The water-energy nexus & river restoration in the Alpine Region – opportunities and challenges for the next decade (AIM project)

EUROPEAN RIVER RESTORATION CONFERENCE 2014
“WATER-ENERGY NEXUS IN THE ALPS”

Vienna, 27. October 2014

AIM project partners:
Main challenges

While **hydropower is the most important renewable energy source** in the Alpine area, it is also proven to have **severe negative impacts on the environment**, especially on the aquatic ecosystem.

These are e.g. impacts of

- **minimum environmental flow**
- **hydropeaking**
- **hydromorphological alterations etc.**

on biological quality elements (BQE's) as Fish, Macroinvertebrates and Macrophytes.

The **importance of these topics** is highlighted by the European Union in two directives: (1) the **directive on renewable energy sources (RES-E Directive)** and (2) the EU **Water Framework Directive (WFD)**.
Issues to be discussed

“Discuss relevant policy context and guidance, i.e. examples, **management responsibilities** in implementing the Water Framework and Nature Directives,

draft guidance on hydropower plants and other barriers effecting the river continuum, gravel excavation, river modifications etc.”

- Aspects of practical NATURA 2000 management
- Focus on practical challenges and workable solutions
- Operating pressures – including recourses?
- Measures that are being applied to halt or reduce biodiversity loss
- Examples of joint action, collaboration and networking
The Alpine Space Territory vs. the Alpine Arc (Alpine Convention)
During the Alpine Space Programme period 2007-2013, various projects in the fields of

- water resources management,
- renewable energy production and
- preservation of aquatic ecosystems

were addressing several open questions and challenges, **reaching significant results** and getting in contact with numerous stakeholders.

However, the 2007-2013 project achievements **did not address and serve all needs** of the entire Alpine Space region in the related fields.

Some major challenges remain, as **policy and decision makers often are not reached by ASP project results.**
AIM’s perspective & TO DO’s

Identify Alpine Space Region’s needs
• Overview of relevant strategic documents (EU-level, national and regional level)

Evaluate relevant projects
• Alp-Water-Scarce
• ECONNECT
• recharge.green
• SEAPAlps
• SedAlp
• SHARE

Results of 3 stakeholder panel discussions already available
• Vienna (November 2013)
• Ljubljana (February 2014)
• Munich (May 2014)

EU WATER AND ENERGY POLICIES: CAPITALIZATION and HARMONIZATION

„Challenges for RBM“, www.icpdr.org
**AIM – Facts**

- AIM focuses on the **capitalisation of the achievements of numerous ASP projects in the water-energy nexus** and will highlight unanswered questions/topics.

- AIM **addresses relevant actors at EU, national and regional policy level** and will provide **guidance for setting the scene of Alpine Space Programme 2014+ projects (by the end of this year)**.

- This is combined with **specific dissemination actions** (seminars involving key stakeholders of different target groups, interviews, web communication, publications, etc.).
Projects involved in AIM capitalization

**TOOL: SESAMO-SHARE**
MCA methodology focused on hydropower & river issues

**rechargeOgreen**
Assessment of the status quo of Alpine renewable energy production and of potential (with maps)

**econnect**
A set of qualitative indicators to compare legal frameworks, stakeholders, processes, energy market drivers, avenues of cooperation

**TOOL: JECAMI**
Joint Ecological Continuum Analysis and Mapping Initiative

A trade-off analysis (renewable energy production vs. biodiversity conservation/ecosystem services)

A decision-support system for renewable energy development considering ecological trade-offs and economic dimensions

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SEAPAlps
SedAlp
Alp-Water-Scarce
SOUTH EAST EUROPE
Transnational Cooperation Programme
Pole 4 Low Carbon Community
AIM Project Partners

RSE - Research on Energy Systems (Italy)

BOKU – Institute of Hydrobiology and Aquatic Ecosystem Management, University of Natural Resources & Life Sciences, Vienna (Austria)

IzVRS – Institute for Water of the Republic of Slovenia (Slovenia)

AEM - European Association of elected representatives from mountain regions (France)
<table>
<thead>
<tr>
<th>Observers</th>
<th>Institution</th>
<th>Country</th>
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<tbody>
<tr>
<td>1</td>
<td>Permanent Secretariat of the Alpine Convention</td>
<td>Austria - Alpine Region</td>
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<td>2</td>
<td>Schneider &amp; Jorde Ecological Engineering</td>
<td>Germany</td>
</tr>
<tr>
<td>3</td>
<td>University of Stuttgart</td>
<td>Germany</td>
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<td>4</td>
<td>European Commission Joint Research Centre – Institute for Environment and</td>
<td>Italy - Europe</td>
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<td></td>
<td>Sustainability (Ispra)</td>
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<td>UNESCO-IHE Institute for water education</td>
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<td>Compagnie Nationale du Rhône</td>
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<td>Association of Renewable Energy Producers</td>
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<td>Soča Valley Development Centre</td>
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<td>Soške Elektrarne Nova Gorica, Hydropower producer on the Soča River</td>
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<td>Fisheries Research institute of Slovenia</td>
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<td>Ministry of the Environment, Territory &amp; Sea Preservation</td>
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<td>ASCONIT Consultants on environmental issues</td>
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AIM Actions – Involvement of key stakeholders

Method AIM World Café: 4 tables & 4 main steps

Example of the topic „Sustainable hydropower“ with four main steps
Summary of preliminary results: Priorities and directions for 2014+

**Topic: Aquatic ecosystem preservation & restoration**

- Valuating ecosystem services
- Water pricing
- Integration of conservation issues into strategic planning – need for a “MASTERPLAN”
- Data harmonisation

**Topic: Water Management including hydropower**

- Improve communication and product-transfer to end-users
- Need for harmonization of correlating tools/products with issues and solutions, and promoting good practices and successful experiences
- Define common policies valid for the entire ASR, related to water management and hydropower projects including the role of water storage, adaptation to climate change and “energy-ecosystem sustainability”
Summary of preliminary results: Priorities and directions for 2014+

Topic: Stakeholder involvement

- Stakeholder involvement before solution development
- Clear definition of groups and requirements
- ASP – clear requirements of participation process and stakeholder engagement
- Sustainable projects: addressing needs of the society and tax payers, financial sustainability

Topic: Decision making processes

- Cost efficiency
- Decision makers have to be involved in the project preparation phase
- Improvement of communication and collaboration between the different levels (EU - national – regional – local)
- Investigation of the needs of the decision makers
Exкурsus – Scientific foundations for identifying ecologically sensitive river stretches of the Alpine arc

MAVA-funded study to provide a consistent, comprehensive foundation for setting nature conservation and restoration priorities in the management of Alpine rivers.

- Designation of river stretches with **high protection value** ("no-go areas") and river stretches with **high restoration potential**
- **Identification and documentation of the main impacts/pressures**
- Generation of a **consistent and comprehensive data base** contributing to increased knowledge and action
<table>
<thead>
<tr>
<th>Value for protection</th>
<th>Ecological status</th>
<th>Protected areas</th>
<th>Hydro-morphological status</th>
<th>Length of longitudinal connectivity</th>
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<td>High</td>
<td>High &amp; good</td>
<td>River stretches in protected areas</td>
<td>High &amp; good</td>
<td>Epi/Metharithral $\geq 5$ km Hyporithral $\geq 25$ km Potamal $\geq 50$ km</td>
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<td>Data base insufficient</td>
<td>Moderate (data uncertainty)</td>
<td>Moderate &amp; poor</td>
<td>Moderate &amp; poor</td>
<td>Epi/Metharithral $\geq 2 &lt; 5$ km Hyporithral $\geq 5 &lt; 25$ km Potamal $\geq 10 &lt; 50$ km</td>
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<tr>
<td>Limited value for protection</td>
<td>Moderate &amp; poor</td>
<td>Moderate &amp; poor</td>
<td>Epi/Metharithral $\geq 2 &lt; 5$ km Hyporithral $\geq 5 &lt; 25$ km Potamal $\geq 10 &lt; 50$ km</td>
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<tr>
<td>No value for protection</td>
<td>Bad</td>
<td>No protection status</td>
<td>Bad</td>
<td>Rhithral $&lt; 5$ km Potamal $&lt; 10$ km</td>
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Important river floodplain forests
AIM „take home messages“ for this event

• Aspects of practical NATURA 2000 management are very important
Further projects on data harmonization and strategic planning will be crucial (especially in cooperation with other sectors)

• Operating pressures – including recourses?
Data generation, data bases and – management, involvement of stakeholders (especially administration in ETC projects)

• Measures that are beeing applied to halt or recude biodiversity loss
Common Implementation Strategy & Aquatic ecosystem service valuation should be a future focus for the Alpine Space Programme
AIM final event!
...participants are VERY welcome

- **AIM final conference** (open to everyone, 25. & 26.11.2014, Mestre (Venice))
Thank you for your attention!

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www.aim2014.eu

Be part of our community!