

R5.4 Setting the scene for the ASP project generation 2014+

Guidance document

for the harmonization of water resources management,
hydropower production and aquatic ecosystem
conservation in the Alps

for the Alpine Space Programme Period 2014-2020

Work Package 5

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Rafaela Schinegger, Helga Kremser, Susanne Muhar, Stefan Schmutz (BOKU); Sašo Šantl, Klemen Šavli, Matej Cunder, Andrej Bašelj, Aleš Bizjak (IzVRS); Lucija Marovt (Lucija Marovt Communications Management); Maximo Peviani, Andrea Danelli, Julio Alterach (RSE); Nicolas Evrard, Fabienne Cordet (AEM)

The purpose of the AIM 2014+ guidance document

This document was developed in the context of the overall strategy of the project AIM – Alpine space In Movement, targeted to water & energy capitalization. AIM was funded by the EU within the framework of the European Territorial Cooperation Programme Alpine Space and co-funded by the European Regional Development Fund. The purpose of this guidance paper is to identify priority topics, on which a special focus needs to be placed for the project generation 2014 – 2020 based on existing/planned EU, Alpine, national and regional policies & frameworks (e.g. EU directives, strategies of EU- & Alpine wide platforms etc.).

This document pursues the objective of informing relevant stakeholders, including policy- and decision makers at all levels, from local to regional to transnational, about key conclusions of the AIM project. The overall goal of the AIM 2014+ guidance is to stimulate further development of, and support for the harmonization of water management, renewable energy production from hydropower and aquatic ecosystem conservation in the European Alps – hereinafter called “the **water-energy nexus** in the Alps”. It is expected that the implementation of the AIM project outcomes will result in enhanced sustainability of hydropower programmes. In addition to appropriate site selection for new hydropower developments, this will include conservation of riverine ecosystems in the Alps in order to guarantee ecosystem functioning and integrity, thus forming the basis for providing aquatic ecosystem services for multiple uses.

To find out more about AIM please visit the project website: <http://www.aim2014.eu>

AIM – Alpine space In Movement, targeted to water & energy capitalization - Executive summary

The Alpine Space Programme (ASP) is the EU transnational cooperation programme for the Alps, promoting & supporting regional development in a sustainable way via the European Regional Development Fund (ERDF). The ASP 2007-2013 focused on the following cooperation priorities across the Alps: (1) Competitiveness and Attractiveness; (2) Accessibility and Connectivity; (3) Environment and Risk Prevention.

Water resources, aquatic ecosystems and renewable energies are particularly important (economic) factors that need to be wisely managed to safeguard sustainable development in Europe and the Alps. The importance of these topics is highlighted in the EU directive on renewable energy sources (RES-E Directive) and the EU Water Framework Directive (WFD). In this context, it is worth noting that hydropower is the most important renewable energy source in the Alpine area, but it also has severe negative impacts on the environment, especially the aquatic ecosystem and the related biocoenosis.

During the Alpine Space Programme period 2007-2013, various projects in the related fields of water resources management, renewable energy production and aquatic ecosystem conservation, (e.g. SHARE, Alp-Water-Scarce, SEAPAlps, SedAlp, recharge.green and ECONNECT), investigated several open questions and challenges related to the water-energy nexus in the Alps, providing significant results and addressing numerous stakeholders. However, the 2007-2013 project achievements did not target and serve all needs of the Alpine Space region in the related fields, and some major challenges remain, such as the integration of the ecosystem services concept, or a harmonized implementation of the WFD and RES-E directive and related decision-making processes. Moreover, policy and decision makers are often insufficiently reached by ASP project.

To support the Alpine Space Programme in the preparation of the 2014+ project generation, the project “AIM – Alpine space In Movement, targeted to water & energy capitalization” (<http://www.aim2014.eu>) was therefore funded under the 5th call of ASP as a capitalization project.

In detail, the AIM project was based on the following three main objectives:

- 1) Track the achieved results of the Alpine Space Programme projects (2007-2013) in terms of the water & energy nexus in the Alps and identify the transnational needs of the entire Alpine Space Region.
- 2) Valorize and capitalize the main ASP projects' achievements in terms of policy & management development, disseminate results effectively and target the relevant policy levels/actors in order to support national/regional policies.
- 3) Setting the scene for the 2014+ project generation, by identifying key relevant policy actors and institutional competences, interlinking the achieved results with beneficiaries needs, and elaborating synergies between European/regional/national programs.

The AIM approach

The methodological approach of the project AIM consisted of three steps, shown in the figure below:

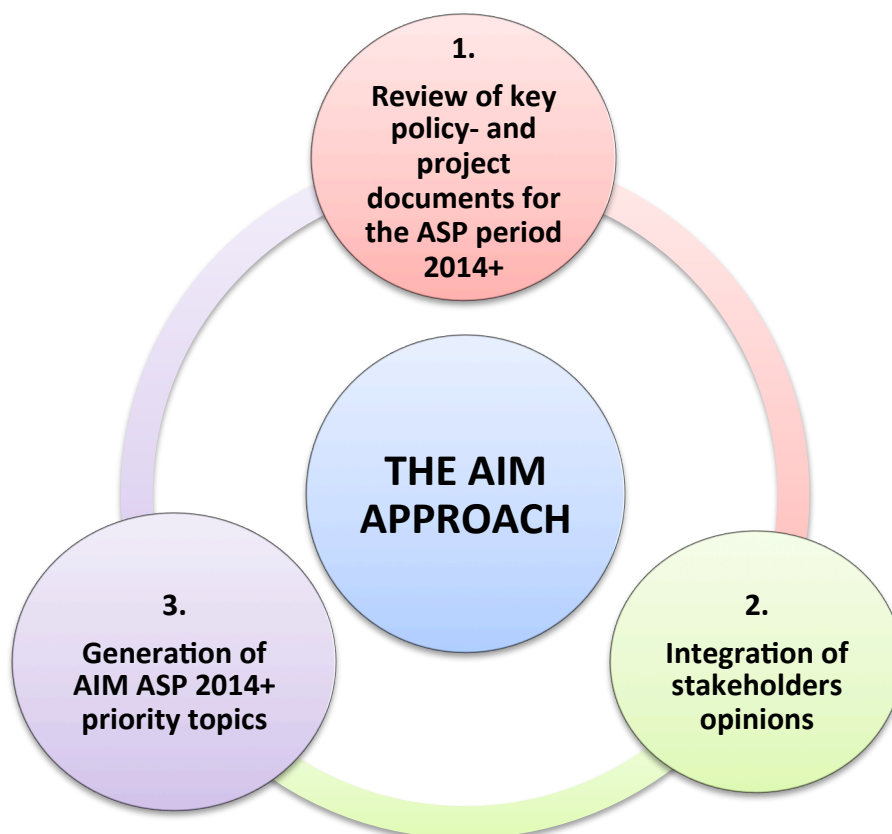


Figure: The AIM approach.

Step 1) Review of key policy- and project documents for the ASP period 2014+, addressing the water-energy nexus

Most relevant policy documents at different levels related to the water-energy nexus were analysed (e.g. the EU Water Framework Directive, the Blueprint to Safeguard Europe's Water Resources, the EU Renewable Energy Directive, National River Basin Management Plans, Natura 2000 Management Plans etc.).

Further, the outcomes of the six AIM priority projects and their relevant implications for the water-energy nexus were reviewed:

- ECONNECT (<http://www.econnectproject.eu>),
- SHARE (<http://www.share-alpinerivers.eu>),
- recharge.green (<http://www.recharge-green.eu>),
- Alp-Water-Scarce (<http://www.aim2014.eu/connected-projects/alp-water-scarce.php>),

- SedAlp (<http://www.sedalp.eu>) and
- SEAPALPS (<http://seap-alps.eu>)

The related results are presented in the following project deliverables:¹

- **„R4.1 - Database and report on the Alpine Space Region’s needs regarding the water-energy nexus“**
- **„R4.2 – Database/informative factsheet of the project results & achievements“**
- **„R4.3 - Evaluation and assessment of accomplished and foreseen results of selected projects“**
- **„R4.5 - Report on weak points from the interconnection between project results and Alpine Space Region’s targets“**

Further, relevant policy actors & institutional competences and the state of art of policy coordination at transnational level related to the water-energy nexus were investigated.

The related results are presented in the following project deliverables:²

- **„R5.1 – Informative factsheets of key relevant policy actors“**
- **„R5.2 – Cross table with achieved project results and beneficiaries“**
- **„R5.3 – Regional Web GIS Database“**

Step 2) Integration of stakeholder’s opinions

The AIM project integrated stakeholders’ opinions by means of interactive panel discussions in regional workshops (Austria and Slovenia) and interviews (Germany) focusing on four thematic groups: *“Preservation and conservation of aquatic ecosystems”*, *“Water management including hydropower”*, *“Stakeholder involvement in the water-energy nexus”* and *“Decision makers and related processes in the Alpine Space”*. Each thematic group discussed the needs/measures/key priorities in separate steps and respective outputs were summarized³.

The related results are presented in:⁴

- **“Report on the AIM Brainstorming Seminar in Vienna”**
- **“Report on the AIM Stakeholder Panel Discussion in Slovenia”**
- **“Report on the AIM Statements of German Stakeholders”**

Step 3) Generation of AIM ASP 2014+ priority topics

In the final step, all project results were synthesised and integrated into AIM ASP 2014+ priority topics to support the Alpine Space Programme in the preparation of the 2014+ project generation.

A detailed description of the AIM ASP 2014+ priority topics is given on the next pages.

¹ These documents are accessible via: <http://www.aim2014.eu/news/index.php?id=29>

² These documents are accessible via: <http://aim2014.eu/news/index.php?id=26>

³ Further, a stakeholder consultation was performed in Switzerland, Italy and France, even though topics differed a little bit in comparison to those stated here.

⁴ These documents are accessible via: <http://aim2014.eu/news/index.php?id=28>

AIM ASP 2014+ priority topics for the water-energy nexus in the Alps

1.) Better data generation & harmonization

During the AIM project, it became clear that availability and quality of data required to analyse key questions of the water-energy nexus in the Alps are a main issue and concern. Especially when integrating stakeholders' opinions, it is reported that water-related data are not gathered or are not (publicly) available on various spatial scales for ASP projects. Particularly, portions of the official data compiled in context of the Water Framework Directive (WFD, European Commission, 2000) are incomplete or are not officially available on a national or regional level in the Alpine Space Territory. This in spite of the fact that datasets should be provided/made accessible by responsible authorities in the River Basin Management Plans (RBMPs, European Commission 2009) and other national planning documents/laws (BAFU, 2007).

Moreover, if data are available, the procedure of data collection and data processing often lacks transparency, leading to additional problems in aggregating dispersed data for the Alpine Space. Further, there is a lack of consistency and hence, need for harmonization of datasets/methods by exchange of know-how between EU member states or even River Basin Management Authorities. Due to these circumstances, hydropower potential and likely conflicts with conservation needs cannot be analysed at the level of the Alpine Space yet. Even major questions such as how many human pressures are acting on Alpine riverine ecosystems cannot be answered to the full extent at the moment. Further examples are the lack of a common river network at pan-Alpine level, respectively information about location, type, capacity and production of hydropower plants or fish passes and connectivity status of Alpine rivers.

These facts lead to the following AIM policy implications for priority topic 1:

- Comprehensive and continuous collection of data, relevant for future activities and ASP projects focusing on the water-energy nexus is needed. Thus, basic datasets (e.g. river network, hydrological catchments etc.) should be made easily accessible also in concordance with data platforms such as the European Environment Agency (EEA) and the Water Information System for Europe – WISE⁵, of the European Commission (EC). Further, local/regional data should be integrated into such a central, consistent database.
- It has to be ensured that (1) databases of ASP project are of high quality and verified by relevant authorities, (2) all future ASP projects include a mandatory meta-database describing the data to the full extent (3) the relevant (meta-)data are available on the project websites after the project end.
- For the characterization and quantification of problems related to the water-energy nexus, further detailed and harmonized information on e.g. human pressures on Alpine riverine ecosystems or hydromorphological conditions are needed. Thus, future data acquisition should be more transparent and should be harmonized between member states, facilitated by know-how transfer, and by providing common guidelines for the member states/the Alpine Space. This should be strongly reflected in the River Basin Management Plans.

⁵ <http://water.europa.eu>

2.) Improved stakeholder involvement & communication

The urgency of issues related to the water-energy nexus increases the need for more sustainable water management. This requires transformation of knowledge, which may best be produced through inter- and trans-disciplinary activities and actions. Further, because water-related problems are likely to be accentuated in the Alps, this region provides particularly good learning opportunities for sustainable water management (Renner et al., 2013).

Raising awareness about water related issues and solutions through information dissemination and strategic communication processes, as well as encouraging public participation in environmental decision-making will be key-features for enhancing Integrated River Basin Management for the Alpine Space. The successful trans-disciplinary process depends on proactive management (Renner et al., 2013), where stakeholder participation is underpinned by a philosophy that emphasises empowerment, equity, trust and learning, and where participation is considered as early as possible and throughout the process (Reed, 2008). In these regards, a good example has been set in the Danube River Basin, where “Guiding Principles on Sustainable Hydropower Development in the Danube Basin” were produced by the International Commission for the Protection of the Danube River (ICPDR) together with stakeholders from administration, civil society, NGO’s, scientists and others and in close cooperation with the hydropower sector (ICPDR, 2012).

These facts lead to the following AIM policy implications for priority topic 2:

- A clear definition of stakeholder groups and their individual requirements is needed, preferably conducted by the Alpine Space Programme and/or the Alpine Convention.
- In terms of decision-making, it has to be defined who are decision makers/relevant policy actors and how they are committed. (For further details see AIM result „R5.1 – Informative factsheets of key relevant policy actors“). In these regards, also communication and collaboration between decision makers from different sectors and at different levels (i.e. EU - national – regional – local) needs to be improved.
- Stakeholders (including policy- and decision makers) from different sectors and at various spatial levels need to be involved from early on in the operational procedure of projects. Experience-based guidelines should provide an appropriate tool to support this process, by building on success and failures and learning processes among different stakeholder groups (see Lang et al., 2012).
- There is a need for harmonization of associating tools/products/outcomes of past/recent/future ASP projects and for promoting good practices and successful experiences to stakeholders. This includes improved communication and product-transfer (e.g. by implementing a WIKI-TOOL of products created in the ASP) as well as related training courses for end-users.
- The civil society should be more meaningfully involved in water management and aquatic conservation issues of the Alpine Space, i.e. by public information, awareness raising, educational initiatives and outreach activities. More participation will also increase the acceptance and strengthen the activities of the Alpine Convention’s Water management platform and the future Macro Regional Strategy for the Alps.

3.) Integration of the ecosystem service concept

The Alpine Space – with about 70 million inhabitants in eight different countries – bears unique riverine ecosystems that are found nowhere else, and which are providing important ecosystem services as drinking water, fishery, recreation, biodiversity etc. At the same time, those ecosystems are threatened by various human uses, as e.g. water abstraction for irrigation/agriculture, hydropower production, navigation, leisure activities etc.

However, people and society are becoming increasingly aware that natural resources are limited and that aquatic ecosystems are severely threatened, which implies that we run the risk of losing essential functions and services of healthy river systems. Especially the ecological integrity of riverine ecosystems, which is a precondition for all further services to humans, is endangered by various threats such as hydromorphological alterations, physical barriers, etc., in the Alpine Space, caused by (new) hydropower generation and other human uses. Thus, the ecosystem service concept is appealing for policy makers and river basin managers to quantify and justify the cost of maintaining and restoring ecosystems (conservation), to set target of sustainable use of natural resources, to highlight co-benefits of certain measures, and to analyse trade-offs between different stakeholders' needs or different scenarios. As an example, the working group on "Mapping and Assessment of Ecosystems and their Services", which was set up to support the implementation of the EU Biodiversity Strategy to 2020, has developed an analytical framework to ensure that consistent approaches are used by the EU and its Member States (Maes et al. 2013). However, to date, the WFD assessment is not capturing the ecosystem service concept and related mapping yet, especially due to a lack of appropriate methods and the large scale to be assessed.

These facts lead to the following AIM policy implications for priority topic 3:

- The key roles that biodiversity and ecosystem functions play to support multiple human benefits, such as nutrition or safety, have to be highlighted for the Alpine Space. Understanding the linkages between the natural and socio-economic systems by all stakeholders (including civil society) will lead to appreciation and to an improved protection and management of ecosystems (see Alahuhta et al., 2013).
- The concept of a human-ecological system that is advocated by the ecosystem service concept is very powerful and allows ecosystem services to be communicated, valued and integrated in the river basin decision-making process. This should make use of appropriate data (i.e. data already available by monitoring) and tools for water management (e.g. hydrological models etc.). It should further support spatial planning by including the interests and perspectives of all stakeholders involved. This also implies that the ecosystem service concept is not in conflict with the goals of the WFD (i.e. reaching the good ecological status/good ecological potential of all European water bodies).
- In terms of valuation of ecosystem services for the Alps, the notion of value of ecosystem services should not be restricted to the merely monetary value but embrace a larger range of values.
- Finally, there is a huge need for real life case studies in future ASP projects to test different methodologies for ecosystem service mapping and valuation, i.e. to verify that they are in fact appropriate.

4.) Implementation of strategic (spatial) planning approaches on various spatial levels

The Alps are seen as the “water-towers” of Europe. This causes impacts on/loss of water resources. Further, Alpine riverine ecosystems stand to face many new/additional threats in their near future, as e.g. climate change or the occurrence of invasive species, which highlights the vulnerability of these ecosystems and thus the living space of humans. These are just examples of factors that will play a major role in integrated river basin management (IRBM). Apart from direct influences on river systems, indirect influences (as e.g. demographic change and related human needs) have to be considered, tackling the full complexity of this issue. According to a recent study, the **Save the Alpine rivers report** (WWF, 2014), the scale and magnitude of human pressures impacting Alpine riverine ecosystems is tremendous and the remaining ecologically intact Alpine rivers often lack proper protection.

These facts lead to the following AIM policy implications for priority topic 4:

- It is imperative to develop approaches to balance the need of protecting unique Alpine riverine ecosystems and habitats with human needs.
- Ecosystem services and IRBM share the goal of negotiating the trade-offs between different human and ecosystem needs, while supporting sustainability. Thus, future planning and management approaches will require integrative solutions, i.e. the inclusion of all relevant sectors into strategic (spatial) planning, to support future water management activities.
- Adapted strategies and common criteria for balancing conservation needs and human uses (e.g. hydropower, recreation) based on case studies in different Alpine river catchments are required. This will also help to make transparent decisions for new HP plants and have a better balance between HP and other water uses. Examples are the **Austrian Water Catalogue** (AWC; BMLFUW, 2012) and **Coordinated Activities for Management of Isonzo – Soča** (CAMIS ; IzVRS, 2015) from Slovenia.
- It is required to harmonize existing regional/national strategic (spatial) planning approaches to identify ecologically sensitive river stretches in a joint effort of responsible authorities and stakeholders.
- The establishment of No-Go areas for hydropower exploitation should further be discussed with Alpine Space stakeholders (including decision makers and policy actors). No-Go areas should act as an overall strategic management tool complemented by more detailed analysis at local scale (i.e. Environmental Impact Assessment).
- The interdependencies and interactions between the upper and lower catchment area, including those in the central/peripheral regions of the Alpine Space/future Macro-region of the Alps need to be considered. This will serve to optimise the identification and complementary management of the individual needs, interests and strengths of the respective areas/regions. (In these regards, the WFD gives a good reference for implementing regional programs for river management).

Further reading:

Alahuhta, J., Joensuu, I., Matero, J., Vuori, K., & Saastamoinen, O. (2013). Freshwater ecosystem services in Finland. Reports of the Finnish Environment Institute 16: 1 – 38.

Alpine Convention (2005). Common guidelines for the use of small hydropower in the Alpine Region.
http://www.alpconv.org/en/publications/alpine/Documents/SHP_common_guidelines_en.pdf

Alpine Convention (2011). Platform Water Management in the Alps - Situation report on Hydropower Generation in the Alpine Region focusing on Small Hydropower.
http://www.alpconv.org/en/organization/groups/WGWater/Documents/20111222_Situation_Report.pdf

BAFU (2007). EG-Wasserrahmenrichtlinie und Schweizer Wasser- und Gewässerschutzgesetzgebung.
<http://www.bafu.admin.ch/wasser/01444/01995/index.html?lang=de>

Carson, L. (2011). Designing a public conversation using the World Cafe method:[Paper in themed section: The Value of Techniques. Martin, Brian (ed.)]. Social alternatives, 30(1), 10.

Institute for Water of the Republic of Slovenia (2015): Coordinated Activities for Management of Isonzo – Soča (CAMIS). Integrated research of water courses and riparian areas for ensuring sustainable water use. Brochure, pp. 30.

European Commission (2000). Directive 2000/60/ EC of the European Parliament and the Council of 23 October 2000 Establishing A Framework for Community Action in the Field of Water Policy. OJEC, L 327, 1–73.
http://ec.europa.eu/environment/water/water-framework/index_en.html

European Commission (2009). River Basin Management Plans.
http://ec.europa.eu/environment/water/participation/map_mc/map.htm

European Commission (2012): Blueprint to Safeguard Europe's Water Resources
http://ec.europa.eu/environment/water/blueprint/index_en.htm

ICPDR (2012). Guiding Principles on Sustainable Hydropower Development in the Danube Basin.
<http://www.icpdr.org/main/activities-projects/hydropower>

Lang D.J., Wiek A., Bergmann M., Stauffacher M., Martens P., Moll P., Swilling M., Thomas C.J. (2012). Transdisciplinary research in sustainability science: practice, principles, and challenges. Sustainability Science 7 (1): 25-43.

Maes J, et al. (2013). Mapping and Assessment of Ecosystems and their Services. An analytical framework for ecosystem assessments under action 5 of the EU biodiversity strategy to 2020. Publications office of the European Union, Luxembourg.

Reed, M. S. (2008). Stakeholder participation for environmental management: A literature review. Biological Conservation 141, 2417 –2431.

Renner, R., Schneider, F., Hohenwallner, D., Kopeinig, C., Kruse, S., Lienert, J., Link, S. & Muhar, S. (2013). Meeting the challenges of transdisciplinary knowledge production for sustainable water governance. Mountain Research and Development, 33(3), 234-247.

WWF (2014). Save the Alpine rivers. Report of the WWF European Alpine Programme.
http://www.wwf.at/de/view/files/download/showDownload/?tool=12&feld=download&sprach_connect=2741



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Project Contacts

maximo.peviani@rse-web.it

andrea.danelli@rse-web.it

Authors Contacts

rafaela.schinegger@boku.ac.at

helga.kremser@boku.ac.at

susanne.muhar@boku.ac.at

stefan.schmutz@boku.ac.at