**Project:** HYDROMATRIX®- TECHNOLOGY APPLIED IN NEW RUN-OF-RIVER PLANTS  

**Researcher:** Prenner  

**Client:** VA TECH HYDRO GmbH & Co  

**Objectives:**  
- Design of low head plants by using the HYDROMATRIX®-concept  
- Application of different turbine types  

**Abstract**  
Originally the application of the HYDROMATRIX®-technology has been used in existing hydraulic structures for the production of electric energy. A further implementation of this concept in new to erecting hydropower plants for low head ranges can lead to substantial lower costs, due to the omission of the powerhouse construction. Consequently, there is no requirement of additional land and environmental impacts will be reduced as well. Additional cost reduction can be achieved by the use of standardized electro-mechanical equipment (TG units etc.) that facilitates a simple maintenance.

The application of the HYDROMATRIX®-concept in new low head plants requires an adjustment of the design compared to conventional civil structure. The hydraulic-structural design of the new plant is usually determined by location-specific conditions (flood and operation discharge, upstream and downstream level, sediment transport, ice and debris, geology, architectural appearance etc.) and technical boundary conditions (size of the turbines and modules, draft tube submergence, size of gates, maintenance etc.). The project comprises the development and evaluation of several conceptual design studies of new low head power plants under consideration of their dominating boundary conditions. For rivers with intensive sediment transport a submersible weir type offers a reduced design of the module height as well as easier flushing of deposited sediment.

**Proposals for the application of the HYDROMATRIX®-concept in new low head plants**

**References:**