The Common guidelines for the use of small hydropower in the Alpine region of the Alpine Convention

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Water in the framework of the Alpine Convention

Water - key asset of the Alpine Perimeter

3 International Conferences devoted to water

- **Innsbruck 2006** – Do we need a water protocoll?
- **Munich 2008** – Report on the State of the Alps:
  no protocoll - need for follow up on hydropower
  => platform „Water Managment in the Alps“
- **Venice 2010** – Presentation of results of platform:
  Common guidelines
- **Germany 2012**

Water in the Alps – Deliverables of platform

Situation report sets basis for further products

Situation Report

Comprehensive report of 50 pages and 7 chapters

1) Introduction setting the scene
2) Background data on HP generation in the Alps, incl. benefits and impacts
3) Statistical Information on share of HP production and avoidance of green house gases
4) Policy framework in place in alpine countries
5) Supporting policies and SHP promotion
6) Framework and general conditions for authorisations
7) **Main findings and conclusions**

Water in the Alps – setting the scene

High hydroelectric potential

National goals for renewable energy

Increase the production of renewable energy from hydropower generation

Important value of ecosystems and landscape

Uniqueness of remaining unexploited rivers

Minimize the impairment of the aquatic ecosystem and landscape

Conflict of interest

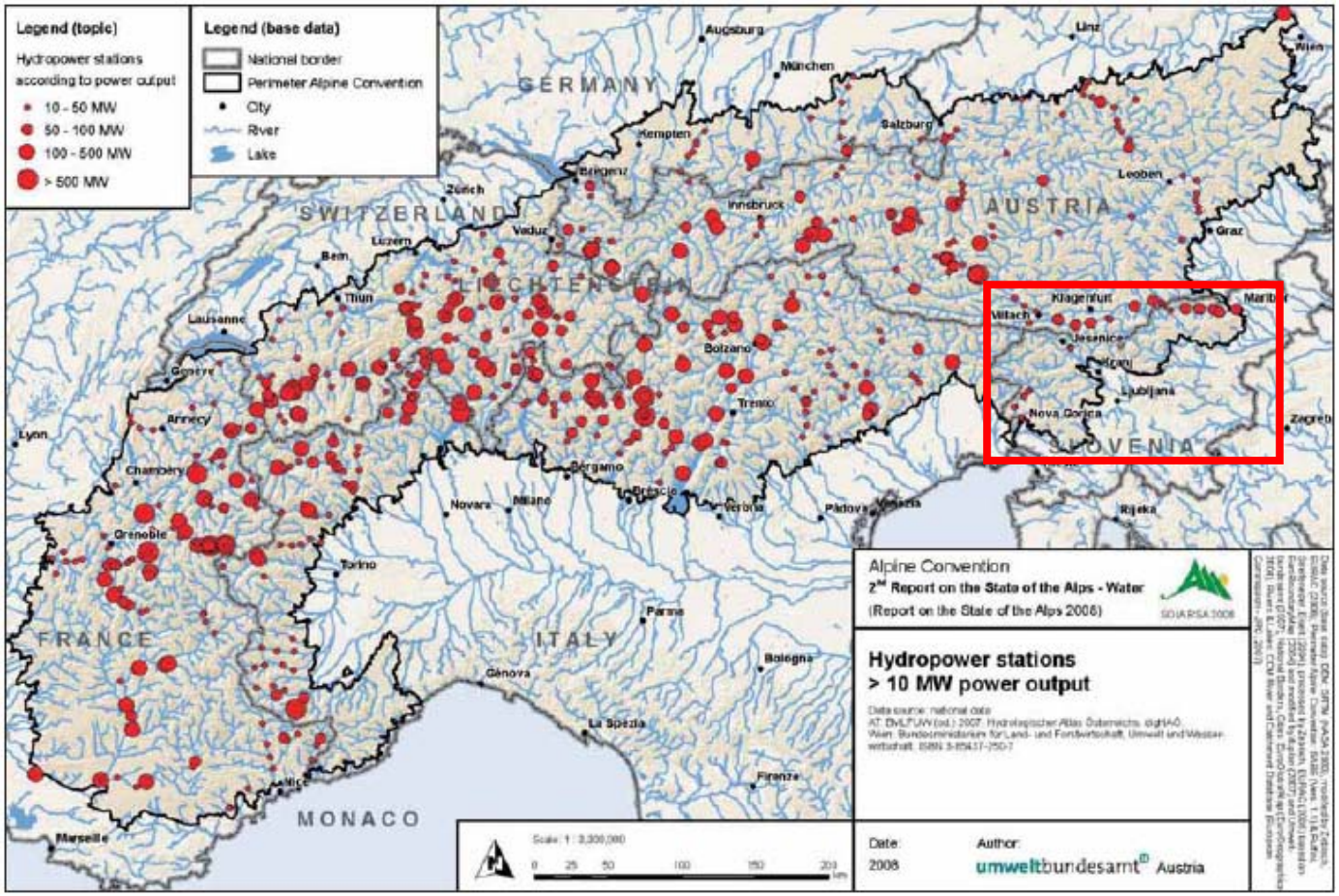
good reasons and need for achievement of both objectives!

Ecological impacts due to hydropower generation

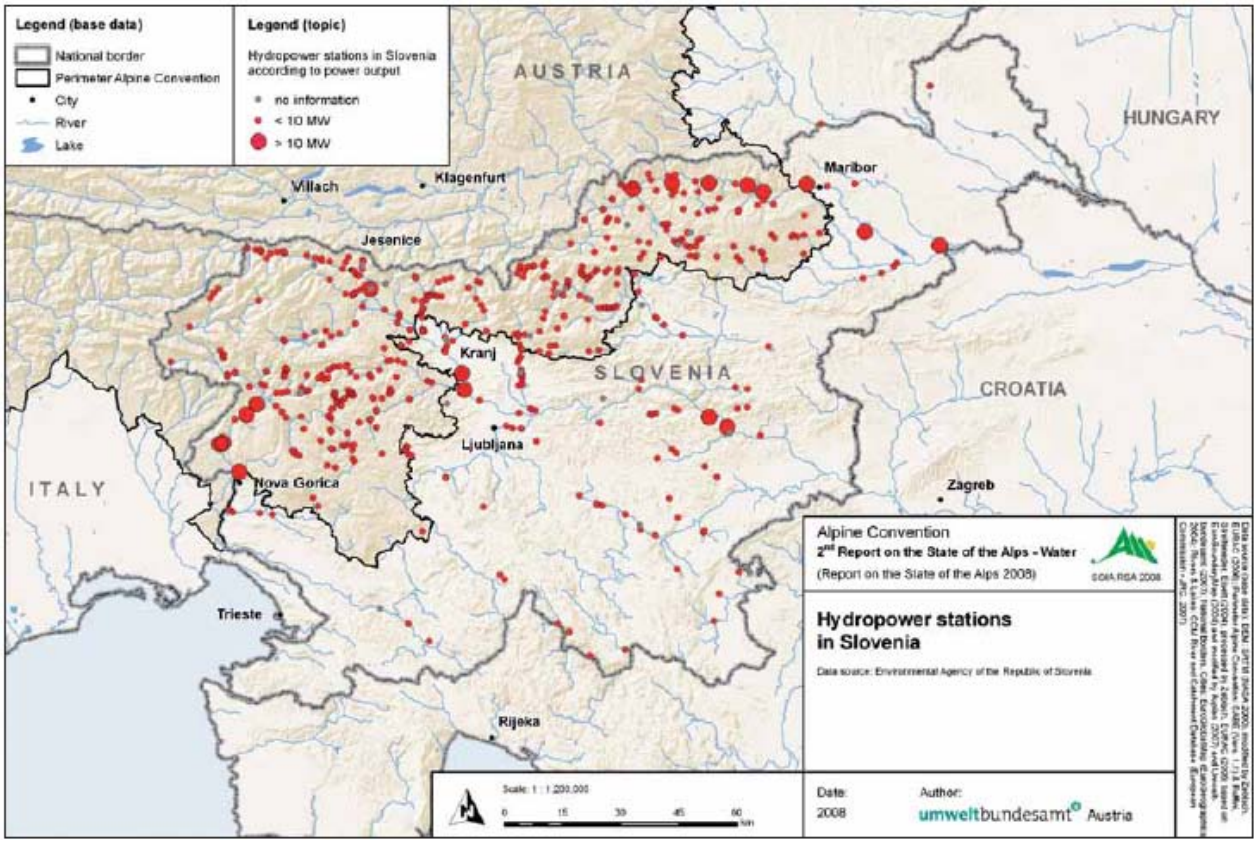
- High number of sites already in place
- Dating from decades ago
- Mostly without migration aids for fish
- Do not meet modern requirements for residual water

⇒ **Main longterm challenge: to restore good status of WFD**

Hydropower Generation > 10 MW



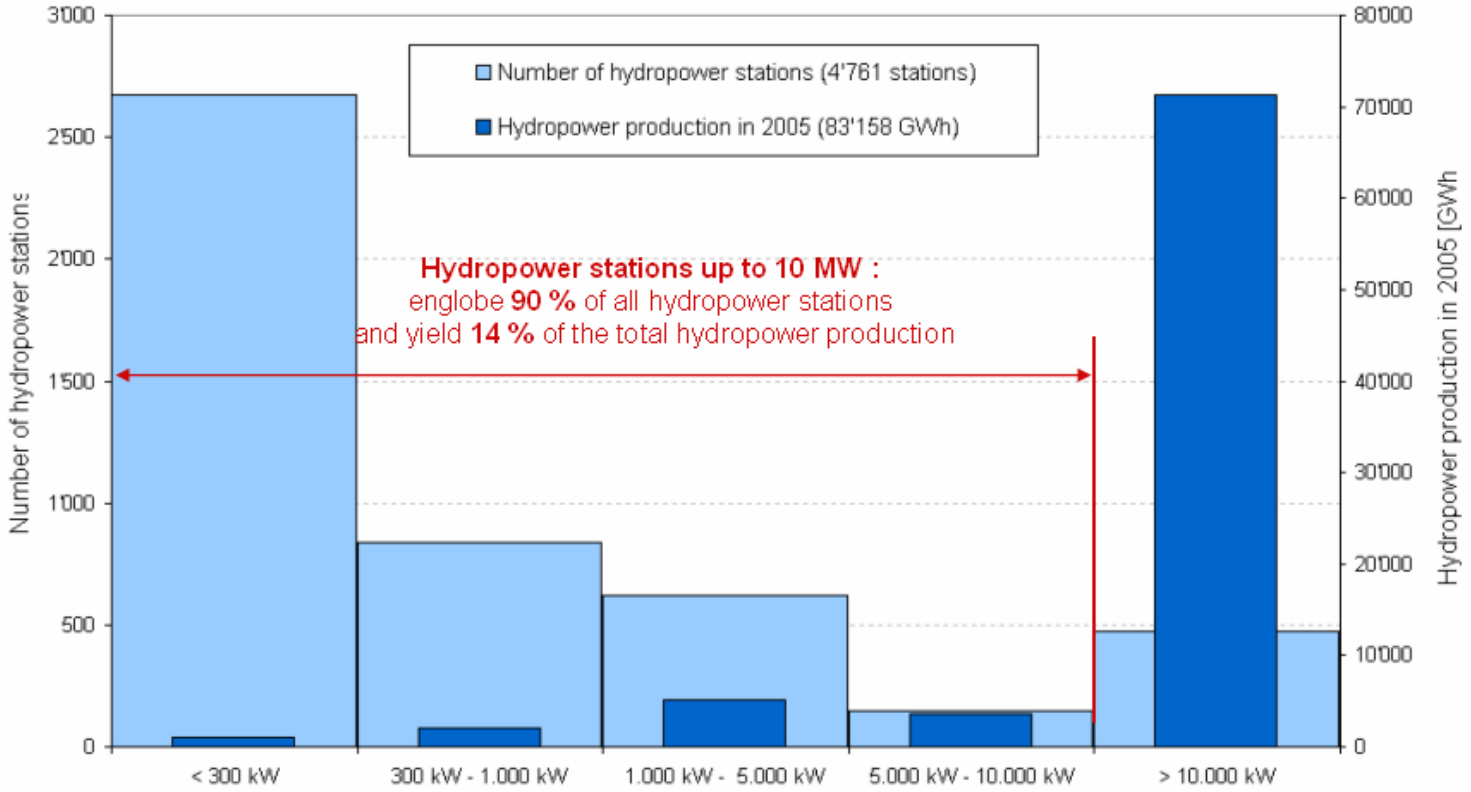
Fragmentation of rivers due to (S)HP



And still more to be expected!

Example Slovenia

Situation similar in other countries

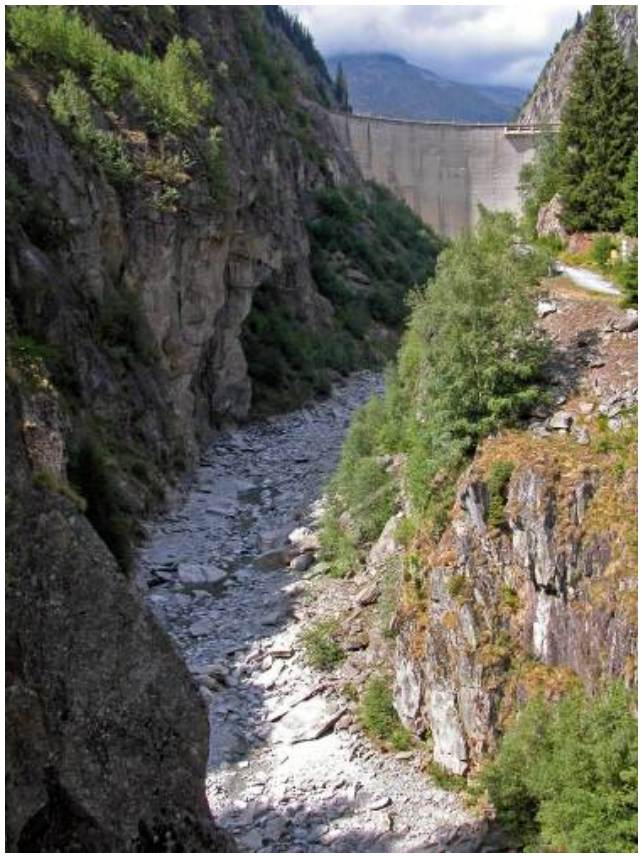


Data missing from France + Slovenia

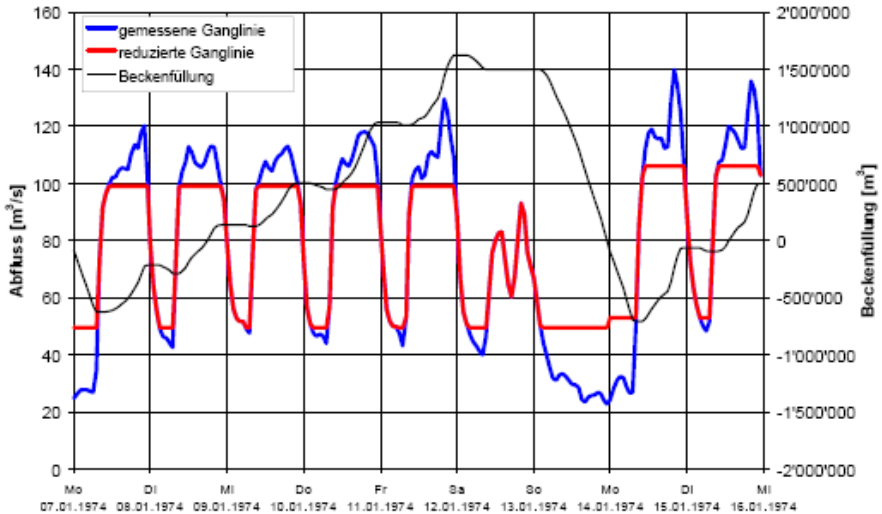
CATEGORY OF HYDROPOWER STATIONS (BOTTLENECK CAPACITY)					
	< 300 kW	300 - 1.000 kW	1.000 - 5.000 kW	5.000 - 10.000 kW	>10.000 kW
Production [%]	1,2%	2,5%	6,1%	4,3%	85,8%
Stations [%]	56%	18%	13%	3%	10%

Impacts on surface waters

Impacts on surface waters



no residual flow and hydropeaking



Increase share of renewables

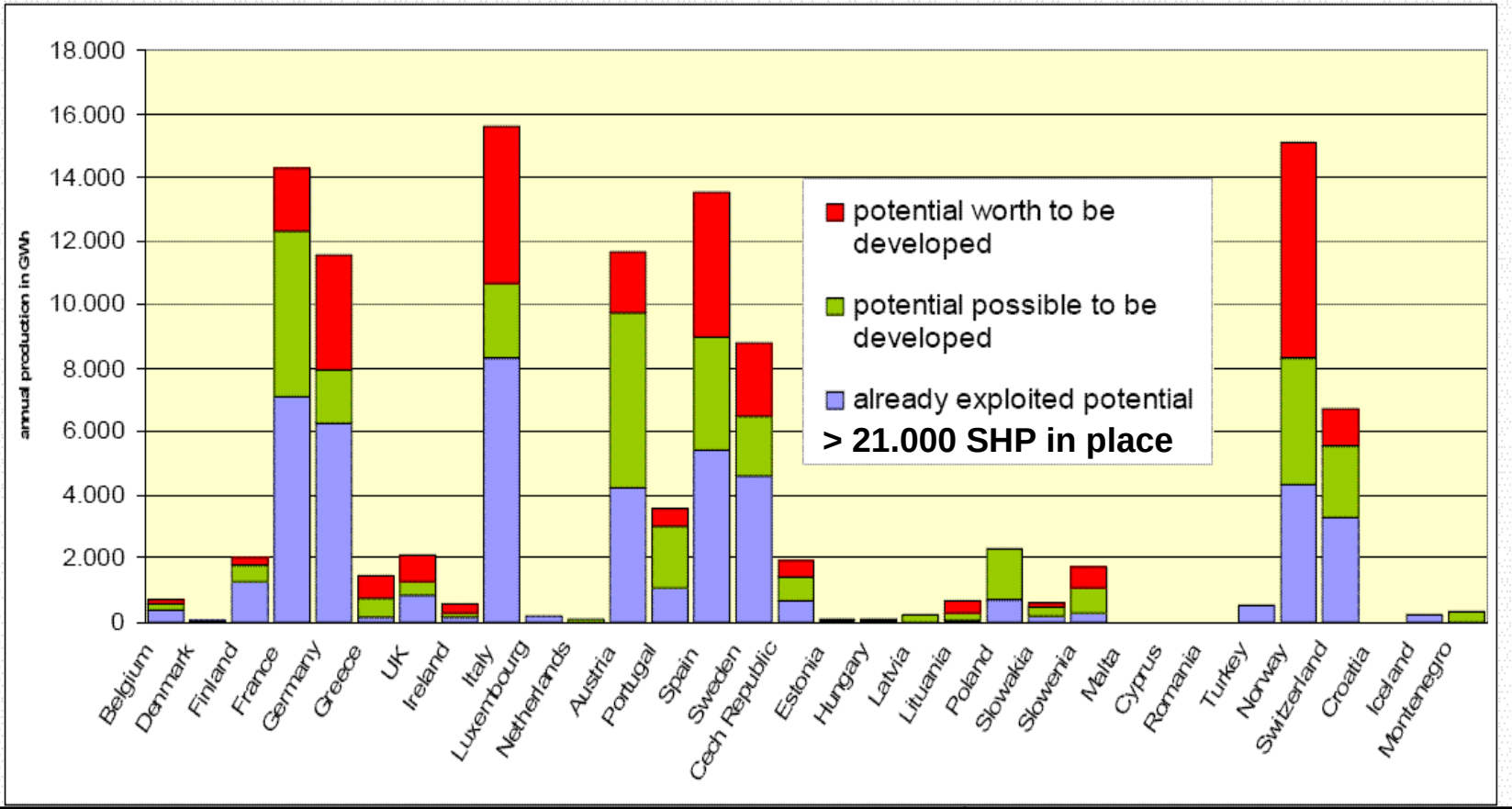
Directive 2009/28/EC *on the promotion of the use from Energy from renewable sources*; *very ambitious targets*

- *20% less primary energy consumption,*
- *20% less green house gases,*
- *20% share of renewables in energy consumption)*;

=> **Challenge:** *Where + how to realise a given volume of HP production in an environmental friendly + sustainable way until 2020?*

- *new HP-plants*
- *refurbishment of HP-plants in place*

Potential of Small Hydropower in Europe



Attention: definition of SHP differs among countries!

Data Source: ESHA 2010

Situation Report: main findings

1) No need for new guidances for residual flow + fish passes
2) Many HP in place do not meet modern ecological requirements
3) High number of requests for new licenses / authorisations
4) HP generation of SHP disproportionate to number of sites
5) Need for guidance for the identification of potential favourable locations + the subsequent authorization decision

Water in the Alps – Deliverables of platform

Common guidelines are the main product

Common guidelines objectives

The general objectives

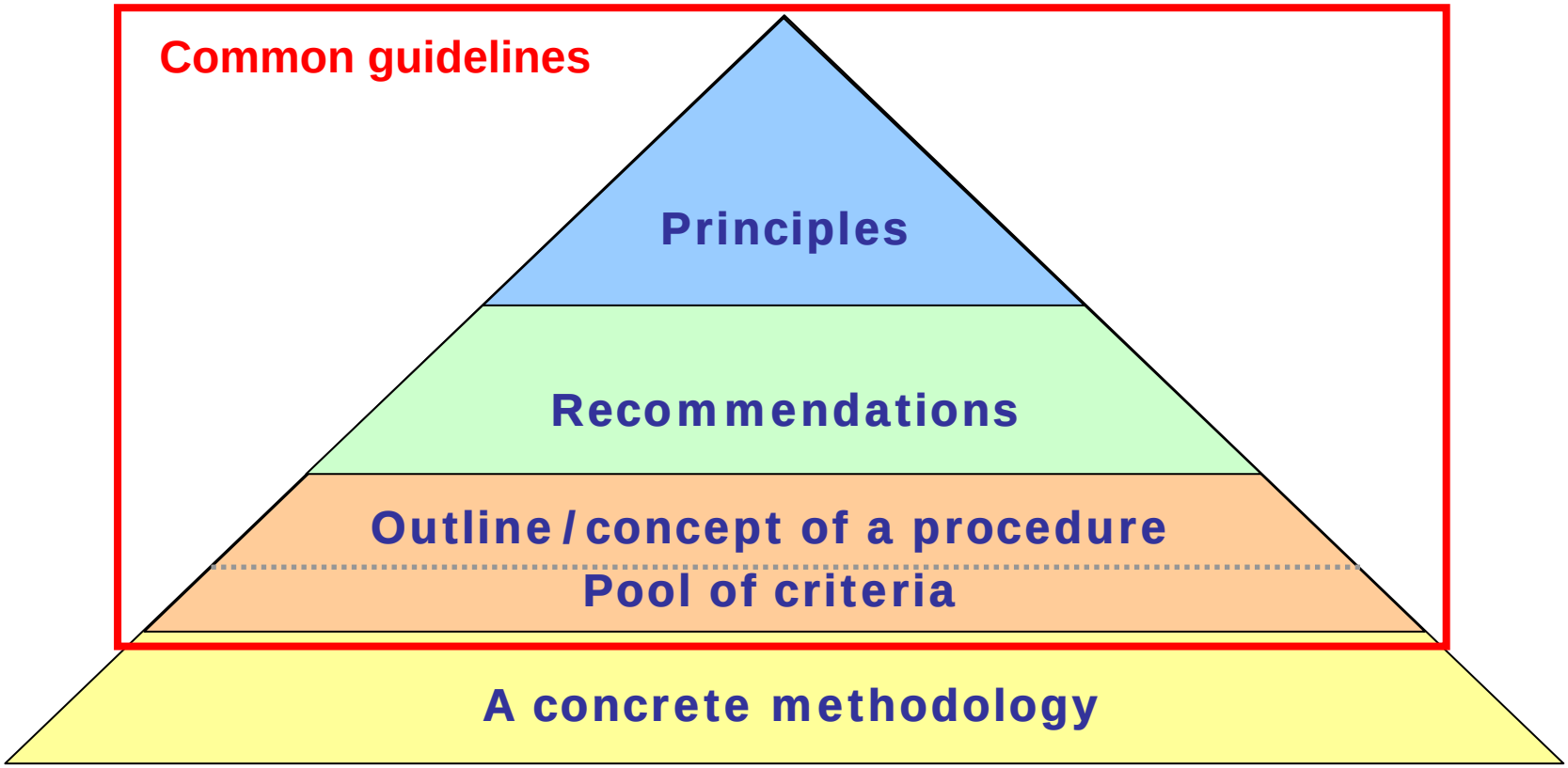
Increasing the production of renewable energy from hydropower generation

Minimising the impairment of the aquatic ecosystem and landscape

The specific objectives

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

Common guidelines – level of detail



As (common Alpine-wide) guidelines they are **recommendations** endorsed by the Alpine Conference **but not legally binding**

General Recommendations

Infrastructure related Small Hydropower Plants

Infrastructure related hydropower plants, exploiting only the water that is already used by the primary goal of the infrastructure, are in general not additionally affecting aquatic ecosystems and are economically favorable.

Thus, from an environmental point of view, **such multipurpose SHP is in general considered appropriate and desirable**.

Off-grid Small Hydropower Plants

In the weighing of interests, the purpose of the SHP needs to be given due consideration: In particular providing electric **auto-supply**, where the connection to the public grid would lead to disproportionate costs and no better environmental options are given, constitutes a **strong argument in favor** of building SHP in such remote individual locations (e.g. Alpine huts, remote farming, etc.)

Refurbishment, reopening

Refurbishment of existing operating plants and reopening of disused plants in order to optimize the production of hydropower and minimizing the ecological impacts should be generally **promoted and prioritized**.

However there should be a periodical examination if further mitigation of negative impacts and compliance with existing environmental legislation can be achieved by the **application of best practice without entailing disproportionate costs**.

Ecological upgrading

Ecological upgrading of existing operating plants in order to mitigate the impacts on the ecological status and on landscape should be generally **promoted by means of incentives** in order to accelerate fulfillment of legal requirements earlier or even to go beyond these minimal requirements

Renewal of concession

Renewal of concessions or licenses can generally be considered **appropriate** in case it **complies with the existing environmental legislation**. Nevertheless the ecological potential of the site should be considered and **concessions or licenses** should be **limited in time**, being as short as possible **without compromising the investment**.

New installations

At the core of the optimisation task lies the following question:
where are the favorable locations to increase HP production
in line with national RES-e targets?

favorable are locations that exhibit
on the one hand a **high hydro-electric potential** and
have on the other hand a relatively **low ecological and landscape value**

The search for the most favorable locations takes
necessarily place on a **regional level**

Next to the „where“ there is also the **how** question:
if new SHP-facilities are being built, all practical steps have to be taken
to mitigate the adverse impacts on the environment and the landscape

Two-levels procedure assessing new installations

Favorable locations - "WHERE" → **Technical solutions - "HOW"**

Transparent, structured and criteria based procedure,
combining two levels:

REGIONAL LEVEL (Where)

Development of a "regional strategy", classifying the potential appropriateness of water bodies for hydropower use Independently from individual application

→ Hydroelectric potential
→ Ecological and landscape value

from general to detail

LOCAL LEVEL (How)

Project specific evaluation of the local situation and the individual application by weighing all pros and cons

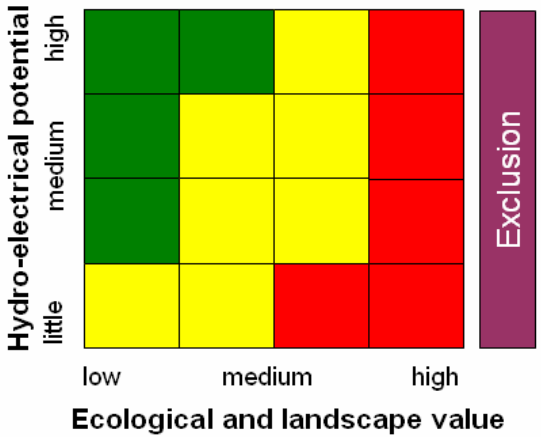
→ *Evaluation of the regional level*
→ Installation and site specific criteria
→ Further socio-economic aspects

The common guidelines then provide guidance for this two-level procedure, also **suggesting a pool of common alpine-wide criteria** for that task

Strategic planning on a regional level

DEVELOPMENT OF A REGIONAL STRATEGY

Transparent evaluation and classification of the potential appropriateness of river stretches for hydropower use



Considered criteria:

- Theoretical hydroelectric potential
- Ecologic and landscape value of the river stretches

→ Areas under special protection

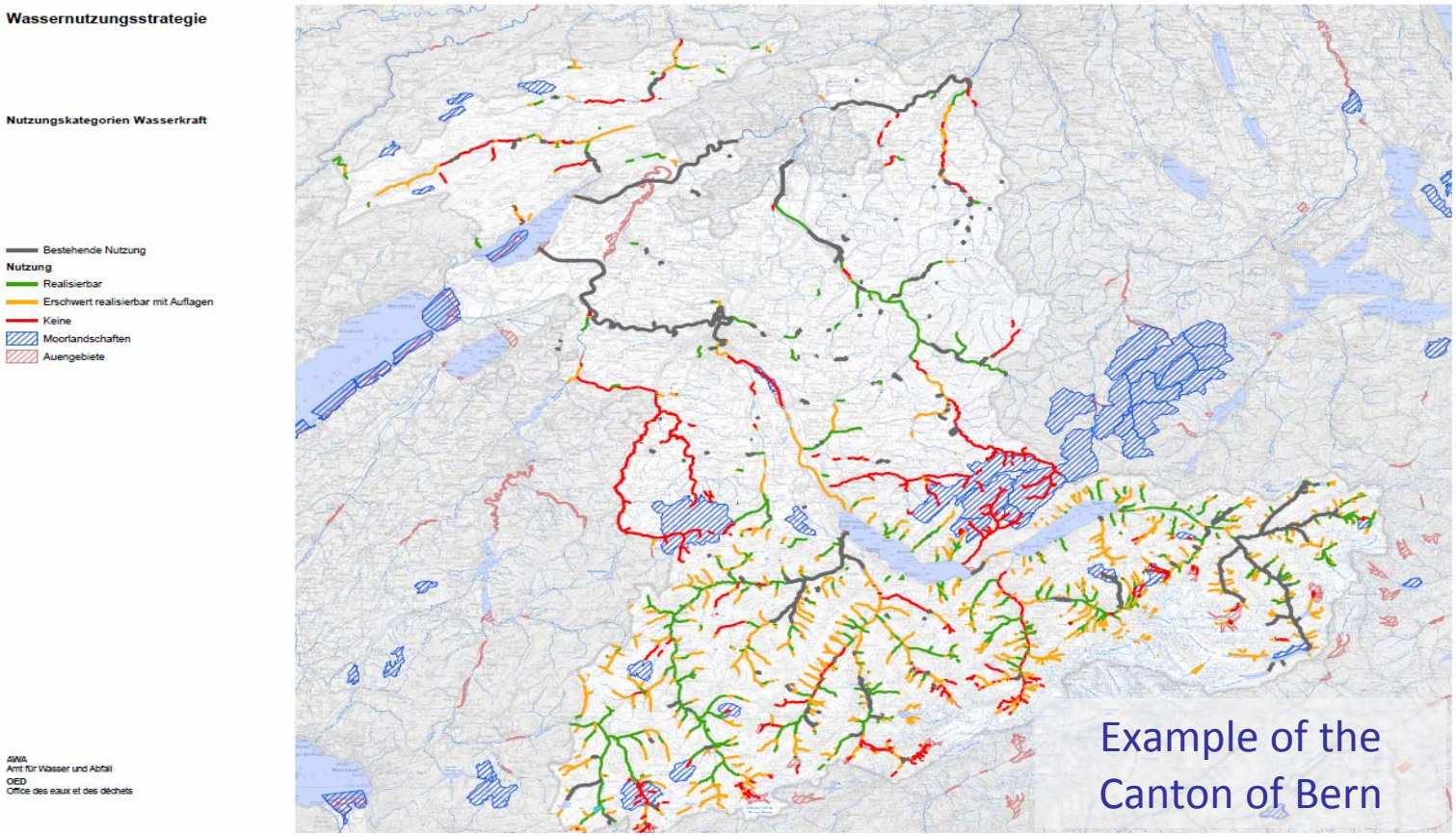
FAVORABLE for hydro-electrical exploitation	LESS-FAVORABLE for hydro-electrical exploitation	NON-FAVORABLE for hydro-electrical exploitation. Strong interest for conservation	EXCLUSION hydro-electrical exploitation forbidden by law
complying with the legal environmental (and other) standards, construction of SHPs in general possible	additional aspects and in-depth assessment weighing all relevant criteria indispensable next to complying with legal environmental standards, possibly further or stricter requirements may be necessary	SHPs possible only in exceptional cases (e.g. auto supply)	No hydro-electrical exploitation possible since protected areas where SHPs are forbidden by law

AT THIS LEVEL:

Only location specific

→ No installation specific criteria considered

Visualization of the regional strategy



Results (classification of river stretches) can be visualized with maps, serving as "communication tool" (e.g. to potential investors)

Regional strategy meets requirements of EU-WFD

WFD

Article 4.7

Sets out the conditions for **exceptions** for deterioration of water status or failure to achieve good water status.

c) asks for a **weighing of benefits**, benefits of modification, benefits of water protection or public interest.

d) asks for examination of **better environmental options** to reach the objective of the water body's modification

→ not only the single project and locality but a whole region or catchment has to be considered

Regional strategy: response to requirements of art. 4.7 WFD

Regional / strategic approach with identification of suitable areas, **endorsed** by:

- *EC Communication on the support of electricity from renewable energy sources*
- *Note of the EU Water Directors on "Hydropower development under the WFD"*
- *Policy Paper from 2007 on "WFD and hydro-morphological pressures"*
- *SHERPA Project (Small Hydro Energy Efficient Promotion Campaign Action)*

Important points (recommendations) about the Regional Strategy

Participative Procedure
The development of the regional strategy is a process triggered by the competent authority. In order to ensure **transparency** and to find a solution that takes account of the **different interests** at stake, **relevant stakeholders**' views must be **adequately involved** by means of a participative procedure.

As part of the regional strategy:
the **designation of areas deliberately kept free from any exploitation**, avoiding irreversible impacts, should be considered,

based on a broad participation of relevant stakeholders.

Possible ways on how to **integrate the elaborated results of the strategic planning** in existing national / regional instruments shall be examined.
→in order to get a binding character
→ effective and transparent decision making instrument which can also be used for communication purposes

Being a **prerequisite** for the local assessment and decision about the application:
→ regional strategy / planning should be carried out **as soon as possible**.

The actual decision on authorization for individual project applications => at the local level

Pre-planning at regional level

General information on appropriateness of a location

no project specific aspects

APPLICATION FOR SHP PROJECT
at a certain location

NEED TO TAKE A DECISION

The authorization is not just about judging if projects should be allowed in certain areas or not but also about the way how projects should be realized.

LOCAL IN-DEPTH ASSESSMENT OF THE CONCRETE PROJECT APPLICATION

For individual applications only
Considering all sustainability dimensions
Holistic weighing of all relevant criteria

→ Evaluation at regional level +
→ Installation specific criteria
→ Further socio-economic aspects including impacts on other sectors.

SITE- AND INSTALLATION SPECIFIC DECISION

Decision on authorization (including specific requirements)

Conclusions - Highlights

Clear commitment to respect both main objectives (production and protection)
→ no unilateral maximisation but optimisation!
→ **means restrictions and limitations for both sides !**

Approach for the development and promotion of (S)HP
to reach the targets for renewable energy in a smart way
→ 2 levels procedure for a "controlled" increase of production: from general to detail
→ smart and transparent "use-and-protection pre-planning" on a regional scale
→ optimisation task carried out both, at regional and local level

Strategic planning provides „regional maps"showing the appropriateness
of river stretches for hydropower use
relevant (environmental) legal framework is translated into information to the potential investor
about the chances for building a SHP at a certain place

Being a **pre-requisite for the local assessment** and decision about authorization
of an individual project, the **establishment of the regional strategy**
should be carried out as soon as possible

The **actual decision on authorization of application on local level**, based on the regional strategy and grounded on a project and site-specific assessment

Common Guidelines: Transparent approach for the whole Alpine area

- → Endorsed by the Alpine Conference, but not legally binding
- → Potential to back up regional planning authorities and to concretize the principles of integrated water resources management.
- → Provide assistance for the public authorities in their optimization tasks
- → Give support to potential applicants by making the decision process transparent

Deliverables of platform are available at
www.alpconv.org

MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE

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The Common Guidelines in a Nutshell

Think global (regional) <-> Act local

Pietro Colonna
Water Platform

Trento
Oct. 3rd – 4th, 2011