

## 9. Some evidence of landscape change, water usage, management system and governance co-dynamics in south-eastern Spain

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### 9.1 INTRODUCTION

The identification and characterization of co-dynamic processes between landscape, resource usage, management system and governance is crucial to determine the causes of structural change in socio-natural systems. A clearer understanding of the co-dynamic processes that can occur in socio-natural systems could help to illuminate further the rapid and unforeseen changes that are inherent to the environmental, socio-economic and governance contexts within which water supply and demand patterns develop. The processional logic here infers that if co-dynamic processes cause structural change in socio-natural systems, then structural change could offer the key through which to identify the characteristics of both the type of resilience and the adaptive capacity that maintains the long-term sustainability of a socio-natural system.

The literature pertaining to the concepts of resilience and adaptive capacity recognizes that resilience refers to the potential of a natural or social system to reorganize or restructure (Walker et al., 2002; see also Gunderson and Holling, 2002). Adaptive potential is understood to be the capacity of an ecological system to transform itself, and in a social system to promote innovation; such change facilitating a reconfiguration of the system without a significant decline in its crucial functions.

The study reported here takes as its frame of reference the Marina Baixa catchment area in Spain (Figure 9.1). The catchment covers 671 km<sup>2</sup> and is located on the border between a semi-arid rainshadow climate and a dry climate. It comprises a complex and varied topography characterized by