



## Project Short Title

SHARE



## Project Long Title

Sustainable Hydropower in Alpine Rivers Ecosystems

## Lead Partner

ARPA Valle d'Aosta - Agenzia Regionale per la Protezione dell'Ambiente della Valle d'Aosta

## Project Partners

- Regione Piemonte, DB10 Ambiente (Italy)
- ARPA Veneto Regional - Agency for Environmental Protection and Prevention of Veneto (Italy)
- RSE Ricerca Sistema Energetico (Italy)
- E-zavod (Slovenia)
- University of Ljubljana (Slovenia)
- Graz University of Technology, Institute for Hydraulic Engineering and Water Resources Management (Austria)
- University of Innsbruck, River Ecology and Invertebrate Biology Institute of Ecology (Austria)
- Government of Styria, Department for Water Resources Management (Austria)
- Université Joseph Fourier Grenoble, Laboratoire d'étude des Transferts en Hydrologie et Environnement OSUG (France)
- GERES, Groupe Energies Renouvelables, Environnement et Solidarités (France)
- University of Stuttgart, Department of Hydraulic Engineering and Water Resources Management (Germany)
- AEM Association Européenne des Elus de Montagne (France)

## Project Website

[www.share-alpinerivers.eu](http://www.share-alpinerivers.eu)

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08.2009 - 07.2012

## Total Budget in EUR

2.700.000

## ERDF in EUR

2.052.000

## Abstract

Hydropower (HP) is the most important renewable resource for electricity production in alpine areas: it has advantages for the global CO2 balance but can create environmental impacts to rivers. As any multi-use resource, there is an important pressure on Alps rivers that often generates conflicts of interests. Energy consumption trend, climate change and increasing water demand worsen these conflicts between river users and defenders.

SHARE project has developed, promoted and tested a decision support system to merge on an unprejudiced base river ecosystems services and hydropower requirements using a Multi Criteria Analysis (MCA) methodology modelable on specific case. The MCA is applied as "balance" for evaluating different river management alternatives defined by different criteria detailed by indicators.

Decision makers are helped to identify the more sustainable management alternative adopting SHARE methodology and using a toolkit tailored on local river and HP facilities conditions.

The SHARE approach has been openly implemented to be adjustable to transnational, national and local normative and carried on by administrators and stakeholders in water management.

## Relevance

The energy production in EU is constantly in growth and the trend will hardly change in next years. RES-e Directives (20/20/20) require renewable electricity enhance but, at the same time, Water Framework Directive obliges member states to reach or maintain a water bodies "good" ecological status, intrinsically limiting the hydropower exploitation.

HP has a strategic role for local economy and development almost in all alpine regions: at the same time, Alps embody an extraordinary environmental asset strictly connected to water bodies that must be protected to guarantee the health and attractiveness of mountain ecosystems.

Even if this situation is common in Alps, the game is played at local scale: mountain administrators hold in their hand governance control, daily facing an increasing demand of water abstraction and concessions renovations but lacking reliable tools to evaluate interactions of their choices on rivers and energetic, economical and social outputs on longer time scale.

River and HP management procedures are very diversified at local scale: in SHARE, transnational cooperation has been strategic because it allowed capitalizing and concretizing local experiences and excellences in a step-by-step methodology.

## Key Achievements

SHARE offers a toolkit to take transparent decisions about planning and management of hydropower facilities, considering resulting effects on river ecosystems and related stakeholders. Following resources are available:

- an user friendly MCA methodology supported by a dedicated software (SESAMO)
- a customized software (CASiMiR ) to assess habitat conditions along the river channel and bank areas with a specific module for evaluation of economic effects for hydropower production
- a set of customized software to assess HP residual potential and financial feasibility of new HP plants (VAPIDRO Aste and SMART Mini-Idro)
- short videos, online seminars and training activities to translate "in plain English" SHARE approach
- an indicators database to evaluate HP and its effects on mountain water bodies
- 11 Pilot Case Studies monographs, alternatives description and decisional trees on which SHARE approach has been tested
- a set of technical reports to:
  - assess natural capital exposed to HP pressure
  - define and map river typologies more vulnerable to HP pressure
  - MIF and discharge estimations methods
- guidelines to integrate MCA procedures in normative

Deliverables above mentioned are not "spare parts" but they are interrelated through the SHARE hypertext handbook.

## Lessons Learnt

Added value of stakeholders involvement and their interest raising has been strategic and has concerned both technologies and river management domains.

Passing from theory to practice with the pilot case studies has been the key element to boost the methodology and motivate partnership.

Passing from data to information has been a strategic factor for administrators: they all need to be better equipped to manage rivers in a reliable and sustainable way and be compliant with the set of laws.

Project partners assorted expertise combined with broad background allowed to deepen different aspects of the project: however, there's a need to improve data & information-sharing between the different Alpine countries (strengthening of data standardization).

Cooperate is useful and concrete: sharing experiences already made in other Alpine countries allows to benefit from lessons learned and each other mistakes.

## Replication / Roll out

At local level, public administrations representatives of every mountain region dealing with Integrated Water Management need to be compliant with thematic set of laws: SHARE offers to them a problem solving approach in a frame of "soft governance" and round table with different stakeholders. It is an asset very useful in time of growing conflict of river use.

Following the networking activities feedback, we assume that in the further years several administrations could tailor SHARE decision support system to their own management requirements.

We also consider a very good result that in (only) three years of project duration in several regions the results of the project have been judged suitable to be replicated outside the geographic scope in which they were tested.

Outside project partner regions, communication and dissemination efforts have been done to capitalize project outputs being aware that the front line is local and SHARE is a bottom – up project. Nevertheless, SHARE methodology is fully compatible with Alpine Convention Common Guidelines for Small Hydropower based on the mandate from the Xth Ministerial Conference of the Alpine Conference in Evian (March 2009): the guidelines have to be considered along with the existing national - regional legal frameworks and instruments.

