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Integrated Land Consolidation: A community-based initiative for Greek mountainous regions

Elya Michailidou explores a new methodology for land consolidation and integrated development in mountainous regions.

Introduction

Greek mountainous areas are of great importance due to their natural, environmental, mineral and cultural wealth. At the same time, they face serious socioeconomic problems, such as outmigration, population decline and ageing. The lack of adequate technical and social infrastructures, in terms of education, health and transportation, in combination with physical isolation, exacerbates these problems.

There are also difficulties in agriculture because of the extreme topographic relief, extreme climatic conditions and a short growing season. The total amount of agricultural land available has been steadily declining and land holdings are of extremely small size, dispersed and fragmented. The estimated average size of mountainous farms is no more than 3.3ha (75% of the national average), fragmented into an average of 6.8 discrete parcels, compared to a national average of 4.8 (Karanikolas and Martinos 1999; MEPPPW 2000). These characteristics lead to increased labour costs, depriving land and crops of proper care.

One of the main land management strategies is the implementation of voluntary land consolidation measures. However, in lowland areas, these measures have failed; in fifty years of operation, they have covered only one sixth of Greek agricultural land, and lack provisions for keeping newly consolidated land united (Rokos 2006). Implementing consolidation projects is even more problematic and ineffective in mountainous areas (Michailidou and Rokos 2011).

Thus, new approaches are necessary for revitalising mountainous regions, especially land use optimisation. The complex and interrelated natural and socioeconomic problems mean that strategies and policies should be holistic, community-based and integrated, suggesting the use of Integrated Land Consolidation (ILC) rather than traditional consolidation techniques. This paper explores the application of ILC to the Epirus region of Greece (see Figure 1).

Figure 1: The Greek region of Epirus



Source: Wikimedia Commons

Conventional vs integrated land consolidation

A voluntary land consolidation involves *all* landowners in the concerned area agreeing on its implementation (Zhou 1999). In Greece, consolidations are supervised by the government (MRDF 2010). International experience has proved that such operations are slow and unsatisfactory (Zhou 1999). With agricultural land accounting for just 17% of Greek mountainous areas' land, strategies should also take into account human resources via residents' capacities, skills, knowledge, potential and needs. Integrated Land Consolidation conceptualises the overall problems of an area in a holistic and interdisciplinary way, aiming to revitalise mountainous areas by attracting new labour. Contrary to the prevailing concepts of land consolidation, '*ILC takes into account not only the land to be redistributed but also – and most importantly – other, more remote and harder to access mountainous land as well as their whole natural and socioeconomic powers, possibilities and potential*' (Rokos 2004, p110).

ILC utilises existing human resources, including an area's built environment and technical/ mechanical resources. ILC is thus not a partial measure that monodimensionally supports agricultural economic growth and competitiveness. Instead, it promotes Integrated Development, respecting the human and natural environments and their multidimensional interdependences.

ILC is a voluntary, conscious, self-managed, cooperative, interdisciplinary, community-based initiative which involves all members of a mountain community:

Land owners: Permanent residents (financially active or retired), immigrants and local authorities may, under specific spatial, environmental and developmental provisions, participate with their land, unused/abandoned houses and equipment and where possible with their personal labour.

Landless farmers are given the opportunity to rent available, unexploited agricultural land and offer their personal labour. Land should be rented for a low price, without loss of any property rights, to landless people, farmers or migrants from

the area seeking to repatriate, for group farming.

Scientists, technicians and other professionals can contribute with their knowledge, skills and equipment (Rokos 2004).

In this framework, not only can young people be motivated to (re)settle in mountainous areas but landless residents can also be retained. ILC may also contribute to alleviating problems stemming from current forest legislation (Law 1734/1987), which forbids the productive use of reforested abandoned agricultural land (Rokos 2004; 2006; Michailidou and Rokos 2005; 2011).

Implementing ILC requires Integrated Surveys of the mountainous area (Rokos 2004; 2006): systematic collection, mapping, monitoring, analysis and interpretation of reliable, up-to-date quantitative and qualitative data on natural and socioeconomic characteristics over a number of years. Systematic mapping and monitoring of land use/cover and natural resources inventories, uses techniques including photointerpretation, remote sensing, digital image processing and GIS.

An example of an initiative very close to the theory and practice of ILC can be found in the village of Milchenbach, Germany. Based on a bottom-up approach, the consolidation plan included the reallocation of fragmented agricultural and forestry land; the improvement of local public infrastructure, roads and pavements; the planting of indigenous plants and fruit trees; the allocation of land for a water-supply union; and the renewal of traditional houses. The results were highly promising (Wilden 2007).

An ILC initiative could take place in most rural areas and villages, but we believe that several features of mountainous communities are particularly conducive, where they still preserve communal and social values (solidarity, benefaction, hospitality), and where emigrés maintain strong ties with their homeland and are willing to return under suitable circumstances (Rokos 2007, Tsevreni and Geronteli 2010). Diaspora Greeks have always been close to their homelands as benefactors and development actors and, in particular, some of the greatest Greek benefactors originate from mountainous areas (Kalafati 2007, Region of Epirus 2007).

The case of Epirus, Greece

Epirus is the most mountainous Greek region: mountains cover 77% of its area, and two-thirds of its municipalities and communities are mountainous. At the same time it is one of the poorest EU regions, facing serious social and infrastructural problems. The Metsovion Interdisciplinary Research Center (MIRC) of the National Technical University of Athens, founded and endowed in part by individuals from Epirus, took the initiative to explore the necessary preconditions for the implementation of ILC in the mountainous villages of Epirus, as a contribution to the region's Integrated Development.

The first issue was the lack of an integrated and up-to-date land cadastre and registry of farmers. Therefore, a map of land use and changes in land use was drawn up in cooperation with the NTUA Laboratory of Remote Sensing, using qualitative information from LANDSAT TM satellite imagery and data on the Epirus region, systematically collected and updated since 1987. This proved difficult, mainly due to financial limitations but also because of the mountainous and intensively changing topographic relief of the region (Kolokoussis *et. al.* 2007). The final product serves as an improved infrastructure for regional developmental and environmental plans.

The next step was the investigation of local human, natural and built resources that could contribute to an ILC initiative. The interdisciplinary research team of the NTUA MIRC devised relevant questionnaires (Rokos 2007) forwarded to all mountainous municipalities and communities of Epirus (as defined by Directive 75/268/EEC). The statistical analysis of the completed questionnaires confirmed the problems of population decline and ageing faced by these areas. However, the research also revealed the strong bonds of people who originate from Epirus but live and work in urban centres or even abroad, and who regularly visit their homeland, especially in the summer, at Easter and at weekends. Our research also highlighted the value of economic immigrants, mainly working in farming or other manual labour contributing to the preservation of the local economy and means of production.

Agriculture and farming remain dominant occupations; in most cases tourism is only a supplementary activity, despite European and national efforts to support and strengthen mountain tourism. Of special importance for the implementation of an ILC initiative was that there were (according to locals) many abandoned houses in good condition that could potentially be renovated and utilised.

Local people were also asked to identify the main problems and needs in their municipalities. The highest priorities in most municipalities were a lack of jobs, the need to improve the transport network and other infrastructures and support and improvement of the agricultural sector.

Recently, a time of crisis and uncertainty, a new trend has emerged. Many people, especially young couples, have moved from urban centres to rural and mountainous areas, in pursuit of a firm job and better living conditions. However, they often face housing problems when trying to rent a house. Although there are many abandoned houses that could be inhabited, it is almost impossible to find their owners. Furthermore, even in the most favoured mountainous villages, the great majority of the infrastructure serves the needs of tourists and visitors, not local communities.

Towards the implementation of ILC

The analysis above shows that ILC initiatives may contribute to the revitalisation of Epirus, enhancing the agricultural sector and improving local economies while respecting residents and their natural and cultural environment. The questionnaire responses revealed that most farmers would potentially be willing to participate in an ILC initiative. They sought permanent solutions to the problem of land fragmentation, harmonised with the specific needs of mountainous areas. Other owners of abandoned agricultural land would also be willing to participate, in order to have their land productively used rather than degraded or covered by forest.

The challenge remains to overcome the problems both of implementing and resulting from the implementation of ILC. Many objections concerned the need for 'safety valves' to ensure the protection of property rights from possible trespassing. The establishment of an updated monitoring system was necessary, as was the completion of the regional land cadastre as soon as possible. Local farmers associations and local authorities could together lead an ILC initiative and safeguard its proper, fair and effective implementation. In addition, the technical knowledge of scientists in relevant fields was important for restructuring cultivation, where necessary, taking into account each area's physical, topographic and climatic conditions, in combination with farmers' traditional knowledge and know-how, and community and market needs. These are issues to be investigated in the future.

Finally, MIRC undertook important background work to prepare the ground and raise public awareness for integrated, voluntary, cooperative initiatives. Its activities include the organisation of six triennial interdisciplinary conferences since 1995, focused on the mountainous areas' Integrated Development, and a film documentary competition. In cooperation with the students of the NTUA Postgraduate Interdisciplinary Programme *Environment and Development* – and in particular the course *Environment and Development of*

Mountainous Regions (hosted in MIRC's site in the mountainous town Metsovo, Epirus) – relevant interdisciplinary studies were completed for 40 out of 53 provinces of Greece.

Conclusions and discussion

National and international experience demonstrates that rural communities recognise that revitalisation requires holistic, community-based, interdisciplinary, bottom-up approaches, methodologies and practices. The need for a new development paradigm has resulted in a move towards Worthliving Integrated Development (WID). This is simultaneous economic, social, political, cultural and technical/technological development, emphasising dialectical harmony and with respect toward human beings and the natural and cultural environment. People are seen as an integral part of the natural environment, rather than being viewed as owners, 'investors' and exploiters (Rokos 2003, 2004).

An increasing number of initiatives adopting WID have been taking place in Greece and abroad, paving the way for other areas to adopt such approaches as well; for example, Anavra Magnesia (Greece) and Mondragon and Marinaleda (Spain). Increasingly, farmers in mountainous areas across a range of countries recognise the issues stemming from land fragmentation and seek alternative and effective consolidation plans. Such farmers are open to non-statutory forms of land consolidation (e.g. voluntary land swaps, leasehold farming or group farming), although unanimity may not always be achieved (Thapa and Niroula 2008).

Despite so many years of dependence on partial subsidies for agricultural or tourism activities, there has been no improvement in their living conditions. On the contrary, the population of mountainous areas has been steadily declining. Conventional development plans for mountainous regions, '*constructed by a lowland, mainly urban based elite, whose principal interest is in maintaining and enlarging its own power base*' (Funnell and Parish 2001, p329) cannot take into account each area's unique topographic relief, agricultural land productivity, human resources, infrastructure, natural and cultural resources. Promoting ILC requires local communities, that live with their problems and know their needs better than anyone else, to be mobilised (ICIMOD 2004) to become self-organised, based mainly on their own means and capacities. The global economic crisis offers an opportunity for mountainous communities to revitalise, and for all of us to reconsider the 'sustainable' concept of development that has been dominant, and instead adopt new, holistic, integrated approaches for development, for a world that is worth living in.

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