necessary for sustainable rural development in mountainous and less favored areas. Only policies that incorporate all six dimensions can provide the basis for balanced growth and sustainable rural development.

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