

ALPINE CONVENTION
PLATFORM WATER MANAGEMENT IN THE ALPS

Application of the
Common Guidelines for the use of Small Hydropower
in the Alpine region

Imprint

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1. Introduction

1.1 History

The Second Report on the State of the Alps¹ (2009) revealed a high number of hydropower stations already in place as well as their considerable impacts on the ecology of waters. The unexploited technical potential of the Alps and the objectives of the climate and energy policies with promoting renewable energy were reasons that Alpine countries were confronted with increasing demands for hydropower development and increasing applications for new, particularly small and micro hydropower stations (appropriate locations for large hydropower stations are in general already exploited).

Due to the importance of this development, in March 2009 the X. Alpine Conference decided to set up the platform “Water Management in the Alps” and to mandate the platform with the **elaboration of recommendations for sustainable hydropower generation with a focus on small hydropower**. As a basis for this task, a “Situation report on hydropower generation in the alpine region focussing on small hydropower”² was elaborated by the platform. The report provided substantial background information with a focus on small hydropower received from Alpine countries (Austria, Germany, Italy, Liechtenstein and Switzerland) based on questionnaires circulated to all Alpine countries.

The report concluded that a high number of requests for authorisation for new small hydropower stations was reported across the Alpine area, which presented a challenge to authorities in respect to the amount and to authorisation decisions due to the variety of aspects to be taken into account. Additionally, no criteria for general approval of new facilities were in place. From the data received it was evident that small hydropower facilities constituted around 75% of all hydropower plants within the Alpine area but contributed less than 5% to the total electricity production.

Hydropower plants affect respective river stretches by influencing the flow, sediment regime and fish migration without appropriate migration aids. Particularly for small hydropower, in some cases the contribution to electricity production may be considered too little to justify the adverse effects on river ecology. Given the rarity of remaining unexploited rivers and frequent conflicts between communities and new or planned small hydropower plants, a strategic reflection on the consequences on the conservation of ecosystems and landscapes and on the well-being of communities was considered then of the utmost importance in order to avoid irreversible impacts. Due care and planning on a regional basis was considered necessary to ensure that hydropower development is compatible with environmental protection requirements as well as with ambitious targets set for renewable energy. This is why the report concluded that decision makers were in need of guidelines to tackle this challenging issue, and the considerations that were relevant still apply today.

In 2011 the Platform Water Management in the Alps of the Alpine Convention³ elaborated **Common guidelines for the sustainable use of small hydropower in the alpine region** (from now on, the “AC common guidelines”). The guidelines are available at the webpage⁴ of the Alpine Convention in all Alpine languages.

¹ http://www.alpconv.org/de/publications/alpine/Documents/ras2_de.pdf

² http://www.alpconv.org/en/organization/groups/WGWater/Documents/20111222_Situation_Report.pdf

³ <http://www.alpconv.org/en/organization/groups/WGWater/default.html>

⁴ http://www.alpconv.org/en/publications/alpine/Documents/SHP_common_guidelines_en.pdf

These AC common guidelines include common principles and recommendations, an outline for an assessment procedure as well as a pool of evaluation criteria, and were intended to provide guidance to planners, decision makers and authorisation bodies for the identification of potential favourable locations for small hydropower plants, the inclusion of relevant stakeholders in the process, and the subsequent authorisation decision in accordance with the sustainability principles. Additional information is provided on good practice examples for the use of small hydropower (Annex 1)⁵ and on a selection of useful internet links on small hydropower and existing guidelines (Annex 2)⁶.

1.2 AC Common Guidelines for the use of small hydropower in the Alpine region

The Platform Water Management in the Alps developed the AC common guidelines on the use of small hydropower in 2011 to give guidance and advice to the public bodies responsible for strategic planning and in charge of authorising small hydropower plants. Furthermore, the AC common guidelines were intended to serve as orientation for applicants of small hydropower projects about aspects to be considered and early-stage indications of getting an authorisation.

The **specific objective** of the guidelines is to provide general guidance for the **identification of potentially favourable locations** for small hydropower plants and for the **subsequent authorisation decision** considering the principles of sustainable development in the Alps.

For this reason, in Chapter 2 of the AC common guidelines the **general principles** to be considered are highlighted. These include the principle of sustainability, the (regional and temporal) scope for the evaluation of the ecological value, but also regional factors or conditions which should be based on common principles or general considerations for the whole Alpine region.

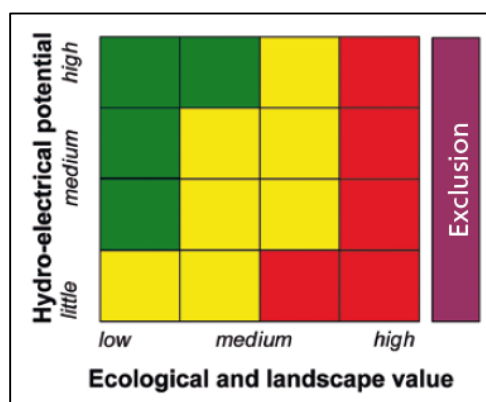


Figure 1: Classification scheme regarding the potential appropriateness of a river stretch as location for small hydro power plants from a regional, strategic perspective

Chapter 3 of the AC common guidelines provides **general recommendations** for the **evaluation of the impact** of small hydropower plants depending on the type of the plant, new constructions or refurbishment, and outlines a **two-level procedure for the assessment of new installations**. The procedure consists of a (general) regional evaluation of river stretches in terms of their appropriateness for hydropower use (strategic planning) in a first step, and a project-specific evaluation of the local situation and the individual application in a second step.

For both levels of the proposed procedure, **general recommendations** are provided in Chapter 3 and a more in-depth guidance in

Chapter 4, on which **criteria and suggestions** should be used to **determine the hydroelectric potential**, to **evaluate the ecological and landscape value** of the

⁵ http://www.alpconv.org/en/organization/groups/WGWater/Documents/20111222WP_Annex1.pdf

⁶ <http://www.alpconv.org/en/organization/groups/WGWater/Documents/20111222Annex2.pdf>

potential host site, and to evaluate the **site- and project-specific pros and cons**.

It should be mentioned that the principles and recommendations provided within the AC common guidelines remain on a more general level to ensure a sufficient flexibility for the implementation and **do not have any legally binding** character. This is in line with the intention that the AC common guidelines should be considered along with existing national or regional legal frameworks or instruments.

1.3 Objectives

In 2016 the Platform Water Management in the Alps was mandated by the XIV Alpine Conference to include a follow-up activity on the AC common guidelines during the mandate period 2017-2018. The objectives of this activity were to:

- evaluate, **how the guidelines serve the needs of regional / local administrations**
- collect the experiences gained with the application of the guidelines
- evaluate if further recommendations or a revision of the guidelines is needed.

In particular the aim was to explore, if regional and local administrations

- are aware of the existence of the AC common guidelines and
- if so, if they are applied or
- if not, what are the reasons for not being aware or for non-application

To facilitate this task a **questionnaire** was prepared by the Water Platform which was translated in all official Alpine languages before circulation.

The questionnaire was then circulated in 2017 by the representatives of the Alpine countries to the regional or local authorities in charge of small hydropower (SHP) authorizations.

This report summarises the feedbacks to the questionnaires received from the different Alpine countries and the main messages and conclusions.

2. Country surveys and feedback

2.1 Respondents to the questionnaire and feedback

In **Austria**, the questionnaire was distributed to all 9 provinces. In total **feedback from 14 administrations** was received from different levels of administrations (6 provinces and within one province from 8 district administrations which have been involved).

In **Italy**, the questionnaire was sent to Regions, Provinces and Regional Authorities for the Protection of the Environment (ARPAs) including more than 40 email-addresses. In total, feedback was received from 4 institutions: 1 from an ARPA, 1 from a Province and 2 from focal points representing in each case the position of three and of two NGOs, respectively.

In **Slovenia**, the questionnaire was distributed to the institutions and authorities (municipalities) that are included in the (strategic) planning and approval of projects for the construction of new or renovation of existing small hydropower plants. The questionnaire was sent to more than 30 e-mail addresses. In total, **feedback was received from 7 institutions**: 4 from municipalities, 1 from water management company with state concession for water management, 1 from NLZOH⁷ and 1 from the office of a local museum.

For **Germany (Bavaria)**, **France** and **Switzerland** feedback was provided by the Bavarian State Ministry of the Environment and Consumer Protection, the Regional Environmental Directorate (Auvergne-Rhône-Alpes) and the Swiss Federal Office for the Environment, respectively. **Monaco** informed that it has no hydropower installations and was therefore not included in further analysis. No feedback was received from **Liechtenstein**.

In total, **29 feedbacks** from **7 Alpine Countries** were received.

It should be noted, that the analysis presented in the following chapters reflects the viewpoints of the institutions from which feedbacks have been received. The sample of respondents is too small and does not give a complete and representative picture of the participating countries. The responses to the questionnaires are therefore to be taken as qualitative results, and no quantitative analysis is possible.

⁷ The National Laboratory of Health, Environment and Food

2.2 Results of the Survey

2.2.1 Awareness about activities of Alpine Convention and about the Common guidelines

Question 1 evaluated whether the respective institutions are aware of the activities of the Alpine Convention in the field of small hydropower and in particular of the AC Common Guidelines for the sustainable use of small hydropower in the alpine region.

Question 1a asked more clearly when answering question 1 positively, which activities of the Alpine Convention are known.

In **Austria**, 4 of 14 recipients of the questionnaire were aware of the activities of the Alpine Convention in the field of small hydropower and the AC common guidelines on small hydropower use. Two recipients mentioned the elaboration of the AC common guidelines for small hydropower as an activity they were aware of, and one recipient mentioned a broader interest in the topics of the Alpine Convention and referenced a topic dedicated to strategic planning which is addressed by the AC common guidelines. The fourth recipient did not provide information on which activities of the Alpine Convention are known.

In **Italy**, 3 of 4 recipients of the questionnaire were well aware of the activities of the Alpine Convention, while one recipient knew about the existence of the Convention but was not informed about its activities.

In **Slovenia**, 2 of 7 recipients of the questionnaire were aware of the activities of the Alpine Convention. One of them was familiar with some of the activities of the Alpine Convention, in particular the recommendations to reduce the negative impact of transverse structures/ water infrastructure on the water regime.

Switzerland was significantly involved in the elaboration of the AC common guidelines for the sustainable use of small hydropower and was therefore – as well as **Germany** - aware of the activities.

France replied not being aware of the activities of the Alpine Convention in this field.

To summarize the feedback, about 40% of the respondents (11) was aware of the activities of the Alpine Convention in the field of small hydropower, and about two thirds of them were aware in particular of the elaboration of the AC common guidelines for the sustainable use of small hydropower.

However, the majority of the respondents (about 60%) were not aware on these activities (see Figure 1).

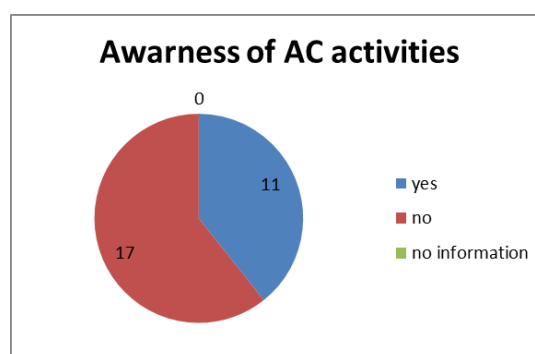


Figure 2: Feedback received for questions 1a

2.2.2 Application and helpfulness of the Common guidelines

***Question 1b** asked if the AC common guidelines were applied through the daily work of the respective institution or were taken into account in different steps or processes for planning or execution of small hydropower use. This question was further subdivided to evaluate whether the common guidelines have been helpful in any process the respective institutions have been involved in (Question 1bi).*

In **Austria**, 2 of the 4 recipients being aware of the AC activities mentioned that the AC common guidelines for small hydropower use were **not applied** in their daily work because of the **availability of other guidance documents** (e.g. Austrian water catalogue⁸) as well as legal instruments serving as a basis for evaluation and decision making (e.g. Austrian Water Act, Environmental Protection Act on regional level) on the regional and the national level. One recipient mentioned that the principles outlined by the AC common guidelines are similarly addressed in available guidelines on national and regional level (Austrian water catalogue, regional program for the protection of river stretches) and thus are indirectly applied. Another recipient answered this question positively without providing additional information.

In **Italy**, 2 recipients confirmed the use of the AC common guidelines in the evaluation process of new plants within the authorisation process, and one of them highlighted that parts of the principles (except planning principles) were considered in the procedural phase and that further developments on the topic were ongoing because of the elaboration of a new regional plan for water conservation.

In **Slovenia**, 2 recipients answered this question positively.

Switzerland provided a positive feedback to this question and outlined that elements of other existing guidelines at national level had been considered for the development of the common guidelines of the Alpine Convention.

Regarding **question 1bi**, whether the AC common guidelines had been helpful in any process the respondents had been involved in, replies were very rare (for the majority of responses no information concerning the helpfulness were provided).

For **Austria**, only two negative feedbacks were received on this question, without additional information. From the majority of respondents no information was provided for this question (see Figure 1).

For **Italy**, one recipient considered the AC common guidelines as being fundamental in the planning process, influential for hydropower entrepreneurs and useful for authorities and NGOs. As an example, the AC common guidelines have been explicitly recalled in some Regional Environmental Impact Assessment procedures, using the proposed classification scheme regarding the potential appropriateness of a river stretch as location for small hydropower plants. However, the criteria proposed by the AC common guidelines have been recalled in some selected cases only, although the responsible authorities were aware of their existence.

Two recipients from **Slovenia** indicated that the AC common guidelines were in some cases useful for the preparation of the municipal spatial plan (and that was also where they used them) and that the recommendations of the AC common guidelines were

⁸ https://www.bmlfuw.gv.at/wasser/wasser-oesterreich/wasserrecht_national/planung/erneuerbareenergie/Kriterienkatalog.html

sometimes taken into account for designing and planning the structural flood risk reduction measures.

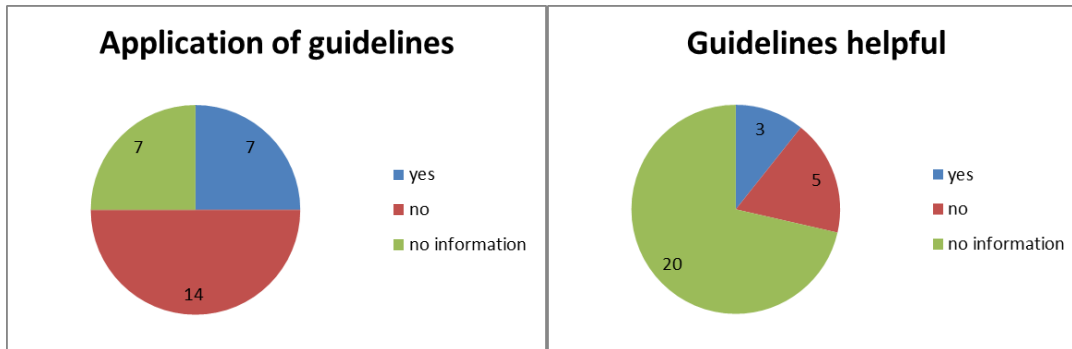


Figure 3: Feedback received for questions 1b

Figure 4: Feedback received for questions 1bi

To summarize the feedback: out of the 28 respondents to be included in the analysis, 7 respondents replied that the AC common guidelines are applied or have been taken into account in different processes. 14 respondents replied that the AC guidelines were not applied due to different reasons which are evaluated more in detail in the next chapter. The remaining 7 respondents who provided no indication about the application (no information) answered question 1 negatively and thus it is likely that the AC common guidelines are not applied by those recipients either.

Table 1 again summarizes the feedback received related to questions 1a to 1bi.

Table 1: Summary of feedbacks for Questions 1a to 1bi

Response	Question 1a: Awareness on activities of Alpine Convention	Question 1b: Application of Common guidelines for small hydropower	Question 1bi: Guidelines helpful
yes	11	7	3
no	17	14	5
no information	0	7	20
total	28	28	28

2.2.3 Reasons for non-application or non-consideration

Question 1c asked for reasons why the AC common guidelines were not taken into account and provided multiple choices for possible answers:

1. the existence of the common guidelines published by the Alpine Convention is not known
2. there are other guidelines already available at regional or national level which are used
3. there is no need for applying the AC common guidelines within the daily work
4. other reasons

In **Austria**, two recipients who answered question 1a positively did not give a feedback on this question. Other respondents provided the following feedbacks either selecting single or multiple choices:

- a) the choice that the existence of the AC common guidelines is not known was selected in total 7 times (all recipients answered negatively also questions 1a and 1b)
- b) the choice that other guidelines are used was selected in total also 7 times (2 recipients answered questions 1a positively, 5 recipients answered negatively questions 1a)

Comments in relation to this choice mentioned the existence of the Austrian Water Catalogue as well as of regional regulations (regional programs for the protection of valuable river stretches, criteria catalogue on regional level).

- c) the choice that there is no need to apply the AC common guidelines was selected in total 6 times (1 recipient answered questions 1a positively, 5 recipients answered negatively questions 1a)

Comments in relation to this choice which have not already been highlighted under choice b mentioned that the AC common guidelines are not legally binding or that there are no hydropower stations under the responsibility of the institutions or other administrative units being in charge.

- d) the choice that there were other reasons was selected by 1 recipient (this recipients answered negatively questions 1a)

The comment received in relation to this choice mentioned that the AC common guidelines cannot replace legal provisions at the regional or national scale respectively, which have to be applied.

France indicated that the existence of the common guidelines was not known by the institution replied.

In **Germany**, existing guidelines issued by the Bavarian Government (10-Punkte-Fahrplan) due to their legal requirements were the reason for non-consideration of the AC common guidelines.

In **Italy**, the Ministry of the Environment has recently released its own guidelines with two directorial decrees in 2017, while other binding guidelines have been available since 2015 for Regione Piemonte and the Po District Authority. One response indicated a scarce knowledge of AC common guidelines and, even when known, they were not frequently used in the respective provinces because of their non-binding character.

In **Slovenia**, in 5 out of 7 cases, respondents did not use the AC common guidelines in their daily work, because they were not familiar with them, and one response indicated no need to use the AC common guidelines.

To summarize the feedback the majority of respondents who did not apply the common guidelines and indicated reasons for that can be divided into three groups:

- respondents who did not apply the AC common guidelines because of the availability of other (similar) guidelines at the regional or national level.
- respondents who were not aware on the existence of the AC common guidelines; but the questionnaire was not designed in a way to explore whether this group would make use of them if the AC common guidelines had been known, or what other criteria/principles they use to approve/disapprove small hydropower.
- respondents who did not apply the AC common guidelines because of their non-binding character or simply because of there not being hydropower stations in the area of responsibility of their administrative unit.

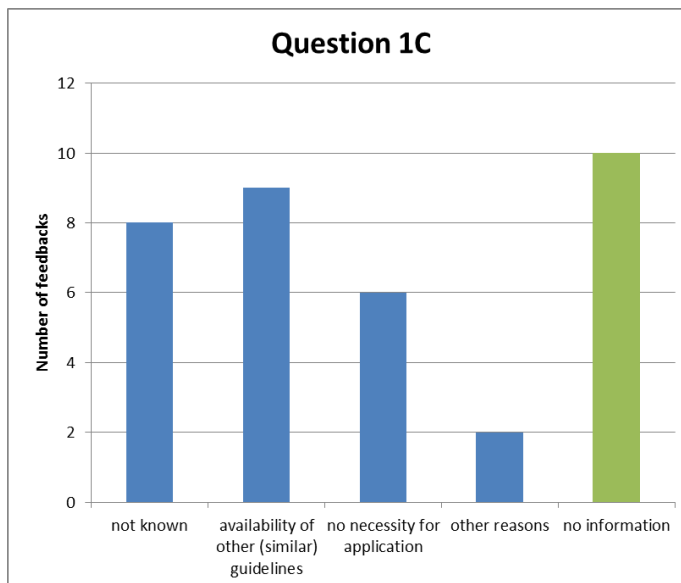


Figure 5: Feedback received for questions 1c

2.2.4 Suggestions to improve visibility of the common guidelines

Question 2 asked for suggestions on how the common guidelines could be improved in terms of their content or visibility.

From **Italy**, 2 recipients gave a feedback to this question. One recipient invited to a complete revision of the AC common guidelines taking into account the ERA methodology⁹ and the introduction of the environmental flow. Nevertheless, this respondent saw the risk of the AC common guidelines being unsuccessful even in a revised version as long as public funding for hydropower exists. The other respondent deemed the AC common guidelines still very actual and suggested to spread them again to the alpine institutions also with the support of videos and infographics.

⁹ Methodology similar to that suggested by the AC Common Guidelines for the assessment of the impacts of a new plant, initially introduced in 2008 by the Italian Ministry of Cultural Heritage and Activities for the Environmental Strategic Assessment of long-distance power lines. This methodology, which has been introduced and used in the water management sector by Piemonte Region and Po River District within their binding guidelines, introduces a classification scheme regarding the potential appropriateness of a river stretch as location for small hydropower plants including three categories: Exclusion, Repulsion and Attractiveness (like exclusion, less favourable and favourable categories in the AC Common Guidelines). For further information: http://www.adbpo.it/PianoAcque2015/Direttiva_Derivazioni2015/Delibera_8_Direttiva.pdf and http://www.adbpo.gov.it/sites/adbpo.lepida.it/files/Direttiva%20Derivazioni_Allegato_1.pdf

Only one recipient provided recommendations on this question. This recipient believed that the AC common guidelines would be more user-friendly if their design were upgraded and they contained more graphs, pictures, diagrams and drawings to illustrate the sequence of decision making and presentations of alternative solutions.

2.3 Summary of feedbacks

From the feedback it turned out that the **majority (60%)** of the institutions which provided feedback to the questionnaire were **not aware** of the activities of the Water Platform of the Alpine Convention nor of the AC common guidelines for the use of small hydropower.

From those institutions **being aware** of the activities of the Alpine Convention in the field of small hydropower, about **two thirds knew** the AC common guidelines for sustainable use of small hydropower.

About **half of the feedbacks** indicated that the AC common guidelines **have not been applied** because of the availability of other (similar) guidelines at the regional or national level or because of lack of knowledge on the existence of the AC common guidelines. Some also indicated their non-binding character being the reason for non-application regardless of their contents.

About one **quarter of the feedbacks** indicated that the AC common guidelines or even principles or recommendations outlined therein **have been taken into account** in different processes, like strategic environmental assessments.

Although the survey does not give a representative and complete picture about the knowledge of the AC common guidelines and their application in daily work in different Alpine countries, it shows that - in case of availability of regional or national guidelines - these will or have to be used prior to using the AC guidelines. Existing legal provisions or guidelines differ in their scope or legally binding character, which not always leaves room for the application of other, more general and non-binding guidelines like the common guidelines of the Alpine Convention.

However, the survey also indicated that some further action is needed to disseminate the information about the existence of the AC common guidelines and their scope.

This should also include the dissemination of the message that the principles and recommendations outlined in the AC common guidelines are still valid and should be considered along with or complementary to existing national/regional legal frameworks and instruments.

3. Availability of guidelines at different levels in the Alpine countries

A considerable number of respondents of the survey replied that other guidelines or norms for a sustainable use of (small) hydropower already exist at regional or national level, which are used by authorities and planners to evaluate new (small) hydropower projects. The available guidelines are briefly introduced below.

3.1 Austria

For the protection of water bodies with high ecological value in coincidence with future hydropower development, the 2009 Austrian River Basin Management Plan called for the measure to develop **criteria for the assessment of new hydropower projects and river sections** in terms of their suitability for sustainable hydropower.

As a result, the Austrian criteria catalogue¹⁰ was elaborated by the Federal Ministry of Agriculture, Forestry, Environment and Water Management in co-operation with the 9 regional governments and with involvement of stakeholders. It was published in 2012.

The criteria catalogue outlines **3 major fields of assessment**, for which **criteria** and associated **indicators** have been developed:

- Energy management
- Ecology
- Other water management aspects

The aim of this guidance document is to provide an overview on the legal basis, the technical knowledge on most relevant aspects and to support water authorities and planners with common agreed criteria to

- **assess the ecological value of water bodies** and
- **evaluate** at a very early stage the chances of a **new project** to get an **approval** before detailed project planning is done

The criteria catalogue helps to ensure an Austrian-wide common understanding for the application of Art.4.7 and acts as a **basis for further strategic planning** for hydropower development on regional level.

The criteria catalogue is primarily addressed to authorities in charge of the authorisation of new or existing (expired or changed permits) hydropower plants to provide the basis for common, reproducible and transparent assessment procedures. Furthermore, the criteria catalogue serves as a non-binding guidance document also for authorities in charge of Environmental Impact Assessments. The publication is available for download in German language (see link footnote).

The Austrian criteria catalogue was elaborated at the same time as the AC Common guidelines for the use of small hydropower in the Alpine region. Furthermore, the work on the AC common guidelines was lead by the Austrian-Swiss co-presidency of the Platform Water Management in the Alps.

Hence, compared to the AC common guidelines the Austrian criteria catalogue reflects

¹⁰ Österreichischer Wasserkatalog. Wasser schützen – Wasser nutzen. Kriterien zur Beurteilung einer nachhaltigen Wasserkraftnutzung (https://www.bmnt.gv.at/wasser/wasser-oesterreich/wasserrecht_national/planung/Kriterienkatalog.html)

the same principles but provides a more detailed guidance for each field of assessment. Beyond the assessment of energy-related or ecological impacts, impacts on other water resources management issues (floods, sediments, groundwater tables, ...) is part of the assessment procedure. Additionally, a detailed assessment scheme is provided to assess the major impacts of new projects at an early stage. On the other side, the assessment of ecological impacts is focussed on aquatic ecosystems only.

In some regions of Austria, strategic planning was carried out based on the criteria outlined by the Austrian criteria catalogue with the identification of selected river sections where further hydropower development is possible under certain conditions, and of regions where further hydropower development is excluded. This strategic planning resulted in two regional programs (river protection ordinances) and one regional master plan¹¹.

3.2 Germany

The Government of Bavaria adopted the Bavarian Energy Concept in 2011, which aims to increase the share of renewable energy on electricity consumption from 25% to 50% within the following 10 years.

To support this process, the Bavarian State Ministry for Environment and Consumer Protection issued the Bavarian Strategy for Hydropower¹² in 2012, which outlines the contribution of the hydropower sector to the energy transition and contains concrete steps of implementation (10-points-roadmap for an ecological and environmentally sound hydropower), e.g. the rehabilitation and upgrade of existing hydropower plants, hydropower use of existing interruptions, such as dams, with ecological improvements, protection of areas with high ecological value, a forum on ecological hydropower and support programs to improve ecology and efficiency and more.

The publication is available for download in German language (see link footnote).

Due to the fact that around 6000 of the existing 7500 hydropower plants are located in Baden-Wuerttemberg and Bavaria there are no further national guidelines for small hydropower besides water legislation and international legislation.

3.3 Italy

Aiming at regulating the installation of small hydropower plants and other concessions and derivations with the same environmental criteria on the whole national territory, the Italian Ministry of the Environment, Land and Sea released in 2017 the Directorial Decrees no. 29 and 30. Decree 29¹³, during its elaboration in the years before its approval, widely took into consideration the AC common guidelines, being considered from the competent experts as a good example. Now these Decrees constitute binding rules for hydropower installation on the whole national territory.

Prior to these regulations prepared by the central authority, the framework was fragmented, with the AC common guidelines adopted by the Alpine Convention, other

¹¹ <https://www.bmmt.gv.at/wasser/wisa/fachinformation/ngp/ngp-2015.html>

¹² Bayerische Strategie zur Wasserkraft. 10-Punkte-Fahrplan für eine ökologische und naturverträgliche Wasserkraftnutzung
(https://www.stmuv.bayern.de/themen/wasserwirtschaft/fluesse_seen/doc/10punktefahrplan_lang.pdf)

¹³ http://www.minambiente.it/sites/default/files/archivio/normativa/dd_sta_13_02_2017_29.pdf

binding guidelines¹⁴ in Piemonte Region and in the Po River District¹⁵ (which include the entire Piemonte) both since 2015 and based on the ERA methodology of assessment (similar to the AC common guidelines proposed methodology – see further details in the footnote no.10).

Decreets 29/2017¹⁶ (*Guidelines for the ex-ante environmental assessment of water derivations according to the objectives of environmental quality of surface and groundwater river bodies as defined by the Directive 2000/60/EC [...]*) and 30/2017¹⁷ (*Guidelines for updating the methods of definition of minimum vital flow, aiming at safeguarding the ecological flow in water bodies, according to the objectives of environmental quality as defined by the Directive 2000/60/EC [...]*) and their respective attachments¹⁸ set particularly precise and environmentally-precautionary guidelines to be applied on the national territory. These Decreets define also the establishment of appropriate technical boards chaired by the Ministry of the Environment, Land and Sea for supporting the harmonization of the already existing guidelines with these new criteria¹⁹.

Focusing on the alignment of these guidelines (particularly those included in the Decree no.29) with the AC common guidelines, it can be affirmed that they include the overall aim and the recommendations proposed by the document adopted by the Alpine Convention, with even more stringent measures in the interest of the protection of the environment.

In particular, while recommendation no.5 of the AC common guidelines considers as appropriate and desirable the infrastructure-related hydropower plants, the Italian guidelines take into account also the impacts on hydro-morphology, ecology and biology of these multipurpose plants.

Concerning the recommendation no.7 of the AC common guidelines, which promotes the refurbishment of existing operating plants and reopening of disused plants, the Italian guidelines highlight that sometimes the option of removing the old power plants and the annexed infrastructures could be the best environmental choice; anyway, a site-specific assessment is needed in this sense.

The recommendation no.8 of the AC common guidelines is reflected in the newly released decrees, which include the recommendation of evaluating the possible removal of some existing plants in need of being ecologically upgraded.

Concerning the recommendation no.9 of the AC common guidelines, it must be stated that all the concessions on the Italian territory are limited in time by law, in order to give opportunity to the competent authorities of reviewing them in the interest of the river ecosystems.

Last but not least, the matrix proposed by the AC common guidelines is considered important but not sufficient for issuing the concession. According to the Italian guidelines, in fact, the “Alpine matrix” must be paired with a matrix more focused on

¹⁴ Guidelines for the evaluation and monitoring of the environmental compatibility of hydropower plants with the fluvial ecosystem', approved with Deliberation of the Regional Government no. 28-1194 (March 16, 2015)

¹⁵ Directive no. 8 concerning 'the environmental risk linked to water withdrawals against the quality objectives established by the management plan of the Po District' - http://www.adbpo.it/PianoAcque2015/delibera_8.pdf

¹⁶ http://www.minambiente.it/sites/default/files/archivio/normativa/dd_sta_13_02_2017_29.pdf

¹⁷ https://drive.google.com/file/d/0B7vT_NbZSIVTWjdlbWRNa2lweU0/view

¹⁸ https://drive.google.com/file/d/0B7vT_NbZSIVTTDirOEw5ZlBfZDQ/view and https://drive.google.com/file/d/0B7vT_NbZSIVTQ1UzcEd0SGRMdZQ/view

¹⁹ Po River District guidelines have been updated with the Directive no.3/2017 of December 14th, 2017, which take into account the new national decrees.

expected impacts of the proposed plant. In this sense, the ERA assessment methodology, already implemented in all the Italian District, can be considered a good practice.

3.4 Slovenia

In the preparation of the Slovenian River Basin Management Plan, the studies and guidelines of the Alpine Convention were taken into account. The River Basin Management Plan is adopted by regulation, which is Decree on the river basin management plan for the Danube Basin and the Adriatic Sea Basin. It is directed to place SHPs in parts of watercourses, where the flows are large enough for the plants to operate for most of the year, as specified in Decree²⁰ on criteria for determination and on the mode of monitoring and reporting of ecologically acceptable flow.

It is set, that water rights for the use of water for the electricity production shall not be allocated on a part of a watercourse with small catchment area or with low water take-off profile, except in the case of subsistence households that prove that the connection to the distribution network is not feasible. Upper parts of the watercourses are the most vulnerable to human interventions, especially on hydromorphological changes and water abstractions. Due to the high sensitivity and vulnerability of ecosystems in small watercourses, SHP may affect the achievement and preservation of water management objectives and the natural balance of aquatic and bypass ecosystems.

Assessment of suitability is carried out on the basis of multi-criteria analysis, based on the criteria for assessing the theoretical hydroelectric potential and the criteria for assessing the ecological and landscape value. On the basis of the criteria, the suitability of river section (Soča river) for the exploitation of the potential was assessed. The criterion analysis takes into account the use of Art.4.7 Water Framework Directive (WFD). Within the measures of WFD, the upgrade of the system for supporting decision-making on water use is under preparation at national level. Therefore Slovenian water management legislation takes into the account the AC common guidelines by placing them in the wider context of regulating the use of water resources in the Slovenian Water Act and Slovenian River Basin Management Plan.

3.5 Switzerland

With the introduction of cost-covering remunerations of feed-in tariffs for electricity from renewable energy in the frame of the revision of the Swiss Energy Act (2016), business conditions improved considerably for new or significantly extended small hydropower facilities. As a consequence, a considerable number of projects was developed and declared to the national grid agency. Although the probability for realisation of the various projects varied, foreseeably the Swiss authorities were faced with an increasing number of projects for approval and the necessity for common evaluation criteria to support the responsible authorities in decision making.

Thus, in 2011 the Swiss authorities (Federal Offices for the Environment, for Energy and for Land Use Planning) published **recommendations**²¹ for the development of

²⁰ <http://pisrs.si/Pis.web/pregledPredpisa?id=URED5122>

²¹ BAFU, BFE, ARE (Hrsg.) 2011: Empfehlung zur Erarbeitung kantonaler Schutz- und Nutzungsstrategien im Bereich Kleinwasserkraft. Bern. 28 S.

cantonal strategies for the protection and use of rivers concerning small hydropower use.

These recommendations compile the most important **criteria** for the assessment of conflicting interests in protection and hydropower use to be considered for the evaluation of rivers in order to ensure that the assessment will be performed throughout Switzerland based on a common basis. Furthermore, the recommendations outline a proposed **procedure for the elaboration of cantonal strategies** for prioritisation of protection and hydropower use.

The recommendations are addressed primarily to the authorities of Cantons and Communities in charge of small hydropower projects. However, the recommendation serve as valuable information also for investors, planners or other interested groups in order to decide about potential small hydropower projects during an early stage of planning.

The publication is available for download in German language (see footnote Nr. 21).

As already mentioned, Switzerland was the country together with Austria leading the process of elaborating the Alpine Conventions Common Guidelines for small hydropower use. The principles and recommendations reflected in the AC common guidelines are therefore also based on the recommendations of Swiss authorities.

3.6 Guidelines available at international level

3.6.1 Guiding Principles for the sustainable hydropower development in the Danube Basin

More or less at the same time when the elaboration of the AC common guidelines for the use of small hydropower for the Alpine regions started, a similar process began at the level of the Danube river catchment.

Challenges with further hydropower development were a significant issue for the Danube countries as well and a significant share of the national territory of the Alpine countries Germany, Austria and Slovenia is part of the Danube river catchment.

The International Commission for the Protection of the Danube River (ICPDR) was mandated in 2010 to elaborate guiding principles on sustainable hydropower development in the Danube Basin.

Aware of the fact that hydropower plants offer an additional reduction potential for greenhouse gases but recognizing as well their negative impacts on the riverine ecology, the Environment Ministers of the Danube countries asked in 2010 the ICPDR²² for the development of Guiding Principles on integrating environmental aspects in the use of hydropower in order to ensure a balanced and integrated development, dealing from the beginning with the potential conflict of interest.

The “Guiding Principles on Sustainable Hydropower Development in the Danube Basin”²³ were elaborated in a broad participative process, with the involvement of representatives from public administrations (energy and environment), the hydropower

(<https://www.bafu.admin.ch/bafu/de/home/themen/wasser/publikationen-studien/publikationen-wasser/empfehlung-kantonaler-schutz-nutzungsstrategien-kleinwasserkraftwerke.html>)

²² International Commission for the Protection of the Danube River

²³ https://www.icpdr.org/flowpaper/viewer/default/files/nodes/documents/icpdr_hydropower_final.pdf

sector, NGOs and the scientific community and were published in 2013. The “Guiding Principles” are primarily addressed to public bodies and authorities responsible for the planning and authorization of hydropower but are also relevant for potential investors in the hydropower sector as well as NGOs and the interested public.

Hydropower development in the Danube countries is likely not to be based primarily on small hydropower, but will include also small hydropower facilities - where appropriate - to use the hydropower potential sustainably. Thus, the principles and recommendations outlined the “Guiding principles” apply also to the sustainable development of small hydropower.

Austria, Slovenia and Romania were involved as lead countries jointly with the ICPDR secretariat in the elaboration process of the guiding principles. The process took into account the work which had been done to that date for the elaboration of the AC common guidelines and vice versa.

3.6.2 CIS²⁴ guidance documents on exemptions to the environmental objectives

Additional aspects to be considered are the consequences of new small hydropower facilities on the environmental objectives for the respective water bodies. In some cases, decisions may be required on whether exemptions to the environmental objectives according to Art. 4.7 of the WFD are applied.

On the EU level, guidance on this aspect was provided by CIS guidance document No. 20²⁵ which has been published in 2009 and which outlines key issues in the processes justifying exemptions under Article 4 (4.4 – 4.7).

This guidance document has been complemented in 2018 by CIS guidance document No. 36²⁶ taking into account the latest experiences with the implementation of the WFD and case laws related to Article 4(7).

Both documents provide advice for justifications of exemptions which are legally binding.

²⁴ EU Common Implementation Strategy - http://ec.europa.eu/environment/water/water-framework/objectives/implementation_en.htm

²⁵ Technical Report - 2009 – 027: Guidance Document No. 20 - GUIDANCE DOCUMENT ON EXEMPTIONS TO THE ENVIRONMENTAL OBJECTIVES (http://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm)

²⁶ Guidance Document No. 36: Exemptions to the Environmental Objectives according to Article 4(7). New modifications to the physical characteristics of surface water bodies, alterations to the level of groundwater, or new sustainable human development activities

4. Conclusions, lessons learned and way forward

4.1 Conclusions

The AC common guidelines for the use of small hydropower in the Alpine region were issued to provide guidance on classification of river stretches with respect to their appropriateness for small hydropower and to assess the ecological and landscape value of respective river stretches. The principles and recommendations outlined therein intend to help planners and authorities to reach a **common understanding on the economic benefits and ecological consequences** of energy production and to serve as a **basis for transparent decision making** for the approval of new small hydropower facilities.

The AC common guidelines for the use of small hydropower in the Alpine region were issued at a time when other regional or national guidelines were mostly not available. The **AC common guidelines thus influenced and particularly initiated the development of other national guidelines**, e.g. those available in Austria and Switzerland. Meanwhile, in almost all Alpine countries similar guidelines or legal frameworks have become available.

Exemptions to environmental objectives are not covered by the AC common guidelines. For the treatment of this aspect, the CIS guidance documents on exemptions to environmental objectives are available. In some national guidelines (e.g. Austria) both aspects - the evaluation of the ecological value of water bodies as well as the provision of a common understanding for the application of Art.4 (7) - were merged in one document. Therefore, it is not surprising that the AC common guidelines are known but were applied only to a limited extent, especially if similar provisions with a binding effect are available on European level.

However, the AC common guidelines provide guidance and recommendations on a very general level as to what principles have to be considered and which criteria can be used for the assessments which are needed for a transparent and reliable decision making. The **principles and recommendations outlined therein are still valid**, and due to their very general character the guidelines should be considered along with national or regional legal frameworks or instruments.

The purpose of the follow-up on the AC common guidelines by the Platform Water Management in the Alps of the Alpine Convention was to evaluate whether and to what extent the guidelines are used by the institutions of the Alpine countries. The Mandate did not consider a revision of the common guidelines, which indeed does not seem necessary.

4.2 Lessons learned

The feedback received reflected the perspective of the institutions that replied, and do not allow to give a complete and representative picture of the situation in the respective Alpine country because of the limited number of feedbacks.

Responsibilities for authorisation of small hydropower projects are different among the Alpine countries. Thus, the difficulty in identifying the appropriate institutions or responsible persons as well as their limited cooperation to respond to the questionnaire may have been reasons for the limited feedback received.

Further activities in this respect (collection of information on the practice of

authorisations of small hydropower) might be more successful with an **institutional mapping exercise in advance** and a more effective follow-up after sending the questionnaire.

4.3 Possible way forward

About half of the recipients indicated that they do not use the AC common guidelines, predominantly because of the availability of other (national or regional) guidelines, but also due to a lack of knowledge about the existence of the AC common guidelines. Some further action to disseminate the information about the existence of the AC common guidelines, its objectives, principles and recommendations would be helpful to raise the knowledge level about these guidelines.

The questionnaire used within this follow-up was not designed to explore **what criteria/principles are used to approve/reject small hydropower by those institutions, which were not aware of the existence of the AC common guidelines**. Some further evaluations in this respect would be interesting as well.

During the evaluation of the survey and discussions held, further aspects were raised which would be useful and interesting to follow but which were beyond the scope of this activity. These aspects are summarised below and could be subject of possible following activities:

- How do existing national/regional laws and guidelines align with the AC common guidelines?
- How does the current small Hydropower in the Alps reflect the AC principles? If the principles of the AC guidelines are not fulfilled, what are the pending ones and what can be done to solve them?
- How well do all guidelines/tools cope with cumulative effects?
- How well is SHP in the Alps doing in terms of sustainability? How effective are the existing tools in addressing the challenges/objectives which were the reasons for / which initiated the development of the AC common guidelines?

ANNEX: Questionnaire

Country:	
Institution:	
Name(s) of compiler(s)²⁷:	
Email address(es):	
Activity/Responsibility of your institution	

1. Is your institution aware of the activities of the Alpine convention in the field of small hydropower use and the published common guidelines?

☐ Yes ☐ No

a) If Yes, which activities of the Alpine Convention do you know?
Please, briefly describe (2-3 sentences):
[fill in]

b) If Yes, have the guidelines been applied through your daily work or taken into account in different steps or process for planning or execution of small hydropower use?

☐ Yes ☐ No

Please, briefly describe (2-3 sentences):
[fill in]

i. If Yes, have the guidelines been helpful in any of the process(es) you are involved?

☐ Yes ☐ No

Please, briefly describe why and in which process(es) (2-3 sentences):
[fill in]

c) If No, what was the reason?

☐ my institution is not aware of the existence of these common guidelines

☐ there are other guidelines available on the national/regional level, which are used

Please indicate the other source:
[fill in]

☐ there is no need for the use in our daily work (please, briefly describe why you think there is no need (2-3 sentences))

[fill in]

☐ other reasons: (Please, briefly describe in 2-3 sentences)

[fill in]

²⁷ preferably those persons working on the topic on a daily basis

2. Do you have some suggestions how the common guidelines could be improved in its content and/or its visibility?

[*fill in*]