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The role of rivers in ancient societies, or how man transformed the alluvial landscapes of Khuzestan (SW Iran)

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For many thousands of years the alluvial plains of Khuzestan (SW Iran) have been subject to intensive settlement and agriculture. Ancient societies depended on the position of major rivers for their economic survival and hence, there is ample evidence of human activities trying to control the distribution of water. Throughout the plains ancient irrigation and settlement patterns are visible, although traces are rapidly disappearing due to expanding modern land use.
Aim of this study is to unlock and integrate the rich information on landscape and archaeology, which only survives through the available historical imagery and some limited archaeological surveys. A GIS-based geomorphological mapping procedure was developed, using a variety of imagery, including historical aerial photographs, CORONA, Landsat and SPOT images. In addition, supported by the evidence from previous geological field surveys, archaeological elements were identified, mapped and included in a GIS database. The resulting map layers display the positions of successive palaeochannel belts and extensive irrigation networks, together indicating a complex alluvial history characterized by avulsions and significant human impact.

As shown in several case-studies, integrating information from multiple disciplines provides valuable insights in the complex landscape evolution of this region, both from geological and historical perspectives. Remote sensing and GIS are essential tools in such a research context.

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