BRIEFING NOTES
ON THE CIRCE RURAL CASE STUDIES: AN OVERVIEW

These notes provide an overview of the four rural case studies chosen to assess the integrated impacts of climate change in the Mediterranean area. Separate briefing notes are available for each case study: Apulia and Tuscany in Italy, Tel Hadya in Syria, and the Judean Foothills in Israel.

1. Justification

Rural areas throughout the Mediterranean region are complex systems sustaining a multitude of functions other than just agricultural production. They act as an area for recreation, and contribute to the region's cultural identity, tourism, and the preservation of natural resources, biodiversity and environmental quality. The fragile balance of these complex rural systems is threatened by environmental and social pressures, rendering these regions particularly vulnerable to climate change.

The assessment of climate change impacts in rural areas is not simple since they encompass a wide range of sectors of human activity in combination with environmental systems such as natural ecosystems, forestry, agriculture, the rural economy and tourism. As a consequence, the complexity and vulnerability of these rural regions make them the ideal focus of cross-sector study and integrated assessment.

Dried up river bed (Source: http://thoughtsonglobalwarming.blogspot.com/2007_09_01_archive.html accessed 04-01-08)

2. Key hazards and vulnerabilities

Variation in rainfall amount and distribution, temperature, and the duration and intensity of extreme events for natural, forest and agricultural ecosystems are expected to have negative impacts on rural areas resulting in an increase in cost management and a lower production of the conventional local crops and livestock. An understanding of water resource variability and decline, in the context of social impacts and social and ecosystem adaptation are of paramount importance for the future sustainable management of water. There are large economic implications which may alter the characteristics of the workforce at a regional scale and the continuity of water supply to the general population. Moreover, in less developed areas, environmental change has immediate and direct effects on the health and well-being of households that depend on natural resources for their basic livelihoods and could generate migratory fluxes that necessitate careful consideration and policy attention.

3. The case studies

The four rural case-study regions (Figure 1) are characterized by a range of features and issues which are likely to render them particularly vulnerable to climate change:
Tuscany Region, Italy: Rural areas of Tuscany are dominated by agricultural and tourist activities. In particular, grapevine and olives are two of the main agricultural crops grown in Tuscany. The former is very important for the economic role that wine producers play at a national and international level; whilst the latter is important not only for the income that it generates but also for its landscape role. However in the last 15 years, rural tourism has increased exponentially in Tuscany so that it now represents the main income for many farmers.

Apulia (Puglia) Region, Italy: As in many other Mediterranean regions, a gentle topography with high population density has led to an intensification of agricultural farm-

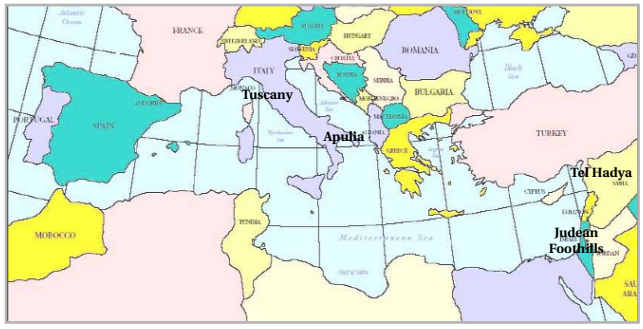
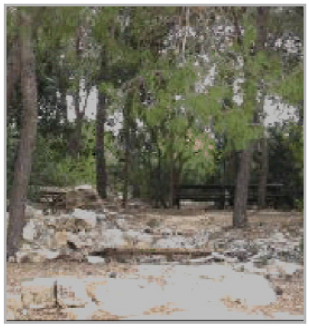


Figure 1: Location of the four rural case studies

ing in Apulia. The replacement of existing natural vegetation with selected agricultural crops and pasture has resulted in a reduction of biodiversity. A progressive increase in irrigation crops has extended cultivation from vegetables to trees, with intensive irrigation now being used to grow table grapes and citrus fruits, and emergency irrigation being used to grow olive crops by an unregulated process which has little regard for the long-term sustainability of water resources. Tourism in the Apulia region is a growing economic resource, whose development could be affected by climate change and by coastal management strategies involving the protection of numerous small harbours.

Judean Foothills, Israel: This region is located in the southern-central part of Israel and occupies the transition zone between the northern sub-humid and southern semi-arid Mediterranean climate zones. The steep moisture gradient together with wide topographical variation has created such high biodiversity (among plant species, mammals, reptiles and amphibians and bird species) and considerable ecosystem variability, that the Judean Foothills have been proposed as a Biosphere Reserve of UNESCO's Man and the Biosphere Programme (www.unesco.org/mab). Land use types range from nature reserves to intensively managed agriculture with small rural settlements. Tourism, a developing sector in the area, relies on the rich historical, cultural and natural heritage of the Judean Foothills.

Tel Hadya, Syria: This area of northern Syria has a typical Mediterranean climate with an annual rainfall of 300-1000 mm. Agricultural systems are mainly rain fed with cereals and legumes dominating the land area. Supplemental irrigation is practiced in winter to overcome dry spells and stabilize yields. Summer crops include cotton, maize and vegetables and are fully irrigated. Ground water and water from the Euphrates are the main sources of irrigation. Communities in rural areas tend to be poor and underdeveloped and are particular vulnerable to drought.



Rural scenes from the Judean Hills

4. Main climate threats

The main climate threats for the rural case studies are related to: atmospheric warming, shifts in rainfall patterns, and extreme events (such as flood, dry spells, heat waves, storms). These climate hazards are expected to have direct negative consequences for agricultural production and the stability of natural ecosystems. In particular, a reduction in available water will have repercussions for water resource management as the competition between different sectors intensifies. The main objectives for the rural case studies are to undertake an integrated assessment of the cross-sector impacts of climate change on: forest fire risk, water resources, biodiversity, and the rural economy including agriculture and tourism. Collaboration with stakeholders will allow us to identify and explore practical and specific adaptation and mitigation measures for the rural case studies. For this purpose we will compile for each case-study, specific datasets including meteorological data, digital elevation models, land use and

Withered crops (Source: http://cropwatch.unl.edu/photos/cwphoto/drought_corn26.jpg accessed 04-01-08)

vegetation type, forest-fire occurrence, and observed agriculture and forestry data.

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