

Jordskifte kan ha positive effekter på kulturlandskapet – et eksempel fra Kypros

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Per Kåre Sky: Land consolidation can have a positive impact on the cultural landscape – an example from Cyprus

KART OG PLAN, Vol. 69, pp. 188–192. P.O.B. 5003, NO-1432 Ås, ISSN 0047-3278

Land consolidation has often been criticised for having a negative impact on the environment and cultural landscape. Some of the current advantages of land consolidation may be creating problems for the future. Implemented correctly, land consolidation can lead to clear improvements in the cultural landscape. An example from a land consolidation case in Vyzakia – Cyprus is given.

Key words: Land consolidation. Cultural landscape. Environment.

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1. Introduction

Land consolidation has often been criticised for having a negative impact on the environment and cultural landscape. Such criticism can be found in Bullard (1990:31) and Bullard (2007:56), for instance. He states that some of the current advantages of land consolidation may be creating problems for the future. Land consolidation can lead to the loss field margins, greater risk of erosion, destruction of biotopes and monoculture, due to reparcelling and increased size of holdings. Furthermore, road building will lead to greater pollution and loss of virgin land.

The environmental impacts often affect people who are not directly involved in the land consolidation process as well (Russell and Burton 1983). It is hard to define the environmental impacts precisely, but they include impacts of land consolidation on the landscape, nature and the environment. These impacts can both be positive and negative. An external environmental impact is an unintended consequence of an action. To the person performing the action the impact is of little importance, and so he does not take it into account, but the impact may be a significant concern for society as a whole.

In conjunction with the FIG congress in Helsinki in 1990, a resolution was adopted that highlighted environmental considera-

tions during land consolidation, and proposed that the relationship between the environment and land consolidation be documented (Tenkanen 1991).

In the early 1970s, the Netherlands decided that there had been too strong a focus on purely economic criteria when performing land consolidation. A multi-criteria evaluation method was therefore developed to take into account visual impact, historic importance, ecology and social issues, in addition to the economic criteria (Janssen and Ritveld 1985). A total of 51 evaluation criteria were used, spread across five goals. The main goals were to a) improve the visual aspect of the landscape, b) improve the amenity of the landscape, c) increase the ecological value, d) improve efficiency and e) safeguard the historic character of the area. The method has been used to analyse major, complex land consolidation processes, but elements of the method can easily be used to evaluate smaller land consolidations. It is of particular interest to compare plans that have placed different levels of emphasis on the appearance of the landscape, and to examine the financial impact of this. For example, in Switzerland an Environmental Impact Assessment must be performed for all land consolidation areas larger than 1,000 hectares (Bollinger 1994). An environmental impact

assessment is an assessment of the possible impact – positive or negative – that a proposed land consolidation plan may have on the environment, taking into consideration natural, social and economic aspects.

Around 1990, the agricultural university at Wageningen in the Netherlands tested a model to calculate production revenues for a number of alternative changes to the landscape. The conclusion of the project was that major changes to the cultural landscape did not increase revenue – if anything, the reverse was true (Moolenaar 1990). These results were partially confirmed by the Norwegian project *Eiendomsrelatert kulturlandskapsforskning* («Property-related cultural landscape research»). It found that there were no great efficiency gains to be had by increasing the size of holdings beyond 1.2–1.5 hectares for various specific types of agricultural production (Sky 1995).

As can be seen from the above, there has been increased focus on taking environmental considerations into account during land consolidation, and a growing recognition that large holdings are not always desirable. The criticism that land consolidation has a negative impact on the environment and landscape may in many cases be true, and particular care has to be taken when making major changes to landscapes with many small and fragmented holdings. However, land consolidation can also be of benefit to the environment and landscape. Below I will present an example of land consolidation which has had a major and positive impact on the landscape in an area with many small holdings.

2. Land consolidation in Vyzakia

I have been able to follow the changes to the cultural landscape in the village of Vyzakia in the Greek Cypriot part of Cyprus over a ten year period, starting during the land consolidation process, and continuing until the new situation had been in place for some time. The village lies 32 km to the southwest of Nicosia, and is a community with a purely Greek Cypriot population (Department of Lands and Surveys 2002). The Cypriot authorities have made considerable ef-

forts to implement land consolidation in Cyprus. The aims of the land consolidation process are to reduce the fragmentation of holdings, clarify land tenure and ownership issues, build new roads and provide artificial irrigation. Ioannides (2007) lists the main tenure issues in Cyprus: small holding sizes, land fragmentation, dispersion of plots, irregular shape of plots, undivided ownership, dual or multiple ownership, plots with no title deeds, water rights, lack of road access, rented land, deserted and uncultivated land, absentee owners, the age and education level of farmers, holders with agriculture as their main occupation. One legacy of Ottoman rule is a kind of multiple ownership in which one person owns the land and another person owns the trees or water. This complicates land ownership, and there was an urgent need to resolve these issues. In other words, Cyprus is seeking to solve a number of problems, many of which also exist in Vyzakia, with the help of land consolidation. For further detail about how Cyprus has implemented and organised the land consolidation process see Ioannides (2007), Burton (1998) and Burton and King (1982).

The land consolidation process in Vyzakia started in August 1991. The area to be consolidated covered approximately 135 hectares, and was characterised by the Cypriot authorities as irrigated lowland and semi-mountainous terrain.

Prior to land consolidation, only 119 of 511 holdings in Vyzakia had road access. After consolidation, the number of holdings was reduced to 335, all of which had road access. An artificial irrigation system was also established. The number of owners was reduced from 445 before consolidation to 268 afterwards. The size of the average holding increased from 0.14 hectares to 0.34 hectares. After consolidation there was 14.5 km of road, as opposed to only 3.9 km previously. In Cyprus, at least 50% of landowners representing at least 50% of the assessed value of the land in the land consolidation area must vote in favour of consolidation. In this particular case, 63.3% of the owners voted in favour, representing 74.8% of the assessed value of the land. The land consolidation process was concluded in August 2000.

How does the landscape change when the average holding size more than doubles, and 10 km of new roads are built in such a small area? I first visited Vyzakia in May 1999. The land consolidation authorities had built the new roads, but the holdings were still laid out as prior to consolidation. The new holdings were not taken over until August the following year. The roads built in conjunction with the consolidation process were surfaced with light gravel, as are similar roads elsewhere in Cyprus. Prior to consolidation the landscape was relatively monotonous and there appeared to be limited agricultural creativity. There was a clear need to simplify land ownership and tenure, as well as to build infrastructure. All of the photos were taken from a viewpoint very close to the church Ayios Andronikos, which lies slightly to the north-west of the centre of Vyzakia. My second visit was in July 2004. The new owners had taken over their holdings in 2000, and it was possible to detect changes in the way the land was being used as well as greater activity. In particular, we noted an increase in the number of citrus and olive

trees. According to surveys by the Cypriot land consolidation authorities, production does indeed increase significantly after consolidation.

My third trip to Vyzakia was in April 2008. This time a group of students from the Department of Civil Engineering from Bergen University College were doing field work to survey changes to the cultural landscape (Tornes et. al. 2008). The students studied approximately 2.5 hectares of the consolidated area (marked with a red circle on photo 1).

The students found a landscape that had undergone moderate change. In the area they analysed, the number of holdings was the same as before consolidation. Various boundaries had been straightened out and the plots had a more logical shape. One obvious difference was that the cultural landscape was more varied. It was lusher, and a variety of new agricultural products had been introduced. Amongst other things, crops requiring more water had been established. Furthermore, four homes or cabins had been built within the study area.



Photo 1: Vyzakia in May 1999. The study area is marked with a red circle on the photograph.



Photo 2: Vyzakia in July 2004.



Photo 3: Vyzakia in April 2008.

3. Lessons learned

What can we learn from this? In my view, land consolidation when correctly implemented can lead to clear improvements in the cultural landscape. A main reason for the positive changes in this case was probably the new irrigation system. When changing the ownership structure in a cultural landscape consisting of small holdings, and where large holdings could lead to even more monoculture, one should follow the example of the Cypriot authorities in this case. Avoid changing the size of the holdings too much. It is possible to unite the holdings of individual owners without eliminating the field margins between holdings. It may be sufficient to simplify the ownership structure and thoroughly review the land registries to eliminate any inconsistencies. This may be the best approach when consolidating terraced areas, for example where vines are cultivated, or areas with small-scale niche production.

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