

# ClimChAlp

Interreg III B Alpine Space

## Work Package 8

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## **FLEXIBLE RESPONSE NETWORK**



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## 1. INTRODUCTION

The Alpine Convention's reports on the avalanche winter of 1998/1999 (cf. Annex 1) and "Natural Hazards and the Alpine Convention" (cf. Annex 2) contained demands for the strengthening of cross-border cooperation for the use of existing experience and knowledge.

For this reason, the natural hazards platform of the Alpine Convention, i.e. PLANALP, was established in November 2004 by the 8<sup>th</sup> Alpine Conference. The purpose of the platform is to develop joint strategies for natural hazard prevention throughout the Alpine region, while also taking climate change issues into account, and to consult on suitable adaptation strategies.

In November 2005, natural hazards experts from the regions of Bavaria (Germany), Carinthia (Austria), Aosta Valley (Italy), Piedmont (Italy), Rhône-Alpes (France), South Tyrol (Italy), Switzerland and Vorarlberg (Austria) decided to launch the Flexible Response Network project as Workpackage 8 (WP8) as part of the Interreg project ClimChAlp. This was coordinated with the concerns of the PLANALP platform. Switzerland was entrusted with the role of Lead Partner of Workpackage 8.

The first meeting of the project took place in Zurich on 4 May 2006. The aim of this meeting was to define and harmonize the individual partners' existing ideas and visions once the ClimChAlp project had been authorized by the relevant EU authority in March 2006. The outcome of this process was a general programme of work with corresponding objectives.

In view of the fact that the partners involved in WP8 are working together for the first time in the current constellation, the brief project duration of around 1.5 years was cut very fine. The challenge of meeting the defined objectives was correspondingly great.

### 1.1 Mandate

The mandate for WP8, which was agreed on within the framework of ClimChAlp, is stated below.

#### Objectives

In-depth analysis of current management tools and practices

Analysis of transnational, national and regional administrative structures

Identification of best practice methods

Presentation of future potential for risk management

#### Main activities

Description and comparison of current (trans-)national and regional administrative structures and hierarchies, the underlying framework conditions and current reaction options and measures in the field of risk management and risk prevention.

Identification of well proven, effective and innovative structures, methods and measures for risk management/prevention.

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Establishment of a transnational Flexible Response Network involving administration and experts for future cooperation and implementation

## **1.2 Mode of operation**

The short project duration necessitated the limitation of activities to essential areas. At the same time, however, it was important to make optimum use of existing knowledge, networks and instruments. The main actors are the WP8 team members (see National and Regional Representatives) who, on the one hand, made individual contributions to the achievement of the stated aims and, on the other hand, based their contributions on their existing natural hazards network at both regional and national level.

## **1.3 Purpose and aims of the strategic report**

The purpose of this report is to provide the Lead Partner of ClimChAlp and the Flexible Response Network, which is currently being set up, with a basis for the design of future planning and action which, in turn, will contribute to cross-border integrated natural hazard risk management.

In addition, the strategic report is intended to ensure that cross-border cooperation in the Alpine region is allocated greater significance at both strategic and operative level and that even better use is made of the existing treasury of experience and knowledge on a cross-border basis. The projects and products produced by Workpackage 8 are only presented in summary in chapter 2. A more detailed explanation of the projects will be provided in the concluding technical report.

## **2. WORKPACKAGE 8 CLIMCHALP – MAIN PRODUCTS**

In fulfilment of its mandate (cf. 1.1), the WP8 team has developed strategies for the development and content of the Flexible Response Network. Potential instruments for such a network have also been developed and tested. It should be taken into account here, however, that the rather short duration of the project imposes certain limits on both the initiation and development processes.

### **2.1 Strategies for the development of the Flexible Response Network (FRN)**

The WP8 team has adopted the following strategies for the development of a network covering the entire Alpine region:

- Use of existing local, regional, national and – where available – cross-border networks.
  - Use of the experience and knowledge available in the partner regions and Switzerland on the development of networks and platforms and on the instruments and methods of natural hazard risk management.
  - Cooperation with the strategic natural hazard platform (PLANALP) established by the Permanent Committee of the Alpine Convention.
  - Implementation of expert hearings on the cross-border discussion of problems and problem-solving approaches based on expert knowledge.
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- Creation of regional overviews of selected topics based on state-of-the-art reports.
- Creation of a computer-based information tool, the “PLANALP database” (cf. annex 3), which is primarily based on the strategic requirements of the Flexible Response Network.
- Discussion of problems of cross-border interest.
- Cross-border compilation of best practice examples to increase the quality, effectiveness and efficiency of natural hazard risk management and its further development, and as a basis for education and further training.
- Implementation of the SWOT analysis

## 2.2 Products

The following substantive products arise from the development of the Flexible Response Network:

- Internal state-of-the-art reports on the thematic complex of integrated natural hazard risk management in the partner regions of Vorarlberg, Carinthia, South Tyrol, Italy, Bavaria, Aosta Valley and Rhône-Alpes.
- Analysis of legal and administrative structures and hierarchies.
- Software in the form of the “PLANALP” database for the generation of overviews of structures and documentation of good-practice examples of integrated natural hazard risk management in the Alpine region.
- Selection and preparation of good practice examples of practical activities from all partner countries and regions in the area of integrated natural hazard risk management (cf. Annex 3).
- Expert hearing on the topic of the influence of climate change on flood protection measures, including reporting for experts and for politics and society.
- Video, brochure, articles and flyer.
- Strategy report on the future of the Flexible Response Networks (FRN).
- Report submission to the Lead Partner.

As an important result of the expert hearing of May 2007, the discussion of the consideration of climate change in work carried out on flood protection led to the adoption of the following order of priorities for the measures:

1. Creation and updating of hazard maps and their consideration in land-use planning.
2. Risk-based renovation and maintenance of existing protective structures. This includes the re-examination of protection concepts with particular consideration of changing environmental conditions and the planning of measures for cases of overload.
3. Reinforcement of preparatory work for the management of damage incidents.
4. Improvement of the risk dialogue.
5. Further development of early-warning systems at regional, national and international level.
6. Risk-based planning and implementation of new protective structures including overload predetermined breaking points.

7. Management of the change from sectoral to integrated watershed area management and from sectoral to integrated natural hazard risk management.

### **3. MAIN FINDINGS OF THE STATE-OF-THE-ART ANALYSIS**

A SWOT (strengths, weaknesses, opportunities, threats) analysis of the partner situations was carried out to establish the state-of-the-art of natural hazard risk management.

#### **3.1 Cross-border cooperation and its potential**

The SWOT analysis produced the following results which should be taken into account in the future design of the flexible response network.

- In general, the existing legislation does not foster the individual responsibility of citizens in the minimization of the risks posed by natural hazards. The discussion of possibilities for the promotion of the individual responsibility of the general public in relation to natural hazards on an international cross-border level could help in achieving progress in this area.
- The collaboration between the avalanche warning services of the Alpine regions and the sharing of measured meteorological and nivological data for avalanche warning purposes is a good practice example for the implementation of similar collaboration in other early warning systems.
- Transregional collaboration will reduce the time required for the implementation of instruments which are already routinely used in other regions and countries.
- The promotion of knowledge of endangerment and risk awareness on an international cross-border level increases national and regional efforts in the area of integrated natural hazard risk management.
- The potential of knowledge in the Alpine space is underestimated in the daily work on both strategic and operational level.
- Creation or reinforcement of observation networks and the implementation of pilot test sites on an international cross-border level improves the quality of both information and cooperation.
- Disasters of international importance require international co-operation and interdisciplinary solutions. Thus the contact at scientific and administrative level between the national and international institutions and authorities involved in the field of natural hazard management must be intensified. Important tasks here include the transfer of knowledge and international support during and after natural disasters (post-disaster expertising).

#### **3.2 The most important future activities for improving integrated natural hazard risk management on an international cross-border level**

The following activities have been identified as priorities in the SWOT analysis:

- Implementation of hazard zone maps in land-use management
  - Promotion of local object protection measures and individual responsibility in relation to natural hazards
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- Further development of the already successful coordination and collaboration between all responsible institutions at both regional and transnational level.
- Fostering of the integrated watershed management approach and the consideration of integrated natural hazards and risk management strategies in all planning processes relating to land-use and the use of natural resources.
- Increasing the involvement of the public in the planning of permanent mitigation measures, improvement of the individual responsibility and awareness of populations in establishing a culture of safety and resilience at all levels.
- Reinforcement of disaster preparedness through local emergency training.
- Improvement of early warning services.
- Enforcement of sustainable solutions in the context of protection and risk reduction strategies. Consideration of damage potential, risk analysis and cost-benefit analyses in integrated risk management. Planning of permanent protective measures on the basis of a list of priorities over a long-term planning period rather than reactions to events that cause damage.
- Integration of a multi-risk approach in the territory developments.

#### **4. THE FLEXIBLE RESPONSE NETWORK AS A RESPONSE TO CLIMATE CHANGE**

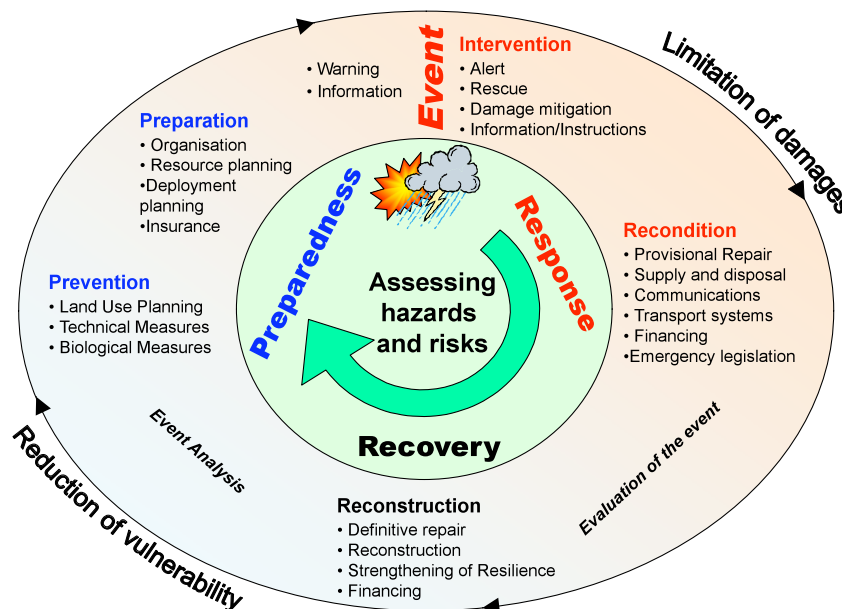
As already mentioned in section 1, on the occasion of a meeting in Konolfingen (Switzerland) in November 2005, the actors responsible for natural hazards in various Alpine regions and the natural hazards experts represented in PLANALP came to the conclusion that an intensive exchange is necessary at administrative and strategic level in the Alpine region, in particular in relation to climate change. This is indicated in PLANALP's programme of work which was presented in September 2006 (cf. Annex 4). Thus, PLANALP promotes, inter alia, the development of networks at administrative level and the strengthening of formal cooperation mechanisms between the contracting parties of the Alpine Convention. Moreover, integrated risk management was specified as a priority area in its programme of work.

The integrated perspective, related to the region, on the one hand, and to holistic natural hazard risk management, on the other (cf. Figure 1), poses a challenge for the cross-border natural hazard prevention and intervention sector and also represents a future-oriented contribution to a risk-appropriate approach to the problem processes triggered by climate change.

In order to promote exchange and the further development of integrated approaches, a network shall be initiated and developed which spans the Alpine region and deals with integrated natural hazard risk management at strategic level. The risk-related fields of action shall correspond to those of the risk concept depicted in Figure 1.

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## Risk Management Model



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**Figure 1** The Flexible Response Network is based on the concept of risk reduction expressed in the cycle of integrated risk management and is intended to contribute to the organizational and substantial optimization of natural hazard risk management (original version)

### 4.1 The Flexible Response Network – a future asset for the Alpine region

The inhabitants of Europe's mountain regions have had to deal with the hazards of nature for centuries. Important protective forests were segregated as far back as the 13<sup>th</sup> century. Thus, all mountain region countries developed problem-solving cultures in the area of natural hazard prevention in conjunction with teaching and research institutions. In many countries, the hydraulic engineering and forestry legislation of the 18<sup>th</sup> and 19<sup>th</sup> centuries served as a basis for the hazard prevention work carried out by the state.

The aim of all prevention work undertaken today is also to protect human beings and their material assets against natural hazards in a way that secures their existence. Even if the paths that lead to them are not always congruent, the safety objectives remain the same. Because of this, an enormous stock of knowledge and experience on protection against natural hazards and their management developed in the Alpine region over the centuries. Thanks to modern means of communication and today's mobility options, there are no limits on the use of the knowledge and experience gained in the past. Indeed, better use could be made of this "knowledge capital" at both operative and strategic level than is currently the case. We must also take into consideration that knowledge and experience are constantly increasing in every region and country working on different key issues.

The motivation for international network formation is rooted not least in the cross-border experience gained in the avalanche winter of 1999 and the floods of 1999, 2002 and 2005 (cf. Annexes 1 and 2). The demand of the Alpine countries for greater cooperation in the Alpine region was explicitly expressed through the establishment of the PLANALP natural hazards platform by the Alpine Convention states in 2006 (cf. Annex 4). This demand is also expressed by the Alpine regions (cf. Euroregion “protocol d’entente juillet 2007” which identifies risk management and climate change as topics of high priority for cross-border cooperation).

#### **4.2 The Flexible Response Network and climate change**

Climate change and its foreseeable consequences pose one of the greatest challenges facing the fragile system of the Alpine region and the safety of its population.

Because of specificities in mountainous regions, the countries of the Alpine region are partly or largely affected by the effects of climate change on a cross-border basis. This is the reason why the advantages of greater cooperation between the Alpine regions in the development of solutions, avoidance and adaptation strategies are obvious. Thus, for this reason, not least, the strategy for the strengthening of cross-border cooperation in the area of natural hazard prevention is a declared aim of the Alpine Convention states. In addition, the demand for cross-border cooperation is also made in the context of regional cooperation bodies such as Euroregion Alpes Méditerranée, COTRAO, ALPEADRIA, ARGEALP and in the Mountain Forest Protocol to the Alpine Convention, the EU Forest Action Plan, the EU Water Framework Directive and the EU Flood Directive.

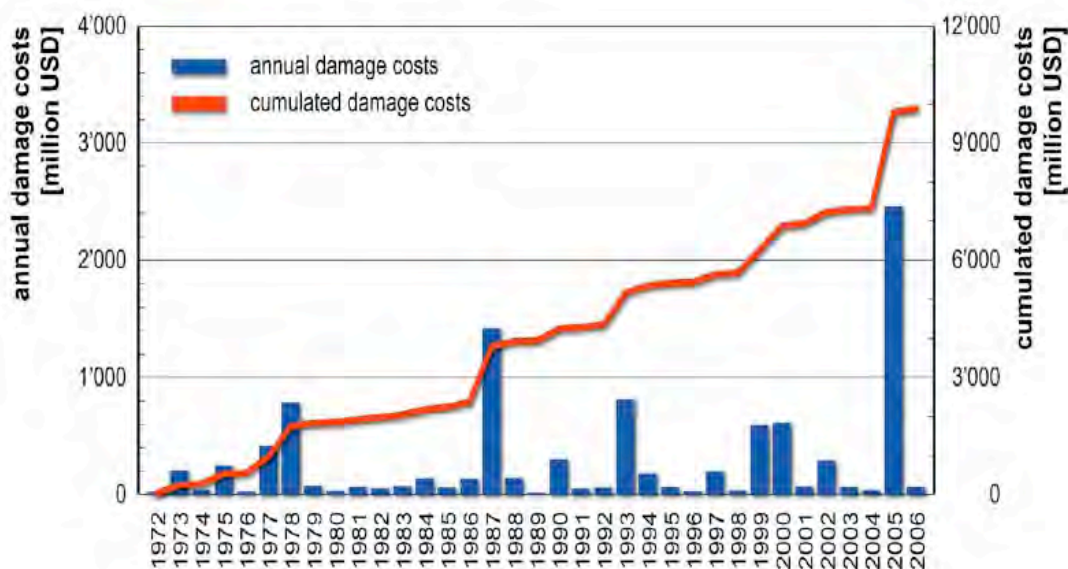
For centuries the aim of safety endeavours in the area of protection against natural hazards has been the protection of human life and significant material assets. Despite this, the scope of the damage caused by natural disasters both in the Alpine region and throughout the world is constantly increasing. The reasons for this are manifold: value appreciation and concentration, vulnerable infrastructure and increasing demands in relation to mobility, communication, leisure facilities and basic provisions (e.g. water, energy, food). Moreover, the uncertainties arising from climate change render the definition of effective measures more difficult. Thus, the adoption of measures that have been debated throughout the Alps and are coordinated with each other is advisable and, in some areas, imperative.

The constant increase in damage caused by flooding is one of the indicators of this trend. This development may be explained by the gap between knowledge and action in the area of hazard prevention, on the one hand, and by changing environmental conditions, on the other. Of particular significance in terms of an in-depth discussion are the problem areas of land-use planning and the provision of resources for prevention and intervention activities.

In view of the continuing increase in damage arising from natural hazards, a conscious approach to risks and resources is required. This can only succeed in the long term if all of the elements of risk management are considered: i.e. prevention, preparation, emergency intervention, reconditioning and

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reconstruction. Effective and efficient safety intervention can only be guaranteed if these elements are coordinated with each other.



**Figure 2 Statistics of Switzerland. The increase in damage caused by flooding is increasing because of different reasons.**

This process also includes the advent of a trend reversal in the area of individual responsibility. In the past, land and property owners, residents and tourists allocated responsibility for natural hazards to state organisations and insurance companies. Thus, particular efforts are required for the establishment and maintenance of individual measures for the protection of objects.

The contribution of insurers is extremely valuable and means that the damage caused by natural hazards is not irreversible, thus providing a certain degree of existential security. In the event of a significant increase in damage arising from climate-related natural events, it may also be expected that the reduction of natural hazard risks through insurance solutions will reach its limits. Thus, from this perspective also, it is important that the necessary significance is attributed to the role of individual responsibility in protection against natural hazards.

The risks associated with natural hazards are considerably intensified by the effects of climate change and environmental factors such as precipitation, drought, heat, storms and hail storms. For this reason, particular attention must be paid to this problem in the context of natural hazard risk management and it must be repeatedly thematized in a suitable form within the appropriate networks.

The realization of the strategy expressed by the risk concept depicted in Figure 1 poses a challenge for each country, region and municipality. This kind of development needs time, patience, excellent bases,

motivated “natural hazard experts”, extensive advocacy and, last but not least, financial and human resources.

The risks posed by natural hazards do not stop at national borders as is clearly demonstrated, for example, by the avalanche winter of 1998/99, the floods of 2002 and 2005 and storm Lothar of 1999. The development of adaptation and avoidance strategies to overcome climate change represent a challenge at international level. For this reason, the intensification of international cooperation at both strategic and operative level should be aimed at to promote an integrated perspective in natural hazard risk management.

#### **4.3 Potential beneficiaries of the Flexible Response Network**

Flexible cross-border cooperation with a long-term focus necessitates the establishment of an institutional arrangement. This kind of arrangement offers the basis and legitimation for the operationalization of the strategic fields of action. If lasting added-value is to be achieved in the long term, it is clear that the responsibility for the establishment and development of a Flexible Response Network must be assigned to an organization that already exists in the Alpine region. A number of organizations are conceivable here, e.g. PLANALP, Interpraevent, universities and research institutes and administrative organizations.

The following organizations in the Alpine region are the main actors and beneficiaries:

- Authorities in the regions and countries which are responsible for integrated natural hazard risk management and international natural hazard organizations
- Association of mayors of mountain municipalities, on European level (AEM) and national level
- COTRAO (Communauté de travail des alpes occidentals), ALPEADRIA, ARGEALP, Euroregion Alpes-Méditerranée
- Local actors responsible for security, stakeholders, associations etc.
- Educational and research institutes in the regions and countries
- The operational level in the education and further-training sector
- Insurance companies
- Permanent Committee of the Alpine Convention
- PLANALP as a representative of the Alpine countries
- European Forestry Commission (EFC)
- Working Party Watershed Management (FAO and EFC)
- FAO – Mountain Regions
- Interpraevent
- EuroMontana

The above list of possible alliances for network-building merely serves to demonstrate the adopted approach and makes no claim to completeness.

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The FRN (flexible response network) should be specifically characterized by the fact that it has sufficiently flexibility to react actively and repeatedly to new challenges (cf. Annex 5).

## **5. EVALUATION OF POTENTIAL FLEXIBLE RESPONSE NETWORK - FIELDS OF ACTION**

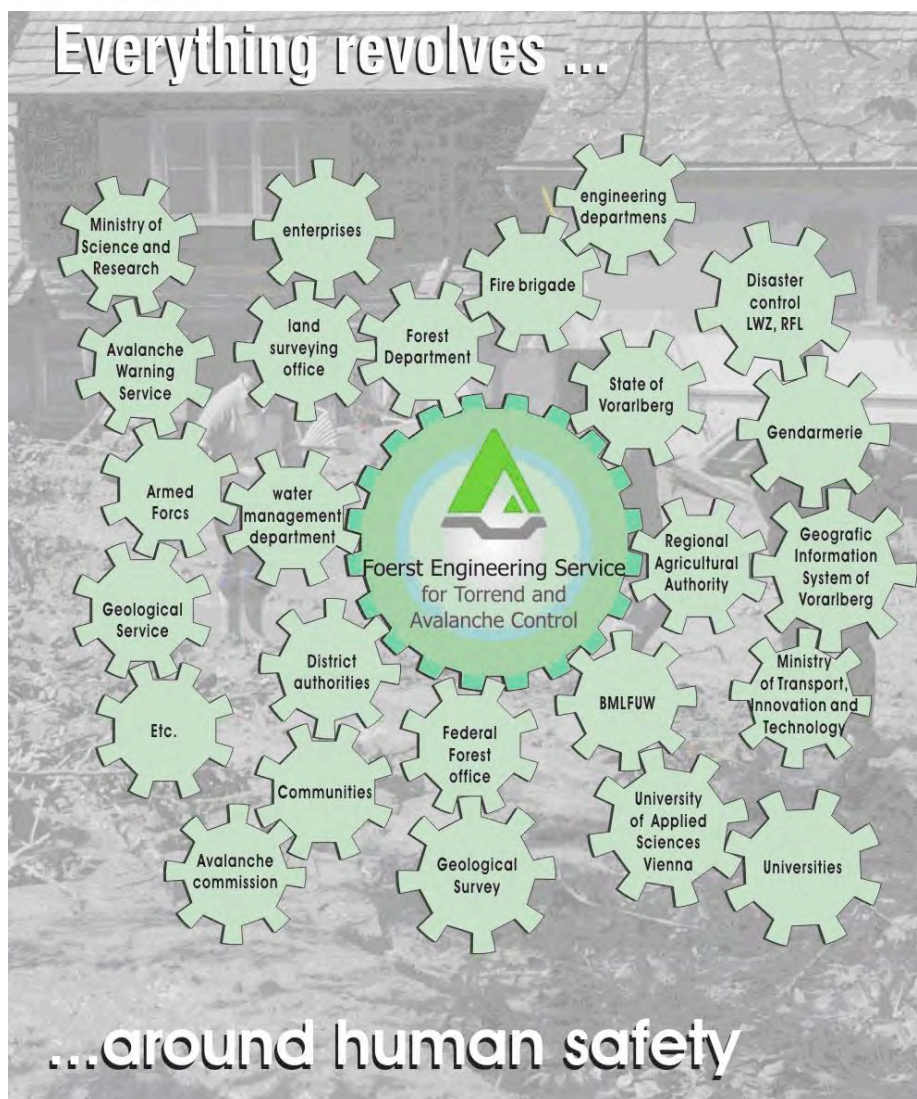
The evaluation of potential action fields for a FRN was carried out under the following two basic conditions:

- Finding resolutions to problems, for which countries and regions require specific solutions, is not the task of the FRN.
- Only fields of action in the complex area of interaction between natural hazards, climate change and societal action and for which international cooperation in the Alpine countries generates major added-value are on the agenda.

The discussed action fields are listed below:

- Hazard index maps and hazard maps constitute the basis for appropriate integrated natural hazard risk management which also takes climate change scenarios into account. These are still lacking in many municipalities in the Alpine arc.
  - There is still room for improvement with regard to the timely and appropriate consideration of the hazard index maps and hazard maps in the context of land-use planning because the short term economic interests of land and property owners always contradict those of the safety requirements.
  - Upgrading of the “long-term prevention and preparation activity” portfolio as compared with the “incident management” portfolio.
  - Promotion of the individual responsibility of land and property owners through greater involvement in prevention work.
  - Awareness-raising for the promotion of understanding for the necessary solidarity in relation to the guaranteeing of existential needs between state, insurance companies, the private sector and relief organizations and between mountain areas (upstream) and valleys (downstream).
  - Further development of the strategy for integrated natural hazard risk management with special consideration of pragmatic and participative approaches.
  - Consideration of climate change scenarios in integrated natural hazard risk management and, hence also, in risk-based decision-making.
    - What can happen and which changes are relevant in practical terms?
    - What should happen?
    - How can we protect ourselves?
    - What does it cost?
    - What residual risks do we want to accept?
    - What uncertainties are incorporated into the answers?
  - Promotion of cross-border incident analyses for the evaluation and improvement of the viability of the risk concept.
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- Strengthening of the cross-border utility of the “knowledge and experience potential” that exists in the Alpine region on the topic of integrated natural hazard risk management at strategic and operative level, based on good-practice examples from the regions.
  - Testing of the protective capacity of old protective structures and protection concepts and their adaptation to the current risk situation.
  - Periodic detailed cross-border location analyses on the progress being made in the area of integrated natural hazard risk management with particular consideration of climate change which is based on a corresponding monitoring.
  - Promotion of the integrated approach to the sustainable development of watershed areas. The view that not only the population upstream of a watershed area benefits from prevention activities, but also the downstream population is not sufficiently known (cost-benefit compensations).
  - Because integrated natural hazard risk management makes an important contribution to the sustainable development of the mountain regions, the guarantee of continuing prevention work in a watershed is of crucial importance.
  - Because the prognoses for climate change and its consequences for the Alpine living space are characterized by significant uncertainty, it is always a question of understanding and learning how decisions should be made against a background of uncertain data. This is generally applicable for risk management.
  - Monitoring of a watershed area indicator which represents the influence of climate change on a natural hazard process, for example bed load transport.
  - The fact is that national, regional and local variations exist in the Alpine region in relation to the organization of and responsibility for natural hazard prevention in accordance with the risk concept shown in Figure 1. In most cases, the implementation of the risk concept is not the task of a single institution and this results in too many interfaces (cf. Figure 3). Interfaces require an extensive willingness for cooperation and communication. Based on their experience, the members of WP8 have reached the conclusion that it is practically impossible to base organizational structures on the targets of the risk concept with a view to reducing the obstacles to communication and cooperation. In the view of the WP8 team, the following approach is more likely to succeed: the training and selection of experts (natural hazard risk managers) who can cope with the demands of the necessary and constantly changing interfaces.
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**Figure 3 In stead of trying to build up new structures to improve the efficiency we should support training and selection of experts (Risk Reduction Manager) who can cope with the demands of the necessary and constantly changing interfaces**

## 6. FROM FIELDS OF ACTION TO MEASURES

The following measures were identified as effective and priority activities by the members of WP8 in relation to the exploitation of the advantages of cross-border cooperation:

- (1) Closing existing gaps in hazard assessment (hazard intensity maps and hazard maps).
- (2) Raising awareness in political circles and society for the significance of the protective capacity of existing protective structures and protection concepts and the need for their assessment.
- (3) Intensification of cross-border cooperation for the use of experience and knowledge in relation to integrated natural hazard risk management at operational level using suitable measures such as

conferences, expert meetings, regional cross-border platforms and the provision of the necessary personnel and financial resources.

- (4) Exchange of practitioners from different administrations (inter-institutional exchange).
- (5) Development of a concept for the continuing education and training of practitioners (risk reduction managers) at international level. The aim is the institutionalization of a cross-border further-training programme based on existing educational and further training institutions. The main objective is the promotion of the new generation of actors involved in the operative implementation of natural hazard risk management. These training events could take the form of summer courses or the examination of concrete issues.
- (6) Definition of priorities in prevention activities which take climate change dimensions into account. The result of the expert hearing referred to in 2.2 , which dealt with the topic of climate change and its effects on natural hazards, is an example of this (cf. Annex 5).
- (7) Further training on the topic of dealing with uncertainty in decision-making processes.
- (8) Initiation of a simple low-cost monitoring for the registration of an indicator that expresses the influence of climate change, for example on erosion in watershed areas.
- (9) Expert consulting at local and regional level.
- (10) Support of the implementation of (national) adaptation strategies by international expert hearings.

## **7. FOLLOW-ON PROJECT: “FLEXIBLE RESPONSE NETWORK (FRN) 2010”**

The global challenge of climate change and its consequences requires target-oriented cross-border co-operation in the area of integrated natural hazard risk management for the Alpine region as this means that potential synergies in research, administration, society and politics can be exploited for the further development of the Alpine living space.

### **7.1 Objectives**

The follow-up project should pursue the following objectives:

- Make use on a cross-border basis of existing knowledge and experience in the Alpine region for the further development of integrated natural hazard risk management and for the strengthening of the natural hazard sector.
- Promote co-operation between the Alpine regions in the area of integrated natural hazard risk management with the help of appropriate strategies, and avail of the resulting synergy effects for the benefit of the future.

The basis for the fulfilment of the objectives is a network that creates the preconditions necessary for making the knowledge available and rendering the outcomes of ongoing development processes throughout the Alpine region useful for the Alpine living space.

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## 7.2 Development strategies

The follow-on project should be based on the following strategic approaches:

- (1) Natural hazard risk management should be based on risk and implemented on an integrated basis. The cycle of integrated risk management acts a guard rail (cf. Figure 1).
- (2) Internationally recognized stakeholders from the Alpine region should support the institutionalization of the Flexible Response Network.
- (3) The selection of examples of integrated natural hazard risk management that are particularly worth imitating should promote the cross-border discourse and development process.
- (4) The creation of a platform for exchange for the promotion of cross-border “know-how” transfer should make it possible for the next generation of practical and talented natural hazard specialists to participate in the developing FRN.
- (5) The creation of a cross-border “learning and teaching path” on integrated natural hazard risk management in the Alpine region. This path should form the basis for the platform referred to in (11).
- (6) Cross-border analysis of the state of the art in integrated natural hazard risk management should provide information on the status of work in the area and evaluate the necessary joint action requirement. This in the case in relation to damage incidents with a European dimension.
- (7) Cross-border public relations work should be carried out on problems of joint significance, such as for example the compilation of hazard maps and their consideration in land-use and emergency planning.
- (8) The added-value that the FRN with cross-border co-operation generates for the Alpine region should be exploited to forge new alliances with other European regions, such as the Carpathian region, for the good of the mountain regions.

## 7.3 Possible future tasks of the Flexible Response Network FRN 2010

The specification for the FRN 2010 for the implementation of the strategies listed under section 6.2 takes the following form:

- Support of PLANALP in periodic reporting (around every four years) on the progress achieved in integrated natural hazard risk management in the regions (methods, legislation, developments, implementation) and the influence of climate change.
  - Development of strategies for cross-border expertise transfer, definition of action fields and proposal of measures.
  - Foresight of new and/or increasing risk factors through cross-border exchange of experience and knowledge.
  - Exchange of information during cross-border damage incidents (incident analysis, assistance services)
  - Initiation of campaigns for public relations work that are of cross-border interest.
  - Publication and updating of good examples of natural hazard risk management for the documentation of the “state of the art” in this area.
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- Preparation of decision-making bases for strategic management bodies as well as consultation work to strengthen the integrated approach of the natural hazard risk management.

The future further development of the FRN with former and new networks (alliances) will have to demonstrate the extent to which today's task definition will be able to meet the challenges of tomorrow.

## **8. ACTION PLAN – RECOMMENDATION**

The following actions are recommended to the partner regions and partner countries and to the Lead Partner of ClimChAlp:

- (1) Continuation of the work on the institutionalization of a Flexible Response Network begun by WP8. The customer-oriented further development of the PLANALP database, which should represent the state of the art in integrated natural hazard risk management, will play a central role in the continuous exchange of information. This further development should take place in the context of workshops.
- (2) Formation of a small core team which will advance and promote the development of the Flexible Response Network and is supported by a working group with representatives from all sectors of the risk cycle and partners from other regions, for example the Carpathian region.
- (3) Guaranteeing of sufficient operational and financial resources for the further development of the network and the associated tasks and the maintenance and continued operation of the PLANALP database.
- (4) Preparation of a follow-up project incorporating the following main elements:
  - (1) Development of methods
    - Testing of RiskPlan2 for the improvement of regional integrated risk management
    - Enhancement of the attractiveness of the PLANALP database
    - Decision-making based on information characterized by a high level of uncertainty
    - Cross-border monitoring: effects of climate change on erosion processes, for example sediment transport
  - (2) Case studies
    - Change management: greater responsibility for action at community level
    - How should climate change and its effects be taken into consideration in the concept for integrated watershed management
  - (3) Transfer of expertise and education,
    - Expert hearings for the resolution of actual problems at regional and/or community level using experience and knowledge from the cross-border level
    - Education based on good examples (negative experiences included)
    - Initiation of a pilot “Exchange Platform – Alpine Hazard Path”

- Cross-border expert hearing on climate-relevant issues in relation to hazard preventive efforts
- Development of training programmes on the topic of integrated risk management

(4) Public relations

- Operationalization and customer-oriented marketing of the PLANALP database
  - Two or three applied research projects of cross-border significance (bedload transport, water transport)
  - “Public Relations” project for raising of awareness on a cross-border basis in societal and political circles regarding the necessity and nature of adaptation and avoidance strategies at local, regional, national and international level.
  - Cross-border campaign: climate change and natural hazards, what can we ourselves do?
-



UVEK  
Eidgenössisches Departement für Umwelt,  
Verkehr, Energie und Kommunikation

**b a s e** **a r e**  
.....  
Bundesamt für Raumentwicklung  
Office fédéral du développement territorial  
Ufficio federale dello sviluppo territoriale  
Federal Office for Spatial Development

**Naturgefahren und  
Alpenkonvention**

Ereignisanalyse und Empfehlungen

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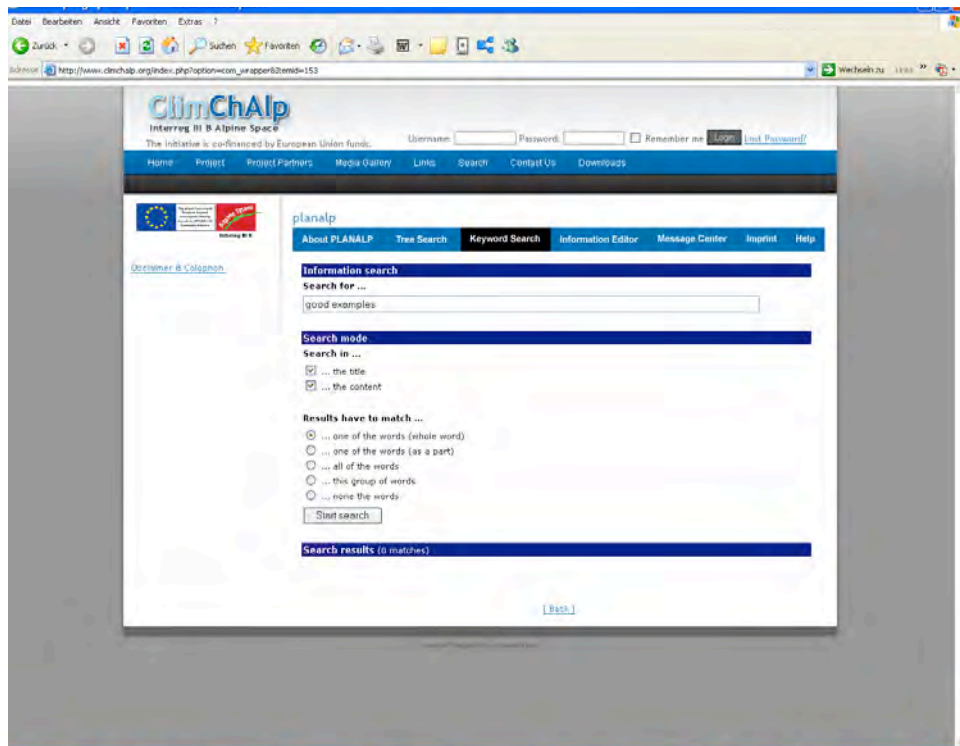
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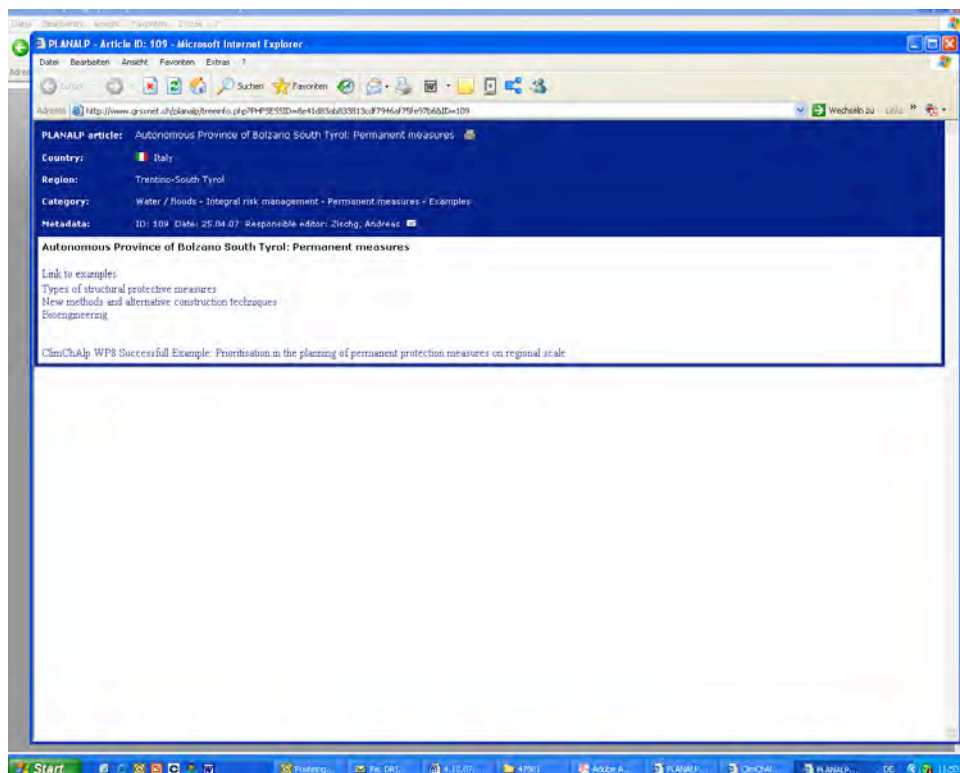
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## Annex 3

### Data Base "PLANALP" Good Examples



[http://www.climchalp.org/index.php?option=com\\_wrapper&Itemid=153](http://www.climchalp.org/index.php?option=com_wrapper&Itemid=153)



<http://www.grsxn.ch/planalp/treeinfo.php?PHPSESSID=8e41d83ab833813cdf7946af75fe97b6&ID=109>



**Long term working programme (2007 – 2010)**  
**Platform on Natural Hazards**  
**of the Alpine Convention**  
**PLANALP**

*agreed by the members of PLANALP, September 8, 2006*

*approved by the Permanent Committee of the 9<sup>th</sup> Alpine Conference, November 9, 2006*

The aim of the present document is to outline the long term working program of the Platform on Natural Hazards of the Alpine Convention (particularly with regard to the working methodology). Therefore, this document also contains some notes concerning the organization of its work.



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- 2.2. Principal topics of the Platform on Natural Hazards of the Alpine Convention
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## 1. Basics

The Platform on Natural Hazards of the Alpine Convention plays an important part in the Alpine Convention as a whole. On the one hand, this is due to specialist know-how in the field of risk prevention, cross-border exchanges and any necessary joint measures on the part of the contracting parties. On the other, the contracting parties see the platform as a vehicle through which to raise the profile of the Alpine Convention and its protocols. The platform has a direct influence on various protocols, e.g. mountain forests, spatial planning, natural protection and landscape conservation, tourism and energy. The platform has the opportunity to demonstrate concrete possibilities for action that go beyond legal requirements alone.

Given climate change and its particular impact on mountain areas, the topic is likely to remain an important one regardless of who chairs the Alpine Conference.

### 1.1. Frame

The working programme must be based on the mandate and the formalities drafted at the 8<sup>th</sup> Session of the Alpine Conference on 16 November 2004. The platform on Natural Hazards is a network of responsible administrative posts. Provision is made for an active and cross-border exchange of know-how of risk mitigation. For the implementation it is essential to define a „best practice“. First step of realisation to this concern is Work Package 8 (WP8) “Flexible response network” of the Interreg IIIB-Project “Climate change, impacts and adaptation strategies in the Alpine Space”. In WP8 a “best practice” will be developed in close collaboration with the Platform on Natural Hazards and other project partners. As result of WP8 should be on display, what exists in the regions, how it is transferred and where gaps are.

### 1.2. Working method

The Platform on Natural Hazards:

- ! develops a long-term working programme for the attention of the 9<sup>th</sup> session of the Alpine Conference;
- ! works on a strategically level (networking) and initiates projects and working programmes;
- ! Identifies “best practices” of selected examples by the members of the platform. The platform discusses them and will diffuse the “best practice” for alpine regions:
  - Examples Austria: Projects ILUP, SUMAD, River Basin Agenda, EGAR;
  - Examples France: Indemnity of natural hazards CAT-NAT, prevention plans for natural risks PPR, preventive information for population: [www.prim.net](http://www.prim.net)
  - Examples Germany/Bavaria: SUMAD and River Basin Agenda (EU Projects), flood-protection program "2020"
  - Examples Italy (*will be still completed*): Portale Cartografico Nazionale, Inventario dei Fenomeni Franosi in Italia (IFFI-Project)
  - Examples Switzerland: Federal Law on Flood Control (WBG, 1991), Ordinance on Flood Control (WBV, 1999), Directives of the FOWG “flood control“;



- Other examples: various Interreg IIIB-Projects, particularly with regard to the Interreg IIIB-Project “Climate change, impacts and adaptation strategies in the Alpine Space”
- ! develops and promotes cross-border exchanges of experiences;
- ! is dealing with international strategies as a forum for comments to international strategy approaches like the process around the flood-prevention-program of the EU.
- ! compares risk management methods on different levels. To do that, it seems relevant to use the results obtained in various Interreg projects. It being understood that actions aimed at identifying, managing and mitigating risk have to be homogenized, the platform should operate at the following basics:
  - Good knowledge of the land characteristics;
  - Identification of basic criteria for the homogeneous categorization of the phenomena;
  - Identification of vulnerable and highly prone to hazard areas;
  - Spatial planning.
- ! develops strategies for a strengthened risk dialogue of all involved persons (particularly the public);
- ! supports synergies by projects of research and development, if necessary in consideration of the financial possibilities of the EU;
- ! makes possible the use of various data bases developed for mountainous risk management in alpine regions and in some cases, extension of these data bases;
- ! encourages cross-border systems;
- ! identifies transnational training courses on risk management and eventually attribution of a label;
- ! takes existing international committees of natural hazards as well as national institutions in the alpine area into consideration;
- ! strengthens the cooperation between the Alpine Convention Parties, aimed at an integrated, homogeneous and common management of the natural hazards risk.
- ! Cultivates an intensive exchange of information at its meetings, but also between meetings (via e-mail an internet).

### **1.3. Chair of the Platform on Natural Hazards**

One of the contracting parties holds the chair for at least two years.

### **1.4. Members and cooperation with NGO's**

The platform consists of between 16 and 20 members with no more than two representatives (national and/or regional) per contracting party. Observers to the Convention are invited to put forward representatives selected by the observers themselves.

### **1.5. Collaboration with the Permanent Committee of the Alpine Convention, the chair of Alpine Conference and the Permanent Secretariat of Alpine Convention**

The chair of the Platform on Natural Hazards participates in sessions of the Permanent Committee of the Alpine Convention. In this way he reports to the Alpine Conference. The chair of the platform agrees in content or organisational essential tasks with the chair of Alpine Conference. The Permanent Secretariat will participate in the meetings and hold close contact to the chair of the Platform. As of now, the capacities of the Permanent Secretariat do not allow for a strong working support of the Platform.



### **1.6. Meetings**

The Platform on Natural Hazards meets at least once a year in the country that holds the chair.

### **1.7. Secretariat**

An administrative secretariat assists the platform. Other contracts can be concluded if needed.

### **1.8. Language management**

The scarce assessed budget of the platform shall be optimal used. Meeting language is English. Minutes as well as important documents – if indispensable – will be translated in the four language of the Alpine Convention. Other documents have to be translated by the members themselves.

This language arrangement is approved by the Permanent Committee of the Alpine Convention on their session from April 26th – 28th 2005.

## **2. Special steps**

PLANALP already started to work. Based on the discussions, PLANALP-members decided to not elaborate the different principal topics in detail. In a next step PLANALP will evaluate the several topics and will focus only on a few actual topics. After prioritizing these topics PLANALP will delve into them and work out recommendations.

PLANALP will always take into consideration the three aspects of sustainability (economic, social and ecologic aspects).

### **2.1. Main objectives of the Platform on Natural Hazards – Alpine Convention:**

- ! Discuss concepts for an integrated reduction on natural hazards;
- ! Identify “best practices”;
- ! Implement the subsequent measures;
- ! Intensify the cross-border exchange of experiences;

Activities will emanate from these focal points.

### **2.2. Principal topics of the Platform on Natural Hazards of the Alpine Convention:**

- ! integrated risk management;
- ! early-warning systems;
- ! sustainable protection concepts and protective measures;
- ! event documentation;
- ! strategies of reconstruction after a disaster;
- ! risk dialogue;



## 2.3. Activities

### 2.3.1. Administrative products

#### *Activity report*

The chairman of the Platform on Natural Hazards publishes once in a period a short activity report for the attention of the Alpine Convention. The activity report gives an account of the meetings held and the current status of projects. It contains summaries of publications to date.

### 2.3.2. Products of expertise

#### *Report on “best practices”*

Best practice guide for the field on Natural Hazard methods for lowering of risk potential in the alpine countries will be made. This report will be developed in the framework of the Work Package 8 (WP8) “Flexible response network” of the Interreg IIIB-Project “Climate change, impacts and adaptation strategies in the Alpine Space”. The “best practice” will be developed in close collaboration with the Platform on Natural Hazards and other project partners. The report will also identify existing gaps.

#### *Strategies for public relation*

The Platform on Natural Hazards establishes strategies for public relation.

#### *Exchange of information*

One of the main objectives of the PLANALP is to intensify the cross-border exchange of experiences. The members of PLANALP will continue the intensive exchange of information at the meetings. They offer their experience and knowledge in the field of **Alpine risk management**, risk analysis and integrated risk management in their country/region. The members will also present examples of particular projects and will show successful protection strategies and preventive security concepts, databases for natural processes and hazards of their country/region. Important information between meetings will be forwarded by the PLANALP secretariat to all members. Furthermore, the website [www.planat.ch](http://www.planat.ch), has a restricted area containing all current documents and information of the Platform on Natural Hazards. For project works contact persons, who can provide the corresponding contents, are to nominate to the project leader.

## Annex 5

### Definition of the Flexible Response Network (Draft 1.12.06)

#### 1. Aims

To use the knowledge and experience available in the Alpine region for the further development of integrated natural hazard risk management on a cross-border basis. To promote cooperation between the areas within the Alpine region in the area of integrated natural hazard risk management with the help of suitable strategies and to avail of the associated synergies.

#### 2. Scope

Spatial: Alpine region (Alpine Convention)  
Content: Integrated natural hazard risk management

#### 3. Area of activity

Transfer of expertise and development of strategies for the promotion of cross-border cooperation in the area of natural hazard risk management at regional and national level based on "good practice" examples.

#### 4. Clients

Responsible authorities in the regions and countries  
PLANALP as the representative of the Alpine countries  
Educational and research institutions in the regions and countries

#### 5. Tasks

Publication and updating of good examples of natural hazard risk management for the documentation of the "state of the art" in this area.

Periodic reporting on the progress in natural hazard risk management in the regions (methods, legislation, developments, implementation).

Success analysis.

Development of cross-border expertise, definition of fields of action and suggestion of measures.

Early recognition of new risk factors through cross-border exchange of information and experience and start of projects on an international level.

Exchange of information during cross-border events that give rise to damage (event analysis, aid services).

Preparation of decision-making bases for strategic management bodies as well as consultation work to strengthen the integrated approach of the natural hazard risk management.

#### 6. Method

The tasks are tackled through a network representing holistic natural hazard risk management in the Alpine region in a way that is adapted to the situation and task with a high level of organizational flexibility and flexibility in relation to content . Together with the PLANALP-DB database, PLANALP will constitute the output platform for future activities

#### 7. Products

Creation of an internet platform for the ongoing exchange of information

Periodic definition of the priority fields of action with corresponding reporting (every four years)

Success analysis (every four years)

Strategy proposals (every four years)

Status reports (every four years)

Short reports on storm events and their consequences for work in the area of prevention (when required)

#### **8. Coordination**

The network shall liaise with all partners with the corresponding problem-resolution capacities. The concept of a "Flexible Response Network" expresses the requirement that problems be resolved on a situational basis with help of the competent partners as well as on the actual state of knowledge and experience.

#### **9. Language**

English



**INTERPRAEVENT**

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Interreg III B Alpine Space

# Climate Change in the Alps: Measures and Requirements for Flood Protection

The Expert Hearing on natural hazards in Bolzano in May 2007 unearthed incredible surprises as well as the expected corroboration of values which had already been assumed to be generally valid. At first, however, it has to be explained, that there is a need for action, independent of the climate change. The most important results of the Hearing are summarised in the following.

The experts who have been present in Bolzano agreed upon the fact: The Integral Risk Management – which is the establishment of a multidisciplinary package of measures – has generally been accepted but it still needs to be constantly developed further on and realised thoroughly, irrespective of the possible climate change. It is only possible to minimise the damages, which occur due to natural disasters in the long run, by taking integral and sustainable measures. Contemporaneously with the global warming, also the insecurity concerning the conception of protective measures and the definition of measurement scenarios does increase. The direct effects of the climate change can hardly be influenced. It is, however, possible to adapt to the modified processes, whereas, in addition to the technical measures, the emphasis has to be placed on the “soft” measures.

## **Networks**

The results of the discussion have shown again that the specialists of all countries have to deal with exactly the same problems. The chances in order to achieve an international cooperation have not sufficiently been taken so far, but should definitely be enforced in future: By exchanging knowledge and experience, not only the research projects could be accelerated, but also the immense costs could be reduced by synergies concerning the implementation. There is an enormous variety of opinions and experiences within the alpine region: A regular communication between experts within a network can enhance a common further development of knowledge combined with the reduction of development costs. That means: It is not necessary to start from scratch but to adopt and adapt already existing and established “Best Practices”. As the previous experiences have shown so far, these cross-national activities have to accompany the daily work.

## **Cross-sector cooperation and plan of action in case of a disaster**

Also the chances which can arise from such a cooperation between science and practice on the one hand and between the single protagonists in practice on the other hand, have

not been used to the full extent: Regional planners, technicians, the police, the fire brigades, the civil protection, politics, the army and the persons concerned need to understand each other's tasks and functions in a better way. It is important to improve the communication and the education, as it is exactly this cross-linked thinking and acting which is obligatory in the Integral Risk Management.

Therefore, the disaster action plan needs to be adapted and rehearsed, and the communication in case of a disastrous event needs to be institutionalised.

## **Early warning system**

The early warning systems need to be developed on regional, national and international level and the period within forecasts are being established need to be prolonged. The alarm in connection with property protection in order to rescue persons and the reduction of damage to property needs to be improved.

## **Individual responsibility**

It is not possible to live right next to a torrent and expect the fire brigades to take over all the protective measures in case of a disaster: Residents and house owners need to take over individual responsibility. Especially in case of property protection measures it is necessary to take over this duty. Public relations and education are important in order to give the necessary information to the building owners, the architects and planners. The individual responsibility shall also be maintained and intensified by the provision of information and the creation of diverse methods of insurance rates by the building insurance.

## **Regional planning/Hazard mappings**

It is therefore also necessary to reconsider the regional planning with regard to the Integral Risk Management: It is important to find the courage to redline regions upon which a building prohibition has already been imposed. Property protection measures have to be enacted for residents living in areas with an existing residual risk. Established hazard



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Interreg III B Alpine Space

# Klimawandel in den Alpen

Tatsache ist: Der Klimawandel hat längst begonnen. Von den steigenden Temperaturen ist besonders der Alpenraum bedroht. Aber in welcher Form? Und wie kann sich der Mensch in den Alpen vor den Auswirkungen schützen? 30 Experten aus allen fünf Alpenländern haben in einem Hearing in Bolzano den Stand der Dinge diskutiert und sich einig: Es muss etwas getan werden.

Mathematiker haben's gut, denn sie können sich auf ihre Zahlen verlassen: Summe A plus Summe B gleich Summe C. Alles ist bis auf die letzte Ziffer hinter dem Komma genauestens definiert und weltweit gültig. Da ist es schon bedeutend schwieriger, wenn man sich mit dem Klima befasst. Dem Umweltforscher stehen zwar ebenfalls viele genau definierte Zahlen zur Verfügung: Niederschlagsmengen zum Beispiel, Temperaturen und die Fließgeschwindigkeit des Wassers im Flussbett. Doch draussen in der Natur werden all diese Größen relativ, weil sie dort mit einer kaum zu erfassenden Vielzahl von Faktoren zusammenspielen. Und diese sind weder klar definierbar noch sicher einzuschätzen. Kommt hinzu, dass sich diese Zusammenhänge im Wechselspiel der Einflüsse dauernd verändern. Deshalb bedeuten 10 Millimeter Regen in einer Stunde weit mehr als einfach nur 10 Liter Wasser pro Quadratmeter.

Nehmen wir, zur Veranschaulichung, ein Sommergewitter in einem kleinen Alpental, zum Beispiel das Engelbergertal im Innerschweizer Kanton Nidwalden, genauer gesagt die Niederschläge vom 21. und 22. August 2005. Die Wochen vor diesen Tagen waren verregnet, das viele Wasser hat die Böden von Wiesen und Wäldern längst gesättigt. An den

steilen Berghängen entladen sich die Wolken schliesslich in heftigen Regenfällen. Schon jetzt beginnt das Wechselspiel, denn Regen fällt nie gleichmässig. Er geht an einen Ort intensiver nieder als ein paar hundert Meter entfernt, weil sich eine Wolke nie gleichmässig entleert. Ein Teil des niedergegangenen Wassers verschwindet in den Karstfeldern der Berghänge, fliesst unterirdisch ab über kilometerlange Wege, über deren Beschaffenheit niemand Genaueres weiss, und bricht schliesslich mit einem Erdbeben an Stellen wieder an die Oberfläche, wo es sogar Geologen nie vermutet hätten. Ein anderer Teil des Regenwassers versickert in den Hangwiesen, drückt von unten auf die Scholle und hebt diese schliesslich aus: Es kommt zu weiteren Erdbeben. Geröll, Treibholz und Erdreich verstopfen die Bäche. Das Wasser staut sich hier so lange, bis es mit genügend Wucht diese Barrieren durchbricht und Flutwellen und Murniedergängen ins Tal donnern. Ist eine kritische Grenze erst einmal überschritten, eskaliert das Wechselspiel der Einflüsse: Murniedergänge stauen Bäche – diese fressen ihr Bachbett aus, was zu neuen Murniedergängen und Überschwemmungen führt.