European project SHARE
Sustainable Hydropower in Alpine Rivers Ecosystems
August 2009 – July 2012

Merging scientific tools, local specificities and operational requirements

www.share-alpinerivers.eu

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The European project SHARE opens up to local experts to balance hydropower and alpine rivers conservation

Aubagne, the 1st April 2011 – The 13 European partners of the SHARE project are meeting in Marseille (France) from the 11th to the 13th April. On this occasion, SHARE invites the stakeholders of the hydropower in the Alps to join the local technical panels.

Growing conflict in the use of alpine rivers
Water tower of continental Europe, the Alps are a key freshwater supply. The Alps are a shelter for more than 40,000 animal and vegetal species. As such, various ecosystems and millions of European citizens rely on alpine rivers. In addition, these are coveted for their energetic potential. Indeed, hydropower is in this area the first source of renewable energy (more than 90% of the electricity production). If it is particularly advantageous in limiting CO₂ emissions, its ecological impacts are significant. SHARE helps to make the increase in the demand for renewable energy compatible with the consideration of the alpine aquatic environment conservation.

SHARE - Sustainable Hydropower in Alpine Rivers Ecosystems
The SHARE project (2009 – 2012) involves 13 partners from Austria, France, Germany, Italy and Slovenia and from various backgrounds and fields of expertise working together towards one goal: balancing hydropower requirements and in the conservation of river ecosystems in the Alps. In order to bring practical solutions to the administrators of mountain areas and improve the consistency and transparency of the decision criteria, SHARE will equip them with custom-made tools in their decision-making process (software, databases, indicators, etc.).

Appeal to join the Permanent Technical Panel
To ensure that SHARE’s approach is comprehensive and that the tools are realistic, unbiased and efficient, SHARE wants to elaborate them with the input from all stakeholders in water management issues. As such, SHARE invites administrators, local decision makers, hydropower companies, alpine rivers’ users and defenders, to make their voice heard and benefit from the project results by joining the Permanent Technical Panel. Becoming a member is free and requires an online subscription at www.share-alpinerivers.eu/join-en.

More information on: www.share-alpinerivers.eu

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Roselend dam and reservoir, France
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I. Hydropower and river ecosystems in Alps

The “water tower” of continental Europe
Alps are the most important freshwater supply of continental Europe: Rhin, Po, Rhone and several tributaries of the Danube originate here. Various ecosystems and millions of European citizens rely on Alps rivers.

A shelter for biodiversity
Alps are one of the richest biodiversity areas in continental Europe. They shelter more than 30,000 animal and 13,000 vegetal species, including several endemic fish species. Due to a long story of anthropogenic modifications and exploitation, considerable impacts on biodiversity in river and riparian ecosystems have been observed. Climate change stresses these ecosystems, threatening human communities relying on them. The forecast increase of water temperature in the Alps will probably have detrimental effects on biodiversity.

Revitalisation of rivers is also a tried and true mean to reduce natural hazards like floods or landslides; it has a vital role in climate change mitigation and adaptation. This is one of the many ecological services a healthy ecosystem provides.

Rivers conservation and restoration are key issues for both biodiversity and local communities.

A tremendous source of (hydro)power
In Alps, hydropower (or HP) is the most important renewable energy source, generating more than 90% of the electricity production\(^1\).

Search for low carbon power generation, in combination with fluctuating prices and supply of fossil fuels, are strong incentives for the development and maintain of hydropower. HP is a future-proof energy supply, significantly improving energy resilience.

Alpine territories have a highly strategic interest in developing and maintaining an important hydropower generation capacity.

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\(^1\) CIPRA, *Energy in climate change* (2010) - [www.cipra.org](http://www.cipra.org)
Growing conflicts of use

As any multi-use resource, there is an important pressure on Alps rivers that often generates conflicts of use. **Climate change and increasing water demand worsen these conflicts.**

Climate change already has visible effects in the Alps, especially through temperature increases\(^2\); changes in the hydrological cycle and decrease in snow and glacier cover are observed. Water shortages and more frequent extreme events are to be expected.

Considering these threats, different views of alpine rivers’ future are drawn. The Alpine Convention states that in the Alps, “**hydropower generation can be considered to be the main reason for water abstraction (...). This results in the fact that a significant share of river stretches fail to meet the good ecological status**”.

For some, the priority is to protect and restore rivers ecological status, which means reducing human activities. For others, rivers are a vital source of income and local development, thanks to the many economic activities they are home to.

**SHARE shapes a thin path: sustainable hydropower. The project provides methodological and practical tools to promote this approach in the Alps.**

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II. SHARE: Sustainable Hydropower in Alpine Rivers Ecosystems

Making sustainable hydropower a reality

Administrators of mountain areas daily face water use issues and have to take decisions in relation to them. But they lack reliable management tools tailored to mountain rivers, to rigorously evaluate the effects of water abstraction on environment and on society.

The main objective of SHARE is to bring them practical solutions, so that their decision-making process is based on more consistent and transparent criteria.

Besides, the cultural link to the environmental component of hydro systems is often weak, even if their ecological significance is strategic: the project intends to make evident that a healthy mountain river is a concrete added value in every mountain regions.

<table>
<thead>
<tr>
<th>PROJECT’S IDENTITY</th>
</tr>
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<tbody>
<tr>
<td><strong>Name</strong></td>
</tr>
<tr>
<td><strong>Duration</strong></td>
</tr>
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</table>
| **Countries** | • Austria  
• France  
• Germany  
• Italy  
• Slovenia |

A custom made project for alpine decision makers

An Alpine Space Programme project for an alpine matter

SHARE is a European project. It is in line with the European Territorial Cooperation Alpine Space Programme, jointly financed by the European Regional Development Fund (EU) and states involved.

33 regions from seven alpine countries work together, in order to increase competitiveness and attractiveness of the Alpine region in a sustainable way. For the current period (2007-2013), the programme has 3 priorities: Competitiveness and Attractiveness, Accessibility and Connectivity, Environment and Risk Prevention.

Involving several alpine countries at once has a considerable advantage: alpine rivers and hydrosystems know no legal borders and many of them run across more than one country. Issues regarding their continuity and their good health don’t either. Thus, only transnational joint actions consistent with each other can address Alpine issues, no matter on which side of the border they are executed.

Find out more about SHARE at www.share-alpinerivers.eu
For the stakeholders, by the stakeholders

Thirteen partners from five countries are involved in the SHARE project (cf. Annex: SHARE consortium p.12). This consortium gathers different areas of expertise (hydropower, law and ecosystems) and different status (public, private and non governmental organisations).

What’s more, all stakeholders in water management issues can take part in and benefit from the project results as members of the SHARE’s Permanent Technical Panel (PTP). Members of the PTP shape the results according to their needs, expertise and local particularities.

SHARE’s target groups and contributors are:
- regional and local authorities;
- policy makers;
- water agencies and water authorities;
- environmental protection agencies;
- hydropower companies;
- water suppliers (industry, agriculture, recreation domains);
- associations and NGOs;
- national parks;
- engineering and design offices;
- universities;
- specialised press & lobbyists.

This heterogeneity enables SHARE to consider concerns of all stakeholders while elaborating the appropriate tools for them.

Aiming at integrated river management

The purpose is to enhance transparent decision making regarding planning and management of HP concessions, considering resulting effects on river ecosystems and on all stakeholders, thanks to:
- An appropriate decision support system
- A set of indicators and monitoring standards for rivers’ health
- The mapping of alpine hydro systems, and the designation of typologies most and less vulnerable to HP plants

SHARE will provide tools for compliance with both WFD and Electricity Production from Renewable Energy Sources directive, thus contributing to their effective local implementation.
III. SHARE’s outcomes and contribution to the issue

Expected results
The systematic implementation of sustainable hydropower can only be the result of legal authorities’ strong will. The decision is for local public bodies to make; SHARE will provide them with means to strike a balance between the needs of hydropower and the health of water bodies.

SHARE’s other target groups (such as HP promoters, river conservation defenders, local associations) can also use the project’s results and tools to know more about the specificities of a location. For example, in order to construct and support convincing and transparent arguments in a demonstration about the suitable siting and design of a HP plant, or when arguing if a plant should be erased, modified or even not built at all.

Reaching balanced decisions on multi-criteria issues: the MCA
Sustainable HP will be facilitated, in its day-to-day implementation, by a Multicriteria Approach (MCA) methodology.

The MCA brings to light all stakeholders and issues regardless of influence, economic importance, notoriety, authority. Based on this global approach, the MCA helps to assess different management alternatives where a single-criterion approach (such as cost-benefit analysis) falls short. An MCA methodology proves to be especially helpful where environmental, technical, economic and social criteria can’t be quantified by monetary values.

It will help decision makers take transparent and well informed decisions where hydropower is involved. The MCA will notably include scientific knowledge related to HP and river management.

11 pilot case studies to test the MCA
The MCA methodology will be implemented through pilot case studies. Then the MCA procedures will be adjusted, depending on issues put forward by the feedback.

<table>
<thead>
<tr>
<th>RIVER</th>
<th>COUNTRY</th>
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<tbody>
<tr>
<td>Dora Baltea</td>
<td>Italy</td>
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<td>Chalamy</td>
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<td>Chisone</td>
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<td>Cordevole</td>
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<td>Astico</td>
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<tr>
<td>Arc-Isère</td>
<td>France</td>
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<tr>
<td>Durance</td>
<td></td>
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<tr>
<td>Sava</td>
<td>Slovenia</td>
</tr>
<tr>
<td>Mur</td>
<td>Austria</td>
</tr>
<tr>
<td>Inn</td>
<td>Germany &amp; Austria</td>
</tr>
<tr>
<td>Lech</td>
<td>Germany</td>
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</table>

A guidance document will expose the functioning of the MCA and of the software that will implement it. The software and the guidebook will be the foundations of a practical decision support system.

Find out more about SHARE at www.share-alpinerivers.eu
Databases focused on the alpine region
Several databases will be created. They will facilitate information search about a given zone.
The **legal database** gathers local, national and international laws & legal framework regarding: hydropower, river management and authorities involved in their implementation.
The **contacts and organisations databases** list interlocutors concerning SHARE topics in Alps. They identify who must or should be consulted for a HP project.
The **environmental databases** gather information on rivers to characterize their typology and their vulnerability profile (based on the Water Framework Directive classification). They provide useful indicators for monitoring the river status, carrying out an environmental impact assessment or classifying scenarios of water use optimisation.

The Permanent Technical Panel (PTP)
The PTP is an innovative network of experts, technicians and engineers in the fields of HP and rivers ecosystems. It assembles public administrators, decision makers, experts and stakeholders, mainly in alpine countries. All of SHARE target groups, institutionally or directly concerned by water management topics, are potentially involved in the PTP. **Thanks to the PTP, SHARE will take in the whole picture of hydropower and biodiversity matters in Alps.**

A win-win partnership
The PTP is a win-win partnership between its members and SHARE project partners:
- It offers **access to specific information & tools**
  - It promotes the MCA for hydropower & river management and a smooth **upgrade of decision support systems**;
  - It supports the “translation” of MCA methodology offering documents, educational & training activities, software, events (face-to-face meetings, direct workshop, online seminars)... various **resources for free**;
  - It facilitates **innovation** and **normative compliance**.
- It puts together different actors involved in SHARE issues:
  - Participation to a **network of specialists**;
  - It facilitates **innovation & Alpine news watch**.
- It assigns specific **visibility** to different stakeholders involved and to SHARE approach;
- It collects data, comments and **feedback** to adapt the MCA approach to local and national background and to a concrete way of management.

Find out more about SHARE at [www.share-alpinerivers.eu](http://www.share-alpinerivers.eu)
Working methodology

- **5 national PTPs**: their organisation is closely linked to the administrative and to the legal planning framework in each country. The working language is the mother tongue.

- **1 transnational PTP**: it will provide feedback about issues not linked to a national context, such as scientific background for the MCA, trans-border river catchments… The working language is English.

The network members will be invited to:

- **Participate** to events (either direct or online). Meetings & workshops are the interface for SHARE to make PTP members brainstorm how MCA should be implemented through the software. They offer the opportunity to test the MCA and to give directions on the development of the software or of other results.

- **Use and test** the project’s products.

- **Give** their related feedback.

Generally speaking, the project’s web platform (www.share-alpinerivers.eu) will be a privileged mean to communicate and work within the PTP. Results, tools and various files will be downloadable there. PTP members will be allowed to navigate restricted access areas in order to consult, complete, upload or comment on them.

**Joining the PTP**

Joining the PTP is totally free. To apply, the member needs to fill in a short subscription form on the website www.share-alpinerivers.eu/join-en.

After confirmation by website administrators, all information will be sent by email to the new PTP member: user account details & password, tutorials on the use of the website, planning of events, contact person, project leaflet…

Setting up of the network will also occur via project partners. They will directly contact targeted stakeholders, inviting them to take part in the PTP.
For further information, also contact coordinators of the PTPs:

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[Wieprecht@iws.uni-stuttgart.de](mailto:Wieprecht@iws.uni-stuttgart.de)
## Annex: SHARE consortium

<table>
<thead>
<tr>
<th>ARPA VDA – Regional Environmental Protection Agency of Aosta Valley</th>
<th>Lead partner</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARPA VDA is the public environmental agency of the Autonomous Region Valle d’Aosta established in 1995. It aims at improving knowledge and environmental protection. ARPA VDA is in charge of monitoring air, water and soil quality as well as the effects of climate change and human activities on the environment. It offers scientific and technical support to the regional administration on environmental protection and prevention of environmental risks, and on decision-making (authorisation and control). It can also carry out laboratory analyses and provide advices for privates. Finally, ARPA VDA disseminates information on environmental issues within its field of expertise, notably via bulletins (air quality) and technical reports.</td>
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<thead>
<tr>
<th>Regione Piemonte</th>
<th>Local authority</th>
<th>Italy</th>
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</thead>
<tbody>
<tr>
<td>Regional Agency for Environmental Protection and Prevention of Veneto</td>
<td>Public agency</td>
<td></td>
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<tr>
<td>RSE – Research on Energy Systems S.p.A.</td>
<td>Company (research programs on electricity and energy sector)</td>
<td></td>
</tr>
<tr>
<td>E-zavod</td>
<td>Environmental non-profit organization</td>
<td>Slovenia</td>
</tr>
<tr>
<td>University of Ljubljana</td>
<td>Water Management Institute (research on hydraulic &amp; ecological engineering)</td>
<td></td>
</tr>
<tr>
<td>Technical University of Graz (TUG)</td>
<td>Institute for Hydraulic Engineering and Water Resources Management</td>
<td></td>
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<tr>
<td>University of Innsbruck</td>
<td>River Ecology and Invertebrate Biology Institute of Ecology</td>
<td>Austria</td>
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<tr>
<td>Government of Styria</td>
<td>Department for Water Resources Management</td>
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<tr>
<td>University of Joseph Fourier Grenoble</td>
<td>Environmental and Hydrologic Carriages Laboratory</td>
<td>France</td>
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<tr>
<td>GERES – Group for the Environment, Renewable Energy and Solidarity</td>
<td>Environmental non-profit organization</td>
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<tr>
<td>AEM - Association Européenne des Elus de Montagne</td>
<td>European association of elected representatives from mountain regions</td>
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</tr>
<tr>
<td>University of Stuttgart</td>
<td>Department of Hydraulic Engineering and Water Resources Management</td>
<td>Germany</td>
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