**Project:** HYDROMATRIX®- TECHNOLOGY APPLIED IN EXISTING DAM STRUCTURES  
**Researcher:** Prenner  
**Client:** VA TECH HYDRO GmbH & Co  
**Objectives:** Improved design of HYDROMATRIX®-modules  
Application in existing hydraulic structures

**Abstract**  
More than 70% of worldwide existing dam projects have been utilized for primary purposes like irrigation, flood protection, navigation and more, and not for energy production. Thus the HYDROMATRIX®-concept advanced by VA TECH HYDRO GmbH & Co enables dam operators to tap the unused hydropower potential of their existing hydraulic structures for energy generation at extremely low costs. By this technology so called HYDROMATRIX®-modules are installed in place of stop log or gate slots of weirs, ship lock sluices, intake towers for drinking water and intake structures of irrigation systems. A module basically consists of a compact grid arrangement of small identical unregulated bulb turbine-generator units installed on a steel structure. The module can be raised out of water in case of repair or revision and can even be removed at flood discharges. For application with limited space a further refinement turbine-technology has been recently finished by VA TECH HYDRO GmbH & Co using the development of the StrafloMatrix™-turbine, where the turbine runner also serves as a support for the generator rotor.

**Application types for the HYDROMATRIX®-technology**

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<tr>
<th>Smithland lock and dam, USA</th>
<th>Jebel Aulia, Sudan</th>
<th>Colebrook, USA</th>
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**References:**