



LAND USE PLANNING AND MANAGEMENT IN THE RURAL ANDÉVALO REGION, HUELVA-SPAIN: GLIMPSES OF ITS ACCOMPANYING IMPACT.

M. Curfs

IBED. Universiteit van Amsterdam. Nieuwe Achtergracht 166. Amsterdam. The Netherlands

During the last three years huge land use changes have taken place in the western most region of the Huelva province (Andalucia), the Andévalo region. Many hectares of land have been and currently are being converted into orange plantations. On 02/12/2003 the Andalusian government (Junta de Andalucia) has approved to start an irrigation plan: "Regadío del Andévalo". The size of this plan fits within the strategy of economic spreading, as approved by the government. A vast area of rural landscapes has been selected to undergo a reformation into economic beneficial plantations. 10.000 Hectares of marginal agricultural land is planned to be converted and irrigated in the western Andévalo region in the Huelva province. Also, the juice and softdrink company García-Carrión (Don Simon) expects to build an orange-juice producing company in the Andévalo area.. The scope of this project is based on orange deliveries of 7000 hectares of integrated orange plantations. The Regadío del Andévalo plan promises 6500 m³/ha, which sums up to 65Hm³ for irrigation annually. The water will be supplied from the Andévalo dam, which is a main tributary river to the Chança river, which in turn is, a main tributary to the Guadiana river in the lower or tidal Guadiana drainage area. The type of agriculture in relation with the tree density and the speed of growth of the trees lay big demands on the already scarcely available water. Almost all precipitation (avg. 500 mm/year) falls between November and March. The water-infrastructure used for irrigation on the plantations before the implementation of the irrigation plan consists of wells and man made reservoirs that alter the natural drainage patterns. The expected climatic changes for this area are sure to change rainfall pattern and water supply; the total amount of rainfall will be less but fall in

more severe storms. The orange plantations are very vulnerable to erosive processes and at orange plantations agro-chemicals are used frequently. The trees are standing on bare soil on undulating slopes with very little to no undergrowth. There is no real soil formation other than to call this an anthropogenic soil since it is completely (apart from parent material) created through human activity. Soil Organic Matter content is very low. The natural capital the land offers is the first asset that is removed in the conversion methods applied. Before anything, the land is scraped bare of vegetation by means of bulldozers. Then bulldozers divide the land in parallel mounts at such a distance, which seems to have primarily been chosen in such a manner, that a tractor can drive trough. In many places the trees and mounts are planted parallel to the slope leading to excess runoff in the wet season. Little to no erosion prevention or soil conservation measures seem to be taken, which can result in dramatic impact, if the still to be conducted land conversions will be performed in the same manner. The impact can be divided into 5 main categories: 1. Erosion of plantations, on site/off site 2. Erosion of conversion actions, on site 3. Use of agro-chemicals, contamination onsite/off site 4. Present water usage, on site/off site 5. Future water supply from reservoirs, off site impact. In the southernmost part of the region, near the Atlantic coast on the shores of the Guadiana river a new urbanisation is being created. This will be accompanied by the creation of two 18 hole golf courses. In total, houses will be built to shelter 13000 people. Consequentially, soils will be sealed and water demands will further increase in the already highly populated coastal zone (littoralization). The increasing urban population in the coastal area and along the banks of the Guadiana river is intended to add in the augmentation of the tourism industry. The more marginal soils are used for intensive agricultural practices. Both these aspects are introduced to increase the economic status of the area, but the possible off site impact of erosion and contamination of the orange plantations will counteract the touristy assets such as beach and water quality. The different aspects of the impact in the Andévalo area will alter the ecosystem dynamics and the intricate balances that exist between soil and water, which will be examined in further detail at the congress.