ALPENKONVENTION
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**Tagung der Alpenkonferenz**
**Réunion de la Conférence alpine**
**Sessione della Conferenza delle Alpi**
**Zasedanje Alpske konference**

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**XVII**

**A3**

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06-10-2022

# ANNEX

## 6 Activity Report of the Natural Hazards Working Group (PLANALP) for the period 2021-2022 (EN)

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**ACTIVITY REPORT OF THE**

# Natural Hazard Working Group (PLANALP)

**FOR THE PERIOD 2021-2022**

**(BETWEEN THE XVI AND XVII MEETINGS OF THE ALPINE CONFERENCE)**

## 1. Overview of the mandate given by the XVI Alpine Conference

| Summary of the objectives according to the 2021-2022 mandate or work programme |
|---|
| • Identify Nature-based Solutions (NbS) for the reduction of risks and prevention of major disasters related to natural hazards in the Alpine Region and collect best practice examples; taking into account the principles of biodiversity, sustainability and climate adaptation.<br>• Knowledge transfer and exchange of good practices in disaster risk reduction of natural hazards within the Alpine region (regular). Disseminate and communicate about the results and findings of the Report on the State of the Alps 7 and the study on challenges and synergies in contingency planning and raise awareness on these topics. |

## 2. Meetings

| Summary of the meetings held (date, place, main topics and milestones) |
|---|
| • 25th March 2021, virtual meeting:<br>  ○ Main topics: Contingency Planning (CP) and Mandate 2021 – 2022<br>  ○ Milestones: Presentation of the final report on CP and decision on dissemination through fact sheet; discussion on the approach of the new mandate, definition of Nature-based Solutions (NbS) and define content and common questions for policy paper on NbS<br>• 21st June 2021, virtual meeting:<br>  ○ Main topics: Workshop on NbS and exchange on information<br>  ○ Milestones: Elaboration of the predefined questions for NbS policy paper; presentation and discussion of past events, new tools and projects and policy recommendations from the member countries<br>• 12th October 2021, virtual meeting:<br>  ○ Main topics: NbS, meeting with Carpathian Convention and fact sheet |

- Milestones: Presentation and discussion of the first draft on NbS; Presentation of the results from the joint meeting with the Carpathian Convention; discussion of the approach and preparation of the template for the fact sheet

- 29th March 2022, virtual meeting:
  - Main topics: New mandate 2023 – 2024 & policy brief NbS
  - Milestones: Development of the new mandate 2023 – 2024; Presentation and discussion of the second version of the NbS policy brief
- 17th May 2022, Rosenheim, Bavaria:
  - Main topics: policy brief NbS & new mandate 2023 – 2024
  - Milestones: Presentation and finale feedback loop of the policy brief on NbS and discussion of the procedure and the milestones for the mandate 2023 – 2024
- Planned 7th October 2022, Bolzano, Italy:
  - Planned main topics: Outputs of Mandate 2021-2022 & first steps regarding new mandate 2023 – 2024
  - Planned Milestones: Presentation and discussion regarding dissemination of outputs from mandate 2021 – 2022 and first steps regarding new mandate 2023 – 2024

## 3. Activities carried out

| Synthetic description of further activities carried out (including outreach and communication activities) |
|---|
| • Knowledge transfer and exchange of best-practices as well as discussion of current natural hazard events was carried out at all meetings of PLANALP (e.g. exchange of new knowledge/information, collection of existing best practices for dealing with natural risks, risk communication, good-practises on NbS)<br>• Support of the Alpine Climate Board and the natural hazard implementation pathways<br>• Workshop on NbS<br>• Joint-Workshop on Climate resilient spatial planning with EUSALP AG8 |

## 4. Outputs and results

| Description of the main outputs and results achieved |
|---|
| • Policy brief on Nature-based Solutions<br>• Dissemination material in form of fact sheet for Contingency Planning report<br>• Content for new mandate |

- Minutes of PLANALP meetings

## 5. Cooperation

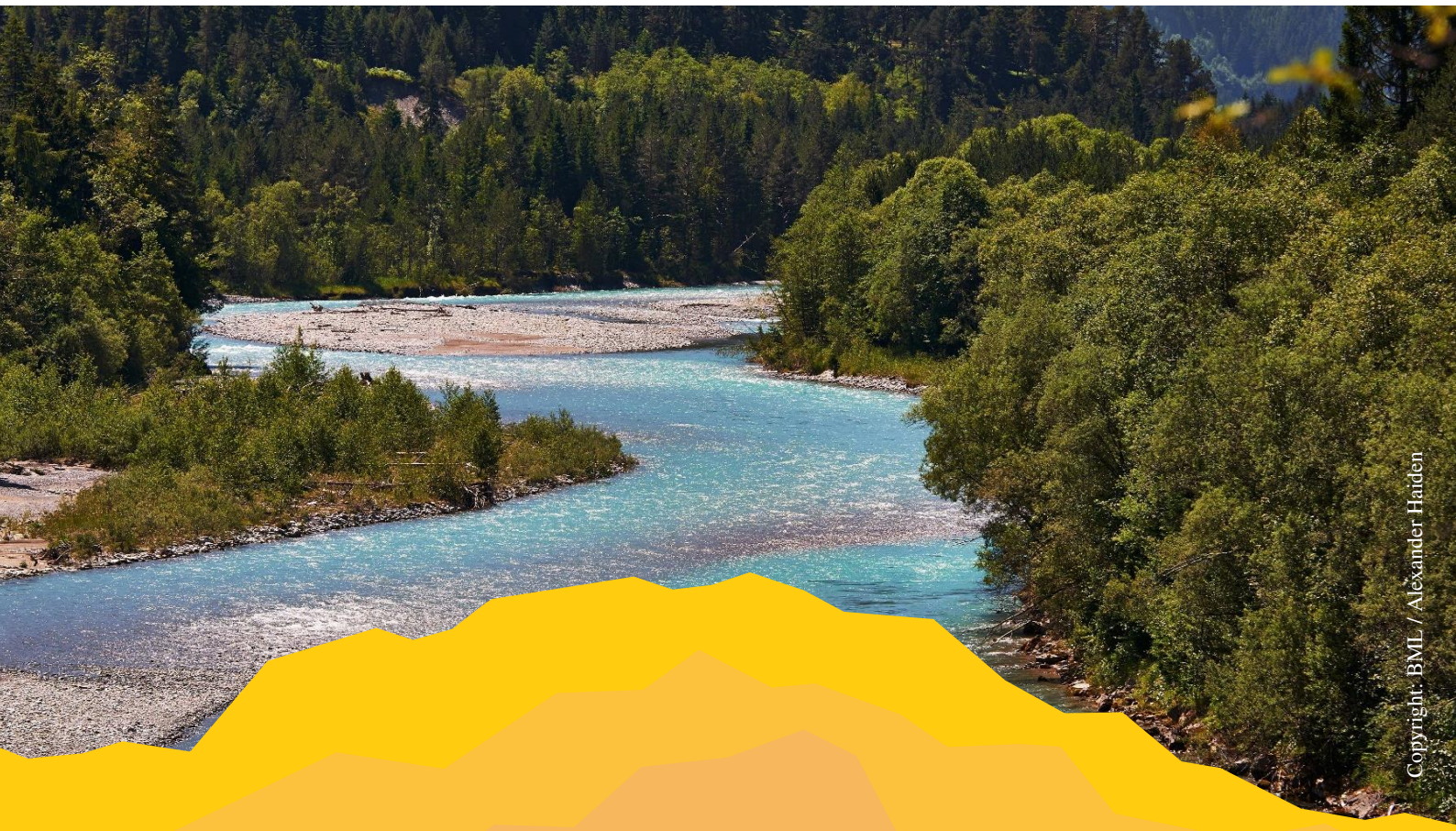
| Description of cooperation developed with other Alpine Convention bodies and further relevant partners and processes, and of the resulting benefits |
|---|
| • Alpine Climate Board<br>• EUSALP AG8 |

## 6. Attachments

| List of the documents attached to this report, such as papers proposed for approval by the XVII Alpine Conference (thematic reports, guidelines, statements etc.) and supporting documents (workshop proceedings, survey reports, communication materials etc.). *Please kindly provide a PDF file of each attachment. Do not include the minutes of regular meetings!* |
|---|
| • *Nature-based solutions in the context of natural hazards – Policy brief*<br>• *Contingency Planning – Factsheet (EN, DE)* |

# NATURE-BASED SOLUTIONS IN THE CONTEXT OF NATURAL HAZARDS

*Policy brief*





Natural Hazard Working Group of the Alpine Convention (PLANALP)

Mandate 2021-2022

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# IMPRINT

This report is a result of the Natural Hazards Working Group under the Swiss Presidency 2021-2022. The members of the Working Group are:

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- Nicolas Chesnel (Interreg Alpine Space Programme)
- Ansgar Fellendorf (UNEP – United Nations Environment Programme)
- Massimo Pecci, Christian Rohr (ISCAR - International Scientific Committee on Alpine Research)
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Živa Novljan (Permanent Secretariat of the Alpine Convention)

# TABLE OF CONTENTS

# 1 INTRODUCTION

The concept of Nature-based Solutions (short: NbS) in natural hazard management is common but the understanding and approaches of NbS vary. Therefore, the Natural Hazard Working Group of the Alpine Convention (short: PLANALP) decided to tackle this topic in its mandate 2021 – 2022.

PLANALP was established in 2004 to develop common strategies designed to prevent natural hazards in the Alpine region as well as to deliberate on adaptation strategies.

This policy brief is dealing with the concept of Nature-based Solutions in the context of natural hazard management. It provides a common understanding and identifies NbS for the reduction of risks and prevention of major disasters related to the main natural hazards in the Alps. Furthermore, the policy brief contains an overview of the benefits, limitations and implementation issues of NbS. The policy brief presents a basis for experts in the field of natural hazard management as well as decision maker.

Whenever mentioned in this document, NbS are always in the context of natural hazard management.

# 2 CHARACTERISATION OF NATURE-BASED SOLUTIONS

## 2.1 General definitions of Nature-based Solutions

By the European Commission:

*Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions.*[1]

By the International Union for Conservation of Nature (IUCN):

*Nature-based Solutions are actions to protect, sustainably manage and restore natural and modified ecosystems in ways that address societal challenges effectively and adaptively, to provide both human well-being and biodiversity benefits. They are underpinned by benefits that flow from healthy ecosystems and target major challenges like climate change, disaster risk reduction, food and water security, health and are critical to economic development.*[2]

By the Nature-Based Solutions Initiative:

*Nature-based solutions (NbS) involve working with nature to address societal challenges, providing benefits for both human well-being and biodiversity. Specifically, they are actions that involve the protection, restoration or management of natural and semi-natural ecosystems; the sustainable management of aquatic systems and working lands such as croplands or timberlands; or the creation of novel ecosystems in and around cities. They are actions that are underpinned biodiversity and are designed and implemented with the full engagement and consent of local communities and Indigenous Peoples.*[3]

## 2.2 Delimitation of Nature-based Solutions

NbS, according to the understanding of the Natural Hazards Working Group of the Alpine Convention, are actions that work with and enhance nature to restore or create a protective function for society from the impacts of natural hazards. NbS are based on and use the power of nature as infrastructure to provide natural services, to benefit society and environment. Such interventions must be designed to mitigate identified real or anticipated social and environmental challenges, for instance natural hazards that are

1 European Union, 2021
2 IUCN, 2022
3 Nature-based solutions initiative, 2022

exacerbated by climate change. At the same time, NBS can have many co-benefits for instance for local biodiversity or increasing the capacity to store carbon.

Important in this context is that NbS in natural hazard management require special cultivation and cannot be constrained by means to increase biodiversity. Special cultivation includes points such as the suitability of only certain plant species, the implementation of specific planting rules regarding distance, size, rooting depth, etc. and the necessity of maintenance measures (e.g. removal of dead wood/plants as they represent a potential source of danger as driftwood). However biodiversity should be considered in the planning of initiatives and efforts to improve biodiversity should be forced whenever possible.

NbS and nature conservation are not the same. In order to avoid natural hazards, serious intervention in nature is sometimes necessary - also in the form of NbS (e.g. biotechnical measures like soil bioengineering) to achieve the desired level of protection for the affected population and the settlement area. Nature conservation and interventions to protect people and their habitat must be carefully assessed.

The focus of NbS in PLANALP is on:

- Reducing sources of natural hazards (by revegetation or restoration)
- Measures that mitigate the impact of natural hazards (e.g. protective forest against avalanches or rock fall)
- Measures to keep drains clear
- Providing natural retention, spreading or development areas (e.g. keeping/creating floodplains or decrease of the amount and speed of surface run-off with different kinds of plants)
- Measures supporting the natural retention function of landscapes and river systems
- Improvement of infiltration ability or storage capacity of soils
- Increasing the roughness of land surface (e.g. protective forest management) or watercourses and floodplains
- Measures that reduce erosion (e.g. in riverbanks and river bottom)

Measures that are only focused on improving the environment, increasing the biodiversity or tackle climate change adaptation without mitigating natural hazards are not regarded as NbS in the context of PLANALP. Furthermore, PLANALP does not define measures as NbS that derive from nature but do not use an ecosystem to generate services.

### 2.2.1 Features of NbS in the context of natural hazard management

NbS are a crosscutting area in which many different factors have to be taken into account, such as biology, climate or land use. Creating and using synergies with other topics is important. The application of NbS should be done in such a way that the affected population is protected from natural hazards, economic benefits accrue and at the same time biological and cultural diversity and the ability of ecosystems to evolve over time is maintained.

Healthy ecosystems are the basis for NbS, at the same time NbS can contribute to the improvement of ecosystems, e.g. the development of floodplains leads to a better condition of rivers as pollutants have

more space to weather. Ecosystems are vulnerable to climate change, especially in connection with natural hazards. *Climate change comes with significant changes in temperature and precipitation pattern that might threaten the functionality of ecosystems, which means that specific care has to be given to enhance the resilience of the ecosystems themselves. Invasive alien species or pests are as destabilizing factors as anthropogenic pollution and unsustainable use of the natural resources.*[4] *Therefore, it is important to constantly evaluate the effects of NbS and if needed adopt the measures. Protective forests, for instance, need to be composed of different tree species that can endure the change in temperature and precipitation.*[5]

Due to the strong link between climate change and natural hazards management, the compatibility with the Climate Action Plan 2.0 and its implementation pathways in different sectors have to be ensured.

Another important connection of NbS is with land use. NbS must always be adapted to the site specific types of land use, as these require different measures and have different effects, for example:

- Agriculture: conservation soil tillage, transverse cultivation of land in hillside situations, extensive agriculture, dismantling drainage systems, grassed waterways, riparian strips → effects: improved water balance, erosion protection, reduction of pollutant and particle output (from agricultural areas), groundwater recharge, improved (soil) biodiversity
- Forestry: site-specific afforestation, restoration of forests, dismantling of roads and paths → effects: better infiltration and interception, increased roughness (floods/heavy rain), greater resistance, soil stabilization (erosion protection, landslides/rock fall/avalanches)
- Urban areas: infiltration ponds, green roofs, multifunctional areas, soil unsealing → effects: increased storage of water, cooling effects, recreational areas, drought/climate change adaption
- Rivers and floodplains: development of rivers and floodplains, afforestation of floodplain forests, restoration of rivers (meandering, widening, shallowing river banks,…), dike relocation → effects: reducing slope and velocity of watercourses, improved water balance, climate change adaption, improved river morphology, improved biodiversity, recreational areas
- Peatlands and wetlands: for instance, have a very high water storage capacity. They absorb water in peak seasons, reducing flood risk, and can release water in times of shortage. Vegetation cover of various types - depending on soil structure, inclination and other factors – can help to stabilize slopes and reduce the occurrence or amplitude of landslides or avalanches. Similarly, diversified crops on agricultural land do contribute to soil stability, as do more water-efficient irrigation techniques, and reduce the risk of total harvest lost in case of floods or droughts.

4 Permanent Secretariat of the Alpine Convention, 2019

5 Permanent Secretariat of the Alpine Convention, 2019

# 3 BENEFITS AND LIMITATIONS

In addition to a common understanding, it is also crucial to know the advantages and disadvantages of Nature-based Solutions in order to be able to implement them effectively.

The benefits and limitations of NbS depend on the function and impact they have on each natural hazard process. In order to achieve synergy effects/co-benefits with NbS, it has to be clarified which societal challenges are addressed, which ecosystems can be used and how this ecosystem has to be managed. The main limitation of protective measures is the exceeding of their functional capacity. Thus, NbS often cannot replace technical measures, but are implemented in a combination with other measures (e.g. technical measures, temporary measures, planning measures).

When designing NbS projects, diverse and complex interpretations present challenges for designing and implementing natural hazard/risk management schemes, which contain a combination of green and grey protective infrastructures. In the majority of cases by solely implementing NbS (as green infrastructure measures) cannot solve the problems of reducing risks e.g. floods, torrents, erosion, landslides, rockfall, snow avalanches to a desired extent.

Likewise, some grey measures, in fact, enable the establishment of an existing NbS (green infrastructure). In some circumstances - especially in very demanding Alpine conditions and torrential catchments - proper located and adapted protection measures maintain, preserve or even establish basic conditions for conception, implementation and development of NbS. In some cases, NbS take over the protective function on their own after years, without the need for technical support. For example, a protective forest may initially need some additional technical and bioengineered measures for the desired level of protection, but after about 50 years the forest has reached its full protective function and then no longer needs support structures.

There has been a paradigm change: Formerly NbS were seen only as minor addition to the technical measures, whereas now the technical measures complement the use of NbS. There are four ways of implementing NbS:

1. NbS performs its function by itself
2. Technical solution complements the NbS
3. NbS supplement the technical solution
4. In case only a technical solution is considered effective, nature-based measures are set to mitigate the unwanted effects on the environment

## 3.1 Benefits

The basic advantage is the mitigation of the impact of natural hazards in combination with synergetic effects/co-benefits, e.g. improvement of water balance, groundwater recharge, cooling effects, improvement of ecosystems and biodiversity, development of recreational areas.

An active management of NbS is important and leads to a general reduction of potential risks. A good example for this is protective forest. It protects settlement areas from natural risks like avalanches or rockfall. In addition, to its protective function the forest also has positive effects on the climate through e.g. binding $CO_2$ or cooling effects and represents an important recreational area for humans.

NbS approaches have been recognized as flexible, cost-effective and broadly applicable tools for reducing the impacts of climate change, and as important strategies to complete structural measures in natural hazard management and lead to low-regret measures. They are not only able to equally respond to various hazards that might occur, but can adapt to changes in hazard dynamics over a longer time period. They allow for multifunctional uses (agriculture, recreation) and do not bear the risk of simply transferring the risk to another area, e.g. to downstream communities. Additionally, ecosystem services support resilience of local settlements through the protection and purification of drinking water reserves and similar.[6]

NbS present a more sustainable solution and they often have a higher level of acceptance in the public. It is also easier to respond to changing environmental or climatic conditions by tailoring NBS to these changes. In the case of technical measures, their impact on natural hazard processes cannot be so easily adjusted afterwards to changed environmental conditions.

## 3.2 Limitations

For the use of NbS, it is important to know the limitations of their impact on natural hazard processes. Their effectiveness strongly depends on topography, geology, soil as well as land use and is often decreasing with increasing catchment size. Another important factor is that NbS need to be constantly managed to ensure that they full fill their protective function. Furthermore, it is more complicated to predict the effectiveness of NbS as they highly depend on external conditions, which modelling approaches does not reflect. This also makes it difficult to quantify the outcomes.

Time is also an important factor. It takes some time to achieve the desired protection level (especially with protective forest, which is only in full function after 20–30 years), during which temporary measures are needed.

As the Alps are characterized by often narrow valleys and many different user interests, a specific challenge for implementing ecological measures lies in designating enough space for it – the best effectivity can be reached by a coherent approach on landscape level, e.g. a watershed or catchment area. This also needs an enhanced preparatory dialogue, especially with land owners and mayors responsible for land use designation and construction permits. NbS often offer the possibility to use the area for additional purposes (e.g. recreation, agriculture) after completion. While technical constructions require often a smaller area, but due to their use/the type of construction (e.g. torrent control construction) the area cannot be used for other purposes too. Especially in agglomeration areas, it can be difficult to obtain the required space.

Although in general the public prefers NbS to technical solutions, there still exists certain prejudices or mistrusts regarding the effectiveness of NbS.

Another important point is that NbS have to face barriers in legislation and administration practice, which must be eliminated for a successful implementation. When designing a Nature-based Solution intervention, it's an important step to identify relevant policies and plans (including e.g. relevant regulations, subsidies, tenure policies etc.), which can support or hinder the intervention.

6 Permanent Secretariat of the Alpine Convention, 2019

Climate change has a greater impact on NbS than on technical solutions, making it difficult to predict the effectiveness of NbS.

An assessment of NbS from different points of view is necessary because solutions can also fail in their impact on natural hazard processes or cause other risks (e.g. storm events, driftwood, which can cause blockage of bridges). Of course, this applies for all measures, including also technical measures.

To combine NbS and technical solutions it is important that the various groups/experts work together (exchange of knowledge/experience). Through the collaboration of experts in different fields it is possible to build up capacities/know how, gain more knowledge on what works and also acquire trust in the protection functions of NbS.

# 4 COST AND FINANCING OF NATURE-BASED SOLUTIONS

On one hand depending on the type of NbS the measures may initially entail higher investment costs but provide higher and multiple long-term benefits or reduced costs over the investment's lifetime. Therefore, it is crucial to make a holistic cost comparison between investments in grey and green infrastructures. An important basic tool is the cost-benefit-analysis. In order to obtain a realistic picture, all long-term effects and maintenance costs must be included, regardless of the protection measure. Especially the maintaining costs are often not integrated in the calculation.

On the other hand, in terms of costs effectiveness, it turns out that some NbS often have a better economic efficiency than technical measures. If the present protection level by protective forests had to be replaced by technical measures, this would be more than 100 times as expensive. For example in Austria *a comparison of the costs for the conservation measures of the protective forest with those of rehabilitation measures (rejuvenation) and with technical measures resulted in a ratio of 1:15:146. This means that the use of € 1000 for the conservation of a protective forest replaces € 146,000 of technical protection measures that are necessary when the protection forest can no longer fulfil its function.* In case of rehabilitation measures, € 15,000 replaces € 146,000 of technical protection measures.[7]

A risk assessment should also be part of the economic assessment and cost-benefit analysis, because every protection system can fail. Hence, a risk assessment for failure of function should be an integral part.

Important for the implementation of NbS is also the funding system as well as incentives for NbS. Only with access to sufficient funds or incentives will people systematically think of NbS. Financing of NbS in the Alpine countries is structured and executed very differently, depending on the type of NbS and the national regulations.

Regarding protective forests, financing is well established in Austria, Italy, Liechtenstein, Switzerland and partly in Slovenia where support and funding for forest owners are provided. Furthermore, obligations by law for forest owners exist (in Austria, partially Italy, Liechtenstein, Switzerland and Slovenia) and compensation is provided by the federal state. In France, on the other hand, it is difficult to finance protective forests that affect private forest ownership.

Another example for financing NbS is the wastewater tax from sewage treatment plants applied in Bavaria (Germany), which is used for the ecological share of measures.

In South Tyrol, levies from hydropower-plant-operators are used in a targeted manner for environmental compensation measures along the affected rivers, for risk reduction measures or for measures that combine risk reduction and the improvement of the ecological status.

7 Rechnungshof, 2015

There are also types of NbS, which are not financed - especially in the field of spatial planning. In some Alpine countries, it is nearly impossible to create flood retention areas. Because often the first step would be to restrict or change land use, but municipalities usually do not have the financial means for that. Frequently there is a lack of a cost transfer system between landowners and beneficiaries. Hence, it should be mandatory to consider NbS in planning processes. Public and EU funds should be used to promote NbS also through available funding for combined measures. In Switzerland for example, projects that combine flood protection and river revitalisation receive additional funding. In South Tyrol, the funds from priority axis 4 of the ERDF program demand that risk reduction measures are always combined or at least complemented with NbS.

# 5 CONCLUSION

NbS are a cross-cutting area in which many different factors and stakeholders have to be taken into account. Hence, the implementation of NbS needs an inclusive governance approach. Cooperation of different sectors on horizontal and vertical level (different levels of administration) and the inclusion of all relevant stakeholders are necessary already in the planning phase.

Since a main challenge of NbS is their consumption of land, which often also affect private land ownerships, it is imperative to include the public from the beginning of the planning process. As precondition the general acceptance for NbS needs to be increased and prejudices eliminated. Communication plays a crucial role in dealing with this, thus communication strategies are required. It is important to explain the advantages but also the risks of NbS in comparison to technical measures. The multifunctional use of NbS (e.g. other possible uses for recreation/tourism, ecosystem services) needs to be highlighted and must be explored already in the spatial planning phase.

As already mentioned, a better funding system for NbS is needed. An option would be to apply NbS in the context of different funding schemes, like for natural hazard management, climate change adaptation, biodiversity and ecology.

With regards to evaluate NbS, a tool is needed for the assessment of NbS that compares them to technical measures (spatial planning, financial aspect, effectiveness...). Within this tool, all benefits (e.g. sustainability, positive effects on climate, self-renewable, lifetime, social function for society) should be expressed in financial terms.

Furthermore, it needs to be communicated that there is always a residual risk – whether a technical, a nature-based or a combined solution has been applied.

# 6 KEY MESSAGES AND RECOMMENDATIONS

## 6.1 Key Messages

1. The focus of Nature-based Solutions in natural hazard management is on reducing the impact sustainability of natural hazards.
2. Nature-based Solutions should include benefits for biodiversity whenever possible.
3. The multiple functions of Nature-based Solutions offer synergetic effects and therefore provide benefits for nature and society.
4. Nature based Solutions require maintenance and sustainable management to keep the level of protection.
5. For best results, Nature-based Solutions need a safety assessment and can be combined with other measures whenever needed to provide the necessary level of protection.
6. Cost and benefit assessments reveal that Nature-based Solutions have certain advantages concerning the sustainability and maintenance costs compared to technical measures.

## 6.2 Recommendations for implementation

1. Development of communication strategies to increase general acceptance and foster the implementation
2. Dismantling of barriers in legislation and administration practice
3. Providing governmental funds and incentives
4. Development of modelling and assessment approaches that consider the manifold effects of Nature-based Solutions in different sectors
5. Consider where the use of Nature-based Solutions makes sense, depending on the circumstances
6. Involvement of all relevant stakeholders, especially private land owners, from the beginning
7. Considering Nature-based Solutions at an early stage of the spatial planning process

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The Alpine Convention is a pioneer of its kind as the first international treaty dedicated to the protection and sustainable development of an entire mountain range – the Alps. The Convention was signed by the eight Alpine countries (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland) and the European Union, and came into effect in 1995.

The foundations of the Alpine Convention are the Framework Convention and the implementing Protocols and Declarations, which establish guiding principles and a framework for transnational cooperation in key areas of Alpine environments, societies, and economies. Based on these foundations, the Convention works to build partnerships and establish cross-sectoral approaches to address the most pressing challenges in the Alps.

Work is carried out in different formats by the Alpine Convention's various bodies: the biennial Alpine Conference, the work of the Contracting Parties, the Permanent Committee, the Compliance Committee, numerous Thematic Working Bodies, and the Permanent Secretariat. Several Observer organisations also contribute to the implementation of the Convention.

The Alpine Convention is leading the way for sustainable life in the Alps, working to safeguard their unique natural and cultural heritages – now and for the future.

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# CONTINGENCY PLANNING

*Comparative analysis of challenges, strengths and weaknesses between contingency planning and natural hazard management*




Natural Hazard Working Group of the Alpine Convention (PLANALP)

Mandate 2019-2020

ALPENKONVENTION
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# 1. INTRODUCTION

The Natural Hazards Working Group of the Alpine Convention (PLANALP) elaborated a comparative analysis of challenges, strengths and weaknesses between contingency planning and natural hazard management. This fact sheet summarises the key messages, for detailed information please read the full report.

Successful management of natural hazard events needs a good preparation and a well-established collaboration in the response phase. Contingency planners prepare plans at national and regional level that consider local knowledge, existing material resources and documentations of past events. In the response phase, natural hazard management experts, with their professional knowledge and understanding of the hazard process, profit from an appropriate contingency plan.

During the past two years, a focus of the PLANALP group has been on the contribution of prevention to contingency planning, with special consideration of synergies and challenges in the Alpine region. The general aim is to bring theory (planning) and practice (management) closer together and to harmonise them. A central question was to what extent the natural hazard managers can support the contingency planners in their challenges. The successful collaboration between emergency planners and natural hazard managers plays an important role for managing disaster events.

# 2. BACKGROUND

In the preparatory phase, five categories that had emerged as particularly important and in some cases in need of improvement at the interface of contingency planning and natural hazard management were defined:

- Data Availability
- Risk Communication
- Structural Quality
- Material Resources
- Human Resources

The premise was to best translate expert knowledge into usable maps and information, and not to create common standards for maps. In the preparation, social aspects and the demographic structure (age, gender, special needs) of a municipality were considered.

To work through those objectives, PLANALP commissioned a project consortium consisting out of the Austrian Central Institute for Meteorology and Geodynamics (ZAMG), the Austrian Research Centre for Forests (BFW) and the Leoben University (Montanuniversität). The consortium defined relevant natural hazards (avalanches/ice avalanches, forest fires, floods, soil slope failures) to keep a focus in the

study. A mixed methods approach was applied: the first part consisted of a quantitative survey to find out the status quo about challenges, strengths and weaknesses specific to natural hazards as well as the expert groups natural hazard management and contingency planning. In the subsequent second part qualitative workshops with focus group interviews were conducted in a total of 5 Alpine countries.

Based on the valuable contributions, the study was able to formulate recommendations for action for the Alpine region that are sufficient for the successful management of natural hazard events.

# 3. RECOMMENDATIONS

The key messages of the analysis are:

1. Invest in digitalisation and the creation of a central natural hazard database
2. Standardise the documentation of damage events, digital available (e.g. Web-GIS solution) with the possibility of traceability and the derivation of lessons learned protocols
3. Develop specific weather forecasts for small alpine catchment areas including changing weather patterns due to climate change
4. Establish more measuring points for different natural hazards (e.g. soil slope failure, forest fire)
5. Improve the hazard warning maps
6. Transform natural hazard maps into cross-disciplinary risk maps
7. Improve the cooperation and coordination with spatial planners as well as local decision-makers
8. Intensify the cross-border exchanges between the Alpine countries
9. Organise regular meetings and mandatory cooperation to improve the information and data exchange between contingency planning and natural hazard management
10. Organise training/courses for knowledge transfer between local and supra-regional experts, different generations, relevant stakeholders and volunteers
11. Set up and integrate layperson-networks to improve the risk communication

This fact sheet is a summary of the key messages and recommendations of the report "Contingency Planning in the Area of Natural Hazards". For detailed information please find the full report here: https://www.alpconv.org/fileadmin/user_upload/Organization/TWB/PLANALP/PLANALP_Contingency_Planning_report.pdf

The Alpine Convention is a pioneer of its kind as the first international treaty dedicated to the protection and sustainable development of an entire mountain range – the Alps. The Convention was signed by the eight Alpine countries (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland) and the European Union, and came into effect in 1995.

The foundations of the Alpine Convention are the Framework Convention and the implementing Protocols and Declarations, which establish guiding principles and a framework for transnational cooperation in key areas of Alpine environments, societies, and economies. Based on these foundations, the Convention works to build partnerships and establish cross-sectoral approaches to address the most pressing challenges in the Alps.

Work is carried out in different formats by the Alpine Convention's various bodies: the biennial Alpine Conference, the work of the Contracting Parties, the Permanent Committee, the Compliance Committee, numerous Thematic Working Bodies, and the Permanent Secretariat. Several Observer organisations also contribute to the implementation of the Convention.

The Alpine Convention is leading the way for sustainable life in the Alps, working to safeguard their unique natural and cultural heritages – now and for the future.

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# KATASTROPHENSCHUTZ-PLANUNG

*Eine vergleichende Analyse der Herausforderungen, Stärken und Schwächen zwischen der Katastrophenschutzplanung und dem Naturgefahrenmanagement*



**Arbeitsgruppe Naturgefahren der Alpenkonvention (PLANALP)**

**Mandat 2019-2020**

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# 1. EINFÜHRUNG

Die Arbeitsgruppe Naturgefahren der Alpenkonvention (PLANALP) hat eine vergleichende Analyse über die Herausforderungen, Stärken und Schwächen der Schnittstelle zwischen der Katastrophenschutzplanung und dem Naturgefahrenmanagement erarbeitet. Dieses Faktenblatt fasst die wichtigsten Erkenntnisse aus dem Gesamtbericht „Katastrophenschutzplanung im Bereich des Naturgefahrenmanagements“ zusammen – Details sind im vollständigen Bericht enthalten.

Ein erfolgreiches Management von Naturgefahrenereignissen benötigt eine sorgfältige Vorbereitung und eine gut etablierte Zusammenarbeit in der Phase der Bewältigung. KatastrophenschutzplanerInnen bereiten basierend auf lokalem Wissen, vorhandenen Ressourcen und der Dokumentation von vergangenen Ereignissen nationale und regionale Katastrophenschutzpläne vor. Bei der unmittelbaren Reaktion auf Schadereignisse profitieren ExpertInnen des Naturgefahrenmanagements, die ein professionelles Wissen und Verständnis von den Naturgefahrenprozessen haben, von einem sachgerechten Katastrophenschutzplan.

Während der letzten zwei Jahre lag der Schwerpunkt der PLANALP Gruppe darauf, unter besonderer Berücksichtigung der Synergien und Herausforderungen im Alpenraum einen Beitrag zur Prävention in der Katastrophenschutzplanung zu leisten. Das übergeordnete Ziel ist Theorie (Planung) und Praxis (Management) näher zusammenzubringen und Arbeitsabläufe zu harmonisieren. Eine zentrale Frage war: „Inwieweit kann das Naturgefahrenmanagement die Katastrophenschutzplanung bei ihren Aufgaben unterstützen?“ Die erfolgreiche Kooperation zwischen KatastrohenschutzplanerInnen und NaturgefahrenmanagerInnen spielt eine essentielle Rolle im Umgang mit Katastrophenereignissen.

# 2. HINTERGRUND

In der Präventionsphase wurden fünf Kategorien definiert, die sich an der Schnittstelle zwischen Katastrophenschutzplanung und Naturgefahrenmanagement als besonders wichtig und teilweise verbesserungswürdig herausgestellt haben.

- Datenverfügbarkeit
- Risikokommunikation
- Strukturelle Qualität
- Materialressourcen
- Personenressourcen

Ziel war Expertenwissen bestmöglich in nützliche und für alle verständliche Karten und Informationen zu übertragen und nicht gemeinsame Standards für Katastrophenschutzpläne festzulegen. Dabei wurden soziale Aspekte und demographische Strukturen (wie Alter, Geschlecht, Personen mit speziellen Bedürfnissen) in den Gemeinden berücksichtigt.

Um dieses Ziel zu erreichen hat die PLANALP Arbeitsgruppe ein Projektkonsortium bestehend aus der Zentralanstalt für Meteorologie und Geodynamik (ZAMG), dem Bundesforschungszentrum für Wald (BFW) und der Montanuniversität Leoben mit der Bearbeitung beauftragt. Das Konsortium definierte

gemeinsam mit der Arbeitsgruppe relevante Naturgefahren (Lawinen, Waldbrände, Hochwässer, Hangrutschungen), auf denen der Fokus der Studie liegt. Bei der Bearbeitung wurde ein Mix-Methods Ansatz gewählt. Der erste Teil bestand aus einer quantitativen Befragung zur Erhebung des derzeitigen Stands der Herausforderungen, Stärken und Schwächen. Im zweiten Teil wurden qualitative Workshops mit Fokusgruppen-Interviews in fünf Alpenländern durchgeführt.

Basierend auf den wertvollen Beiträgen aus der quantitativen und qualitativen Forschung, konnten Handlungsempfehlungen für das erfolgreiche Management von Naturgefahren für den gesamten Alpenraum entwickelt werden.

# 3. HANDLUNGSEMPFEHLUNGEN

Die Schlüsselaussagen aus der Analyse sind:

1. Investment in Digitalisierung und die Schaffung von einer zentralen Naturgefahren-Datenbank
2. Standardisierte Dokumentation für Katastrophenereignisse schaffen, digitale Verfügbarkeit (z.B. Web-GIS-Lösungen) sicherstellen mit der Möglichkeit der Nachverfolgung und der Ableitung von Erfahrungsprotokollen
3. Entwicklung von spezifischer Wettervorhersagen für kleinräumige alpine Einzugsgebiete unter mit Einbezug von Veränderungen in Wettermustern durch den Klimawandel
4. Schaffung von mehr Messpunkten für verschiedene Naturgefahrenprozesse (z.B. Hangrutschung, Waldbrand)
5. Weiterentwicklung der Wetterwarnungskarten
6. Umwandlung von Naturgefahrenkarten in interdisziplinäre Risikokarten
7. Verbesserung der Kooperation und Koordination mit RaumplanerInnen und lokalen EntscheidungsträgerInnen
8. Intensivierung des grenzübergreifenden Austauschs zwischen Alpenländern
9. Organisation von regelmäßigen Meetings und verpflichtende Zusammenarbeit zur Verbesserung des Daten- und Informationsaustauschs zwischen KatastrophenschutzplanerInnen und NaturgefahrenmanagerInnen
10. Organisation von Kursen für den Wissenstransfer zwischen lokalen und supra-regionalen ExpertInnen, verschiedenen Generationen sowie relevanten AkteurInnen und Freiwilligen
11. Aufbau und Integration eines Laien-Beobachter-Netzwerks zur Verbesserung der Risikokommunikation

Dieses Faktenblatt ist eine Zusammenfassung der Kernaussagen und Handlungsempfehlungen des Berichts „Katastrophenschutzplanung im Bereich des Naturgefahrenmanagements“. Ausführliche Informationen und Details finden Sie im vollständigen Bericht (nur in englischer Sprache verfügbar) unter:
https://www.alpconv.org/fileadmin/user_upload/Organization/TWB/PLANALP/PLANALP_Contingency_Planning_report.pdf

Die Alpenkonvention ist als erster internationaler Vertrag, der sich dem Schutz und der nachhaltigen Entwicklung eines ganzen Gebirges - der Alpen - widmet, eine Pionierin ihrer Art. Die Konvention wurde von den acht Alpenländern (Österreich, Frankreich, Deutschland, Italien, Liechtenstein, Monaco, Slowenien und der Schweiz) sowie der Europäischen Union unterzeichnet und trat 1995 in Kraft.

Die Grundlagen der Alpenkonvention sind die Rahmenkonvention und die Durchführungsprotokolle und Deklarationen, welche die Leitprinzipien und einen Rahmen für die transnationale Zusammenarbeit in Schlüsselbereichen der alpinen Umwelt, Gesellschaft und Wirtschaft vorgeben. Basierend auf diesen Grundlagen arbeitet die Konvention daran, Partnerschaften aufzubauen und sektorenübergreifende Ansätze zu etablieren, um den dringendsten Herausforderungen in den Alpen zu begegnen.

Die Arbeit der Alpenkonvention ist auf mehrere Organe aufgeteilt, die in unterschiedlichen Formaten arbeiten: Die alle zwei Jahre stattfindende Alpenkonferenz, die Arbeit der Vertragsparteien, der Ständige Ausschuss, der Überprüfungsausschuss, mehrere Thematische Arbeitsgremien und das Ständige Sekretariat. Zahlreiche Beobachterorganisationen tragen ebenfalls zur Umsetzung der Konvention bei. Die Alpenkonvention ist wegweisend für ein nachhaltiges Leben in den Alpen und setzt sich für den Erhalt ihres einzigartigen Natur- und Kulturerbes ein – jetzt und für die Zukunft.

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