Demonstrator 6: **SEDMIX**

Controlled fine sediment release through the power waterways by using a mixing device

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Introduction & Background

Reservoir sedimentation:
A problem of today

SEDMIX: Innovative mitigation measure
(Thesis Jolanda Jenzer-Althaus, 2011)

Stirring device:

- 4 perpendicular water jets
- Induce sufficient up wind vortex
- During HPP operation
Objectives

Test with a model in the laboratory

Tests with prototype in dam sites
SEDMIX device: How does it function?

Floating platform

SEDMIX: 4-nuzzle manifold frame

Ballast

Submerged pump

Anass Chraibi
SED MIX prototype

- Up scaled form Jenzer thesis (2011)
- Discharge 5 m$^3$/s distributed into 4 nozzles
- Manifold diameter 18 m
- Made of steel or fiberglass
- Pipe diameter 1000 mm
- Assembled in the site
- Dissembled and moved to other sites
SEDMIX device: How is it going to be installed?
SEDMIX device: Where to place it?

- Test with a model in the laboratory
- Numerical simulations
- Tests with prototype in dam sites
Numerical simulation of SEDMIX device
Selected results
Selected results

$Q_{\text{in}}$ constant
$C_{\text{in}}$ constant
$Q_{\text{out}}$ constant
NEXT STEP...

WP1: Design, operation and logistics of the demonstrator
WP2: Catchment area monitoring
WP3: Evaluation of reservoir hydrodynamics and device performance
WP4: Turbine monitoring
WP5: Ecologic & Ecomorphology monitoring

Current partners: EPFL-PL-LCH, HES-So Vallais, ETHZ-VAW, ETHZ-IF, HSLU, HES Wädenswil
Industrial partners: Hydropower Plant owners


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