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FLUVIAL GEOMORPHOLOGY AND WATER MILL LOCATION IN BASILICATA (SOUTHERN ITALY)

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The aim of this work is to assess the ways in which the geomorphology of Basilicata Region, southern Italy, has affected the siting and operation of mills powered by water largely diverted from rivers.

Hundreds of water mills in Basilicata were catalogued and georeferenced by the study of documentary sources, ancient cartographies and field survey, during a research project, called MULILU (MULIni LUciani / Lucanian water mills), supported by CNR IBAM. These water mills were active until the early decades of the twentieth century and represented an important structural feature of waterways. Today Basilicata water mills and other hydraulic structures (such as fulling, *ramiere*, paper mills) are largely characterized by a state of neglect and / or forgotten.

The main aim of the project is to enhance the historical sites, feeding greater and differentiated tourist offer, but also to examine the geomorphological features of mills location, assessing: 1) mill position within the drainage network; 2) the channel steepness upstream and downstream the water mills; 3) the relationships and interaction between the hydraulic structures and fluvial hazard zones, often influenced by the abandonment of the mills; 4) the role of the hydraulic system associated to the watermills (dams, weirs, dykes, sluices, mill channels) in limiting the flooding and erosional events occurred along the valley bottom and ensuring an higher safety level of territory.

Hydraulic structures represent also a potential resource of historical, cultural and touristic value, that it is necessary to recover, enhance and connect to the territory. In fact, an itinerary finalized linking geomorphosites and water mills could be developed to insert them in an information and monitoring network and to use them for educational purposes.

Finally, considering that water mill location defines some points of the river system already used in the past for the exploitation of hydraulic power, the possibility and the economic value of converting the structures to-micro-hydroelectric centrals will be also evaluated.

