



Interreg IIIB-Project, Alpine Space Programme, co-financed by the EU



The main focus of the DIAMONT activities in 2007 is the selection of test regions for each participating state. These test regions will be chosen with the help of specific indicators revealing similar structural development related to urbanisation processes. In spring, workshops are going to be held in situ with stakeholders and the local population to discuss land use management issues. Instruments steering regional development are being collected for the whole alpine bow. They will be presented in the test region to find specific solutions towards a sustainable development.

### DIAMONT project meeting in Grenoble

In the last week of January 2007 participants of all six partners of the DIAMONT project met in Grenoble for their fifth project meeting. After a late start caused by the brake down of the international transport network due to “heavy” snowfall in the middle of Europe, the participants were kindly welcomed by CEMAGREF.

The main topic of the meeting was to find a time table for the partners which will enable them to be well prepared for the workshops with the stakeholders in the test regions (WP 10 and WP 11). Within the workshops the data, indicators and instruments resulting of WP 7, 8 and 9 shall be discussed. The final as well as the preliminary results of WP 7, WP 8 and 9 were presented in Grenoble. During these presentations three different approaches on how to select the test regions were presented. In a subsequent meeting in Innsbruck two weeks later selection criteria were finally determined. In a next step a detailed national analysis of the test regions shall be made for each country, based on the presented analysis for France by Vincent Briquel and subsequently in order to characterise the selected test region more thoroughly a context analysis will be accomplished. Until the middle of June the workshops should have all been held and a final analysis of the results is expected by July.

Madame Lemaitre, who is closely linked to SOIA France, has participated in the meeting. She acknowledged the interest of SOIA France in the results and publications of DIAMONT. A new election within the Alpine Convention makes Mrs. Regula Imhoff, now deputy general secretary of the Alpine Convention, the new contact person for DIAMONT. A new arrangement has to be made between DIAMONT and SOIA on how the results of DIAMONT shall be made available for SOIA.

Finalizing the meeting was very work intensive and released the partner with many new ideas. Furthermore a few participants who decided to stay a day longer in Grenoble were able to do some sightseeing.



*The DIAMONT project group ...*



*... discussing urban areas in Grenoble.*

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## Objective data, indicators and their results

One of the aims of WP8 is to identify similar development regions in the Alpine space. Therefore, under consideration of the relevant driving forces and landscape factors, objective (e.g. statistical data from census) and subjective data (survey amongst political stakeholders on the different cultural perceptions of sustainable development) on municipality level are going to be combined. As the results of an alpine wide mayor survey were already presented in the last newsletter, this time the focus will be emphasized on the objective data (Fig. 1).

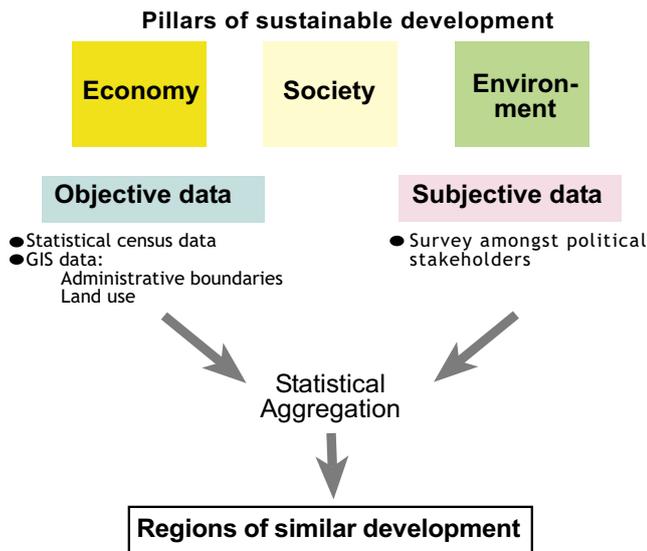


Fig. 1: Overview on the data gain to determine comparable development regions in the Alpine space.

### Base data & difficulties

The collection of base data for an Alpine wide indicator calculation on municipality level started already in 2005. The aim was to collect a comprehensive set of data, characterizing the relevant aspects for sustainability concerning the three pillars economy, society and environment. These are mainly census data, several types of land use GIS (Geographical Information System) data as well as GIS data regarding administrative boundaries. For calculations only the most recent versions of the data sets were being used.

Since DIAMONT focuses on municipalities (LAU2-level), several difficulties occurred during the data search. One of the problems was that the statistic data set is not available on a transnational base on municipality level. Therefore the data had to be requested and collected in a very time-consuming way at the national statistical offices of the alpine space countries. The data set had then to be harmonized due to different underlying criteria in data creation or due to different base years within the countries. Another problem was that

in some countries the statistic data set was not available at all or not comparable with other countries. In Germany for example the last census was realized in 1987, leading to an impracticality of the data set for an alpine wide approach, as usually the base years of the collected census data sets lie around the year 2000.

### Indicators & their results

With help of the base data set 60 indicators on municipality level could be calculated, including 32 economic indicators as well as 14 social and 14 environmental indicators. They comprehend various themes like labor market, agriculture, tourism, transport connection, population dynamic, land use and landscape structure. For a short impression on the indicator set, one indicator belonging respectively to the three main topics will be presented below.

#### Economy

In order to describe the economic independency of municipalities the indicator “Road distance to next commercial airport [km]” was chosen (Fig. 2). The calculations were done with help of a high-resolution street network dataset (Teleatlas Multinet Shapefile) for each municipality.

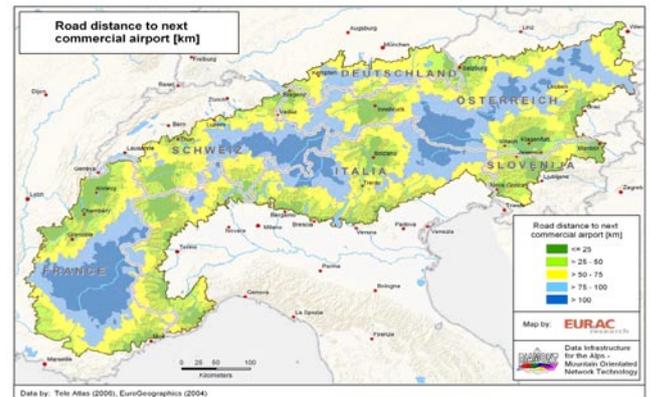


Fig. 2: Map on the economic indicator: “Road distance to next commercial airport [km]”

Overall 45 commercial airports all over the alpine space and in the surrounding prealpine area were used for this calculation. More than 90 % of the municipalities within the alpine space have a transport connection of less than 100 km road distance to the next commercial airport. Some municipalities within the higher mountain regions along the alpine main ridge (particularly in France, Austria, Switzerland and Italy) are not as good connected.

#### Society

The so-called “Old-age-dependency ratio” describes the share of persons older than 65 years on the persons between 15 and 64 years per municipality (Fig. 3). It was calculated using the latest national census data per country. A higher old-age-dependency ratio dominates

especially the southern part of the French Alps as well as the main part of the Italian Alps except South Tyrol, and some parts of the Swiss and the Austrian Alps. Some of the reasons could be a high rate of migration of younger people into more economically privileged regions or a function of these municipalities as retirement zones for elderly people.

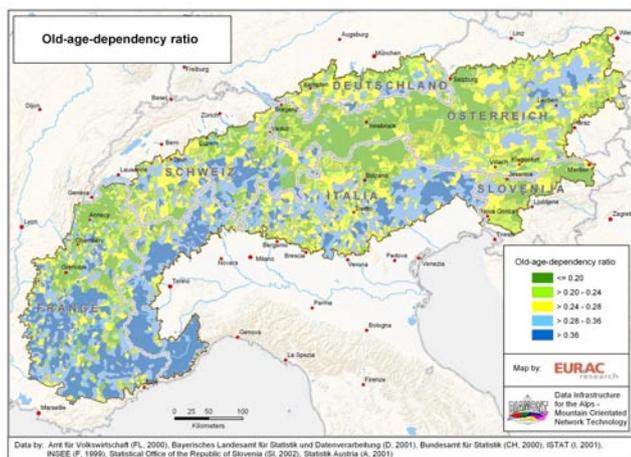


Fig. 3: Map on the social indicator: “Old-age-dependency ratio”.

### Environment

A method for the investigation of landscape dissection by transportation network and by settlement is the so called effective mesh size. The indicator “Effective mesh size (CBC) for non-artificial area [km<sup>2</sup>]” describes the smallest undissected patch of agricultural and semi-natural area in km<sup>2</sup> per municipality (Fig. 4). It was calculated using Corine Land Cover 2000 combined with Teleatlas Multinet Shapefile. The calculation was based on a calculation method for effective mesh size using the so-called cross-boundary connection procedure (Moser et al., 2006).

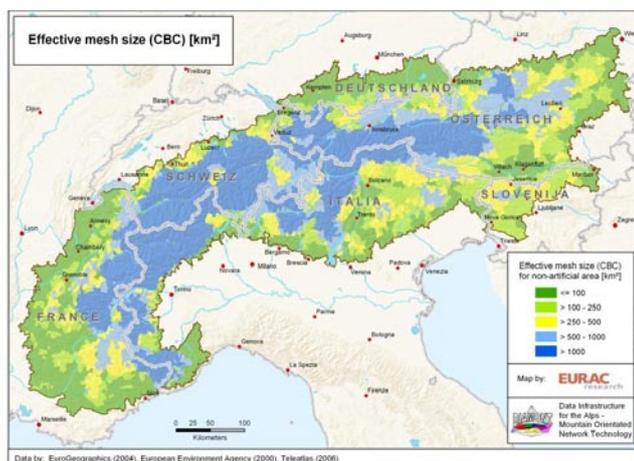


Fig. 4: Map on the environmental indicator: “Effective mesh size (CBC) for non-artificial area [km<sup>2</sup>]”.

Generally the effective mesh size is very small in the whole prealpine area around the alpine space as well as in large valleys and basins within the alpine bow. This means, that these areas are highly dissected by transportation infrastructures and by settlement areas. By contrast, dissection influences are principally smaller within high mountain areas round the alpine main ridge.

### Perspectives

All 60 indicators builds a very heterogeneous pattern of the alpine space on the one hand. On the other hand it is also possible to visually discover clusters of equally structured regions within the alpine space. However, in order to avoid misinterpretations, for a further analysis of these indicators, a statistical approach is necessarily required. This will be done by an alpine wide factor analysis and a subsequent clustering over all indicators in order to identify regions of similar development structure within the Alps. These results will then be compared with the mayor survey.

Moser, B., Jaeger, J., Tappeiner, U., Tasser, E. and Eiselt, B., 2006. Modification of the effective mesh size for measuring landscape fragmentation to solve the boundary problem Landscape Ecology: 33.

### New DIAMONT administrator (UIBK)

**Valerie Braun** joined the DIAMONT project in February and will precede **Sigrun Lange** in the administrative and coordination issues of the project. She has always been very interested on issues concerning the Alps but her scientific background is the ecophysiology of alpine plants. For her it is a great opportunity to work within the DIAMONT project and thus being able to see the Alps from a different scientific point of view as well as having the possibility to join an Interreg IIB project and being able to work within its core.



Valerie Braun

Since she was able to participate in the DIAMONT meeting in Grenoble in January 2007 she already met the partners of the project and saw their commitment for DIAMONT. This will help her to find a good start within her new work and carry on the enthusiasms she encountered in Grenoble.

# The DIAMONT database on instruments

## The idea of the database

The Bavarian State Ministry of the Environment, Public Health and Consumer Protection contributes to DIAMONT by operating a xml-database which will be basically compatible with the envisaged SOIA database of the Alpine Convention.

This database manages several different sets of data, organised in so-called “classes” (see fig. 1). The classes already in use are “Indicators”, where all indicators from WP 7 are documented, and “Instruments”, where all instruments of WP 9 will be stored. Additionally it is foreseen to include the data and data documentation from WP 8 (as classes “Specific data set” and “Metadata on specific data sets”).



Fig. 1: Selection of a class after the login.

The database is accessible from the internet and all partners of the DIAMONT-project are provided with an individual login, which allows several users to work on the database at the same time. A great benefit lies in the possibility to communicate working steps within the study group and to have an additional possibility of permanent exchange (besides meetings and e-mails) during the working process instead of only exchanging final results. All partners can comment each other’s entries and, in return, these comments are visible for all; however, they can only be edited by the respective author. Once the database is being actively used for entries, mutual discussions and comments, it will significantly contribute to the overall co-ordination of DIAMONT discussions and results.

## The database-class “Instruments” - contents

One of the main goals of WP9 is the research for “instruments to steer sustainable regional development”. As each partner has deeper insights in the country-specific planning and regional development system, ifuplan as WP-leader for WP9 requests partners to contribute to this collection of instruments for their respective country or region. A database form-sheet has been developed to accomplish a standardised documentation of each single instrument. This form (see fig. 2) contains 4 sections

for description (general data, metadata, implementation, characteristics) with all together about 20 fields for data entry. Partners, however, are only required to fill out a limited number of mandatory fields. To facilitate this work as much as possible, most of the fields feature multiple choice or selection fields (e.g. concerning the country, spatial level, type etc.).

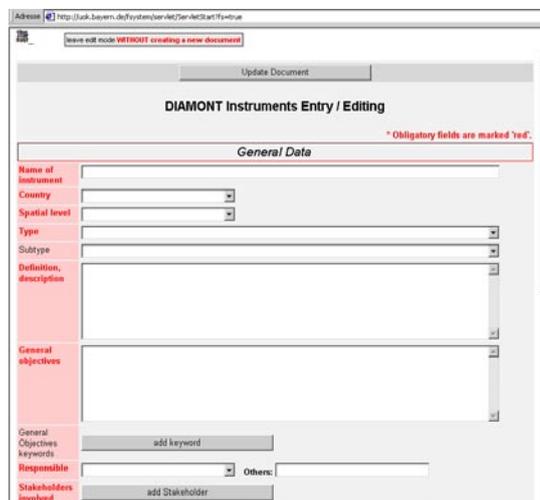


Fig. 2: Extract from the database-form (part 1: General data).

In addition to the data entries, editors of instruments have the option to upload text documents, e.g. for detailed information about the respective instrument.

As best-practise examples are always of special interest for scientists and stakeholders, the database offers the possibility to add best-practise examples for each instrument. The example will be documented by a title and a short abstract, which has to be done in English for an easier exchange within the study group. Again, the possibility to upload a (text)file is foreseen, which can be used to add an original best-practise documentation in the native language.

## Search and print functionality

For the search of single instruments or groups of them, a search mask was implemented (see fig. 3), offering search functions according to country, type or subtype, certain spatial levels (national, regional, local etc.) and even a full text search.

Fig. 3: The search mask.

If any partner prefers to read print-outs instead of an online-documentation, the instrument-database offers the possibility to create a PDF from each single instrument using the “show print version (PDF)” in the upper right corner of the form.

It is foreseen to eventually add also the analysis of instruments to the database. After some further improvements concerning the databases’ layout, we hope that it will prove to be a user-friendly search tool for people working in regional development.

## From alpine wide indicator information to problem-oriented work in the test regions

At its current stage, the DIAMONT project is approaching the interface between an Alpine wide collection of indicators on economic, social and environmental structure on municipal (LAU 2)-level and a more detailed analysis of potential test regions. In the course of Work Packages 7 and 8, indicators have been identified and data has been collected and harmonised to substantiate a total of 65 indicators.

### Background

To focus the perspective of the DIAMONT project and to thus allow a more specific approach in the test regions, the results of the Alpine expert Delphi survey (WP5 and WP6) have been analysed and related to spatial phenomena identified in WP 7. One issue that has repeatedly been raised by the experts is the issue of land resource management. By tackling a problem of European dimension (cp. EEA: Urban Sprawl in Europe – the ignored challenge. EEA Report 10/2006) and relating it to the particularly sensitive spatial context of the Alps (limited permanent settlement area), the selection of land resource management as project focus is considered as a step towards addressing a transnational spatial development problem with numerous implications regarding Alpine spatial phenomena identified in WP 7.

In its complexity, land resource management encompasses a wide range of economic, social, and environmental aspects such as the ongoing loss of semi-natural habitats and agriculture land, municipal infrastructure costs and the provision of basic and public services, availability of land for industrial, commercial and residential development, as well as institutional aspects of regional governance and intermunicipal co-operation.

### Three-fold approach in data analysis

How can the Alpine wide data set provided by EURAC Research be related with subsequent work in the test regions (Fig. 1). The Alpine wide data analysis is the fundamental basis for selecting potential test regions where results of DIAMONT project and possible problems with land resource management will be discussed with local stakeholders in two successive workshops. For delineating appropriate urban areas as test regions, core towns will be chosen with respect to inhabitants (>10,000) or workplaces (> 5.000). The commuter flows between core towns and adjacent municipalities will define the corresponding fringes.

On the basis of these regions, one approach pursues the objective to characterise urban areas in the Alpine region as a whole in regard to their economic development path they are currently undergoing. The output of this approach would be a typology of urban areas in regard

### New DIAMONT collaborator (EURAC)

**Daniela Dellantonio** joined the DIAMONT team of the EURAC in Bolzano in January supporting her colleagues in all administrative tasks related to the project, including the translation of articles, reports, etc.



*Daniela Dellantonio*

She is secretary of the Institute for Alpine Environment and has a linguistic background, since she has studied interpreter at the Università degli Studi di Trieste. After several years in different private companies dealing with sports equipment and apparel, she joined the EURAC last November.

to their economic development, which would facilitate the selection of comparable test regions in WP 10/11 and consequently the transnational comparability of work shop results.

Beyond this identification of urban areas and their commuter belts, the question arises as to what extent and in what combination Alpine wide statistical data on LAU-2-level could be helpful in identifying municipalities facing difficulties in land resource management.

In this context, the problem-oriented approach is focusing on the municipal level. To be able to analytically work with available statistical data, this approach pursues the identification of municipalities across the Alpine region facing land-related problems by identifying driving forces behind increasing land demand and unsustainable land resource management.

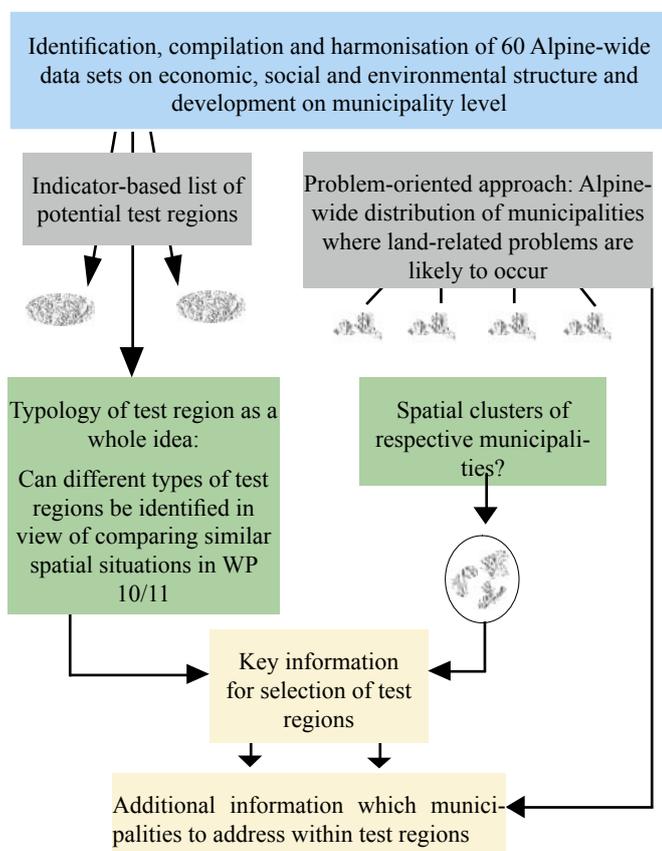


Fig. 1: Characterisation of possible test regions

These driving forces include:

- Macro-economic factors (national economic growth and European integration)
- Micro-economic factors (living standards, land prices, land availability, inter-municipal competition, municipal growth, brownfield development)
- Demographic factors (migration, number of small households)
- Individual preferences (more space per person, housing preferences, consumer behaviour)

- Inner-city problems (environmental quality, recreational quality, insufficient accommodations)
- Transportation (car ownership, poor public transport)
- Regulatory framework (weak land use planning, poor enforcement of existing plans, lack of horizontal and vertical co-ordination and collaboration)

In the project context, macro-economic factors that affect the Alpine region as a whole will not be pursued. Instead, factors that allow a regional or sub-regional differentiation of spatial entities are of particular interest.

In a second step, these driving forces will be incorporated into hypotheses and related to available statistical data. The following hypothesis concerning the driving forces behind increasing land demand and unsustainable land resource management could be formulated.

### Striving economy and/or growing population

An increase in the number of enterprises and/or employment opportunities on regional level is related to additional land demand and consequently land use conflicts in the region. This holds also true for municipalities that are part of the striving municipalities' commuter belt.

### Regions featuring good or very good accessibility

Municipalities featuring good or very good accessibility to motor- and railway networks (= transport nodes) are preferential starting points for industrial, commercial as well as for residential development.

### Steep morphology or extensive flood zones/limited available settlement area

Particularly in the Alps, morphology (slope inclination) and flood zones reduce the size of available settlement area and lead to intensified competition for available land resources in valley bottoms and/or outside flood zones.

### High share of protected areas

Alpine municipalities, due to their historically high share of extensive land use and steep morphology, feature high shares of protected areas (FFH, SPA, regional and national parks etc.) of the total municipal area. This opens up opportunities in tourism and recreation, but on the other hand limits available land for industry and residential areas and intensifies conflicts between interest groups on this remaining land.

### Disperse historic settlement pattern

Disperse settlement patterns have already transected and reduced the amount of available land.

This could be reflected in a high ratio of road length per resident. Further development following these disperse settlement patterns will additionally intensify competition for remaining land.

Furthermore, there are assumed relations that can currently not be characterised on the basis of available statistical data. These include e.g. the assumed relation

between the level of real estate prices and urban sprawl or the extent of inter-municipal competition for investors and residents.

Additionally, we need to be fully aware that this indicator-based selection of municipalities is not capable of capturing the individual circumstances of each single municipality. Municipal policy, individual attitudes, aspirations and decisions by land owners, municipal actors and stakeholders are factors that cannot be reflected in Alpine wide statistical data, but which are nonetheless decisively steering land resource management on a local scale. The work in the test regions in the following work packages, however, provides an opportunity for all project partners to further investigate these relations using regionally or locally available data and information.

The alpine wide problem-oriented analysis of municipalities is expected to produce certain patterns and regional clusters of municipalities facing land-related problems. Compared to the analysis on the basis of urban areas, it additionally provides evidence on potential urban sprawl processes beyond these urban areas. In case these regional clusters overlap with certain test regions from the indicator-based list, this Alpine wide problem-oriented analysis could provide valuable information for the selection of relevant test regions in regard to WP 10 and 11.

On the basis of these potential test regions and in consideration of stakeholder involvement, it then becomes necessary to develop a more differentiated picture of the individual region and of each of its municipalities. Following the assumption that municipalities within defined test regions feature different combinations of structure and processes in view of increasing land demand and anticipating practical needs of finding co-operative partners in the test regions, it is crucial to identify those municipalities where – according to statistical data – this identified development problem is in fact occurring. Again, the problem-oriented approach is expected to provide useful information concerning which municipalities need to be addressed in regional workshops.

### **Conclusion**

The approach of an alpine wide collection of LAU-2-data and of identifying municipalities within these regions which are specifically exposed to the problem of land resource management can be considered as a two-step-procedure. The alpine wide data base of economic, social, and environmental indicators can be regarded as a project output in itself as well as a crucial precondition for further analytical work in the test regions.

This further indicator work is pursuing two objectives: One is to attempt to differentiate between test regions that as a whole are undergoing different development paths, while the other is to identify those municipalities

which – due to their assumed land-related problems – should necessarily be included in the range of workshop participants. To that end, a problem-oriented analysis of statistical data on LAU-2-level in the test regions will provide valuable information.

### **New DIAMONT collaborator (EURAC)**

*Christian Pichler* joined the DIAMONT-Team of EURAC in Bolzano in August. His role in WP 8 has been the data research and harmonization from the Alpine countries Italy, Austria and Liechtenstein. Since November he is working on creating and editing thematic maps.



*Christian Pichler*

He studied geography at the Innsbruck Leopold-Franzens-University with the focus on Alpine cultivated landscape and cartography. He did his thesis on analysing different development of farms in the mountain area.

The first working experiences he had were from his engagement on the Atlas for South Tyrol at the university's institute of geography in Innsbruck in 2005, before he collected more knowledge in sustainable development at Bolzano, attending a course called "esperto sullo sviluppo sostenibile del territorio". The following practical experience were at the Italian coordination unit of Alpine Convention and IMA under Paolo Angelini at the EURAC.

## News from the Alpine space

**ForumAlpinum 2007, 18 – 21 April in Engelberg, Switzerland**

### Landscape Development in Mountain Regions

This 7<sup>th</sup> edition of the Forum Alpinum\* is focusing on mountain landscapes. The choice of this topic is related to the results of Swiss national research programme “Landscapes and habitats of the Alps” NRP 48 (2001 – 2007). The ForumAlpinum 2007 will integrate results from NRP 48 to debate landscape development in mountain regions.

Mountain landscapes are perceived as sensitive facing any change and as focal element in sustaining mountain regions with attractive living spaces and valuable habitats. Regarding ecology, mountain landscapes represent high diversity and high natural integrity (wilderness), and they are part of services provided by ecosystems – mostly free of charge. Regarding culture and society, mountain landscapes are both, archives of past human activities (cultural landscapes) and objectives of shaping activities by today’s (local) populations (developing landscapes). Regarding economy, landscapes are resources (tourism) and location factors.

How will and how should future mountain landscapes look like? Do we have sufficient scope (options open) to govern and manage landscape development? Forum Alpinum intends to develop perspectives for future landscape related research and for the governance of landscape change.

This general topic is arching over sciences, economics and humanities, it is arching over science and societies, it is arching over past and future and as well over cultivation and arts.

The project team of DIAMONT will also present its latest results on the ongoing workshops.

*Programme and online inscription:*

<http://www.forumalpinum.org>

*Organisation:*

International Scientific Committee for Alpine Research ISCAR and Swiss Academies of Sciences and of Humanities and Social Sciences

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\* ForumAlpinum 1994 – 2004:

Disentis (CH 1994), Chamonix (F 1996), Garmisch-Partenkirchen (D 1998) Bergamo and Castione della Presolana (I 2000), Alpbach (A 2002), Kranjska gora (SI 2004)

**February 28th till 1st of March 2007 in Villach, Carinthia: Workshop on “The future of public services in the Alps. Challenges – chances – good practice”.**

The 25 PUSEMOR pilot projects from all participating alpine regions, as well as good practice examples of the CIPRA project „Future in the Alps“ are standing in the centre of the event. There will be as well project presentations as a half day field trip. Moreover, expert speeches and small group sessions are scheduled. The participants will get to know the points of view of different experts and may profit from experiences in other alpine areas.

### diamont calendar

January 25<sup>th</sup> to 27<sup>th</sup> 2007: 5th project meeting in Grenoble/F

February 7th 2007: Meeting in Innsbruck - EURAC, ifuplan and Bosch and Partner GmbH

March 16<sup>th</sup> 2007: Guidelines for the selection of the test regions

May / June 2007: First workshops in the test regions

5<sup>th</sup> accounting period in DIAMONT: September 2006 – February 2007

### web-site

The DIAMONT web-site provides up-date information on the project. <http://diamont.uibk.ac.at>

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Co-financed by EU - Interreg IIIB, Alpine Space