alpenkonvention • convention alpine
convenzione delle alpi • alpska konvencija

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

Ministère
de l'Écologie, de l'Énergie,
du Développement durable
et de l'Aménagement
du territoire

Tagung der Alpenkonferenz
Réunion de la Conférence alpine
Sessione della Conferenza delle Alpi
Zasedanje Alpske konference
Alpine Conference meeting

NEU
NOUVEAU
NUOVO
NOVO
12.03.2009

X

TOP / POJ / ODG / TDR

B6

EN

OL: DE

ACTION PLAN ON CLIMATE CHANGE IN THE ALPS

A Text of the Action Plan

B Decision of the Xth Alpine Conference

« Making the Alps an exemplary territory for prevention and adaptation to climate change »

PREAMBLE

The Alps are particularly sensitive to climate change. As the OECD report «*Climate Change in the European Alps – Adapting Winter Tourism and Natural Hazards Management »* confirms, the effects of climate change in the Alps are three time higher than the world average. Moreover, this is a densely populated (14 millions inhabitants for approximately 200 000 km^2) and tourist area, thus requesting special measures.
In the face of climate change, mountain ranges, with their water reserves and their capital for biodiversity, have a key role to play towards other territories. Therefore, their protection goes beyond the supra-national dimension.

Alpine regions should take part in the collective effort to reduce the greenhouse effect by searching for adapted solutions to tackle the specific issues that affect them, particularly in terms of transport, energy efficiency, buildings, tourism, farming and water.

The Action Plan following the Ministers' Declaration of Alpbach rests on the joint commitments taken by the Alpine countries which fall under the Framework Convention on climate change and the Kyoto Protocol. This Action Plan is part of the ongoing discussions to reach a comprehensive and ambitious post-2012 agreement and takes into account the commitments made in this regard by the European Union. Its aim is to go beyond the general framework to offer concrete measures that are **specific** to the Alps by promoting, both in terms of mitigation and adaptation, themes and measures that could be the subject of regional co-operations in the frame of the Alpine Convention, and by taking into account actions that are already in place on a national, regional and local level.

The Action Plan on Climate contributes to both the global effort aiming at reducing greenhouse effect following international commitments by the Contracting Parties and to the quality of life of Alpine populations for present and future generations.

This Plan complements a full and complete implementation of the Protocols of the Alpine Convention by the Contracting Parties. The fight against the effects of climate change goes hand in hand with a real policy on sustainable

development. It is therefore worth-noticing that some of the measures of the Action Plan materialise provisions mentioned in the various Protocols.

The measures recommended for illustrative purposes are aimed at multiple stakeholders, either public – on a local or national level – or private, with the aim to change the attitudes to tackle climate change. The Action Plan should also bring about common projects, promote the development of concrete regional cooperations and the exchange of experiences, and support specific scientific research projects.

The Alpine Conference will guarantee the dissemination of such measures as well as the promotion of corresponding « best practices » by taking into account the specific needs of local partners and by making the most of their relevant skills. It will secure the help of its various Working Groups and will integrate in its Multiannual Work Programme the objectives of this Action Plan. It will promote the Plan with institutional partners assisting in its implementation, including European partners, in order for the Alpine Convention decisions to be formally taken into account.

MITIGATION STRATEGIES

Measures to be taken are part of a comprehensive policy in terms of spatial and land planning.
Transports and household consumption of fossil fuels – particularly for residential heating – offer great potential to reduce CO_2 emissions. In the Alpine context, the tourism industry should contribute in a noticeable way to the efforts aiming at reducing emissions in both sectors.
Taking into consideration their resources in wood and water and their potential in terms of solar, wind and geothermal energy, Alpine regions could lead the way by using mainly renewable energies to cover their needs.

• Measures in the subject fields of spatial and land planning

Objectives

- **Ensure efficient space management, promote urban densification**
- **Promote CO_2 efficient urbanisation and planning**

Measures

1 – promote the integration of bioclimatic criteria (exposure to the sun, natural ventilation …) in the tools used for land planning, particularly on a municipal level

2 – localise urbanisation projects in areas served by eco-friendly public transports

3 – maintain natural areas (as carbon sinks)

Examples of good practices

Within its project of Climate Plan, the autonomous Province of Trento (Italy) has set up Working Groups to survey issues linked to climate change in the Alpine region and its territory, particularly in areas such as analysis and monitoring of climate, water resources management, energy and industry, environment and spatial planning, tourism management and information. Guidelines have been determined to reduce CO_2 emissions by raising public awareness and promoting the development of good practices in the different fields of application.

The innovative element is that the issue of CO_2 emissions is treated comprehensively by taking into account all partners and factors involved (political, social, cultural, legal, energy, mobility, etc.).

Since 1990, the Municipality of Cavalese (Italy) not only takes into account measures to preserve natural resources but also bioclimatic criteria (maps indicating solar exposure, survey of prevailing winds, etc.) when selecting building land. Such measures maximise the benefits of natural radiation, thus contributing to saving energy which, in return, can be used to heat buildings (measure 1).

The « Green architecture » initiatives (« Architettura verde ») of the autonomous Province of Trento boost ecological building (« bioedilizia »). Moreover, the certification « CasaClima », set up by the autonomous Province of Bolzano in South Tyrol (Italy) aims at combining energy saving, well-being at home and sustainability. The categories « CasaClima Or », « CasaClima A » and « CasaClima B » help determining the energy home rating (e.g. less than 10 kWh/m² for the category « CasaClima Or ») (measures 1 and 2).

- **Measures for the energy industry : heating energy, a key sector in the Alpine world**

Objectives

- **significantly reduce CO_2 emissions**
- **promote the use of renewable energy sources**

Measures

1- elaborate in a participative way an energy policy specific to the Alps in order to create a consensus for a future sustainable management of energy in the Alpine space

2- increase the energy efficiency of buildings by promoting the rehabilitation of existing buildings and the construction of « passive » buildings.

3- in order to respect natural balance and landscapes, promote the production of renewable energies, and their use for heating purposes on a local level by individuals and communities, by using recent technologies with high energetic efficiency which, in the case of biomass, limit pollution emissions in the atmosphere.

4- disseminate existing techniques that reduce energy consumption by favouring local resources while building, particularly by improving the training of mountain building professionals (training campaigns, networking…)

5- launch information campaigns and take concrete measures to promote the use of biomass (mainly wood from mountain forests) and other renewable energies respecting the environment and produced locally

Examples of good practices

In Slovenia, financial support and subsidies are granted to families and public bodies for using renewable energy sources (biomass boiler, solar collectors, heat pumps for heating). Furthermore, a decree on energy efficiency states that, in terms of heating and ventilating buildings, 25% of the energy should come from renewable sources (measures 1 and 2).

The Municipality of Diex (Austria), taking advantage of solar radiations that are more intense in the Alps than in any other region and of the absence of fog,

made big investments in a photovoltaic programme (residential buildings, road signals, information board, street lighting) (measure 2).

The municipal council of Munderfing (Austria) adopted and implemented a modular energy system (biomass; solar, wind and hydraulic energy; PR modules) that was developed in cooperation with the local population. (measure 2).

The Energy Institute of Vorarlberg (Austria) has been trying for the past ten years to raise public awareness on energy. It promotes activities and measures aiming at improving energy efficiency and the use of renewable energies. It cooperates with other institutions on an international level.

In Embrun (France), the association « Le Gabion » offers seminars to professionals and individuals to build or renovate houses in order to better regulate the energy consumption and reduce the discharge of polluting gases into the atmosphere. Thanks to these seminars about ecological building that also protects the heritage, the association makes the most of the local materials and traditional know-how involved, such as framing made out of wood and straw, soil, hemp, stones, plaster and lime (measures 2, 3 and 4).

- **Measures for the transport industry : shift traffic towards more eco and climate-friendly means of transportation**

Objective

- **significantly reduce CO_2 emissions linked to transports**

Measures

1- shift as much of the transalpine traffic of goods and persons as possible towards means of transportation emitting less CO_2 :

   a. spur and support the cooperation between national managers of railway networks, companies and local authorities to improve the service offer in terms of quality and frequency on existing railway networks, whether it be for the transport of goods or for the transport of persons (more particularly the Brenner plan and the BRAVO project, the IQ-C plan on the Gothard/Simplon corridor , the French-Italian programme on the historical line between Turin and Lyon, the Alpfrail project on the Tauern axis)

b. continue with the implementation of new transalpine railway infrastructures on all major Alpine passes in order to create a trans-european network adapted for traffic shift : Swiss programme NLFA (*nouvelles liaisons ferroviaires alpines* or new Alpine railway networks), priority projects of the EU (axis Lyon - Turin - Trieste-Divaca - Ljubljana – Ukrainian border, and Berlin - Munich - Verona - Bologna - Naples via the Brenner)

c. continue with the surveys initiated by the transport Ministers of the Alpine countries within the Zurich Declaration in order to determine the most efficient means to regulate road traffic for goods through the Alps (better management of the traffic on an hourly and daily basis, optimisation of flows, feasibility of an Alpine transit exchange, etc.)

d. survey available options that rely on marine navigation (motorways of the sea) to replace transalpine road traffic when conceivable

2- encourage regional and local authorities to reduce within the Alpine space the traffic impact on environment and climate, especially for means that produce CO_2 :

a. promote policies that reduce the use of individual cars (cheaper public transports, carpooling, use of bicycles within city centres) or make it less polluting (programmes on how to drive in a more ecological way)

b. develop on all scales a network of public transports which will guarantee practical continuity between the various means, mainly for reaching mountain resorts and tourist areas, and promote the means of transportation that emit less CO_2 and pollute less

c. develop planning tools (urban and interurban logistics plans, circulation plans, traffic plans, keeping or creating local services …)

d. ensure application in full of the provisions of article 12, paragraph 2, of the Transport Protocol on air traffic which plans to restrict the construction of new airports and «to improve public transport systems from airports on the fringes of the Alps to the various Alpine regions » .

Examples of good practices

Several measure have been adopted along the Brenner corridor(motorways A22 and A12 between Italy and Austria) to limit HGV traffic, some of them promoting the use of alternative transport systems and the replacement of old vehicles that pollute. It was also decided to temporarily forbid the transit of HGV over 7.5 tons and of engines belonging to « Euro 0 » and « Euro 1 » categories, and to carry the goods by rail instead. Speed limits have been introduced during the night, along with a traffic management system. At night, HGVs are not allowed to travel and have to pay higher transit charges on the motorway A13 (measures 1 and 2).

In November 2005, the town of Gap (France) decided buses would be totally free for its 39 000 inhabitants. Since December 15, 2007, a free shuttle is available in the city centre every ten minutes. Two 22-seater buses, equipped with access ramps for people with reduced mobility and particle filters, provide this service. The shuttle links several car parks, thus encouraging people to give up their cars in the city centre, and promotes intermodality and accessibility to the train station (measure 2).

The Alpine furrow demonstrates the co-operation between Alpine departments (Haute-Savoie, Savoie, Isère, Drôme - France) for a coordinated and sustainable transport policy. This project, focuses on modal transport, organises space and urban development and tries to optimise the infrastructures in order to provide users with alternatives to cars. The Alpine furrow improved the service offer and the information to travellers, mainly by developing central offices on mobility (measures 1 and 2).

• Measures in the tourism industry :

Objectives

- **Reduce CO_2 emissions produced by tourist activities and ensure travel professionals offer the option of sustainable transports**
- **promote Alpine holidays offers that are « climate neutral »**

Measures

1- put into place a regular environmental audit of tourist destinations containing a « carbon report » and refer to this audit when granting authorisations and/or public subsidies

2- promote soft mobility for reaching tourist sites by favouring the least polluting means of transportation (adapted rates, using aerial lifts such as cable cars to go from the valleys to the nearby resorts …)

3- develop with transport operators the « last mile » connection and long-distance access to tourist sites using railways

4- favour the rehabilitation of real estate aimed at tourists by adapting it to climate change instead of building new infrastructures which generate « empty beds » (tourist beds that remain unoccupied for most of the year)

5- adapt the resorts' communicating and marketing strategies to reflect the new measures

6- develop cross-border public transports and simplify tariff offers for tourists in the Alps

7- ensure travel and tourism professionals develop together practical information on the soft mobility options that are available in different Alpine sites and make it accessible to the general public

8- harmonise school holidays calendars in order to limit peak season and the development of infrastructures

Examples of good practices

Arosa (Switzerland), a resort accessible by train, set up a system of « carbon offset » for CO_2 emissions generated by tourist travels. It also has on offer a large array of eco-friendly activities such as free use of buses, electric bicycles, ski lifts, cable cars or pedalos on the lake (measures 1, 2 and 5).

The Alpine Pearls network promotes soft mobility to holiday makers by offering them to move around by train, bus, bike or foot. In Bad Hofgastein and Werfenweng (Austria), « car-less mobility » is on offer, which contributes to the development of public transports, electric or fun vehicles, car pooling and information system for travellers. Press releases about the events taking place (day without car) support and highlight such activities (measures 2, 3 and 5).

The Tiroler Gemeinden mobil project (Austria) encourages the use of buses and trains with the help of central offices on mobility and advisory services (pocket-size timetables for public transports are handed out, car pooling, information for new residents) (measures 2 and 5).

The Pays des Écrins (France) set up thematic discovery shuttles (wine heritage, religious heritage, water heritage, silver mines etc.) (measure 2).

In Italy and France, the project « Montagnes en chemin » (Piedmont, Aosta Valley, Liguria, Provence-Alpes-Côte d'Azur) aims at creating an integrated tourist system supporting sustainable development and monitor climate change in mountainous areas. The project favours tourism initiatives about summer and winter hiking and it already involves over 60 organisations from both countries.

Within a partnership between the Provence-Alpes-Côte d'Azur region (France), the SNCF (French national railway) and 24 resorts (and groups of resorts from the valley) of the Southern French Alps, the project « train des neiges » (or snow train) has been implemented. It allows travellers to book a train+ shuttle package which will take them directly to the bottom of the ski slopes. The offer is available to and from several towns and resorts (measures 2 and 6).

In France, the ANMSN (National Association for Mayors of Mountain Resorts) – Ski France elaborated, in cooperation with other partners, a « Charter supporting sustainable development in mountain resorts » made up of eight field of activity or action plans.

Furthermore, carbon reports in mountain resorts are being implemented within the CIMA (an interregional committee for the Alps) (measure 1).

CIPRA International proposes to create, within the next two years, 100 packages that would use sustainable means of transportation to reach and move around a tourist site (measure 2).

ADAPTATION STRATEGIES

Adaptation is one of the main challenges in the fight against climate change, especially in the Alps, which are particularly exposed and densely populated. Changes in summer precipitations, increase in winter precipitations, increase in temperatures and storm frequencies could well be the most noticeable consequences of climate change which already, and even more so in the future, amplify natural hazards in mountain areas. Policies and measures implemented should be long-lasting and should not contribute to the increase of greenhouse gas emissions nor of pressure on natural resources. Some appropriate information and awareness action are also necessary.

- **Measures in terms of spatial planning :**

Objective

- **Promote an integrated approach to adapt Alpine space to new climatic conditions and more particularly to:**
  - **better control natural hazards and limit their consequences**
  - **ensure sustainable development in terms of housing and economic activities**

Measures

1 – define risk areas in the whole Alpine region following harmonised procedures, taking into account risks resulting from climate change (landslides, rock slides, avalanches, floods, fires …) and consequently adapt town planning documents by defining adequate security perimeters.

2 – reinforce prevention and strategic management of natural hazards

a. keep land sealing to a minimum, mainly by improving the ratio between built and open space in town planning projects
b. establish efficiency indicators on policies and risk prevention tools
c. identify a master event that is the most relevant for floods and avalanches by taking into account climate change and adapt practices and regulations accordingly
d. anticipate the risks of transport infrastructures deteriorating due to climate change in the Alps and develop a map of itineraries potentially at risk along with crisis management plans and a survey on prospects for the next 20 years

3 – reinforce the territories' adaptation capacity to climate change

a. adapt existing tools and planning methods for an innovative management looking towards the future
b. integrate into all levels of spatial planning the objective of risk prevention and vulnerability reduction
c. use participative method of risk governance in the planning process

4 – inform the population and make it aware of its responsibilities

a. improve public access to data on natural hazards

b. support and maintain a « risk culture » in mountain areas with adapted preventive information aimed at permanent and seasonal residents, and keep the public involved when measures and prevention strategies are drawn up
c. develop and adapt pre-warning and warning systems, particularly in case of torrential floods
d. disseminate « good practices »

5 – anticipate deterioration of transport infrastructures

Examples of good practices

In Samedan (Switzerland), protective measures against floods have been set up and favour a more economical approach which takes into account the ecological function of waters and excessive pressures, the maintenance of flood areas, the arrangements for emergency services, the revitalisation and bypass of the Inn river, etc. (measures 1, 2 and 3)

In Bavaria (Germany), coordinated measures have been implemented to optimise water retention by combining reservoirs for exundation, renaturalisation of peatlands and wetlands, creation of depressions and drains, modification of growing techniques, reforestation, ecological valorisation and renaturalisation of water resources (measures 1 and 2).

The « ILUP » project in Austria developed innovative management and land use models: assessment of the zone from a functional point of view (soil, site, water and materials balance), survey of the link between precipitations and runoff, land use and structural changes, survey of natural geogenic risks in mountain areas (measures 1 and 2).

The results of the INTERREG IV B « CLISP » project (Climate Change Adaptation by Spatial Planning), which has been implemented in pilot Alpine regions, will serve as a reference basis for the implementation of measures that were suggested.

- **Enhancement of mountain forests and development of the wood industry**

Mountain forests have several functions: production of a renewable and ecological material, habitat for fauna and flora (biodiversity reserve), prevention of natural hazards, production of energetic biomass, part of the landscape and essential basis for tourism. Climate change is now seriously threatening the

forests as the adaptation in the Alpine space of ecosystems to the rapid changes of the ecological conditions is becoming particularly difficult.

Objectives

- **Favour the adaptation of forest stands to climate change by keeping the Alpine forests in a good ecological state and by increasing their biodiversity**
- **Develop wood industries so that wood can be used as a material and as an energy source that would benefit the economic development of local populations, and the use of scrap wood as raw material**
- **reinforce the role played by the forests in preventing natural hazards**

Measures

1 – encourage the diversification of forest stands by favouring autochthonous species that are ecologically resistant

2 – allow natural regeneration of mountain forests by limiting populations of hoofed animals according to article 2b of the Mountain forests Protocol

3 – ensure eco-certification of all forests part of the public right of way of each member state, give better information to private forest owners and encourage them to exploit their land in accordance with the demands of an accredited certification system and assess the actions

4 – promote continued maintenance and exploitation of forests in natural hazard areas in order to reinforce prevention and ensure sustainability of populations

5 – identify difficulties and potential congestions in local industries exploiting and transforming wood in order to implement adapted solutions

6 – implement coordinated observation methods on the effects of climate change on forests

Examples of good practices

The « Protective forest of Hinterstein » mediation project (Germany) aims at safeguarding the protective function of the forest thanks to appropriate management: implementation of a specific zoning, choice of tree species by taking into account the planting season and consolidation measures (measures 1 and 3).

Exploitation of protective forests in the Grosse Walsertal biosphere park (Vorarlberg, Austria)

- **Preservation of biodiversity**

Climate change triggers major changes in flora and fauna that could even lead to extinction for a large number of species. In order to counteract this phenomenon, further fragmentation of natural habitats should be avoided. Moreover, the key role played by mountain farming in preserving "ordinary" biodiversity should be recognised.

Objectives

- **create an ecological continuum in order to facilitate the migration of Alpine fauna and flora species**
- **preserve the biodiversity of protected areas and maintain ecosystem services**
- **ensure habitat preservation for species that are representative of the Alps**
- **support quality agriculture which contributes to the quality of the environment and to the stability of biodiversity**
- **maintain peatlands as CO_2 sinks and biodiversity reservoirs**

Measures

1 - implement [*consider in view of a potential enforcement*] concrete measures that will be suggested by the « Ecological Network » Platform to maintain biodiversity through a perennial « ecological continuum » (this measure might necessitate the demarcation of new protected areas and the reinforcement of existing protected areas)

2 – adapt management plans for large protected spaces in order to take into account expected climate changes in the Alpine space and adapt them according to the results of monitoring programmes implemented for this purpose (adaptation and management of leisure activities, maintenance measures for infrastructures …)

3 – implement in a coordinated way, and on the whole of the Alpine range, special protection programmes aimed at species representative of the Alps (Tetraonidae, ptarmigan, globe thistle...) and other endemic species endangered by climate change

4 – perform an ecological follow-up on experimental plots (e.g. on sample plots of 15 ha) to survey fauna adaptation to climate change

5 – promote mountain farming based on small structures and maintain quality farming work on all Alpine territories

6 – preserve existing peatlands and renaturalise the ones that can be renaturalised

Examples of good practices

ECONNECT aims to enhance ecological connectivity in the Alpine space. Protection of biodiversity and natural heritage is more than ever a central need to face the challenges of climate change. The Alpine ecological continuum needs an integrated approach beyond established protected areas while considering high biodiversity areas and corridors as linking elements. Spatial links and respective management measures are an initial approach to facilitate the increasing migratory needs of species in latitude and altitude due to climate change. The project develops the basis for an alps wide and local implementation strategy.

Within a survey aimed at anticipating and supervising changes and impact on pasture spaces and at outlining in the medium-term a charter on national parks, les Ecrins, Vanoise and Mercantour national parks (France) have determined the following objectives:
- update knowledge on pasture areas as far as biodiversity and agro-pasture practices are concerned,

-identify the origin and the management terms of herds estivating in national parks,

- create a methodological frame allowing comparisons with available data,

- define adapted indexes taking into account the partners from the territory.

The Isere department (France), at the heart of the Alpine furrow, launched the « Isere ecological network » project to identify the breakdowns (over 300) in the ecological continuum and tackle them. An action plan worth nine million euros over six years and designed in cooperation with local authorities and relevant partners (farmers, hunters, fishermen...) was launched to restore ecological corridors providing passages to the fauna. The Voreppe cluse and the Grésivaudan valley have been selected as priority sites.

This programme is being developed in partnership with the Rhône-Alpes region, the Government but also with the regional motorway maintenance company (measure 1)

- **Tourism**

Objective

- **Adapt winter tourism and diversify the tourism offer**

Measures

1 – supervise the construction of tourist infrastructures in glaciated and wilderness areas

2 – combine investment of public funds in snow-making equipment with the assessment of the consequences of such techniques on the environment and direct public funds towards other alternatives

3 – support local authorities which diversify their activities and offer an alternative to Alpine skiing in winter, and spread the information in order to attract new customers.

4 – aim at a better complementarity between summer and winter tourist seasons by favouring interseasonal tourism

5 – favour the pooling between a mountain tourist resort and its surrounding territory (valley, mountain range…)

6 – support the rehabilitation of existing dwellings

Examples of good practices

As far as sport and outdoor activities are concerned, the PACA region (France) is encouraging local partners to diversify their tourist offer. It also initiated spatial redistribution of tourist flows from high-density areas to areas that are not so easily accessible by making the latter more attractive (by associating sport, adventure and by diversifying the natural and cultural assets on offer) (measures 3 and 5).

- **Water and water resources**

The foreseeable change in the water regime, which is partly but not exclusively linked to glaciers melting, will result in contrasted effects depending on the region: the central and northern parts of the Alps should be subject to floods whereas intra-Alpine regions and the southern part of the Alps should be subject to accentuated droughts.
Moreover, the development of small hydro-electric power plants, which are harmful on an ecological point of view, should be supervised. The Water Framework Directive, which determines ambitious objectives, is a well-adapted frame in the face of climate change.

Objectives

- **reinforce the implementation of the Water Framework Directive**
- **prevent water shortage**
- **develop plants according to the ecology of water streams**

Measures

1 – reduce water consumption :

a. promote water saving in all areas by supporting an integrated approach of the resource and its uses

b. systematically take into account the impact on water resource when granting administrative permits

c. favour rain water collection and the use of waste water

2 – improve the use of water:

a. rationalise the use of water resources, unevenly distributed throughout the year

b. favour collaborative management between the various uses for water

c. identify water catchment areas for various uses (in particular for snow-making equipments)

3 – reduce the impact of hydro-electric plants on the environment :

a. improve the efficiency of existing artificial lakes and electricity plants

b. decide on common guidelines for the construction of small power stations

Examples of good practices

The Municipality of Les Gets (France) has to face water shortage and water cut-off during peak periods. It has, however, found the following solutions in order to deal with the problem: use of a retaining reservoir situated on a hill, better distribution networks (technical aspect), large research programme on water (scientific aspect) and raising of public awareness (civic aspect) (measures 1 and 2).

The LEADER project in the Mariazellerland, Mürztal and Eisenstrasse region (Austria) aims at making the population aware of the importance of water, thus encouraging its sustainable exploitation.

• Mountain farming

Mountain farming, which is directly touched by climate change, should also be subject to an adaptation strategy as it contributes to the attractiveness of Alpine territories.

Objective

➢ **Improve mountain farming contribution to the environment, the maintenance and the attractiveness of Alpine territories**

Measures

1 – supervise adaptation approaches to climate change for farming methods and systems

2 – encourage breeders to choose more resistant autochthonous species and favour extensive grazing

3 – support agricultural holdings and territories which aim for excellence in terms of production and environment protection

4 – favour synergies and co-operations between tourism and agriculture in order to diversify mountain tourism activities

Examples of good practices

The objective of the IRRIWEB project is to create a soil map highlighting the irrigation needs of the Trentino province (Italy). This project aims at improving the systems used for measuring soil moisture, making stocks and sampling from reservoirs or hydroelectric pipes. The University of Trento developed a hydrological model which simulates the effects of different irrigation strategies on the availability of water resources. (measure 1).

In the « BIO ALPE ADRIA » project (Italy, Slovenia and Austria), associations of organic producers have created a cross-border macro area in which genetic engineering is not used so that natural diversity in organic farming can be preserved and various initiatives in the eco-sector can be networked. Approximately 6000 agricultural holdings are taking part in the project. An internet site provides information in three languages and is aimed at suppliers and producers of the relevant areas.

Sustainable crop management helps preserve ground water, which can be contaminated by chemical elements such as fertilisers and pesticides used extensively in non-organic farming (measure 1).

The project also helps mitigate climate change impact by limiting the use of synthetic chemical fertilisers which are energy-consuming.

The economic interest grouping « GEN'OSE » was set up to gather under one roof the herd book societies for three native breeds: the Préalpes du Sud, the Mérinos d'Arles and the Mourérous. It launched a genetic selection programme which aims at preserving the breed hardiness in order to reinforce pastoral practices and supply the sector with breeding animals adapted to environmental constraints and commercial demands. The indicators of implementation show the number of marketed rams and ewe lambs from the three breeds over the year and the dispatching of the dissemination throughout the Alpine range (measure 2).

DEVELOP APPLIED RESEARCH TO THE ALPINE RANGE AND IMPROVE PUBLIC AWARENESS

In spite of several studies carried out, some uncertainties remain in terms of natural hazards, economic and social impact, agriculture or soil conservation for example. The effects of climate change are not thoroughly known and vary according to the regions. A specific effort should therefore be made in order to gain, mutualise and capitalise on common information throughout the Alps in order to benefit all partners.
Acute observation of current and future impact of climate change is critical for the following two reasons:
- mitigation, as objective « markers » will reinforce public awareness and facilitate the creation and validation of policies and measures that will alter our lifestyle
- adaptation, by establishing efficient and well-targeted strategies
Moreover, raising public awareness is essential in order to prompt changes in behaviours to reduce greenhouse gas emissions but also to allow populations to adapt themselves to the already visible consequences of climate changes.

Objectives

- **Improve knowledge to better understand the impact of climate change on a <u>local level</u>, particularly as far as water, natural hazards and socio-economic balance are concerned.**
- **Reinforce cooperation in order to gain common knowledge of the existing risks**
- **Reinforce public awareness, especially among the youth**

Measures

1 – reinforce homogenous and coordinated observation on the effects of climate change on a local level by using, if necessary, regional and inter-Alpine research networks (ISCAR, ClimChAlp…)

a – use the results of the « ClimChAlp » project and ensure a follow-up (particularly in terms of establishing a platform that would synthesise, in a biographical manner, the different types of impact)

b – proceed with the interoperability of existing databases

c – promote research networks associating scientists and economists and integrating a social and economic dimension in order to better identify on a local level what is at stake as far as climate change is concerned, and create adaptation scenarios for valleys as well as for mountain sites.

2 – empower the Natural Hazards Platform to implement a coordinated observation system on phenomena :

a – survey current evolutions (rhythm, extent and characteristics of floods, avalanches, torrential muds, landslides, temperature rise, fire recrudescence)

b – map territories according to their vulnerability on the basis of completed works by giving priority to areas that are the most at risk

c – assess the cost of damages linked to climate change on the basis of specific cases and identify adequate response mechanisms, through insurance companies for example

3 – public awareness

a – organise interactive exhibitions and scientific events to make the population, especially youth and tourists, more aware of what is at stake in terms of climate change and of the solutions advocated by the Alpine Convention

b – communicate periodically through different elements of the media (local newsletters, press, local and regional TV and radio channels …) to inform the public on the objectives and measures defined in this Action Plan

Examples of good practices

The PERMAdataROC project (Aosta, Italy) provides a database on gravitational phenomena in periglacial environment on pilot sites by collecting data on gravitational movements and by determining the thermal regime of rock walls in order to establish a link between weather conditions and wall stability (measure 1).

IMPLEMENTATION OF THE ACTION PLAN

The Contracting Parties shall take the necessary measures to involve local and regional authorities in this Action Plan.

The Permanent Secretariat of the Alpine Convention, the Working Groups and the Platforms set up by the Permanent Committee, as well as Observers, shall contribute to the implementation and the follow-up of the Action Plan:

The Permanent Secretariat shall contribute to the dissemination and promotion of this Action Plan. It might also specifically contribute to its implementation, mainly by collecting and disseminating relevant information in the Alpine space.

More particularly, its responsibility will be to:

- build a database on good practices and facilitate its use

- support SOIA in identifying simple indicators of implementation of the Action Plan by liaising with the European Environment Agency and with relevant associations or experts

- provide local and regional Alpine authorities with information on the most efficient practices or technologies in order to fight the effects of climate change

- Facilitate, if necessary, the co-operation with European institutions for the implementation of concrete measures

- contribute to the implementation of measures concerning the Alpine Network of Protected Areas (with the support of the dedicated Task Force)

- offer to constitute a platform in order to exchange information on the implementation of the Plan and secure a follow-up on such exchanges

Decision of the Xth Alpine Conference

The Contracting Parties of the Alpine Convention, gathered in Evian on 12th March 2009, adopt, in accordance with the decision taken by the IXth Alpine Conference in Alpbach, the Action Plan which aim is to make the Alps an exemplary territory for prevention and adaptation to climate change, and commit themselves to proceed in its implementation with concrete measures in order to fight climate change by providing the necessary resources.

Acknowledging the necessity to act promptly and the added value of a collective action from all Contracting Parties of the Alpine Convention to limit the impact of climate change, they have agreed as follows:

1 – implement, with the help of structures provided by the Alpine Convention and its Working Groups, common projects to concertedly apply measures of the Action Plan in the regions that are relevant to the Alpine Convention, and more particularly:

- document the effects of climate change on natural hazards in the Alps by relying on PLANALP (Natural Hazards Platform)
- develop guidelines for the follow-up of mountain forests facing climate change
- identify which tour operators offer « carbon-efficient » stays and means of transportation, disseminate good practices and reward the best achievements with ad-hoc initiatives (for example award for sustainable tourism in the Alps, CIPRA award, Pro-natura-Pro-ski award)
- create a green transalpine network to facilitate the migration of plants and animal species by relying more particularly on the work of the Ecological Network Platform
- develop guidelines for the construction, optimisation and rehabilitation of small hydroelectric power stations while respecting aquatic environments and biodiversity
- implement exemplary projects in terms of ecological construction, promote them and adapt, if necessary, the existing regulations in this area

2 – ask Ministers belonging to the Zurich Group who survey different regulation methods for the Alpine transit of goods, such as an Alpine transit exchange, to acknowledge the urgency linked to climate change and the need to implement concrete solutions rapidly in order to limit greenhouse gas emissions

and to organise for this purpose at the earliest opportunity information exchanges between the two bodies

3 – ask the Permanent Secretariat of the Alpine Convention :

a. to set up an internet page to collect and pool relevant and up-to-date information on climate change in the Alps and to share concrete solutions so that the highest possible number of Alpine residents and local policy-makers can contribute to the implementation of the Action Plan

b. to fine-tune, using appropriate means, the implementation of the Action Plan

4 – to carry out the first assessment of the implementation of the Action Plan at the next Ministerial Conference in order to adjust it if necessary.

5 – to launch a survey on whether the Alps could become a carbon-neutral zone by 2050.