

Historical and Recent Small Water Bodies in the Weinviertel Region of Lower Austria – A GIS-Based Analysis

Luka Gašpar, Elisabeth Peham, Christian Bauer

Federal Agency for Water Management, Schrems, Austria

e-mail: christian.bauer@baw.at

As part of a preliminary study for a project on future water supply for agriculture, historical and recent small (artificial) standing water bodies (mostly ponds) in the cultural landscape of the Weinviertel region (Lower Austria) were analysed using GIS technologies to identify potential for revitalization and the creation of storage ponds. Historical water bodies from the Josephine (1773–1781) and Franciscan (1809–1818) land surveys were digitized through georeferencing (TPS—Thin Plate Spline as a transformation algorithm combined with the most accurate ground control points (GCP) possible using QGIS, Fig. 1) and aligned with recent data (OpenStreetMap, Basemap Austria, public satellite imagery). This process identified 97 (Josephine) and 92 (Franciscan) historical water bodies, of which 39 and 37, respectively, still exist today. Of the water bodies that no longer exist, 71 and 52, respectively, would be located outside settlement areas today and thus offer theoretical potential for revitalization.

In addition, recent standing water bodies (data: Environment Agency Austria) from the Josephine (1773–1781) and Franciscan (1809–1818) land surveys were digitized and 18 historical wetlands identified in the GIS analysis above were examined. Of the 1,696 standing water bodies in the project area, 401 are not clearly recognizable in satellite imagery, which limits the exclusive use of satellite imagery. During field surveys, 12 sites were also evaluated for revitalization, with GIS data supporting the selection and evaluation of the sites. The GIS-supported analysis enabled a precise spatial evaluation and provides a basis for targeted revitalization measures that highlight the potential of historic water bodies for modern water management.

