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Use of new chemical and physico-chemical indicators to identify sensitive environmental areas

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The province of Murcia is potentially sensitive to desertification processes due not only to its climatic characteristics, but also to historically intense agricultural and forest use, as well as certain physical, edaphic and sociocultural characteristics.

The objective of this work is to extend the study of desertification to factors that have not been sufficiently treated, such as the chemical degradation of soils. For this we set the following partial objective: to study the physicochemical nature of soil and its possible relationship with processes associated with natural and/or anthropic causes, to serve as a base for action and recovery plans, as well as management techniques and good practices that can be horizontally integrated into agricultural and environmental policies

The areas selected for the study correspond to four groups: lands with drip irrigation, lands using flood irrigation, unirrigated land and areas with natural vegetation.

The reuse of badly depurated water, perhaps including industrial wastes and desalinated water, in semiaridic areas has a harmful effect on the environment and may lead to gradual desertification.

The following indicators have been defined: Indicators of soil quality, climate quality, vegetation quality and management quality, salinisation, alkalinisation, loss of fertility: loss of micronutrients (iron, copper, manganese and zinc) and risk of phytotoxicity: increase of trace lead and cadmium. as well as boron, potassium and phosphorus

indicators. These indicators will be applied to the study areas according to the basic data available. While Geographical Information System (GIS) methodology will be used for monitoring the evolution of the processes.

The combination of all these indicators will provide a new indicator to identify sensitive environmental areas.