INTERREG III B Project

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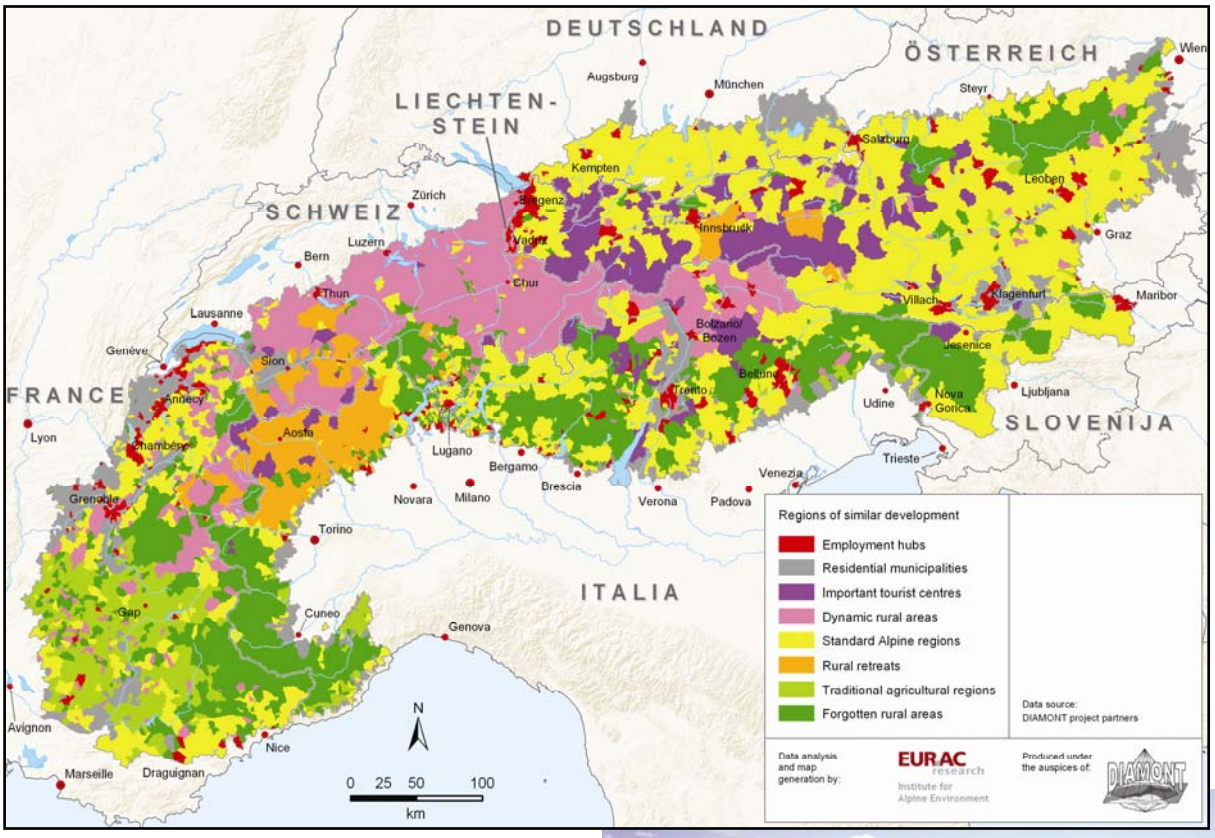
Typology of the Alps

based on social, economic and environmental aspects

Final Report DIAMONT Work Package 8: Specification and Test of Data for an Alpine Wide Information System



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Executive Summary

What are the tasks in Work Package 8?

The work package aims at:
developing a comprehensive, Alpine-wide, harmonized data pooling at municipality level, appropriate for monitoring sustainability across the Alps,

I. extracting actually relevant information from the indicator set,

developing a typology of the Alpine space, based on economic, environmental and social aspects,

II. identifying Alpine-wide local centres and fringes as a basis for the selection of test regions, and

III. analysing the stakeholders' perception of sustainable regional development in the Alpine municipalities.

Through these tasks the work package forms the link with the expert views on the different planning milieus within the Alps (Boesch 2007a) and the key issues for future Alpine development (Briquel 2007) as well as with the theory-driven indicator selection (Schönthaler & von Andrian-Werburg 2008), towards applicable instruments for steering sustainable regional development in the area of land resource management (Marzelli et al. 2008) and their confrontation with practical assessment in test regions (Zumaglini et al. 2008). Many of the theoretical bases developed in WPs 5-7 were integrated in the massive work on Alpine-wide data search and harmonization, indicator calculation and identification of regions with similar development. This data basis formed a good foundation for selecting six test regions where workshops with local representatives and actors were held.

Indicators for a social, economic and ecological "fingerprint" of each municipality

Indicators are an approved tool for describing and evaluating the status and development of regions. For the DIAMONT project the indicators were defined, first, with special emphasis on Alpine-relevant basic information and secondly, with the aim of deepening knowledge on urbanization developments and sus-

tainable land resource management.

Quantitative data were collected for all 5,887 municipalities within the perimeter of the Alpine Convention. In the economic and social areas almost all data come from large national surveys such as censuses, business surveys or agricultural surveys; a small part of the data was made available by other authorities, e.g. voter turnout or some data on enterprises. GIS data were applied when official data from census were missing or where a clear spatial reference of the data was required. These were data on land cover and land use, data on transport or centres of settlements as well as data on administrative units, to name but a few.

After harmonization of the required quantitative data, including indicator selection, check of data availability and quality check, the pan-Alpine set of raw data was used to calculate 81 indicators for the municipal level. 41 of these were economic indicators, 26 social and 14 environmental indicators. They reflect a broad spectrum of aspects, from the labour market situation and the population trends to tourism, transport links and land use, thus giving a very detailed social, economic and ecological "fingerprint" of each municipality. The sheer volume of this very detailed image emerging from the data brought with it a certain difficulty to capture the essence of it. Therefore the vast quantity of information was grouped into several factors that represent the main characteristics and the decisive points of regional development in the Alpine area. To give an easily accessible overview of the central issues of a given region, maps were generated from the results of the individual calculated indicators as well as from this aggregation process and published for a wider audience in a newly designed atlas (Tappeiner et al. 2008). Results will also be available online for the public until 2012 at www.diamont-database.eu once uploads and layout have been finalized. This online database is hosted by the Bavarian State Ministry for Environment, Health and Consumer Protection. To support the Alpine Convention, a link to the System for Observation of and Information on the Alps (SOIA) will be established.

The detailed and painstaking work on Alpine-wide indicators has identified a large number of gaps, where insufficient data are available or where it is not possible to harmonize data across national borders. This particularly affects the social and environmental pillars of sustainable regional development. In these sectors it would be very important for single nations but also international entities such as the EU or the Alpine Convention to start efforts on launching and accomplishing a cross-border standardised data survey. Establishing such a data structure in publicly accessible, self-updating form would be a significant future development of this impulse from the DIAMONT project. A web-based GIS that can represent the relations between content and space in an easily understandable and, ideally, interactive manner would be an appropriate form and at the same time capable of showing the spatial peculiarity of the data.

Typology of the Alpine space

One of the main objectives of WP8 was to identify regions with similar development structures, even across borders. For the entire Alps and using the 20 most meaningful indicators, we were able to delineate a total of eight different clusters that characterize the different regions (employment hubs, residential municipalities, important tourist centres, dynamic rural areas, standard Alpine regions, rural retreats, traditional agricultural regions, forgotten rural areas). Municipalities of the same cluster share a similar development but differ in essential aspects from municipalities of other clusters. These findings show that quite varied concepts are needed, tailored to individual regions, to keep sustainable development going and/or to get it going in the first place.

The Alpine-wide survey with Alpine experts from different fields, realized in WP6, brought up various existing and future trends in the Alps. One of the most significant is the polarization between marginalization and urbanization. One important task of WP8 was the identification of Alpine-wide local centres and fringes, as well as regions with increased demand for a sustainable management of land resources. Hence so-called Labour Market Regions (LMR: rural or urban municipalities of over 10,000 inhabitants or more than 5,000 jobs and a positive commuter balance) radiating outwards from a Labour Market Centre (LMC) and including the respective hinterland municipalities were delineated. A total of 108 LMRs were identified within the Alpine arc, which formed a good basis for the selection of the six test regions in the single countries. In addition a detailed analysis of these LMRs was carried out to identify regions with increased land pressure in the Alps by means of a problem-oriented cluster analysis.

These first attempts in DIAMONT to identify regions with different development structures in the Alps showed a promising way to follow up in future projects. Such an outlook would add a new facet to the existing administrative, economic and historical regions of the Alpine space and enrich the perspectives for political action. In addition, the already existing objective data basis of the indicators, which has been harmonized for the entire Alpine space at municipal level, may support local actors in identifying appropriate regions for cooperation, sometimes across national borders, and to make use of them.

Perceived sustainability

Stakeholders' strategies often are less influenced by the effective status of the environmental, social and economic system than by the perception of the

current status. Hence DIAMONT complemented the quantitative data by qualitative perceptions gained in a survey with all mayors within the Alpine arc, carried out via an online questionnaire. This second step helped to identify the crucial problems or concerns of persons who were very familiar with the respective municipality's development, its future perspectives and its central issues. The results showed that self-perception and the situation represented by the objective data diverged considerably. The mayors rated the ecological pillar in their municipalities "highest", social issues were considered to be quite satisfactory, but the economic sector received medium ratings. Beyond these more concrete results, one important conclusion can be drawn: the priorities of the decision-makers are fundamental to understanding the developments. The motivations for these priorities and the possible differences between the actual and the perceived development status open up a chain of reasoning vis-à-vis the stakeholders that will greatly aid an open discussion about future development strategies.

1 Introduction

Since Rio de Janeiro 1992, the concept of sustainable development has played an important role in discussions of regional development strategies in Europe and has become an important development objective in the perception of politics, economy and environment. However, an ongoing evaluation of objectives is only feasible if the extent to which they have been achieved is measurable. In order to shape a development policy focusing on sustainability, information and data about the development level of a certain region as well as continuous monitoring are necessary. Nevertheless, a coordinated development of sustainability monitoring on international, national and regional level has not yet taken place, in spite of several attempts. This is also true for the Alpine space.

Several institutions have reacted to the appeal launched by the Agenda 21 and have worked out indicators that supply information about the economic, social and environmental development. The best known indicator sets on international level have been developed by the Organization for Economic Cooperation and Development (OECD 2007a), by the UN-Commission for Sustainable Development (UN 2007) and by EUROSTAT (Statistical Office of the European Commission; EU 2005a, EU 2006). On national level too, some indicator sets for sustainable development have been built up in many Alpine states (Carabias-Hütter & Renner 2004, IFEN 2003, Murn & Žakelj 2005).

For the Alpine space itself the Alpine Convention has set the important objective of creating a System for Observation of and Information on the Alps (SOIA). Although in some parts (e.g. Bundesministerium für Umwelt Naturschutz und Reaktorensicherheit & Umweltbundesamt 2003) there has been significant progress, to this day SOIA has not been implemented (Borsdorf 2006b).

For the whole Alpine space area, it has been possible to fill a gap at regional level within the framework of the INTERREG Alpine Space Project MARS (Schoder et al. 2005). Within the NUTS-II Regions, MARS has produced an indicator system for monitoring sustainable development.

At regional and local level, several indicator systems have been developed, primarily following the local processes within the European space of the Agenda 21. Usually the application area is limited to a single region and consequently only to a part of the Alpine territory. An example of this is the Sustainability-Monitoring System of the Autonomous Province of Bolzano, South Tyrol (Tappeiner et al. 2007). This indicator system places information on all three pillars of sustainable development – i.e. social, economic and environmental dimensions. It is realized at municipal level (LAU2) and available to the general public, it also provides information through an Internet portal and it is

concentrated particularly on a mountain region.

Regional development largely depends on the political, economic and natural contexts which are defined at international and national but also at regional and local level. Nevertheless, regional development is also steered above all by the local stakeholders who operate mainly in regional and local spheres. Consequently it is of fundamental importance that we work on an adequate scale in order to understand how we can support sustainable regional development.

If we want an indicator system to be politically efficient, it is necessary that stakeholders recognize themselves in this set. Many decisions that directly influence sustainability are taken at municipality and district level, and even higher authorities (e.g. federal Länder) make distinctions by districts (see experiences with area delimitations within the program of structural funds for the development of rural regions (LEADER) and for a cross-border, transnational, interregional cooperation (INTERREG)). Thus it is crucial that the corresponding indicators are available at least at district level but preferably at municipal level.

Although several projects have already dealt with data covering the Alpine region at municipal level, these include only certain sectoral topics. Among others, Tappeiner et al. (2003) have analysed agricultural structures in the Alps within the EU project SUSTALP; Bätzing and collaborators (1993, 2003) have carried out an analysis of population development in the Alps, whereas Perlik (2001) has looked at urbanization in the Alps. Still missing is cross-Alpine information at municipal level that takes in all three pillars of sustainable development. This is where DIAMONT, an INTERREG IIIB - Alpine Space – Project is trying to fill the gap. DIAMONT aims at developing and testing appropriate indicators for the current key questions of sustainable development in the Alpine arc as well as at discussing and adjusting measures for steering regional development in selected test regions with regional representatives. The experiences and results of DIAMONT shall support the Permanent Secretariat of the Alpine Convention in building SOIA (Lange 2006).

Two Work Packages (WP) of DIAMONT have been expressly devoted to this purpose, i.e. to developing information at municipality level across the entire Alps:

WP7 aimed at creating a suitable conceptual model for selecting and developing indicators and at working out core and sectoral indicators for basic issues of sustainable regional development in the Alps. In addition, more detailed work on indicators was realized for one selected main trend, i.e. “Local centres and fringes between competition and co-operation - Steering towards sustainability” (Schönthaler & von Andrian-Werburg 2008).

WP8 aimed at a first implementation of regionally comparable and periodically

adjusted proxy variables for the indicators of sustainable development defined in WP7 at municipality (LAU 2) level in order to identify regions of similar development across the Alps, taking into account relevant driving forces and landscape factors. Moreover, as a basis for the selection of test regions in each country where the DIAMONT results would be debated with local stakeholders, a special analysis was carried out to identify local centres and their fringes throughout the Alps.

1.1 Interfaces with other DIAMONT Work Packages

Within the DIAMONT structure of Work Packages, WP8 found a very good basis in the results of previously completed WPs (see Fig. 1-1). The preparation of sustainability indicators was embedded in an analysis of the cultural differences within the Alpine area and their influences on regional development policy (WP5, Boesch 2007b). If cultural differences resulted in the formulation of different objectives and the implementation of different measures to achieve them, this would obviously have to be taken into consideration for the creation of a database as well as for political measures derived from it.
A second analysis which preceded the preparation of the database took up the question of key issues of present and future development in the Alps (WP6). Experts from all Alpine nations participated in a Delphi survey on opportunities and risks in the Alpine regions and made an important contribution to a better understanding of developments in the Alps (Briquel 2006). The results influenced the selection of suitable development indicators, since we tried to pay particular attention to the key issues identified.

Both previous studies were used as starting points for the selection of indicators (WP7). Within DIAMONT, WP7 approached first the theoretical aspects of this question: on the basis of already existing indicator sets, those topics and corresponding indicators were delineated, which had to be covered and quantified by the project. In literature there were many contributions that could be consulted as benchmarks for the selection. Nevertheless, since these works do not concentrate exclusively on the Alpine area, it was necessary to adapt them to the quite specific requirements and conditions of this region. Results from previous studies on cultural differences and key topics were then taken up again and integrated. Moreover, at this stage different hierarchical levels and concepts were introduced, which were useful for the uniform communication of the entire project and which entered into the database structure: the aim was not only to draw up a list of indicators, but also to combine indicators in sensible groups or topics, which would then be assigned to the three sectors environment, economy and society (Schönthaler & von Andrian-Werburg 2008).

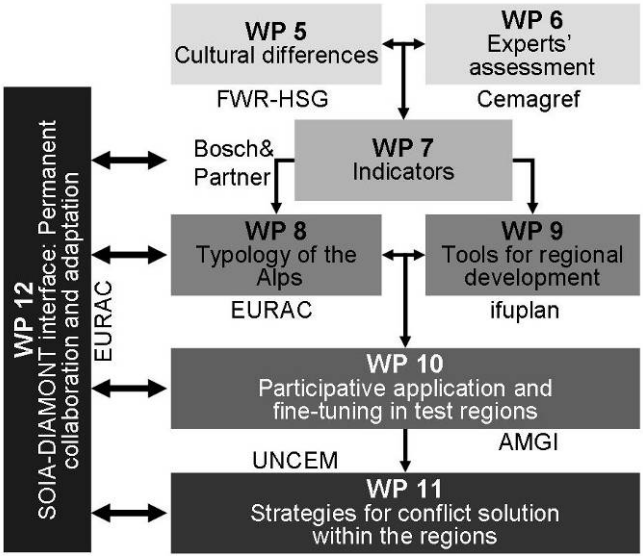


Fig. 1-1: Overall concept of DIAMONT

Relationships of WP8 with other work packages. WP8 found a very good basis in the results of previously completed WPs: WP5 analysed cultural differences within the Alpine area and their influences on regional development policy, WP6 investigated key issues of present and future development in the Alps and WP7 concentrated on the selection of indicators suitable for the purposes of DIAMONT.

In a further step these topics and indicators were to be filled with contents, i.e. with data (WP8). To this purpose the indicators developed on a theoretical level served as a basis, since they embody in some way the ideal image of a database. In realizing a concrete database however discrepancies between the ideal concept and the actual availability of data appeared. One of the biggest challenges of WP8 therefore was not only to carry out a pan-Alpine check of data availability, but also to gather and harmonize the corresponding data. This was necessary for achieving the real objective of WP8 for the future in terms of content, i.e. identifying regions of similar development across the Alps - a precondition for selecting test regions in each country where the DIAMONT results would be discussed with local stakeholders and decision-makers in WP10 and WP11. In addition, the tools developed in WP9 to stimulate and steer regional development would be put together and fine-tuned in the selected test regions.

1.2 Objectives of WP8

The overall goal of WP8 was to identify regions of similar development throughout the Alps taking into account relevant driving forces and landscape factors. By considering this central focus it was soon recognized that it was necessary to develop an indicator set that reliably covered the three dimensions of sustainability, avoiding redundancies that could lead to uncontrolled weighting effects. The indicator set would also have to be able to identify real conflicts with and between the three pillars of sustainability, and to distinguish them from claimed and perceived conflicts.

Since regional development is not only defined by the economic, social and environmental conditions of a region or municipality, but is also considerably influenced by the individual perception of the local stakeholders, the subjective view and assessment of sustainable regional development had to be integrated into the present study (see Fig. 1-2).

Fig. 1-2: Objective and subjective evaluation of the municipality

Regional development is not only defined by the economic, social, and environmental conditions, but is also considerably influenced by the individual perception of the local stakeholders. Therefore in this study not only an objective evaluation of the economic, social, and environmental conditions were included, but also the subjective view of sustainable regional development.

In order to position single municipalities within the three dimensions of sustainability, it was necessary to collect information about the role and importance given by decision-makers to the different components of sustainability. A comparison of the decision-makers' perception of the status quo of the social, economic, and environmental system with its real status quo showed up differences between the internal and external view. This allowed a better understanding of barriers or stimuli which influence sustainable development in the Alpine arc.

According to the requirements mentioned above, the main research of WP8 was subdivided into several work steps. First of all regionally comparable and

periodically adjusted proxies for the indicators of sustainable development defined in WP7 had to be found. In a next step, the data availability had to be checked and various tests conducted to allow an assessment of the validity, the possibility for harmonization and the appropriateness of the data. The choice of indicators in WP8 was determined to a great extent by the data status. Several desirable indicators could not be used because the status of the data was unsatisfactory. Furthermore it was aimed at developing and calculating new Alpine-wide indicators, especially in the environmental sector, at analysing the dimensionality of the indicator set in terms of different aspects of the level of sustainable regional development, and at identifying a set of concentrated indicators of sustainable regional development.

The perception of the current status quo of the social, economic, and environmental systems as well as the significance given by decision-makers to the different components of sustainability had to be analysed. It was also intended to rank the development indicators for each municipality and build up a profile of divergence between objective indicators and subjective perceptions.

In the end regions of similar development within the entire Alps were to be defined and interpreted with regard to the three pillars of sustainability. Based on the further work steps it was intended to create a basis for selecting the test regions in the context of the main trend 'Local centres and fringes between competition and co-operation - Steering towards sustainability'.

1.3 Main activities of Work Package 8

In order to reach the objectives outlined above, activities in WP8 were subdivided into five units:

Conceptual work for developing the analytical framework and the research design

Concrete collection and harmonization of the required quantitative data for all 5,887 municipalities within the perimeter of the Alpine Convention, including indicator selection, check of data availability, development and calculation of indicators and quality check. The data base created gives an overview of the current economic, environmental, and social situation of the municipalities

Conception and implementation of a survey amongst mayors of Alpine communities to gather qualitative data on

the mayors' perception of the current economic, environmental, and social situation of their own municipality and the surrounding municipalities

the significance given by the mayor to the individual facets of sustainability, and

the perception of regional development instruments (as input to WP9 – worked out and analysed by ifuplan)

Integration and aggregation

Developing a set of concentrated quantitative and qualitative indicators of sustainable regional development by means of factor analysis

Identifying regions of similar development throughout the Alps by means of cluster analysis (see Fig. 1-3)

Identifying local centres (Labour Market Regions) and municipalities where - theoretically – the statistical data suggests an increased pressure on land resources. These analyses formed the basis for selecting national test regions in WP10

Summary analysis and conclusion

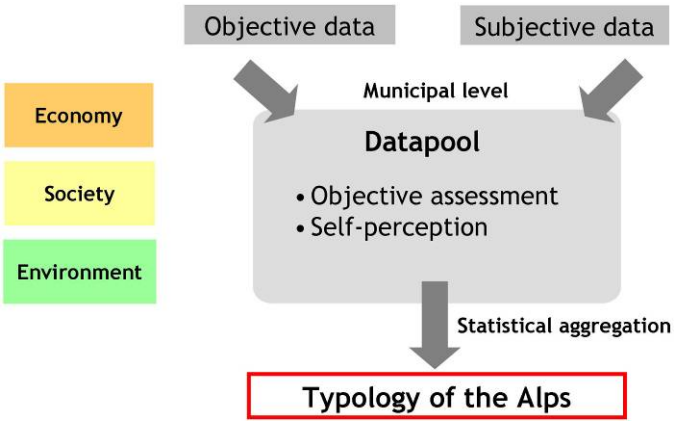


Fig. 1-3: Main activities of WP8:

Regional development is determined by the local economic, social, and environmental conditions which are reflected in objective measurable data. However, these general conditions are perceived in an individual way which may influence the political decisions in the municipalities. Thus, quantitative data, such as information from national statistics or satellite images (land cover data) are needed as well as the differing perceptions of sustainable regional development (qualitative data).

2 Objective dimensions of regional development

2.1 Introduction

Chapter 2 gives an overview of the quantitative data basis and the results built upon it, whereas Chapter 3 describes methodical aspects and conclusions on the Alpine-wide survey amongst stakeholders.

Section 2.2 deals with the calculation of indicators within WP8. Although data acquisition posed a big challenge for WP8, it was possible to calculate 81 Alpine- wide indicators overall at municipal level. This paper merely presents some examples through maps and their interpretations, whereas the full presentation of the indicators developed is given in the DIAMONT publication "Mapping the Alps" (Tappeiner et al. 2008). Appendix I of this book contains the precise calculation conventions and definitions of the indicators developed.

Section 2.3 illustrates the statistical aggregation of the indicator results by means of a factor analysis and a cluster analysis. The factor analysis yielded phenomena of regional development, the cluster analysis resulted in the identification of regions of similar development.

Section 2.4 presents our approach to identifying local centres and fringes (LMRs) as well as regions with increased land pressure throughout the Alps.

2.2 Indicators

2.2.1 Concept

The concept of the indicator calculation in WP8 is closely interrelated with the identification and selection of indicators carried out within WP7. On the one hand, data research in WP8 was conducted parallel to WP7 and gave important impulses to the indicator discussions in WP7 where only a test calculation of indicators could be carried out. On the other hand, the conceptual structure as well as the indicator proposals developed within WP7 served as an important basis for WP8.

An investigation of indicator systems from global to local level in WP7 showed that a huge range of indicator systems on sustainable development already

exists. These mainly provide information in an aggregated spatial context and do not differentiate development trends on regional or local level. Therefore such indicator systems are not always appropriate for detecting inner-Alpine disparities and do not cover all themes relevant for the Alpine space. Since many of these systems have not been implemented yet, it is not possible to compare the results of several national indicator systems across the area covered by the Alpine Convention (Schönthaler & von Andrian-Werburg 2008).

The indicator system developed in DIAMONT aims to investigate and describe relevant developments within the area covered by the Alpine Convention in sufficient spatial resolution (municipal level / LAU2) and adequate thematic breadth. Based on the concept of sustainability, relevant main trends were defined in WP7 and are represented by a selection of indicator proposals. Thematically well-founded indicator definitions ("best needed indicators"), their compatibility with other indicator systems ("best established indicators") as well as the estimated availability of base data ("best available indicators") form the basis for the indicator proposals developed in WP7 (Schönthaler & von Andrian-Werburg 2008).

In WP8 it soon became apparent that it was not always possible to calculate the indicators that would have been desirable from a theoretical point of view because of a lack of data or problems of data incompatibility between countries. Alternatives had to be found. In some cases, theoretically desirable indicators could not be taken into account at all because the relevant data were unavailable and could not even be estimated. For the social pillar this affects themes such as poverty, health, and security, which are suggested in many indicator sets. The data for these themes are missing or only available for larger geographical units, not available for the entire area or not across all countries in comparable form and could thus not be used for our purposes.

Moreover a further problem was the limited availability of base data. Although it had been agreed that the required data should be made available by the Alpine Convention bodies for the DIAMONT project, this was not feasible for several reasons. With limited time and finance, an alternative had to be found.

In WP8 two different data types were utilized for the calculation of the indicators: data from national surveys and GIS data. Because of the differences between these data types, they are treated separately in the subsequent section 2.2.2.

2.2.2 Data availability and data harmonization

2.2.2.1 Data from national surveys

The data used to calculate the indicators stem from diverse sources. In the economic and social areas, almost all data come from large national surveys

such as censuses, business surveys or agricultural surveys, i.e. as a rule they come from data bases of national statistical offices. Some comparisons necessitated separate interpretations, for instance if different survey years, more detailed breakdowns or similar were needed. A small part of the data was made available by other authorities, e.g. voter turnout or some data on enterprises.

While census data are usually standardized and harmonized on a national level or at least regional level, a comparison between nations is often subject to certain constraints, which makes it more complex to process them. Two main problems may appear:

- Different underlying census methodologies

One of the most common problems are differences in the presentation of the census data in the data bases or different census methodology. These could, for instance, be different reference age-classes, different reference years (e.g. single years vs. periods of several years), different reference groups (e.g. all enterprises vs. enterprises in the secondary and tertiary sector), different definitions (an employee is counted as such if the weekly workload is at least 1 hour/6 hours) or different scales (LAU2 vs. LAU1, which is a larger unit than LAU2). To allow a comparison across nations, data to which such differences apply have to be harmonized before any further analysis can be performed.

- Institutional differences

Another common problem in comparing data across nations is caused by institutional differences between nations. These differences mainly concern the education, health, and electoral systems. Data describing such different systems cannot be harmonized by simple recalculations. Therefore, such data have to be critically reviewed, whether they can be utilized for a transnational approach (Tappeiner et al. 2008).

Germany is a special case, as the last census took place in 1987. For reasons of data protection, Germany did not participate in the censuses around the millennium. This means that many so-called "census-typical traits" are missing, i.e. information on education levels, households and families or cohabitation. Missing comparable data on the labour market must also be seen in this context: only employed people who (have to) pay social security were counted. The self-employed, family workers and those exempt from social security were not included.

For the future the EU is planning a joint census for 2010/2011, with some countries abandoning the classic full survey, where the data are directly collected in the households. Such surveys deliver very precise results but are very expensive. The alternative to a full survey is a register-aided census using information from existing registers such as the register of residents or an electoral register. Such surveys are less costly but their major disadvantage lies in the much smaller amount of information they return compared to the results of a classic census. In Germany, for instance, this means no information on

education, on employed persons who are exempt from social security, or on commuter behaviour. Germany already has models for replacing the missing data by spot surveys, but they might only be carried out in municipalities of more than 10,000 inhabitants.

France is pursuing a different approach, i.e. the "rolling census". Each year a fifth of municipalities with less than 10,000 inhabitants is being fully surveyed, so that each municipality gets a census every five years. In larger municipalities, each year the survey covers 8% of the residents.

While joint censuses must be welcomed in terms of homogenization for projects such as DIAMONT, we must mention an important drawback: full surveys carried out to date have resulted in a very large data pool, which could form the basis for answering a great many different questions. Register-aided censuses can only cover a small part of this and the quality of the registers has often been criticized. Making up for missing information by carrying out spot surveys is no solution as far as the DIAMONT project is concerned, since the results would not be representative on a municipal level. But it is precisely the small administrative units that need detailed information in order to be able to devise fitting policies for their situation, be it to provide appropriate infrastructure or childcare. The end of the classic censuses makes projects like this one very difficult if not impossible to carry out in future (for more details see Tappeiner et al. 2008).

Table 2-1: Summary of indicators for which only limited harmonization was possible because of the data situation (from Tappeiner et al. 2008)

Subchapter	*Indicator*	*Harmonization*
Demography	Natural Population Growth	In Austria and France the data for the period between the censuses had to be recalculated to arrive at an annual average.
Demography	Average Annual Net Migration Balance	In Austria and France the data for the period between the censuses had to be recalculated to arrive at an annual average.
Education	Road Distance to Nearest University / Travel Time by Car to Nearest University	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Participation	Electoral Turnout in Local Elections	The Swiss data stem from a survey of municipal recorders, as electoral turnout is not counted. The electoral system is so different from that of other Alpine countries that comparability could not be achieved.
Participation	Electoral Turnout in National Elections	The Swiss electoral system is so different from that of other Alpine countries that comparability could not be achieved.

Labour market situation	Employment Rate	In Germany, the available figures only include employed persons who have to pay social security.
Labour market situation	Jobs Density	In Germany, the available figures only include employed persons who have to pay social security.
Female labour situation	Female Employment Rate	In Germany, the available figures only include employed persons who have to pay social security.
Sectoral distribution of jobs	Primary Sector Employment	In Germany, the available figures only include employed persons who have to pay social security.
Sectoral distribution of jobs	Secondary Sector Employment	In Germany, the available figures only include employed persons who have to pay social security.
Sectoral distribution of jobs	Tertiary Sector Employment	In Germany, the available figures only include employed persons who have to pay social security.
Services	Jobs in Public Administration	In Germany, the available figures only include employed persons who have to pay social security.
Services	Private Service Sector Employment	In Germany, the available figures only include employed persons who have to pay social security.
Services	Retail Sector Employment	In Germany, the available figures only include employed persons who have to pay social security.
Services	Road Distance to Nearest Hospital / Travel Time by Car to Nearest Hospital	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Landscape dissection	Effective Mesh Size of Non-artificial Areas	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Landscape dissection	Road Density of Major Roads	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Landscape dissection	Road Density of All Roads	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Accessibility	Road Distance to Nearest Motorway or Major Road	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Accessibility	Road Distance to Nearest Commercial Airport	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Accessibility	Road Distance to Regional Capital	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Accessibility	Road Distance to Nearest Municipality with More than 5,000 Residents	The data for Slovenia are not directly comparable with the data for the other Alpine countries.
Settlement situation	Altitude of Centre of Settlement	The data for Slovenia are not directly comparable with the data for the other Alpine countries.

In sum, the assessment of the data quality has yielded three types of situations:

The required data are available in comparable form and can be used without harmonization. The data cannot be compared immediately but can be harmonized to a great extent (see Table 2-1).

The data cannot be harmonized and the indicator has had to be abandoned.

To conclude this chapter we need to explain two terms that represent two different concepts used to map the labour market at municipal level within WP8. "Employed persons" refers to the so-called national concept, and "jobs" represents the workplace concept. According to the national concept, residents pursuing economic activities are considered gainfully active, regardless of where their workplace is located. In contrast, the workplace concept counts all persons whose workplace is located in the municipality, regardless of where they live. It is important to notice that self-employed as well as employed persons and family workers can appear in either category.

2.2.2.2 GIS data

Within WP8, GIS data were applied when official data from censuses were missing or where a clear spatial reference of the data was required. These were data on land cover and land use, data on transport or centres of settlements as well as data on administrative units, to name but a few.

Based upon the indicator proposals worked out in WP7, the search was on for appropriate GIS data. The data sets that could be applied are available at European or at least at national level.

The Corine land cover 2000 (CLC 2000) is a European data set on land cover and land use with a spatial resolution of 100m grid size. It can be obtained free of charge from the EEA for all EU member states as well as for all countries within the territory of former Yugoslavia (EEA 2008a). The area of the smallest mapping unit in the Corine land cover 2000 is 25 hectares. Smaller areas with a land cover that differs from their surrounding matrix are thus not mapped as such, which is problematic for small-scale land use, e.g. smaller settlements, business parks and similar. As Switzerland is not included in the European-wide Corine data set, a substitute exists, which transforms data from a Swiss national survey from the mid-1990s into CLC classes. But in contrast to the European CLC data, this data set describes land-cover classes with less detail (only on the second of three hierarchical CORINE class levels) and in a coarser spatial resolution of 250m grid size. Within WP8, the Swiss CLC was adapted to the European CLC spatial resolution of 100m. The missing thematic accuracy of the Swiss CLC did not cause problems for the indicator calculation.

Very detailed but non-official data on transport and location information such as centres of settlements for more than 64 countries worldwide have been

provided by Tele Atlas (Tele Atlas 2008). The data can be acquired per individual country including annual fees for maintenance and update. These data are especially suited for network analyses in ArGIS, which help to detect distances and shortest connections between two given points. As Tele-Atlas data are not available for Slovenia, the less detailed EuroGlobalMap (see next paragraph) was used within WP8 as a substitute for transport data.

EuroGeographics represents many of the European National Mapping and Cadastral Agencies (NMCAs). Data with a minimum scale of 1:100,000 can be obtained for each country (EuroGeographics 2008). Two different data sets were applied within WP8:

The EuroBoundaryMap is a seamless und harmonized data set of administrative and statistical units with a scale of 1:100,000. It is continuously maintained by National Mapping and Cadastral Agencies.

The EuroGlobalMap is a topographic data set on a scale of 1:1,000,000. Inter alia it provides information on transport, which was used within WP8 for Slovenia instead of the more detailed Tele-Atlas data.

A digital elevation model (DEM) of circa 90m spatial resolution consisting of data from the Shuttle Radar Topography Mission (SRTM) can be obtained free of charge from the NASA (NASA 2008).

Data on Natura2000 areas are provided on enquiry by several public authorities. Data on nationally designated areas (National - CDDA) can be obtained free of charge from the EEA (EEA 2008a).

The following data sets too were searched following the recommendations made in WP7. However, these data turned out to be unsuitable for application within WP8.

European data on air quality as well as on the status and quality of rivers, lakes, groundwater bodies and transitional as well as coastal and marine waters can be obtained for free from the EEA (EEA 2008a). The data sets consist of point information derived from single monitoring points within the EU member states. As point information can be assigned to areas only by complex model calculations, indicators concerning such themes could not be calculated within WP8.

The European Soil Database with a scale of 1:1,000,000 can be downloaded free of cost from the European Commission – DG Joint Research Centre (2008). Because of its low spatial resolution this data set was not used within WP8.

The Corine land cover changes (1990-2000) contains information on land-cover and land-use changes in Europe between 1990 and 2000. Its spatial resolution is 100m and it can be obtained from the EEA for free (EEA 2008a). These data could not be used in WP8 for the following reasons:

This data set is not available for Switzerland and there is no appropriate substitute.

The area of the smallest mapping unit within the CLC is 25 hectares, although the spatial resolution is 100m. Land cover changes within the Alpine space do not show up under these conditions.

2.2.3 Indicator results

2.2.3.1 Overview

Within WP7 a series of indicators were proposed that are per se well suited to sustainability investigations. Because of problems caused by a lack of base data or by the quality of possible base data, some of these indicators are less suitable for an implementation on LAU2 level. These are for instance indicators on air or water quality (see section 2.2.2.2). Due to the limitations of the base data mentioned in section 2.2.2, not all main trends defined within WP7 could be expressed completely by indicator results from WP8. However, the main trend „Local centres and fringes between competition and co-operation“ (Schönthaler & von Andrian-Werburg 2008, p.2), which was intended for a more detailed study in WPs 7-11, could be very well reflected by indicators calculated within WP8.

The indicator set implemented within WP8 consists of 81 indicators overall (see Table 2-2). Detailed information on individual indicators can be gathered from the fact sheets in Appendix I, from the publication “Mapping the Alps” (Tappeiner et al. 2008) as well as from the XML-based DIAMONT data base (http://www.diamont.bayern.de/), which is hosted by the Bavarian State Ministry of the Environment, Health and Consumer Protection (BayStMUGV).

Table 2-2: Sustainability indicators implemented within WP8

No.	Indicator title	Pillar
1	Employment Rate	Economy
2	Change in Employment Rate	Economy
3	Jobs Density	Economy
4	Change in Jobs Density	Economy
5	Female Employment Rate	Economy
6	Change in Female Employment Rate	Economy
7	Rate of Female Employed to Total Employed Persons	Economy
8	Change in Rate of Female Employed to Total Employed Persons	Economy
9	Rate of Jobs held by Women to Female Residents	Economy
10	Change in Rate of Jobs held by Women to Female Residents	Economy
11	Jobs held by Women	Economy
12	Change in Jobs held by Women	Economy

13	Female Employment Rate in the Age Group 25-45	Economy
14	Employment Rate of Older People	Economy
15	Older Employed Persons	Economy
16	Self-employed Rate	Economy
17	Primary Sector Employment	Economy
18	Secondary Sector Employment	Economy
19	Tertiary Sector Employment	Economy
20	Jobs in Public Administration	Economy
21	Private Service Sector Employment	Economy
22	Sectoral Breakdown of Jobs	Economy
23	Average Enterprise Size	Economy
24	Enterprise Density	Economy
25	New Enterprises in the Secondary and Tertiary Sector	Economy
26	Commuter Balance	Economy
27	In-commuters Ratio	Economy
28	Out-commuters Ratio	Economy
29	Rate of Farms to Total Enterprises	Economy
30	Farms Run as a Part-time Concern	Economy
31	Mean Used Agricultural Area per Farm	Economy
32	Used Agricultural Area per Municipality	Economy
33	Non-grassland Areas in Agricultural Use	Economy
34	Change in the Number of Farms	Economy
35	Change in Used Agricultural Area	Economy
36	Patch Density of Agricultural Areas	Economy
37	Mean Capacity of Tourist Accommodation Establish-ments	Economy
38	Tourist Beds per Resident	Economy
39	Road Distance to Nearest Motorway or Major Road	Economy
40	Travel Time by Car to Nearest Motorway or Major Road	Economy
41	Road Distance to Nearest Commercial Airport	Economy
42	Travel Time by Car to Nearest Commercial Airport	Economy
43	Road Distance to Regional Capital	Economy
44	Travel Time by Car to Regional Capital	Economy
45	Road Distance to Nearest Municipality with More than 5,000 Residents	Economy
46	Travel Time by Car to Nearest Municipality with More than 5,000 Residents	Economy
47	Natural Population Growth	Society
48	Total Population Growth	Society
49	General Fertility Rate	Society
50	Average Annual Net Migration Balance	Society
51	Foreign Residents	Society
52	Young Age Dependency Ratio	Society
53	Old Age Dependency Ratio	Society
54	Total Dependency Ratio	Society
55	Average Household Size	Society
56	Single-person Households	Society
57	Older People Living in Single-person Households	Society

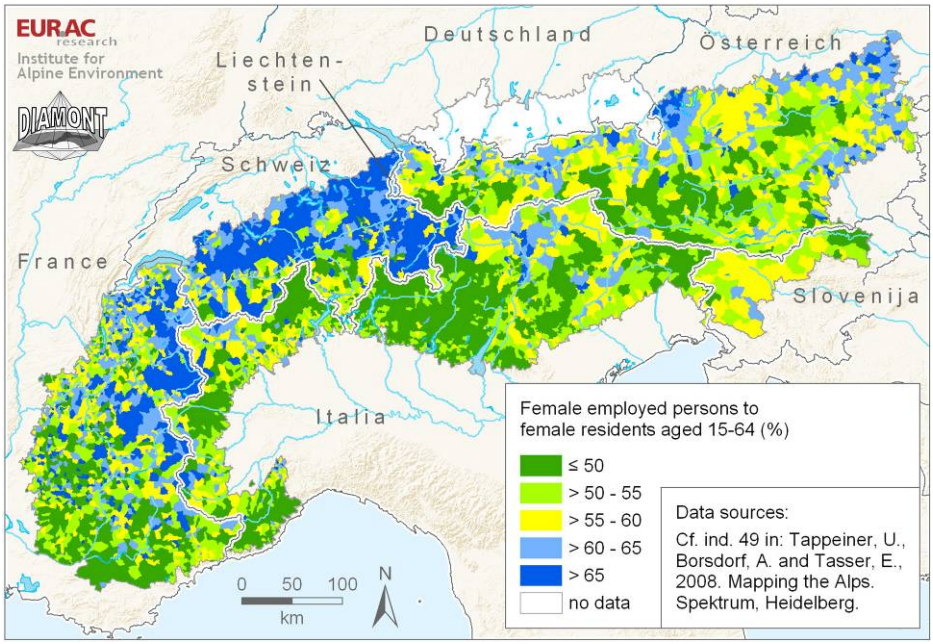
58	Older Single-person Households	Society
59	Population Density per Available Settlement Area	Society
60	Road Distance to Nearest Hospital	Society
61	Travel Time by Car to Nearest Hospital	Society
62	Road Distance to Nearest University	Society
63	Travel Time by Car to Nearest University	Society
64	Forest Areas	Environment
65	Near-natural and Natural Open Areas	Environment
66	Artificial Areas	Environment
67	Hemeroby	Environment
68	Land-cover Diversity of Agricultural, Near-natural and Natural Areas	Environment
69	Land-cover Diversity of Near-natural and Natural Areas	Environment
70	Land-cover Diversity of Agricultural Areas	Environment
71	Patch Density of Agricultural, Near-natural and Natural Areas	Environment
72	Patch Density of Near-natural and Natural Areas	Environment
73	Road Density of Major Roads	Environment
74	Road Density of All Roads	Environment
75	Effective Mesh Size of Agricultural, Near-natural and Natural Areas	Environment
76	Effective Mesh Size of Near-natural and Natural Areas	Environment
77	Sites of Community Importance (SCI)	Environment
78	Special Protected Areas (SPA)	Environment
79	Natura 2000 Areas	Environment
80	Altitude of Centre of Settlement	Environment
81	Available Settlement Area	Environment

2.2.3.2 Examples

Below we have chosen three indicators per pillar of sustainability – economy, society and environment – as examples. For interpretations of further WP8 indicators we refer to the publication "Mapping the Alps" (Tappeiner et al. 2008). One important point concerning areas not assigned to any municipality shall be explained here. In Germany and Switzerland there are several such areas. They include military training areas, forests or water surfaces. As these areas are usually uninhabited, they do not show up in the censuses and are therefore not represented in the indicator results and maps.

Economy:

Female employment rate



Map 2-1: Female employment rate

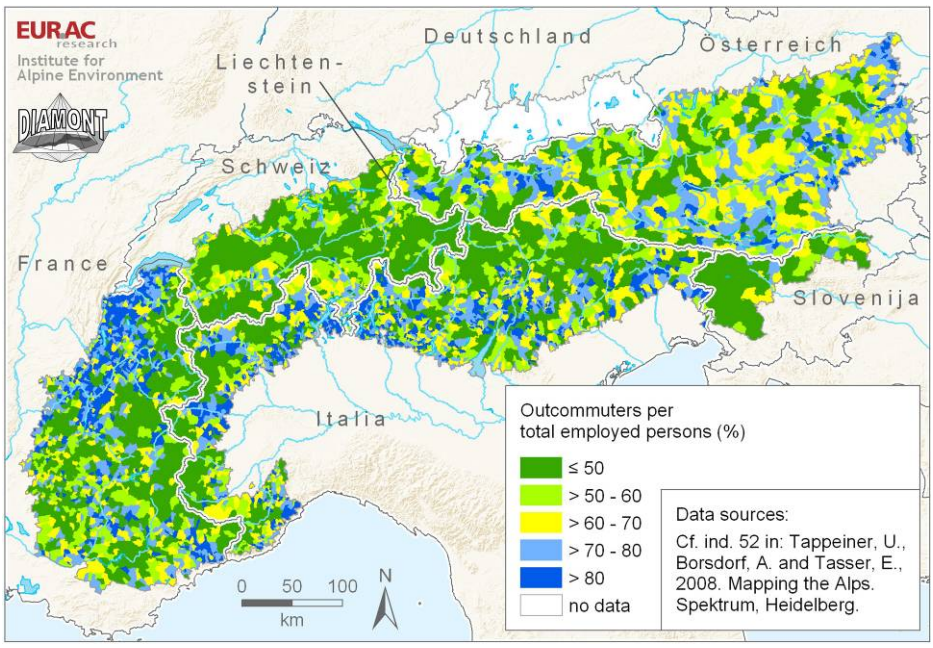
Sustainable development demands a well balanced economic development, including full employment, without negative effects on the environment or society. Employment contributes to the quality of life as well as to social integration, which are two of the overall objectives of sustainable development (EU 2005b). The Lisbon Strategy for Growth and Jobs aims at increasing the competitiveness of the European Union economy and at achieving full employment by the year 2010, based upon the three pillars of sustainable development (EU 2008). It also includes a drive to increase the female employment rate to 60% by the year 2010 (EU 2005b).

In recent years, the female employment rate in the European Union has continuously increased to ca. 57% in 2006 (EUROSTAT 2008a). Part-time employment as well as mini jobs have contributed greatly to this development (EUROSTAT 2005, OECD 2002).

Map 2-1 shows the female employment rate in the Alpine municipalities for the base years 1999-2002. For these years, the female employment rate reaches ca. 55% on average for the whole Alpine space, with significant spatial variations. It is noticeable that the female employment rate is higher for regions with a high service sector ratio. The highest area-wide female employment rates of >60% are recorded in Liechtenstein and Switzerland, except the canton Ticino, and along the French main Alpine ridge. In Austria, higher fe-

male employment rates of more than 60% are only found around larger cities or in some holiday regions. In Italy, the female employment is usually below 55%, with the exceptions of the Aosta valley and the province of Bolzano. The average female employment rate in Slovenia is rather low, but at ca. 54% still higher than in the adjacent Italian province of Udine. Because of missing census data this indicator could not be calculated for the German Alpine space.

Out-commuters ratio



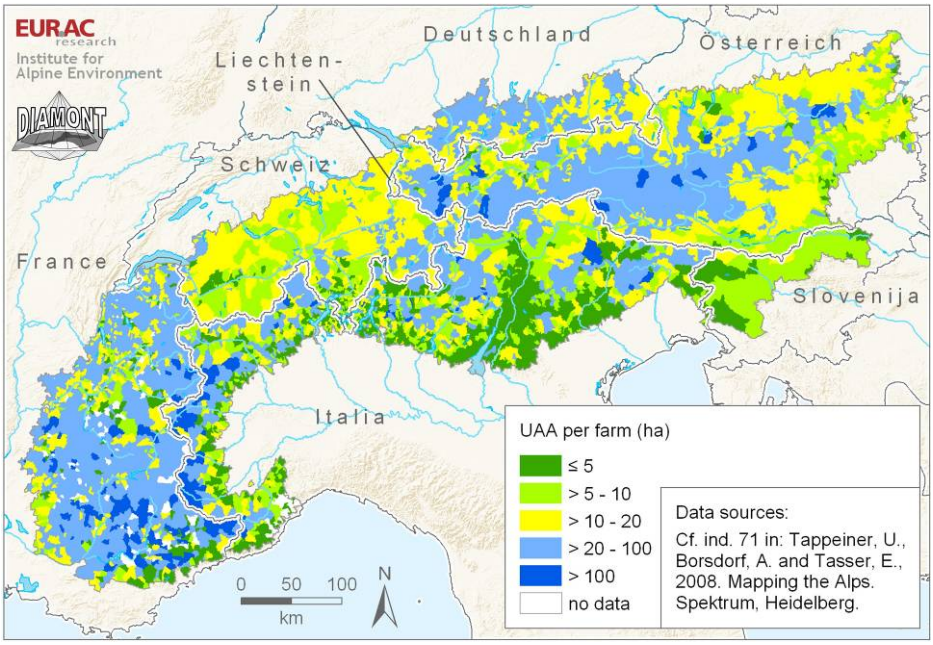
Map 2-2: Out-commuters ratio

The out-commuters ratio per total employed persons per municipality can be used as an indicator for the situation of the regional labour market. Within the Alpine space, the out-commuters ratio is mostly higher for municipalities in the hinterland of bigger Alpine or pre-Alpine towns (see Map 2-2). Rather low out-commuter rates are found in larger Alpine towns or in holiday regions with a higher jobs density.

Very high out-commuters ratios of more than 70% exist in the hinterland of many inner-Alpine towns and cities like Grenoble, Chambery, Innsbruck or Klagenfurt, as well as on the Alpine rim near pre-Alpine cities such as Nice, Turin, Milan or Vienna. A lower rate of out-commuters is mainly found in holiday regions such as the zones along the French main Alpine ridge, the Swiss canton Grisons or the tourist regions of the Italian Dolomites. Slovenian municipalities also typically show lower out-commuters ratios because of a relatively high local jobs density.

This indicator could not be calculated for Germany because of missing data.

Mean used agricultural area per farm



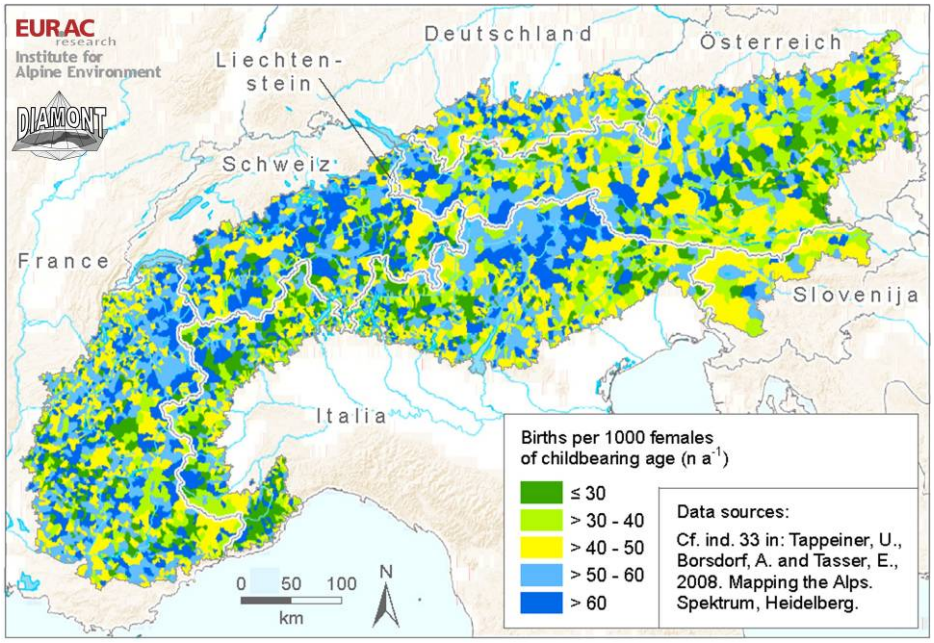
Map 2-3: Mean used agricultural area per farm

The Alpine space is characterized by two major types of agriculture. The first one prevails in the drier and warmer Alpine areas (e.g. inner-Alpine dry areas, Southern and south-western Alps) with predominantly arable farming, small farm sizes, high parcelling of agricultural areas and partible inheritance. The second type prevails in the humid and cooler Alpine areas (north-western and northern Alpine rim, eastern part of the Eastern Alps) dominated by animal husbandry, relatively large farms, little parcelling of agricultural areas and primogeniture (Bätzing 1996).

Map 2-3 shows the differences in unit size across the Alps. The mainly small farms and very fragmented structures in Italy contrast with large-scale structures in the other Alpine countries. In addition to orographic factors and inheritance practices, agricultural policies play an important role here (Tappeiner et al. 2003). In Austria, Bavaria, and Switzerland, for instance, subsidizing mountain agriculture started early (Penz 2005), while France and Italy have supported mountain agriculture only hesitatingly (Bätzing 1996). Small units do not necessarily mean low profitability. The permanent cultures in Trentino/South Tyrol (wine and fruit growing) or in Liguria (market gardening) are of major economic importance as intensively farmed areas despite the small unit size.

Society:

General fertility rate



Map 2-4: General fertility rate

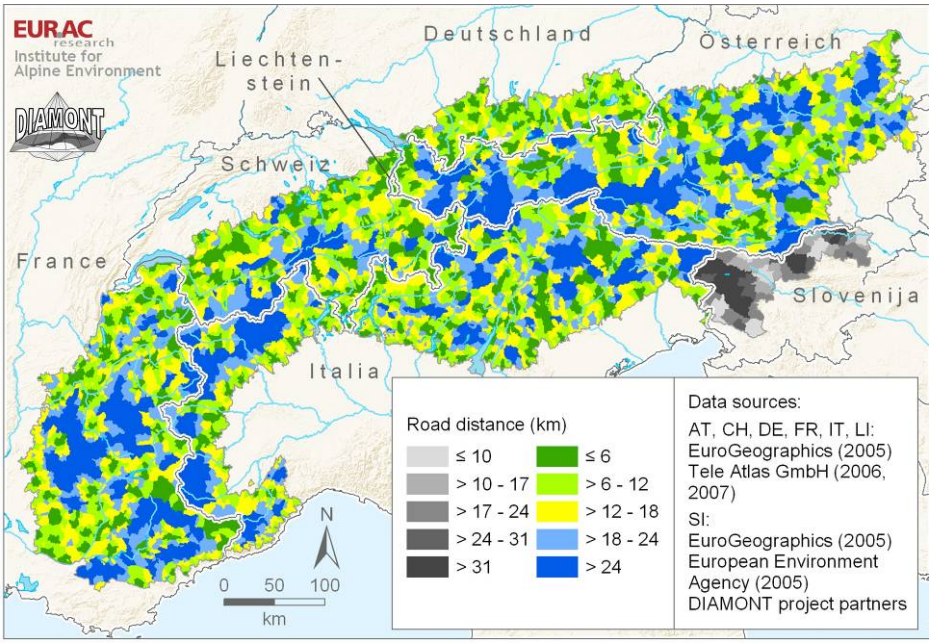
In recent years, the fertility rates in Europe have decreased dramatically to below replacement level. Replacement is guaranteed only if women of childbearing age have at least 2.1 children on average. In almost the entire Alpine space, values are below replacement fertility. As a frequent consequence, regions with low birth rates are facing obsolescence and this phenomenon puts future perspectives and the sustainable development of a society at severe risk.

Low fertility rates are a constant trend and attributable, among other reasons, to longer educational periods for young people, professional flexibility requirements and insecure employment situations. Only Alpine France almost reaches replacement value (Borsdorf 2006a), which is often thought to result from good support for reconciling employment with family responsibilities. The important role of child care provision has been underlined also by Lipinski and Stutzer (2004). The Austrian birth rate is rather low, too. This phenomenon has been linked to the female employment rate and to the inadequate provision of child care (Grant et al. 2004). The author has conducted a study analysing the impact of several social policy measures on fertility rates in EU member states and childcare infrastructure seems to have a crucial influence on fertility rates. Another important factor seems to be the economic situation of young families. This thesis is partly supported by the fact that a higher regional GDP coincides with higher general fertility rates (EUROSTAT 2007) and

vice versa. Considering spatial distribution of fertility rates in the Alpine arc, Heilig (2002) has stated that rural areas no longer present higher fertility rates than urban areas, but the map shows that none of the Alpine cities reaches fertility rates above the average for the entire Alpine space.

Road distance to nearest hospital

Spatial and temporal distance to the nearest hospital is an important indicator of medical provision and of the recuperation situation of the patients. Distance is the most important criterion for patients when choosing a hospital (Capps et al. 2003, Kallfass & Kuchinke 2006). One reason for this might well be that a near-by hospital means that friends and family of the patient can visit them more easily and more often. The patient will also be more familiar with the vicinity and as a result feel more at ease. This indicator also points to another essential aspect: in medical emergencies such as heart attacks or strokes every second counts. Patients in such an emergency who are brought into hospital in time have a much better chance of survival (O'Neill 2003).



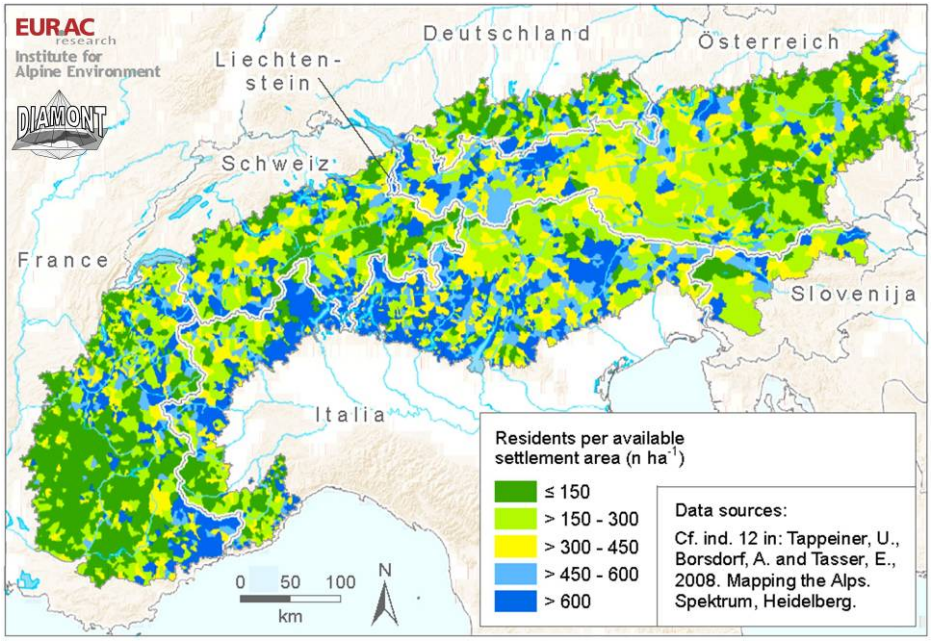
Map 2-5: Road distance to nearest hospital

About 90% of all Alpine municipalities are situated within less than 25 min or 20 km of a hospital, but this is only part of the picture (see Map 2-5). The distribution of ambulance stations, whether central or decentralized, the availability of an air ambulance and the range of technical equipment of the ambulance stations also play a role. Short distances or access times however remain the most important factor. The shortest times to hospital are found in Liech-

tenstein, followed by Germany and Switzerland. Slovenia remains last, with ca. 20% of municipalities being situated more than 30 min away from the nearest hospital. Across the entire Alpine space, over 97% of the population live within a 25 min radius of a hospital. In Switzerland provision is particularly good: 96% of the population can reach the nearest hospital within less than 15 min.

Population density per available settlement area

If you put the population of the Alpine region in relation to the area that is actually suitable for settlement instead of to the total territory, the Alpine space ranks among the most densely populated regions in Europe. For this project, the area suitable for settlement is made up of the total of settlement areas (CORINE LANDCOVER 2000) plus intensively used agricultural areas (national agrarian statistics). The area currently makes up 17.3% of the territory and was populated in the year 2000 by a total of 13,670,849 inhabitants, resulting in an effective population density of 414 people per km². Similarly high densities can also be found in other mountainous regions across the world (Tappeiner & Bayfield 2004) and are comparable to densely populated regions beyond the Alps (e.g. the region of Hannover has 437 inhabitants per km²; Mielke & Schürmann 2006).



Map 2-6: Population density per available settlement area

Across the Alpine arc, however, severe disparities emerge (see Map 2-6). The French Maritime Alps, the Bavarian Alps and the East of Austria show signifi-

cantly lower figures. Large parts of these areas return population densities below 200 people per km². A much more diverse situation can be found in the centre of the Alps, where regions with high population density alternate with those of low density. The economically booming Labour Market Regions in particular show much higher population densities: the list is topped by the region around Grenoble with 6,282 inhabitants per km²; ca. 2,097 people per km² live in the Lugano region and 1,444 around Innsbruck. This means that these regions have population densities comparable to agglomerations beyond the Alpine space (Berlin: 3,812 inhabitants per km²; Vienna: 4,025; Milan: 6,988; Prague: 2,387). The rural, more remote, municipalities, however, show very low population densities. Many Italian Alpine municipalities return very high figures, but these values do not stem from large populations but from the scarcity of land available for settlement. The large-scale abandonment of agriculture has meant the loss of large free areas, particularly in the Bergamo, Varese and Ticino Alps.

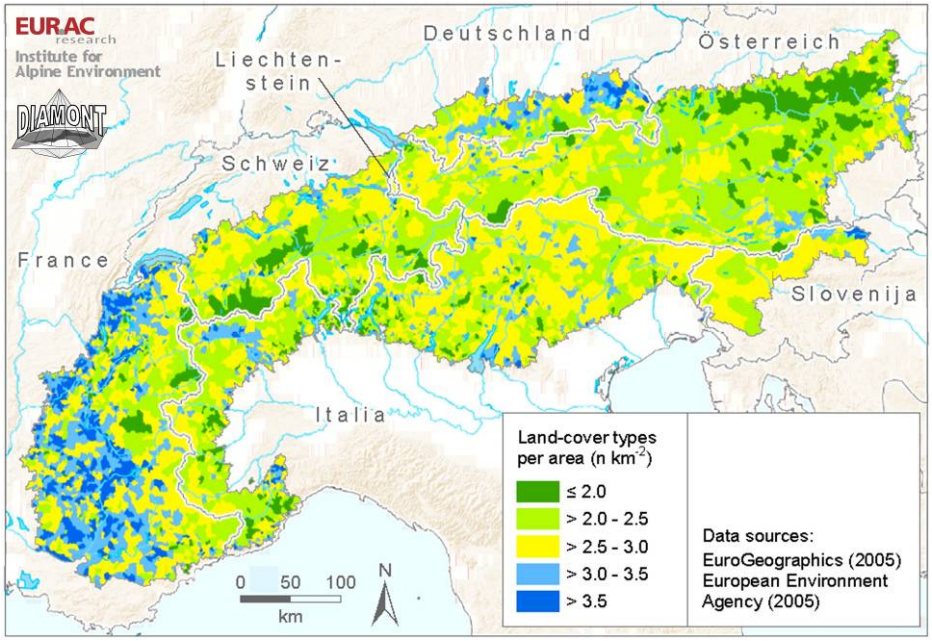
Environment:

Land-cover diversity of agricultural, near-natural and natural areas

The diversity of land cover types within landscapes is an important basis for biodiversity and related processes. The biodiversity potential of any location and hence that of landscapes themselves depends on the diversity of land cover types within a defined area.

The kinds of land cover types and their diversity depend largely on morphological, geological, and climate factors, as well as on human influence in the form of land use. In general, the more varied the site conditions are, the more varied the natural habitats we meet, but also the more varied the possible forms of land use (e.g. agriculture, viniculture, fruit growing, grassland). Together they form the basis for high land cover diversities (Tasser et al. 2008). Hence the highest land cover diversities with more than three land cover types per km² can be found in the south-western French Alps as well as in some larger Alpine valleys and in the German pre-Alps Areas (see Map 2-7). Here the climate and especially the morphological conditions have led to the formation of diversified landscapes. Especially in the south-western French Alps, where low competition for land from agriculture and mostly moderate land-use intensity meet with a favourable climate, they have led to a mosaic of different land-use forms and different semi-natural land-cover types (forests, grassland, moors). In theory, the whole southern part of the Alpine arc is characterized by similar conditions, but since agricultural land use in that area is decreasing sharply, land-cover diversity is lower in places.

Land-cover diversity within the central and north-eastern Alps is generally lower, with 1-2.5 land cover types per km². Agriculture there has specialized strongly in intensive cattle farming, arable farming or forestry. Farms are generally large (>20 ha). All these factors have led to low land-cover diversity.



Map 2-7: Land-cover diversity of agricultural, near-natural and natural areas

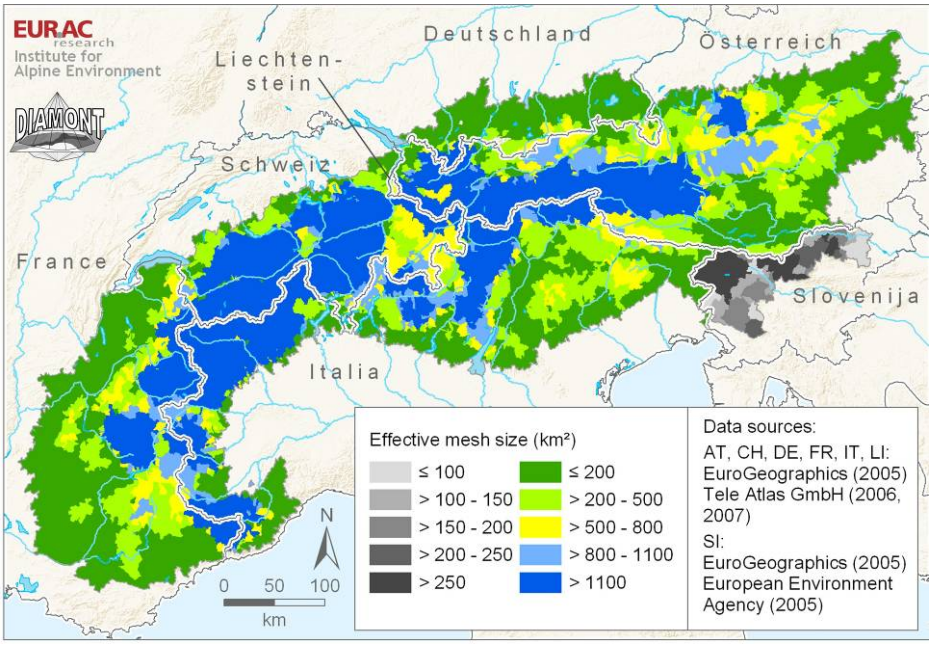
Effective mesh size of agricultural, near-natural and natural areas

The development of the transport and settlement infrastructure has increasingly come to shape the Alpine landscape. In Switzerland, for example, a bigger increase was recorded in settlement and transport infrastructure areas over the past 50 years than in the previous 2000 years (Jaeger 2002, Jaeger et al. 2007). Between 1990 and 2003, public passenger transport in Austria increased by ca. 21% and private car traffic by 30%. In the same period, freight traffic rose by 58%, with road freight traffic accounting for about 67% (Umweltbundesamt 2007). Such developments have resulted in a massive increase in transport infrastructure and had a considerable impact on animal species living in the wild. The dissection of the landscape is considered a major reason for the alarming decline in the numbers of many wild animal species (Trombulak & Frissell 2000).

The effective mesh size helps to quantify the dissection of landscapes and is based on the possibility of two randomly selected points within a region not being separated by roads, railway lines or settlements (Moser et al. 2007). The effective mesh size therefore returns the average size of undissected spaces per relational unit (here: the municipality).

Because of the high density of settlements and transport networks in the pre-Alps and in some larger Alpine valleys and basins, the landscape there is highly dissected (see Map 2-8). The map shows this clearly for the Alpine rim but also for the Adige valley south of Bolzano and for the Klagenfurt basin.

Less cut up are large areas at higher altitudes in the Alps, particularly along the main Alpine range, for instance in the Dauphiné Alps, in large parts of the Swiss Alps, the Hohe Tauern, but also in the Adamello-Presanella group.



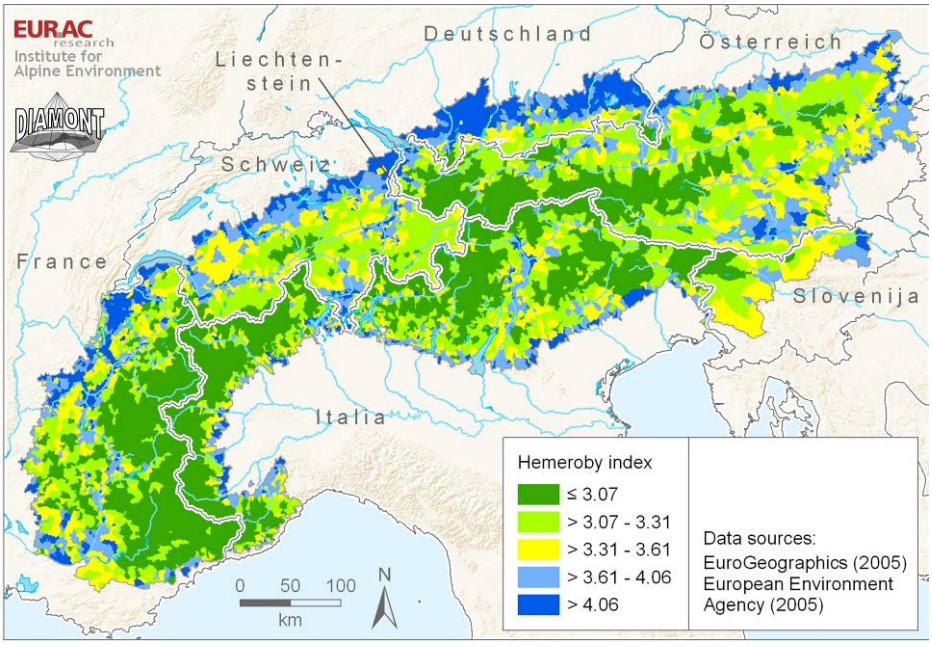
Map 2-8: Effective mesh size of agricultural, near-natural and natural areas

Hemeroby

Hemeroby indicates the degree of anthropogenous influence on the environment. It takes into account all human activities and is thus an integrative unit (Steinhardt et al. 1999). In our case, each Corine Land Cover type was assigned a hemeroby value. Types that are unaffected by anthropogenous influences were given a value of 1, non-natural systems a value of 7. Systems without anthropogenous influences include glaciers and virgin rocky areas; a hemeroby value of 7 was applied to industrial areas and densely built-up settlement areas. Forests were assigned hemeroby values of 2-3, agricultural areas values between 3 (pastures) and 5 (permanent cultivation, arable areas) depending on their type of use. On the basis of these assignments, an area-weighted hemeroby value was calculated for each municipality. A low hemeroby value means that natural types of environment dominate in that municipality, high values point to a municipal area that is mainly shaped by human impact (further details in Tasser et al. 2008).

Not surprisingly, the hemeroby distribution map for the Alpine space shows a rise in values from the Central Alps to the Alpine rim (see Map 2-9). Within the Central Alps, anthropogenic impact is significantly lower. Here large areas of

the Alpine and the nival zones remain natural. On the Alpine rim, but also in the larger Alpine valleys, human pressure on land is much higher. As a result of favourable location conditions, such as lower slope inclination and better climatic conditions, many forms of land use are concentrated here, leaving hardly any space for natural areas. On second glance, hemeroby values also show the current state of agriculture. Many Swiss municipalities return an above average hemeroby value. This is the result of a very high degree of land use. The opposite is true of the French and Italian Southern Alps. Here agriculture has abandoned large tracts of land resulting in low hemeroby values.



Map 2-9: Hemeroby

2.3 Integration and aggregation

WP8 envisages the identification of similar regions within the Alpine arc. In this subchapter we describe the way from single indicators to phenomena of regional development and to similar regions present the results.

As explained in previous chapters, we had 81 indicators at our disposal for the task of identifying similar regions. Two aspects had to be considered:

First, 81 indicators provide a large amount of information – too much to allow an overview of the situation as a whole concerning important aspects of sus-

tainable development. We were mainly interested in general themes or phenomena that are part of regional development, such as the degree of anthropogenic influence in general. Individual indicators (e.g. road length of major roads or road length of all roads) are of minor interest as they serve as measures for quantifying the superordinate topic. The indicators with all their particularities as well as their geographical distribution are very detailed information indeed but do not facilitate an overview of the phenomenon.

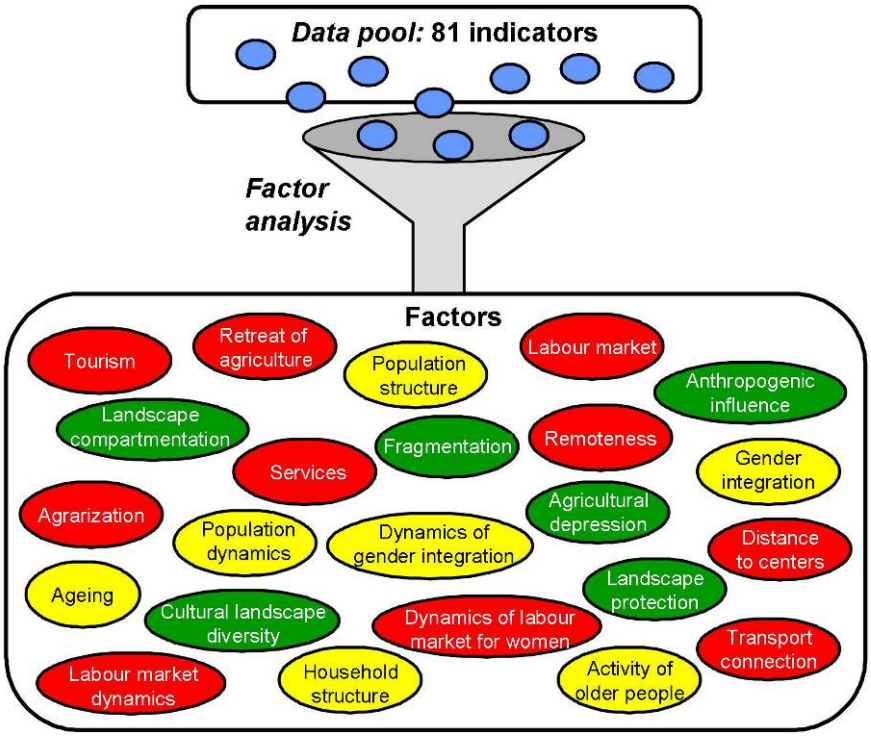


Fig. 2-1: From indicators to factors or phenomena of regional development: Individual indicators were aggregated to phenomena of regional development using factor analysis.

From this follows the need for aggregating and combining the indicators to phenomena. The aggregation method should allow adequate handling of redundant data as explained below.

Some themes are represented by many different indicators that cause redundancies in the indicator set. An example is the labour market. It is measured by the employment rate, which refers to the number of residents of a municipality that are employed. A second indicator is the number of jobs provided by enterprises in the municipality. Either indicator serves for describing the labour market and neither one can be considered more adequate. Other indicators describing the labour market are employment rates for special age groups or employment rates by gender. Together, these indicators offer a large

amount of information highlighting different facets and aspects of the general labour market theme, but at the same time they generate redundancies in the indicator set. Thus for some topics many different and to some extent redundant indicators are available, while other aspects are measured only by few indicators, e.g. population change, which can be directly measured by one indicator.

The aggregation process – i.e. the process of converting the indicators to phenomena - is illustrated in Fig. 2-1. The information that results from the phenomena was then used to identify similar regions within the Alpine arc.

The method used for the first step in arriving at the phenomena is factor analysis. One objective of this method is precisely identifying the phenomena that lie behind the data. As the method summarizes highly correlating indicators, it also solves the problem of redundancies in the data by summarizing similar indicators in one factor. In the overall view, each phenomenon is given the same weight, regardless of the number of indicators it contains.

The second aspect involved the fact that all three pillars of sustainable development are of equal importance in the sustainability debate and should therefore be of equal weight. In identifying similar regions we paid particular attention to the fact that the information used covered the three pillars in equal measure. The method used was cluster analysis, which results in an overall positioning of each municipality according to the cluster it belongs to. The results and interpretation of the cluster analysis are given in section 2.3.2.

2.3.1 Identifying phenomena of regional development

2.3.1.1 The method: factor analysis

Factor analysis is a statistical technique used to uncover the latent structure or dimensions of a set of variables, the phenomena that lie behind it. It reduces the number of observed variables by combining two or more variables into one (unobserved) factor. The observed variables are modelled as linear combinations of the factors, plus "error" terms.

Factor analysis is a collective term for several types of analyses; the most common among them are principal component analysis (PCA) and principal axis factoring. Even though the calculation process is the same, they start from different hypotheses. We chose the principal component analysis, the technique generally used for the purpose of data reduction. It seeks to reproduce the data structure most comprehensively with as few factors as possible. In contrast, principal axis factoring is used when the research purpose is to identify latent variables which contribute to the common variance of the set of measured variables. The second purpose for the principal axis factoring is causal modelling.

In order to facilitate the interpretation of the factors, the factor axes can be rotated. We chose varimax rotation, a procedure which ensures that each variable tends to have either small or large factor loadings. Thus each variable can easily be assigned to a single factor. Varimax rotation yields orthogonal (uncorrelated) factors.

2.3.1.2 Data

The selection of potential indicators has been described in chapter 2.2 as well as in Tappeiner et al. (2008). We also discussed data constraints: actually many more indicators are needed to cover all relevant aspects of regional development but due to data availability we either had to use proxy variables or even omit certain aspects.

Altogether 81 indicators were employed in the following analyses. These indicators fulfil two criteria:

The first criterion is a certain degree of completeness of the data. Despite thorough data harmonization, values are missing in some cases. On the one hand, this applies to entire nations for which no data and no proxy data are available and is often the case for Germany and Slovenia (see section 2.2.2). On the other hand, missing values can also be the result of privacy legislation (for example detailed agricultural data in municipalities with less than three farms can not be obtained in some countries). In this case they are of concern for single municipalities only.

An incomplete data set containing missing values has to be accepted when the indicator is considered indispensable with respect to content. The threshold for an acceptable amount of missing values was set at 1/3. The missing values for the 81 indicators used in the factor analysis range from 0% to 25%. Approximately half of the indicators have no missing values at all; a further 42% have a negligible amount of missing values (less than 5%).

The exigence for complete data sets refers to the requirements of the method used: When there are missing values, the correlation between two variables cannot be calculated and therefore factor analysis cannot be applied. Hence, missing data have to be substituted by some other data.

There are different ways of dealing with this problem. An approach adopted in many cases by national and international statistical offices to generate data is the use of functional relations between variables based on hypothetical assumptions. Data resulting from such procedures have to be treated with caution, especially when it is used for further modelling, as Holub and Tappeiner (1997) have shown. For WP8 a rather simple approach was chosen: the missing values were substituted with the mean value of the respective variable. Where all indicators loading highly into the factor are missing for an entire country, the results cannot be interpreted for the respective area because they are biased towards the mean value. In the maps shown in the next chapter, these

areas are represented in grey.

The second criterion is comparability. Indicators that show large differences in definition and in data collection methods sometimes cannot be harmonized. As a consequence they are not comparable and cannot be used within factor analysis as they bias the result. Such is the case with the unemployment rate where different definitions are used in the Alpine countries or for education where different traditions and educational systems produce non-comparable data.

As a result of these considerations, 81 indicators were selected for the following analyses.

2.3.1.3 Phenomena of regional development

Using factor analysis, 23 phenomena (or factors) of regional development were identified that explain 76.19% of the total variance. The explained variance of every factor is displayed in Table 2-3.

Table 2-3: Total variance explained by the 23 factors extracted by factor analysis

	Rotated sums of squared loadings		
factor	total	% of variance	cumulative %
1	5.19	6.41	6.41
2	4.81	5.93	12.34
3	3.89	4.81	17.15
4	3.57	4.41	21.56
5	3.38	4.17	25.72
6	3.23	3.99	29.72
7	3.18	3.93	33.65
8	2.94	3.63	37.27
9	2.86	3.53	40.81
10	2.84	3.51	44.31
11	2.62	3.24	47.55
12	2.52	3.11	50.66
13	2.41	2.97	53.63
14	2.30	2.84	56.47
15	2.21	2.73	59.20
16	2.14	2.64	61.84
17	2.10	2.60	64.44
18	1.72	2.13	66.56
19	1.70	2.10	68.66
20	1.61	1.99	70.64
21	1.56	1.93	72.57
22	1.50	1.86	74.43
23	1.43	1.76	76.19

Before interpreting the phenomena of regional development, the question had

to be answered to which extent the phenomena reflected the single indicators or to which extent the information provided by the indicators was reflected in the phenomena. This question can be answered by looking at the communalities of the indicators (i.e. the part of the variance of a variable that is explained by all factors, see Backhaus et al. 2006, p.282). Most indicators have quite high communalities, i.e. their information is used very well for building the phenomena. Only three of them contribute little to the phenomena: new enterprises (0.31), jobs in public administration (0.45) and patch density of natural and semi-natural areas (0.47). A complete list of all indicators and their communalities can be found in Appendix II. The following sections present the phenomena of regional development. The description always follows the same outline: for each phenomenon a short interpretation is given, accompanied by a map displaying the factor values for the individual municipalities and a table summarizing the indicators that are relevant for the phenomenon. In general, an indicator is assigned to a phenomenon when the factor explains more than 50% of its variance, i.e. the factor loading[1] exceeds ±0.5. As the threshold of 50% is arbitrary and the influence of an indicator on a phenomenon does not cease there, indicators with marginally lower factor loadings have also been consulted for the interpretation of the factors. For this reason, marginally lower factor loadings are also displayed in the tables.

Accessibility and remoteness (factor 1, factor 4 and factor 16)

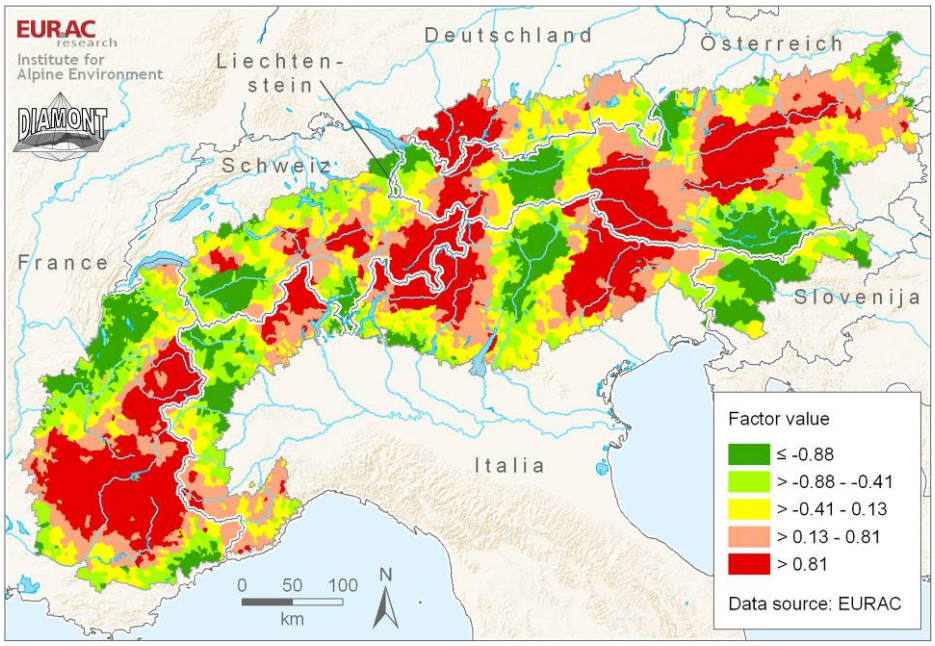
Three of the identified factors can be grouped together and summarized under the heading of accessibility and remoteness. Each factor represents a special aspect that encompasses a different level of accessibility: from the large regional centres to smaller centres to the local road network. Remoteness can be seen as access to a wide range of goods and services (Commonwealth of Australia - Department of Health and Aged Care 2001). The different factors that were detected result from the fact that some goods and services are available in smaller and others only in larger centres.

Good accessibility between and within regions is vital for the economic and social development of a region. Even in times of telecommunication, spatial accessibility is still a crucial "hard" location factor and enterprises as well as private households still base their locational decisions on accessibility – among other factors (OECD 2001).

[1] The factor loading is the share of the variance of a variable that is explained by one factor. The factor loading corresponds to the correlation between the indicator and the factor, its sign depicts the direction of the influence.

For private households, accessibility defines their radius of operation because it determines the number of alternative job possibilities, supply of goods and services, education and health, as well as leisure opportunities and the related expenditure of time. For manufacturing enterprises, accessibility defines transport costs for procuring the production resources and for reaching customers and thus defines the competitiveness of the enterprise. Even knowledge-based industries require good accessibility because telecommunications can disseminate efficiently codified information but not the so-called tacit knowledge that is tied to people and thus necessitates face-to-face contact (Bundesamt für Bauwesen und Raumordnung 2006).

Especially in mountain regions, the management of international transport is crucial for the resident population and economy. The Alps are among the most accessible mountain regions in Europe thanks to a good infrastructure. But within the Alps there are of course large differences in terms of accessibility.



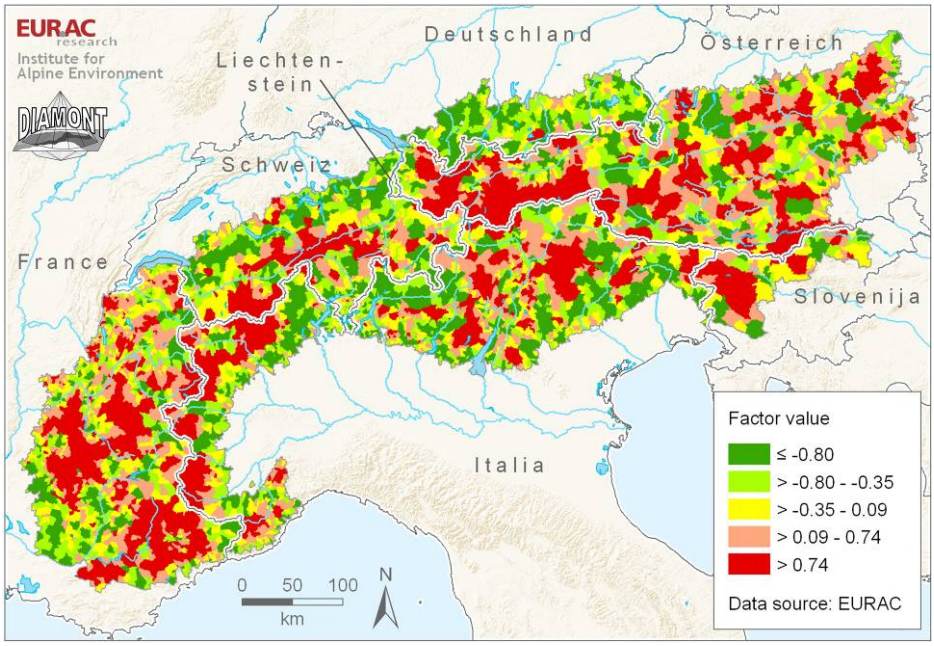
Map 2-10: Highest level of accessibility, represented by the road distance or travel time to large regional centres (factor 1)

Table 2-4: Indicators that load highly into factor 1 and their factor loadings

Indicators loading highly into factor 1	Factor loading
Travel time by car to nearest commercial airport	0.850
Road distance to nearest commercial airport	0.822
Travel time by car to nearest university	0.779
Road distance to nearest university	0.769
Travel time by car to regional capital	0.673
Road distance to regional capital	0.651

The first factor (factor 1) represents the highest level of accessibility, represented by the road distance or travel time to large regional centres, which sometimes are also the regional capital. As regional capital they offer a large range of services for private households and enterprises as well. These centres are endowed with important infrastructure such as universities and are offering higher educational opportunities or airports connecting the region and its hinterland with other regions.

A second type of centre is described in factor 4. These are smaller and sometimes peripheral centres with more than 5,000 inhabitants. Population size can be used as a proxy for service availability (Commonwealth of Australia - Department of Health and Aged Care 2001), especially for public services like health care and education. These centres provide basic infrastructure.

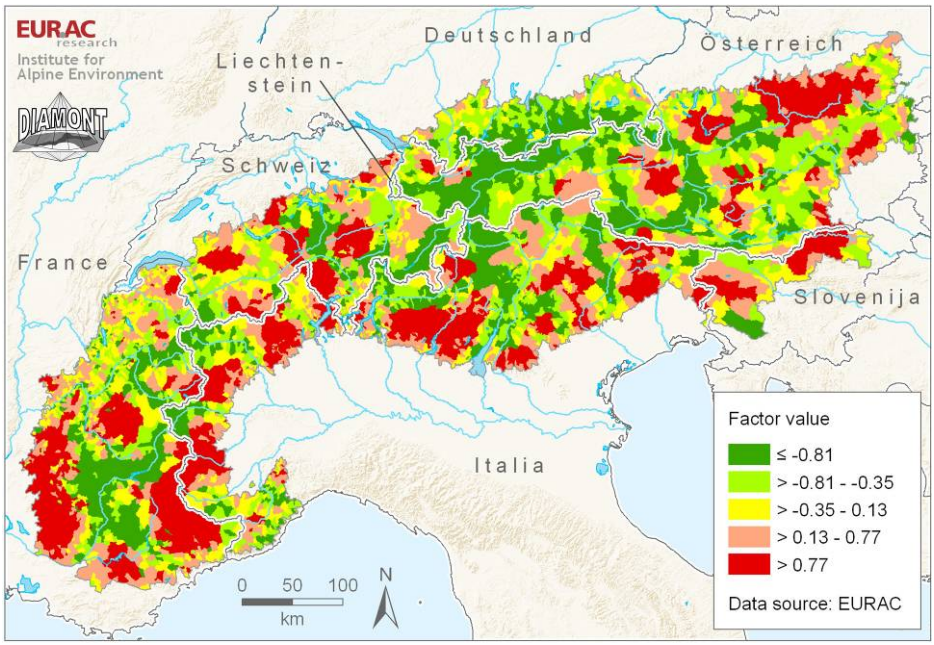


Map 2-11: Smaller and sometimes peripheral centres with more than 5,000 inhabitants (factor 4)

Table 2-5: Indicators that load highly into factor 4 and their factor loadings

Indicators loading highly into factor 4	Factor loadings
Road distance to nearest hospital	0.858
Travel time by car to nearest hospital	0.840
Travel time by car to nearest municipality with more than 5,000 residents	0.618
Road distance to nearest municipality with more than 5,000 residents	0.615

The last facet of accessibility and remoteness is the link into traffic infrastructure. Road transport seems to be the most important aspect ensuring good accessibility within a region and promoting its economic development. Roads connect peripheral and remote regions with larger centres that serve as access points to farther destinations (Bundesamt für Bauwesen und Raumordnung 2006). Transport connection by roads is represented in factor 16. Good accessibility is given in Alpine valleys with a major motorway (green).



Map 2-12: Connection to the nationwide traffic infrastructure (factor 16)

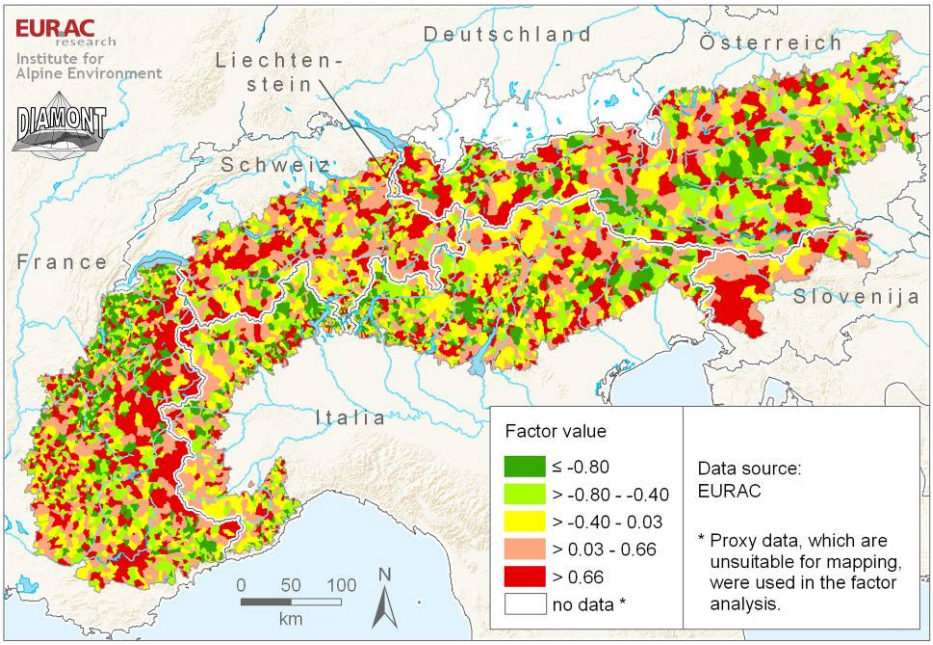
Table 2-6: Indicators that load highly into factor 16 and their factor loadings

Indicators loading highly into factor 16	Factor loadings
Travel time by car to nearest motorway or major road	0.809
Road Distance to nearest motorway or major road	0.803

Labour market (factor 2)

Employment is a key economic and social issue and therefore the focus of EU policies (EU 2005b) and one of the headline objectives within the Lisbon strategy. Hence, indicators for the labour market of a region or nation are widely used in indicator sets that measure sustainability or regional development

(Bundesamt für Bauwesen und Raumordnung 2006, Commission of the European Communities 2003, EU 2005b, Schoder et al. 2005). Employment does not only affect the economy –the economic performance is generally higher the more a region can take advantage of its labour force – but it has also important social implications contributing to quality of life and social inclusion (EU 2005b).



Map 2-13: Labour market (factor 2)

Table 2-7: Indicators that load highly into factor 2 and their factor loadings

Indicators	Factor loadings
Commuter balance	0.963
Jobs density	0.944
Rate of jobs held by women to female residents	0.878
In-commuters ratio	0.862
Out-commuters ratio	-0.554
Average enterprise size	0.535

The phenomenon "labour market" presented here primarily represents the economic aspects of the labour market. The first group of indicators concerns jobs density, i.e. the number of jobs per resident or the supply of jobs in the municipality. With an increasing number of jobs the number of local jobs held by women also increases.

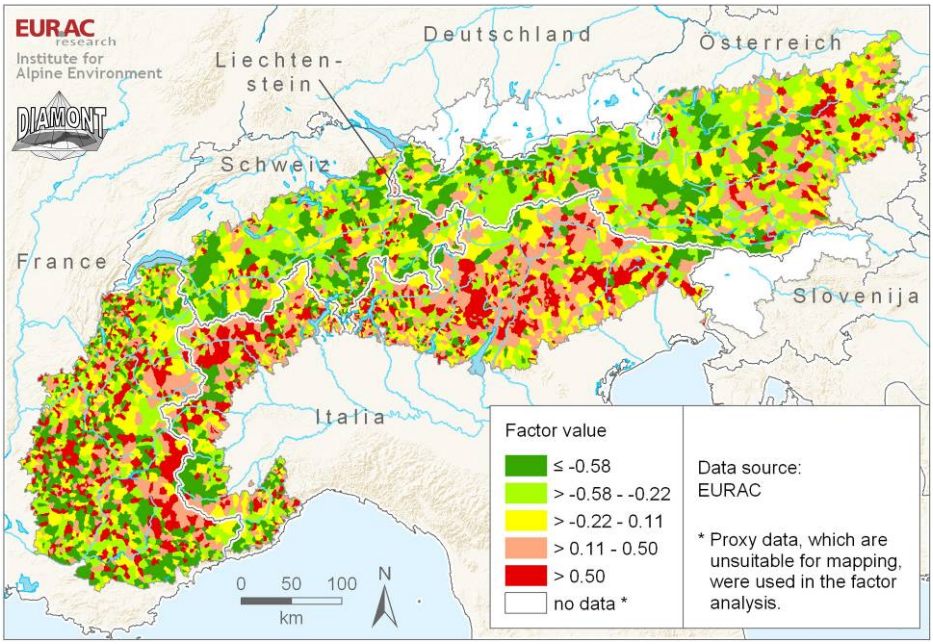
Both indicators are highly interconnected with the commuter balance: the

more jobs per resident are available, the more in-commuters there are likely to be compared to the number of out-commuters. Municipalities with high jobs densities and high commuter balances can be characterized as local labour market centres.

Finally the average enterprise size, measured by the average number of jobs per enterprise in the secondary and tertiary sector, contributes to the phenomenon "labour market". Small enterprises create more jobs than large enterprises but the job destruction is also significantly higher resulting in a high job turnover. Despite the high net employment creation of small enterprises, they also contribute a great amount of turbulence to the labour market (Audretsch 2002).

In municipalities for which high factor values have been calculated, the phenomenon is very pronounced and the labour market is well developed (displayed in red on the map). A less developed labour market can be found in municipalities displayed in green. Please note that all indicators loading highly into the factor are missing for Germany.

Dynamics of the labour market (factor 23)



Map 2-14: Dynamics of labour market (factor 23)

Table 2-8: Indicators that load highly into factor 23 and their factor loadings

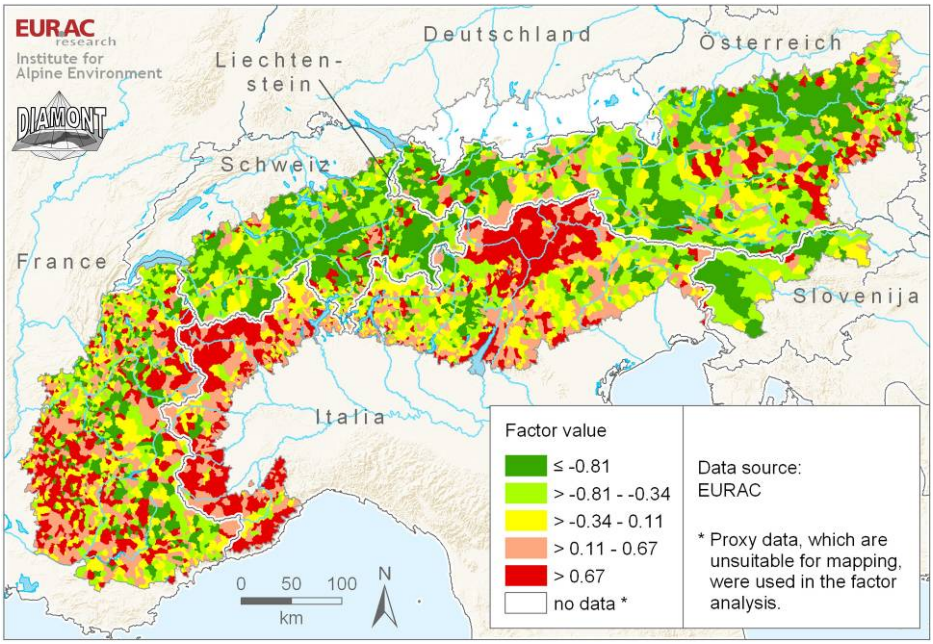
Indicators	Factor loadings
Change in jobs density	0.844
Change in rate of jobs held by women to female residents	0.572

While factor 2 "labour market" describes the current situation on the labour market, factor 23 depicts its changes and trends referring to the period between the last two censuses. It encompasses the change in employment rate as well as the change in number of local jobs held by women as a percentage of female residents.

High factor values denote high dynamics and a growing labour market while low factor values signal decreasing number of jobs. The results for Germany and Slovenia cannot be shown because both indicators loading highly into the factor are missing.

Agriculture (factor 13)

The factor "agriculture" summarizes an aspect of the economic structure, namely the size of the primary sector and the extent to which the local economy depends on it.



Map 2-15: Agriculture (factor 13)

Table 2-9: Indicators that load highly into factor 13 and their factor loadings

Indicators	Factor loadings
Primary sector employment	0.663
Self-employed rate	0.629
Sectoral breakdown of jobs	0.501
Average enterprise size	-0.463

The general trend in all industrialized countries is a shift in employment from the primary and secondary to the tertiary sectors. In Europe less than 5% of the labour force is employed in agriculture (European Commission 2006b). In the Alps the situation is different: on average 12% of the jobs in a municipality are provided by the primary sector. Generally, the share is higher in more rural and remote areas than in more urban-oriented ones.

The factor measures the extent of the primary sector in terms of jobs. A high share of jobs in the primary sector signals a rather unbalanced economic structure in terms of sectoral breakdown of jobs, defined as the sum of squared differences from the Alpine mean of the proportion of jobs in the three economic sectors. The average enterprise size in the secondary and tertiary sector correlates negatively with the factor agriculture: in municipalities with a large agricultural sector, the businesses in the other two sectors are rather small.

The last indicator that loads highly into the factor is the percentage of the self-employed. This indicator correlates positively with the number of jobs in the primary sector, because the probability of being self-employed is higher in agriculture than in other sectors (Blanchflower 2000). With the shift of employment from the primary to secondary and tertiary sectors, the proportion of self-employed persons decreases, as many of them were previously employed in agriculture (ILO - International Labour Organization 2006).

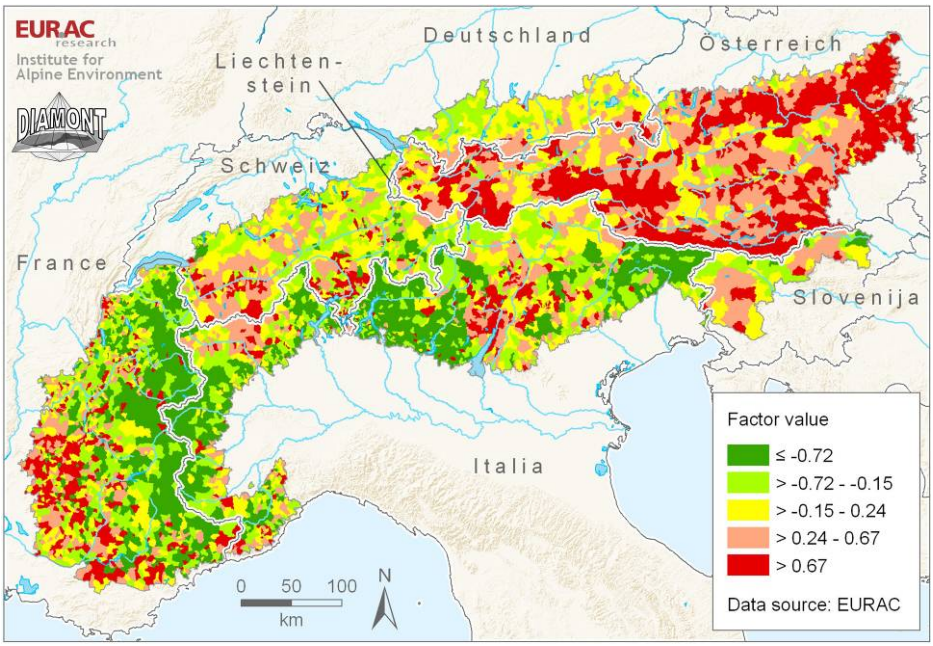
In sum, the phenomenon of agriculture is most pronounced in municipalities with a large proportion of jobs in the primary sector as well as an unbalanced economic structure. These municipalities are further characterized by a high share of self-employed persons and small businesses in the other sectors.

Agrarization (factor 21)

Before the mid-19th century, the economic basis of the Alps was predominantly agricultural and pastoral. The landscape represented the form that man had consciously and systematically imposed on the natural landscape in the course of history. Most of the values represented by this cultural landscape today are connected to traditional techniques and practices that have shaped this territory for several centuries (Tasser et al. forthcoming). However, during the last 60 years traditional Alpine farming has undergone a radical change. There has been widespread abandonment of unfavourable farming locations, while at the same time agriculture in favourable areas has intensi-

fied (MacDonald et al. 2000). In the French Alps, for example, 76% of all farm holdings were abandoned in the space of 45 years (1955-2000), in the German Alps the figure is at least 48%. In addition, almost 70% of all farms in the Alps that are still in operation today, are run only as a secondary source of income. The decline in agricultural enterprises seems to have been halted now in some regions!

The phenomenon of "agrarization" shows the vitality of agriculture in the Alps. It combines two perspectives: agriculture viewed in terms of jobs as well as in terms of farms and how they change. High values indicate an above average status of agriculture, i.e. hardly any abandonment of farms, a large number of agricultural enterprises and with it lots of primary sector employment. Regions with high values are mainly found in Austria, in the German Alps and in some parts of Italy.



Map 2-16: Agrarization (factor 21)

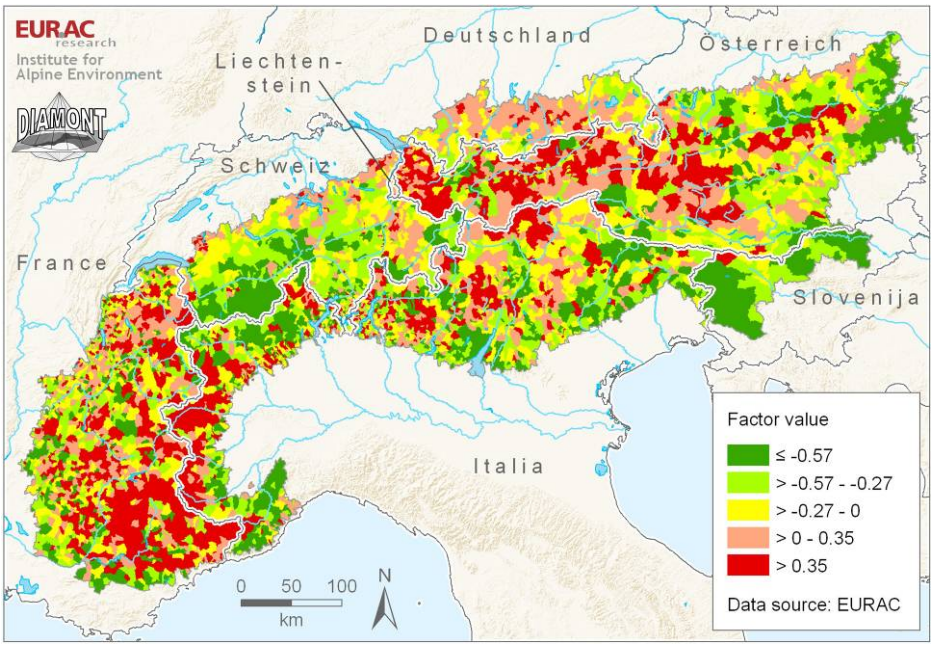
Table 2-10: Indicators that load highly into factor 21 and their factor loadings

Indicators	Factor loadings
Change in the number of farms	0.717
Farms run as a part-time concern	0.425
Rate of farms to total enterprises	0.403

Particularly striking in Italy are the autonomous province of Bolzano-South Tyrol and the autonomous region of the Aosta valley. As a result of their

autonomous status, these regions have the authority to pass laws and have used it to better support farming by creating appropriate conditions for agriculture in a mountain area. High values are also found in the south-western French Alps, an extensive arable farming area with additional sheep and goat keeping. Such extensive forms of agriculture receive high subsidies, which give farmers a positive outlook (Tappeiner et al. 2003). In large parts of the Italian, French, and Slovene Alps, but also in the Swiss Alps, the significance of the agricultural sector is in sharp decline. Even if the economic effects of this development might not be too grave, it must be remembered that agriculture provides a number of important services to society, such as the preservation of landscape elements and structures that are part of the cultural heritage (Barthelemy & Vidal 1995-2007).

Changes in agricultural areas (factor 22)



Map 2-17: Changes in agricultural areas (factor 22)

Table 2-11: Indicators that load highly into factor 22 and their factor loadings

Indicators	Factor loadings
Change in used agricultural area	0.728
Mean used agricultural area per farm	0.698

The Alpine space is characterized by two major types of agriculture. The first one prevails in the drier and warmer Alpine areas (e.g. inner-Alpine dry areas, Southern and south-western Alps) with predominantly arable farming, small

farm sizes, high parcelling of agricultural areas and partible inheritance. The second type prevails in the humid and cooler Alpine areas (north-western and northern Alpine rim, eastern part of the Eastern Alps) dominated by animal husbandry, relatively large farms, little parcelling of agricultural areas and primogeniture (Bätzing 1996). In recent decades, mountain agriculture has lost much of its significance (Streifeneder et al. 2007, Tappeiner et al. 2003). The main reasons for this are unfavourable conditions such as a shortened vegetation period and difficult terrain with steep slopes and small arable plots, which incur higher production costs. Mountain agriculture can therefore not compete in national and international markets. Thus, from the 1950s onwards, marginal land with low yields has successively been taken out of agricultural use. However, this development greatly varies in intensity between regions (cf. Tasser 2007): while in the South Tyrolean Oltradige, one of the most productive regions of the Alps, only about 6% of farming land has been abandoned within the last 150 years, the figure stands at 33% for the Tyrolean uphill areas, 37% in the region around Innsbruck and reaches 67% in the Carnia region. The most intensive push for giving up agricultural use occurred in the 1950s and 60s. These differences stem to a large degree from differences in agricultural policies (Tappeiner et al. 2003). In Austria, Bavaria, and Switzerland, for instance, subsidizing mountain agriculture started early on (Penz 2005), while France and Italy have supported mountain agriculture only hesitatingly (Bätzing 1996). Small units do not necessarily mean low profitability. The permanent cultures in Trentino/South Tyrol (wine and fruit growing) or in Liguria (market gardening) are of major economic importance as intensively farmed areas despite the small unit size.

The phenomenon “Changes in agricultural area” depicts the actual used agricultural area per farm and its changes between 1990 and 2000. In many parts of the Alpine space this period saw a further reduction in agricultural areas, even though many marginal plots had already been abandoned earlier (MacDonald et al. 2000). Slovenia, Italy, and Germany show particularly severe reductions. Only small reductions in agricultural land have occurred in Austria and Switzerland, where the proportion of used agricultural areas is still high. Some areas, however, show a trend reversal: there, the amount of agricultural land has stabilized or even increased. A slight increase can be noted mainly in Western Austria and in the French Maritime Alps.

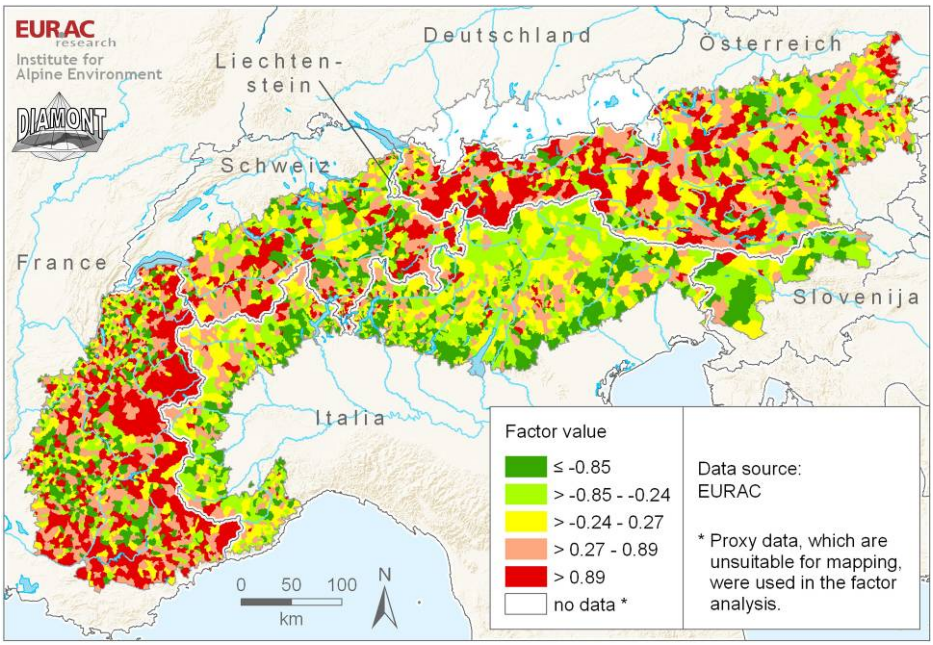
Service sector (factor 8)

The phenomenon of “services” complements the statements on the phenomenon of “agriculture” by dealing with other aspects of the economic structure. While the phenomenon of “agriculture” represents the size of the primary sector, the phenomenon of “services” reflects the relative proportion of the secondary and tertiary sectors, regardless of whether they are small or large in comparison with the primary sector. High factor values (red) are attributed

to municipalities with many tertiary sector jobs, especially in private services. At the same time, these municipalities have a small secondary sector. A domination of the tertiary sector hints at a preceding economic growth, because its growth is usually accompanied by an increasing contribution of the tertiary sector to GDP and an increasing absorption of employees. This is the result of a disproportionately high increase in demand and a disproportionately low increase in labour productivity.

The rate of jobs held by women also has a quite high factor loading. Traditionally, the service sector is dominated by women while most industrial branches are dominated by men (EUROSTAT 2006b).

The factor can be interpreted as a measure for the structural conditions and the development status of an economy.



Map 2-18: Service sector (factor 8)

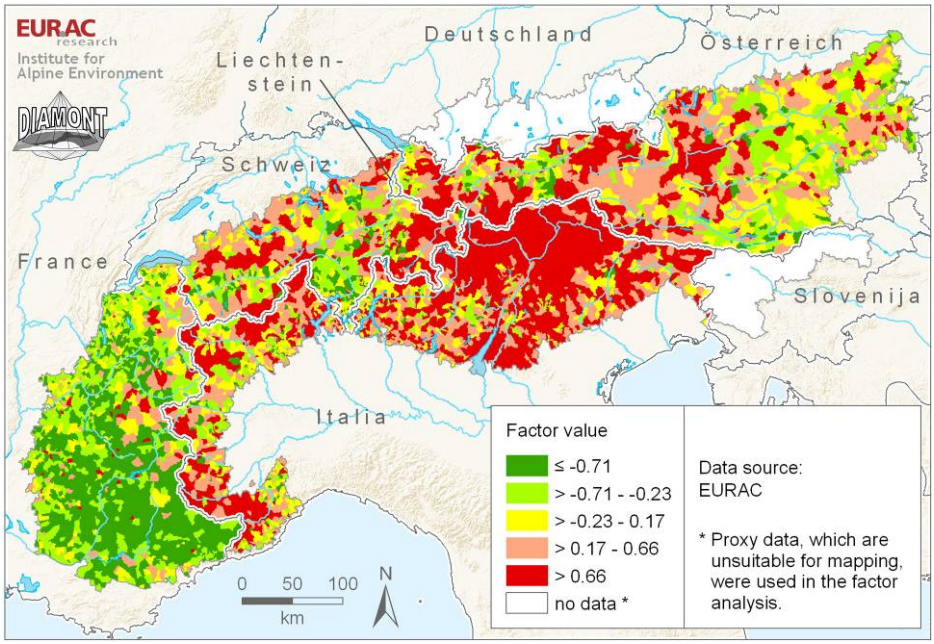
Table 2-12: Indicators that load highly into factor 8 and their factor loadings

Indicators	Factor loadings
Tertiary sector employment	0.905
Private service sector employment	0.856
Secondary sector employment	-0.729
Jobs held by women	0.452

Tourism (factor 15)

Tourism is a dynamic and growing industry in the EU both in terms of turnover and employment. It accounts for 11% of the European GDP and provides employment to 12% of the European labour force, if links to other sectors are taken into account (Leidner 2004). Besides its effects on GDP and employment, tourism plays an important role in regional development as infrastructure created for tourist purposes contributes to local development, and jobs are created or maintained even in areas of industrial or rural decline.

The tourist sector in the factor presented here is directly measured by two indicators: the number of tourist beds per resident and the mean number of beds in tourist accommodation services. Two additional indicators contribute to the phenomenon: firstly, high tourist intensity is accompanied by high enterprise density as tourism is mainly dominated by small and medium-sized enterprises (Leidner 2004). Secondly, tourism correlates negatively with jobs in public administration.



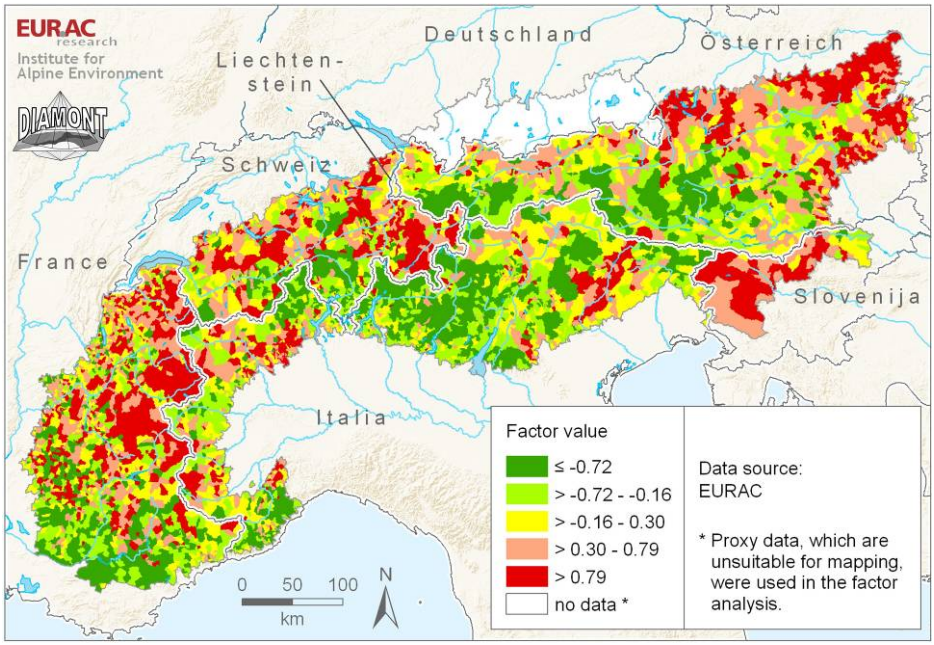
Map 2-19: Tourism (factor 15)

Table 2-13: Indicators that load highly into factor 15 and their factor loadings

Indicators	Factor loadings
Mean capacity of tourist accommodation establishments	0.599
Tourist beds per resident	0.557
Jobs in public administration	-0.524
Enterprise density	0.488

Regions with high tourist capacity are illustrated in red, while green colour signals a small tourist sector. The map shows high tourist density in western Austria, South Tyrol, Trentino, and Verona, as well as near the border between Italy and France. The low factor values are mainly located in France and Slovenia, but also in Upper Austria.

Gender integration (factor 10)



Map 2-20: Gender integration (factor 10)

Table 2-14: Indicators that load highly into factor 10 and their factor loadings

Indicators	Factor loadings
Female employment rate in the age group 25-45	0.856
Female employment rate	0.845
Rate of female employed to total employed persons	0.675
Employment rate	0.595

Women and men still do not participate equally in the labour market. This has economic and social consequences: on the one hand, a low participation of women signals that the local economy does not use the full potential of the labour force and on the other hand it signifies a lack of equal opportunities.

Female participation in employment is measured by two types of indicators. The first type includes the female employment rate and the female employment rate in the age group 25-45, two indicators that measure the percentage

of the female population that is gainfully active[2], either for all women or for a specific age group. The higher the female employment rate is, the higher is the total employment rate, the third indicator of this type.

The second type of indicators reflects how employment is divided between men and women, i.e. the female employed persons as a share of total employed persons. An equal share does not imply that men and woman work to the same extent because the indicator ignores the hours of employment and generally part-time work is much more common among women. But it means that women are as well integrated into working life as men. In this context, the proportion of women is an important indicator for sustainable development and for social positioning and participation in social life (see also (Schoder et al. 2005).

The map shows a high female participation (red) in employment in Slovenia, in some parts of Austria, and partly also in Switzerland and in France. Low values (green) can be found in large parts of Italy, with the exception of central South Tyrol and Belluno and many parts of Provence[3].

Dynamics of gender integration (factor 17)

The phenomenon "Dynamics of gender integration" reflects the dynamic aspects of the previous phenomenon. The evolution of the female employment rate is an indicator for the change in a formerly male-dominated sphere of work. The growth of female employment rates is a step towards a more equal distribution of labour between men and women and a progress towards equal rights for both of them.

Regions coloured in red have experienced a major growth in female participation in the labour market while the colour green signals low growth or even a decline in gender integration.

The situation of Slovenia presents a special case in the Alps: both its employment rates and its female employment rates have declined in the period between the last two censuses. This is a consequence of the transition pro-cess from a socialist to a market economy and the subsequent closure of enterprises, which made the employment rate plunge and explains the low factor values (green). Germany cannot be interpreted as all three indicators loading highly into the factor are missing.

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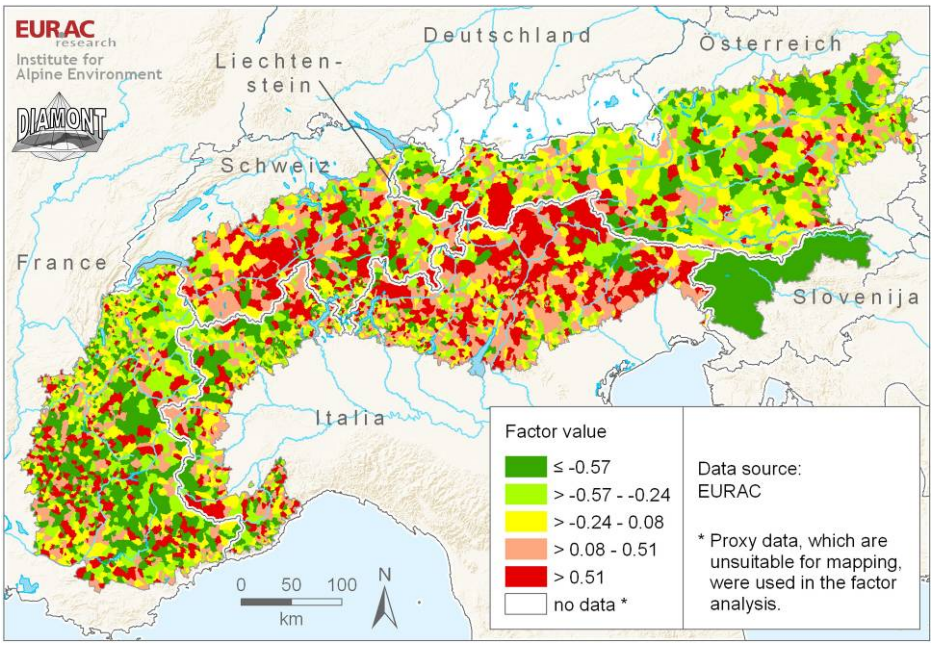
[2] Again, employment includes both employees and self-employed.

[3] Please note that in Germany only data on employed persons subject to social insurance are available at municipal level and that the data used are estimated from data at NUTS 3 level. Therefore they have to be interpreted very cautiously.



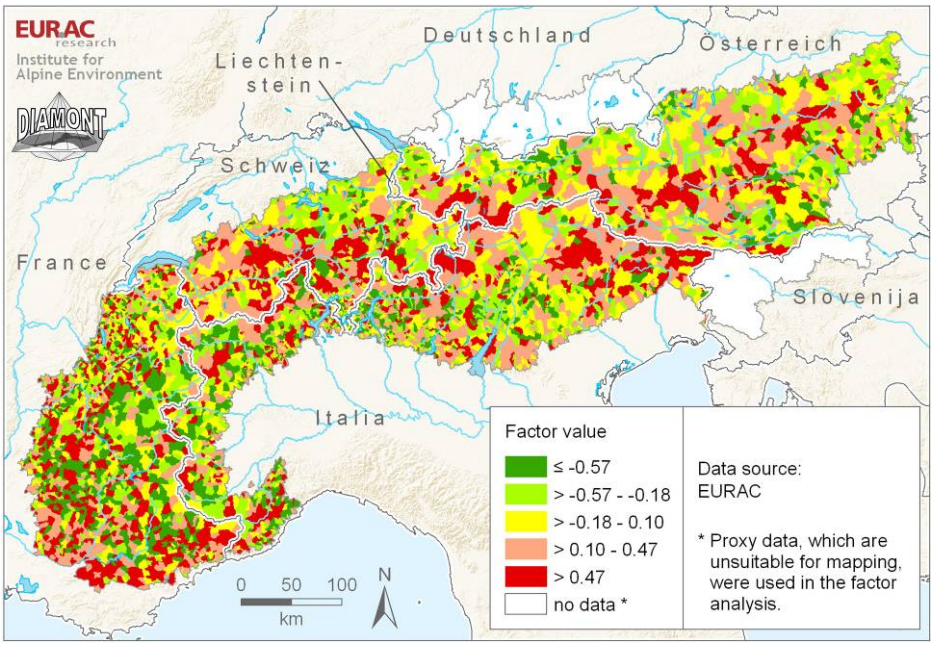
Map 2-21: Dynamics of gender integration (factor 17)

Table 2-15: Indicators that load highly into factor 17 and their factor loadings

Indicators	Factor loadings
Change in female employment rate	0.940
Change in rate of female employed to total employed persons	0.878
Change in employment rate	0.566

Dynamics of the labour market for women (factor 20)

In terms of content, the dynamics of the labour market for women do not differ greatly from the previous phenomenon "Dynamics of gender integration" as both deal with female employment. While the phenomenon "Dynamics of gender integration" reflects the employment situation of female residents, the factor "Dynamics of the labour market for women" depicts the labour market in terms of enterprises in the municipality (residence principle versus territory principle – see also methodological explanations in section 2.2.2). Please note that both indicators loading highly into this factor are missing for Slovenia.



Map 2-22: Dynamics of the labour market for women (factor 20)

Table 2-16: Indicators that load highly into factor 20 and their factor loadings

Indicators	Factor loadings
Change in jobs held by women	0.897
Change in rate of jobs held by women to female residents	0.733

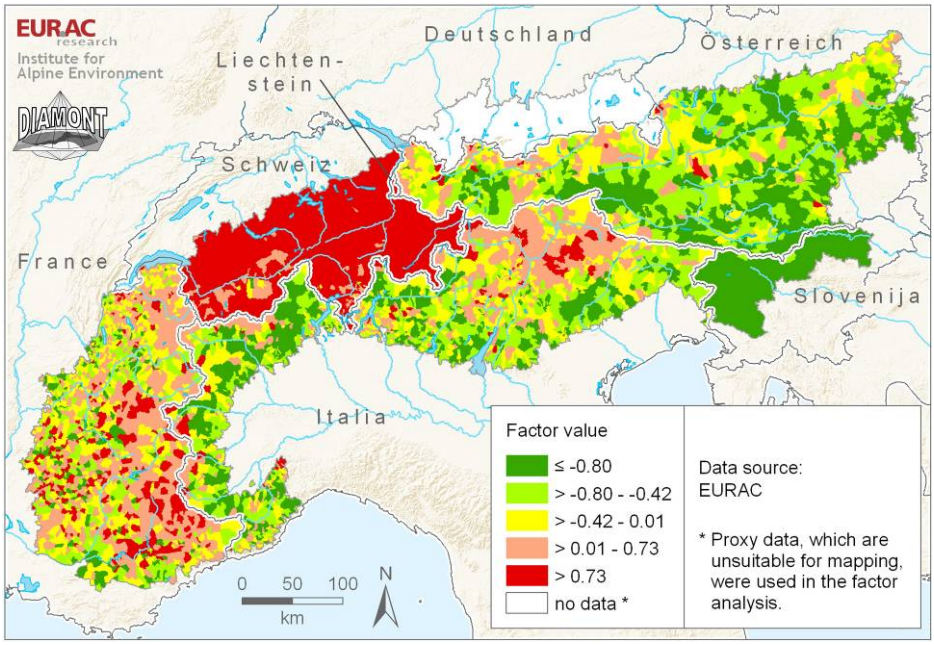
Pension system (factor 7)

Factor 7 can be interpreted as the embodiment of the pension system. It is represented by the participation of older people in working life. A high participation rate can shorten the strain caused by an ageing society on the publicly financed pension system (factor 14).

The factor values are especially high in Switzerland. This is caused by the fact that in Switzerland the participation rate of older people is among the highest in the OECD due to the small difference between the legal and the actual retirement age (see Blöndal & Scarpetta 1997, Commission of the European Communities 2003). Unlike other countries, in Switzerland the possibility for early retirement was not introduced into the public pension system until in 1997/1998 (Dorn & Sousa-Poza 2004). This means that in Switzerland there are very few early retirees (0.1 early retirees per worker in the age group 45-49) compared to the other Alpine countries: Slovenia (0.35), Germany and France (almost 0.2), and Italy (0.15). The opportunities for receiving other non-

employment benefits, e.g. from disability or unemployment schemes, partially exist in other Alpine countries but are absent in Switzerland (Blöndal & Scarpetta 1997). High employment rates of older people result in a high total employment rate.

The employment rate of older people is not the only reason for factor values to be higher in Switzerland than in other Alpine countries. The last indicator, too – the share of foreign residents - does not only depict differences between single municipalities but also institutional differences between the Alpine nations. Again, the share of foreign residents is very high in Switzerland, and after Liechtenstein it ranks second in Europe (see also Bundesamt für Statistik Schweiz 1998, Sheldon 2007). The reason for the high rates of foreign residents can be found in the prospering economy that demands labour, the relatively small size of the nation and above all its conservative naturalization legislation.



Map 2-23: Pension system (factor 7)

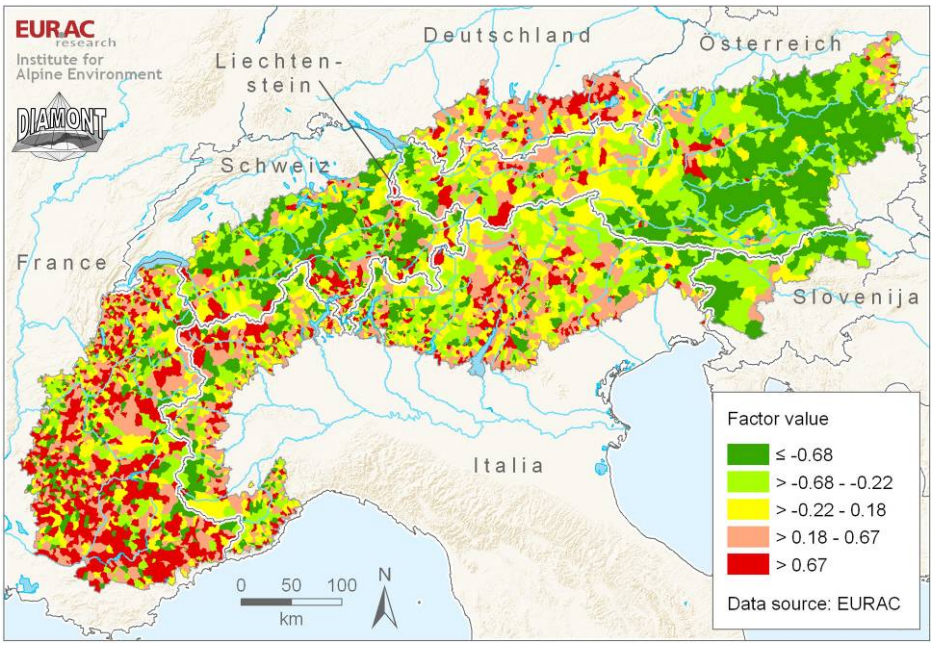
Table 2-17: Indicators that load highly into factor 7 and their factor loadings

Indicators	Factor loadings
Employment rate of older people	0.829
Older employed persons	0.740
Employment rate	0.520
Foreign residents	0.467

Population dynamics (factor 19)

Factor 19 represents the population dynamics and is constituted by net migration and population growth.

Total population change has two components, natural population change and net migration, but only the latter is included in the factor "population dynamics". Natural population change has a rather small effect on total population change and in Europe has turned from being a positive component to being a negative one. The main driver for population change, however, is migration. In the last 15 years, the trend in Europe has been for migration from less favoured regions to more favoured ones (Bundesamt für Bauwesen und Raumordnung 2006). This trend has been greatest among young people that are most mobile, thus also affecting the age structure of the resident population.



Map 2-24: Population dynamics (factor 19)

Table 2-18: Indicators that load highly into factor 19 and their factor loadings

Indicators	Factor loadings
Average annual net migration balance	0.814
Total population growth	0.744

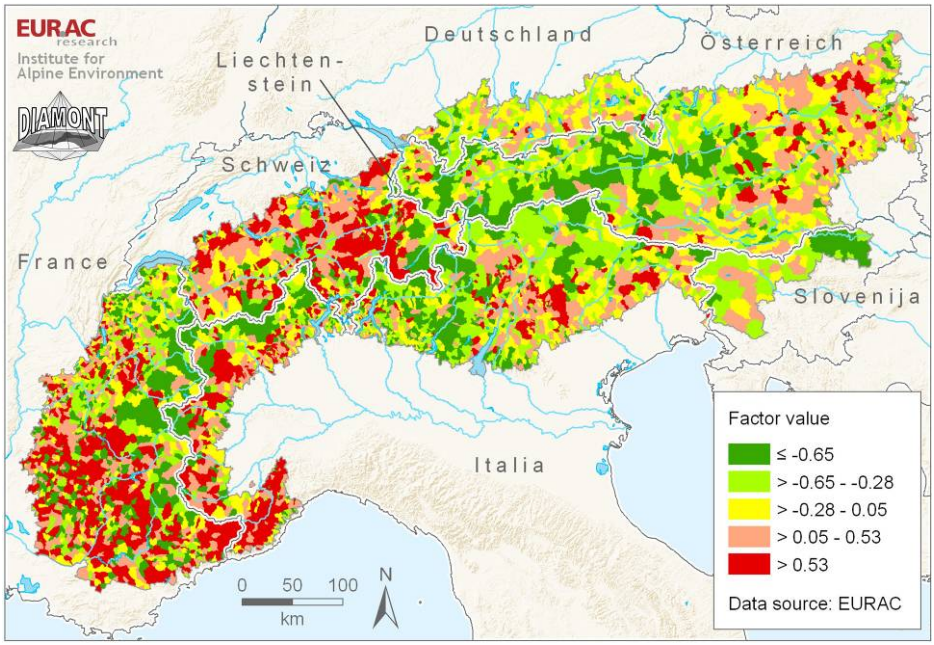
Regions that loose population "face significant challenges both in terms of economic regeneration and to sustain services of general interest to underpin future living conditions" (Bundesamt für Bauwesen und Raumordnung 2006). The rates of depopulation in European mountain regions are generally higher than in lowland areas. However, a decreasing population poses a problem in

27.7% of the Alpine municipalities. Thus, only the first quintile of the factor values (dark green), which includes these municipalities, signalizes potential problems and depopulation trends, while the municipalities marked in light green, yellow or blue have a gradually increasing population and/or a positive migration balance. The average population growth[4] in the period between the last two censuses amounts to 7.18%.

Ageing (factor 14)

Ageing is a general trend in OECD countries that has recently crept up the political agenda. It is the result of low fertility rates and longer life expectancy (see also factor 18). The old age dependency ratio is likely to increase further in the next decades; the extent of the increase depends on both fertility and immigration.

The economic effects of this trend are severe: a slower growth of the labour force, declining personal savings, lower growth rates of the capital stock, and a declining standard of living are some consequences proposed by the OECD. A major problem will be the heavy burden on public finances as public pensions and health care expenditure will increase (Johansson & Rauhut 2005, OECD 1998a).



Map 2-25: Ageing (factor 14)

[4] mean value of the indicator

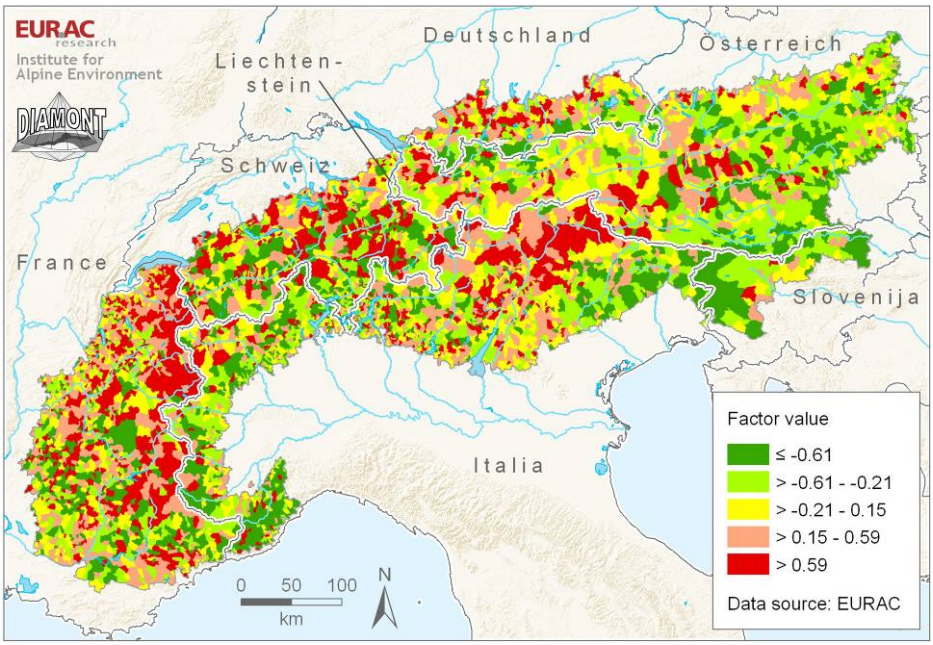
Table 2-19: Indicators that load highly into factor 14 and their factor loadings

Indicators	Factor loadings
Total dependency ratio	0.910
Old age dependency ratio	0.786

European governments are beginning to react to these consequences of ageing by restricting access to publicly funded early retirement schemes and by re-forming the pension systems (Durand & Sonnet 2005). The labour markets will have to adapt to the new structure of the labour force: both age and education will increase and it is as yet uncertain how easily such big changes can be accommodated (OECD 1998b).

An ageing society and its consequences could pose a threat in municipalities coloured in red where the old age dependency ratio as well as the total dependency ratio are particularly high, when the municipalities are confronted with the problem of depopulation. Coupled with net immigration, ageing can also characterize retirement regions that offer a favourable environment for older people. For a comprehensive view of the results, the factor presented here should be compared to the results of factor 19 that depict population change and migration patterns.

Reproduction (factor 18)



Map 2-26: Reproduction (factor 18)

Table 2-20: Indicators that load highly into factor 18 and their factor loadings

Indicators	Factor loadings
General fertility rate	0.830
Natural population growth	0.666
Young age dependency ratio	0.494

Factor 18 deals with natural population growth and reproduction. Most developed countries and also the Alps have experienced a large and rapid decline in fertility and thus a decline in natural population growth. Natural population growth has a much smaller effect on total population change than migration but nevertheless natural population growth enhances sustainable development and should be kept at least at replacement level.

Map 2-26 shows high reproduction in areas coloured in red and low reproduction in green regions. In almost two thirds of the Alpine countries, the natural population change is negative, i.e. deaths exceed births, and thus the general trend in the Alps is a low reproduction level.

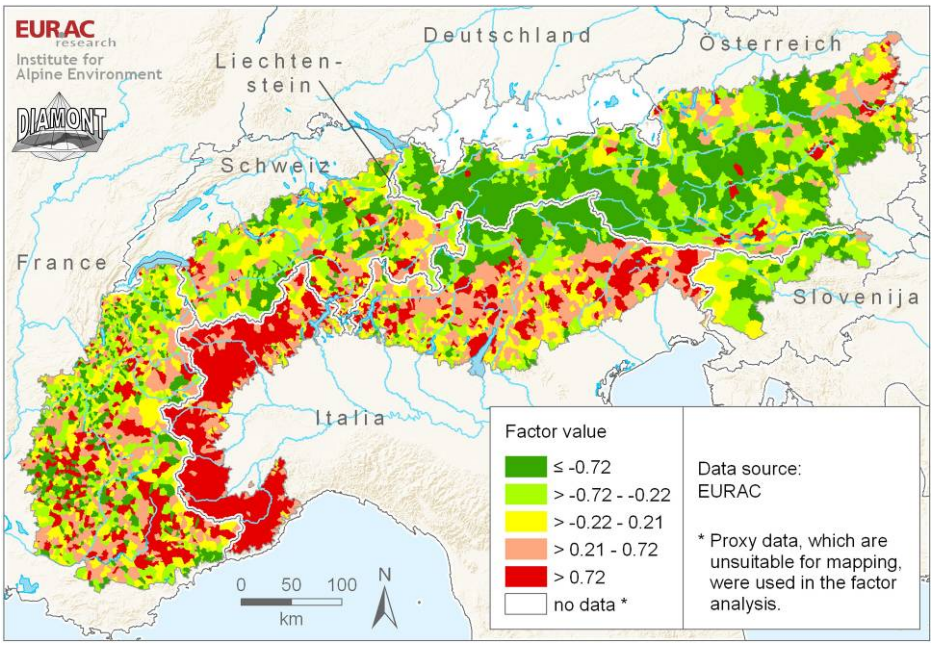
The impact of this trend is reflected in the young age dependency ratio: where fertility is high and there is a high natural population growth, there will also be a young population. In regions where fertility is low and deaths exceed births, there will therefore be a low young age dependency ratio.

Household structure (factor 5)

Factor 5 deals with household structure. Traditional household structures are changing: family sizes generally are shrinking and single person households becoming more common. Possible reasons could be later marriage, divorces or relationship breakdowns as well as elderly women outliving men. Small household size brings with it negative consequences such as fewer opportunities for economies of scale and well-being (OECD 2007b).

But factor 5 does not only represent these general aspects of household structures but focuses particularly on single-person households of older people. For this group of people, social networks are even more fundamental for quality of live and health and living alone could lead to social isolation.

Regions with strong tendencies in this direction are coloured in blue in Map 2-27. The household structure described implies also that in regions with high factor values the young age dependency ratio is low. The opposite is true of municipalities highlighted in green: there few people live alone, the average household size is relatively large and a high proportion of the population is under 15 years of age.



Map 2-27: Household structure (factor 5)

Table 2-21: Indicators that load highly into factor 5 and their factor loadings

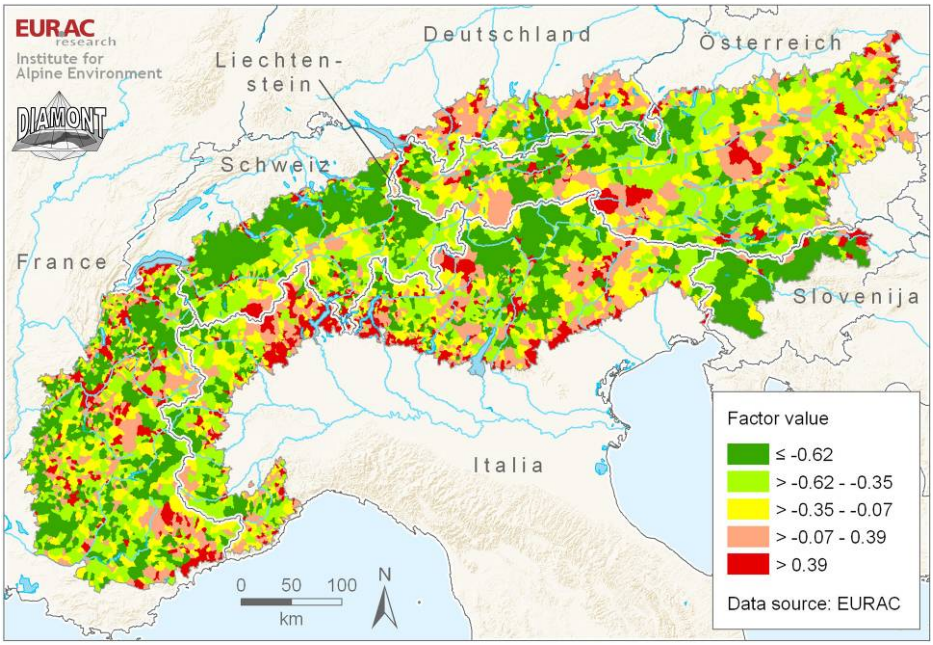
Indicators	Factor loadings
Older people living in single-person households	0.844
Single-person households	0.770
Average household size	-0.764
Young age dependency ratio	-0.505

Anthropogenic influence (factor 3)

The phenomenon "Anthropogenic influence" reflects the human impact on the municipal area. The higher the factor values, the larger the area that is modified and affected by humans. This influence will be expressed by several indicators:

The indicator "Artificial areas" covers different types of settlements and infrastructure such as housing developments, industrial and commercial use, sports and leisure facilities, as well as transport infrastructure, i.e. road and rail networks and ancillary land. In the Alps the share of land used for such purposes is very small. Suitable conditions can be found in the large valleys, e.g. along the rivers Isère, Rhine, and Inn, and at the Alpine rim (Bätzing 2003). Suburbanization around these cities as well as urbanization processes along the main traffic axes contribute to a steady growth of artificial areas, a development that also shows up in the detailed indicators "Road density of all roads", "Road density of major roads" and "Population density". A further

indicator, correlated positively to this phenomenon, describes this anthropogenic influence in an integrative way. "Hemeroby" measures the degree of human impact on single ecosystems, but also on landscape (Steinhardt et al. 1999, Sukopp et al. 1990). On an ordinal scale this sort of "reverse" index of naturalness indicates values from 1 for ahemerobe (natural) to 7 for metahemerobe (artificial, anthropogenic). That way, this indicator too is correlated positively to the phenomenon. By contrast, agricultural use is correlated negatively, i.e. areas which are predominantly used for agricultural purposes suggest less anthropogenic influence.



Map 2-28: Anthropogenic influence (factor 3)

Table 2-22: Indicators that load highly into factor 3 and their factor loadings

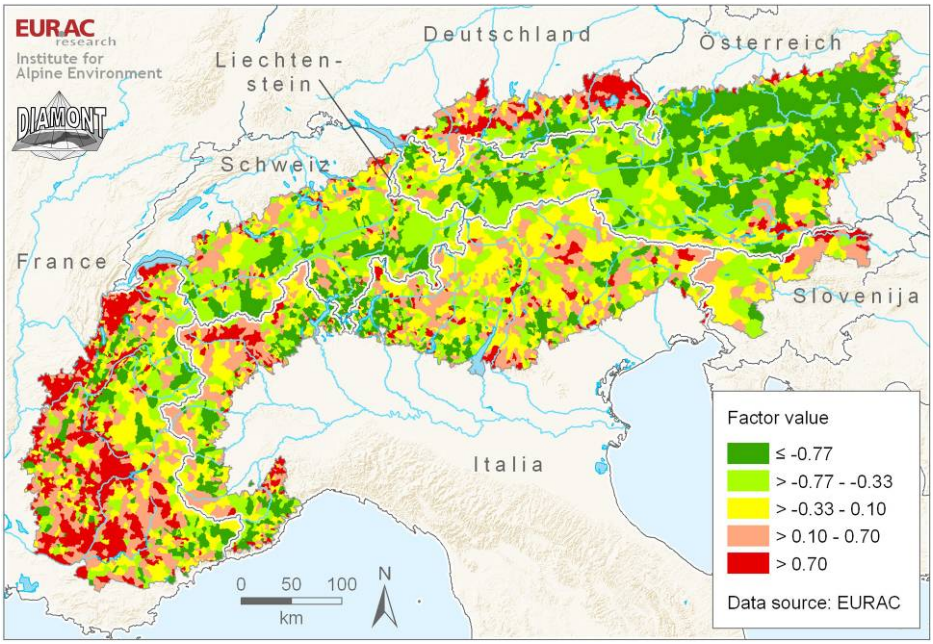
Indicators	Factor loadings
Artificial areas	0.835
Road density of all roads	0.783
Road density of major roads	0.713
Population density per available settlement area	0.631
Hemeroby	0.587
Rate of farms to total enterprises	-0.405

In sum, municipalities with high factor values are located in favourable areas on the Alpine rim and in readily accessible valleys (like the Inn valley and around the larger cities). In addition, the industrialized areas in Eastern Aus-

tria are characterized by high anthropogenic influence. The low values in Slovenia are most likely a result of the absence of detailed road data and must therefore be interpreted with caution.

Cultural landscape diversity (factor 6)

Over thousands of years, human activity has had a strong impact on the natural landscape in the Alps, resulting in a diversified cultural landscape that is continuously influenced by natural forces, especially in higher altitude sites. The resulting patchwork of natural, semi-natural and cultural landscape fragments is a major factor supporting biodiversity in the Alps by creating a complex spatial pattern of ecosystems and habitats (Olsson et al. 2000). The Alps are therefore a hotspot of biodiversity in Europe. About a quarter of the plant community diversity is man-made or depends on particular forms of agriculture (WWF et al. 2004). This is especially true for the many types of mountain meadows (Tasser & Tappeiner 2002). But the traditional cultural landscape is under threat: long-term societal trends which include a decline of population in structurally poorer regions, the globalization process and changes in agricultural policies have led to land being abandoned in agricultural unfavourable areas on the one hand, and to intensified use of favourable areas on the other (Tappeiner et al. 2003).



Map 2-29: Cultural landscape diversity (factor 6)

Table 2-23: Indicators that load highly into this factor and their factor loadings

Indicators	Factor loadings
Land-cover diversity of agricultural, near-natural and natural areas	0.830
Patch density of agricultural, near-natural and natural areas	0.804
Land-cover diversity of agricultural areas	0.665
Patch density of near-natural areas	0.621
Forest areas	-0.441

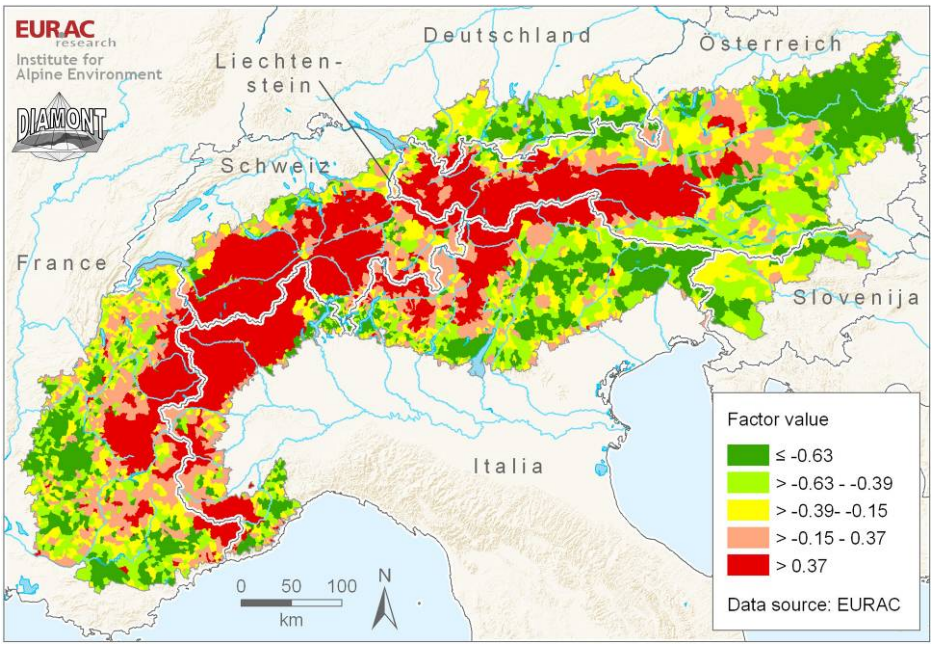
The phenomenon "Cultural landscape diversity" measures the diversity of the mountain landscape. The indicators "Land-cover diversity of agricultural, near-natural and natural areas", "Patch density of agricultural, near-natural and natural areas", "Land-cover diversity of agricultural areas" and "Patch density of near-natural areas" correlate positively with this phenomenon. However, an increase in "Forest areas" reduces landscape diversity. Therefore, the higher the value the higher the diversity and the smaller the compartments of the cultural landscape. High values also denote a high proportion of permanently settled areas and a low proportion of forest. Consequently, municipalities with low values have an above average proportion of forests or large areas of monocultures.

Great disparities within the Alpine space become immediately obvious from the map (see Map 2-29). As a rule, municipalities along the Alpine rim and in the main Alpine valleys show higher diversity than municipalities at higher altitudes within the Central Alps, thus reflecting the more favourable conditions for agricultural land use. In these areas arable farming, market gardening, wine and fruit growing are generally possible in addition to grassland farming. Indeed, it is particularly in those parts of the Alps with a Romance tradition, especially in the Provence and in the southern parts of the Eastern Alps that one still finds such traditional small-scale farming. In many other areas, however, agriculture has changed enormously. In the Italian Southern Alps in particular, large-scale abandonment of farming has resulted in forest regrowth across large areas and with it a severe decline in diversity. In Austria and Switzerland, agriculture has mainly specialized in grassland farming, but here too, melioration measures, consolidation of plots and increasing mechanization have reduced the diversity of the cultural landscape in many places.

Landscape fragmentation (factor 9)

Large habitat patches are of particular importance for species to sustain viable populations (Moser et al. 2007, Verboom et al. 2001). As a consequence of increasing landscape fragmentation, habitat patches are broken up, reduced in size, and increasingly isolated. Landscape fragmentation results from the

patchwork conversion and development of sites into urban or other intensively used areas, and from the linkage of these sites via linear infrastructure such as roads and railroads. Landscape fragmentation can reduce landscape connectivity by obstructing the movement of animals across the landscape, thereby potentially affecting metapopulation dynamics and the flow of genes. Transport enhances the dispersion of pollutants and noise emissions, affects local climate conditions, water balance, scenery, the recreational value of landscapes, and land use (Jaeger 2002). Therefore, the degree of landscape fragmentation has a high normative relevance as an assessment criterion for anthropogenic landscape alterations due to multiple negative effects of landscape fragmentation and their cumulative character. It is considered an excellent indicator for monitoring sustainability of human land use.



Map 2-30: Landscape fragmentation (factor 9)

Table 2-24: Indicators that load highly into factor 9 and their factor loadings

Indicators	Factor loadings
Effective mesh size of agricultural, near-natural and natural areas	0.929
Effective mesh size of near-natural and natural areas	0.928
Semi-natural and natural open areas	0.549

In our case, the phenomenon “Landscape fragmentation” combines the indicators “Effective mesh size of non-artificial areas”, “Effective mesh size of semi-

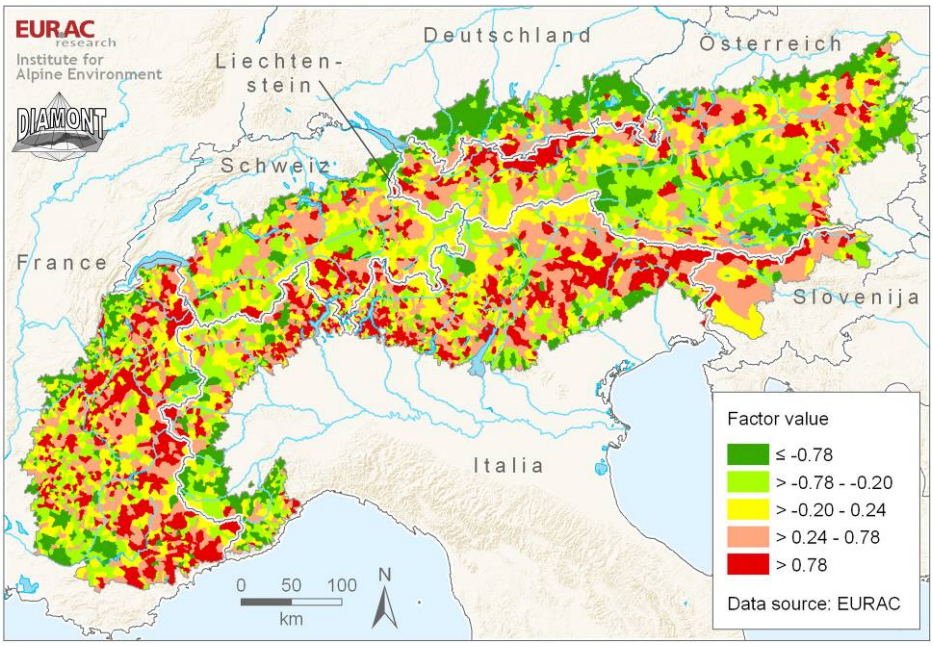
natural and natural areas", and "Semi-natural and natural open areas". The effective mesh size measures the dissection of landscapes and is based on two randomly selected points within a region not being separated by roads, railway lines or settlements (Moser et al. 2007). The effective mesh size returns the average size of undissected spaces. Given that today such areas can be found almost exclusively in high mountain regions, it is not amazing that the portion of semi-natural and natural open areas correlates positively with it.

Because of the high density of settlements and transport networks in the pre-Alps and in some larger Alpine valleys and basins (e.g. the Adige valley south of Bolzano and the Klagenfurt basin), the landscape there is highly fragmented. Less cut up are large areas at higher altitudes and with unfavourable topography in the Alps, particularly along the main Alpine range, for instance in the Dauphiné Alps, in large parts of the Swiss Alps, the Hohe Tauern, but also in the Adamello-Presanella group. These municipalities are also endowed with a high proportion of natural and semi-natural habitats.

Compartmentation of the landscape (factor 11)

This phenomenon reflects the degree of compartmentation of the landscape within the Alpine space. A compartmented area is bounded by at least two opposite sides by terrain features such as woods, ridges or villages, which limit observation from points outside the area. Consequently, the compartmentation is mainly determined by the predominant relief situation. In general, the more chequered a landscape is, the more compartmented it is too, but compartmentation can also be due to high diversity of near-natural and natural open areas, such as Alpine and arid grasslands, stream courses, rocks, fens and glaciers. A positive correlation with the indicator "Land-cover diversity of near-natural and natural areas" and a negative correlation with the hemeroby refer to this. Furthermore, an artificially created alternation of agricultural and forest areas significantly increases compartmentation. Strips of hedge or windbreaks and single trees further contribute to compartmentation (Burel & Baudry 1995). Therefore the indicator "Patch density of agricultural areas" also correlates positively with the phenomenon.

Low values denote a predominantly monotonous landscape of large plots. In this group you will find agrarian landscapes in upland locations but also high mountain regions with large grassland areas. As can be seen from the map, the areas with a particularly high compartmentation are not concentrated along the main Alpine ridge but in the slightly lower Northern and Southern Alps as well as along the eastern and western pre-Alps. They dominate in the Southern Alps and in the French Alpine region. Agriculture has largely abandoned these areas, resulting in a richly varied mosaic of small agricultural areas, diverse forest ecosystems but also humid habitats such as riparian woodlands and moors. The rocky karst landscape further contributes to the natural diversity.



Map 2-31: Compartmentation of the landscape (factor 11)

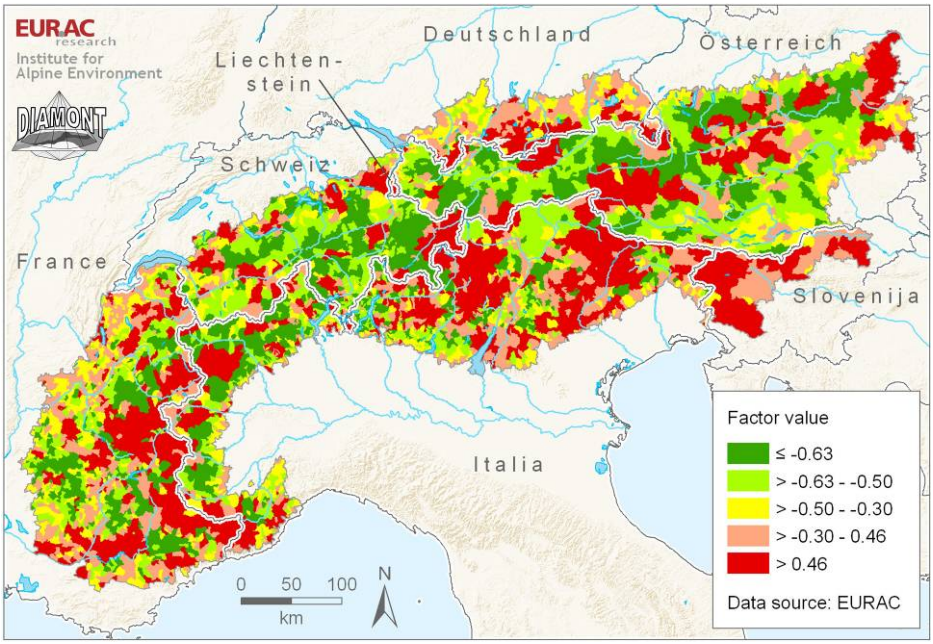
Table 2-25: Indicators that load highly into factor 11 and their factor loadings

Indicators	Factor loadings
Patch density of agricultural area	0.646
Available settlement area	-0.605
Used agricultural area per municipality	-0.598
Land-cover diversity of near-natural and natural areas	0.537
Hemeroby	-0.441

Protected areas (factor 12)

Protected areas are not an invention of our times: they were designated by men from time immemorial for the most diverse reasons (Plieninger & Bens 2008). Generally they are areas that have been excluded from intensive use, whether for religious motives (i.e. Mount Olympus in Greece) or in order to preserve particular resources or arts (i.e. the forest sanctuary of the ancient Indian Maurya kingdom). Today protected areas are established predominantly for the purpose of arresting the continuous world-wide loss of biodiversity. Instead the individual protection areas will be linked increasingly by green corridors in order to prevent their isolation. The Natura 2000 network was created precisely for these reasons. It is an EU-wide network of protected areas, which is composed of the Sites of Community Importance (SCI) of the 1992 Habitats Directive (92/43/EEC) and the Special Protection Areas (SPA)

designated pursuant to the 1979 Birds Directive (79/409/EEC).



Map 2-32: Protected areas (factor 12)

Table 2-26: Indicators that load highly into factor 12 and their factor loadings

Indicators	Factor loadings
Natura 2000 area	0.965
Sites of community importance (SCI)	0.845
Special protected areas (SPA)	0.829

The phenomenon "Natura 2000 sites" summarizes the indicators describing the share of NATURA 2000 nature reserves per municipality. High values describe municipalities with a high proportion of Natura 2000 areas. The absence or presence of nature reserves reflects the extent of the political and administrative will for environmental protection of the landscape and indicates the presence of zones with high ecological qualities.

The extent of Natura 2000 sites in the Alps mirrors its significance in conservation terms. The average share of Natura 2000 sites in relation to the total area of EU member states is 12.1% (EUROSTAT 2006a). At 24.7%, this share is twice as high within the Alpine region. In nearly 20% of all municipalities approximately half of the municipal area is part of the conservation area network Natura 2000. Switzerland and Liechtenstein also have a very high percentage of conservation sites comparable to Natura 2000 sites in the EU member states.

2.3.2 Identifying similar regions: the cluster analysis

As already explained, the final goal of WP8 was identifying similar regions within the Alpine arc (see chapter 1). For this identification, data from the database described above were applied in a statistical technique called cluster analysis.

2.3.2.1 Method

Cluster analysis is a group of statistical techniques used to classify objects into different classes so that similar objects are grouped together. Similarity is defined according to a distance measure.

Two main types of cluster analysis exist: hierarchical cluster analysis and partitional cluster analysis. The first determines the successive cluster using previously established clusters and the latter establishes all clusters at once.

For the DIAMONT project, the hierarchical cluster analysis was applied. The Euclidean distance was chosen as distance measure (it is simply the geometric distance in a multidimensional space) and the Ward's method was chosen as cluster method.

2.3.2.2 Data

In the identification process, the three pillars of sustainable development were covered in equal measure because they were regarded as equally important. Hence, not all indicators that were calculated could be used in the cluster analysis without giving unduly weight to some issues. Therefore selected indicators from the database were used for data input.

The indicators were selected according to the following criteria:

All important topics or phenomena of regional development should be covered. As a hint which phenomena could be considered, the results of the factor analysis were taken into account. The phenomena were chosen in a way to represent the pillars of sustainability in equal measure.

The chosen phenomena should be represented by the most meaningful indicator. Indicators without missing values or with few missing values were preferred. This decision was taken because municipalities with missing indicators cannot be classified using cluster analysis.

The following 20 indicators were selected for the cluster analysis:

- Commuter balance
- Tertiary sector employment
- Tourist beds per resident
- Change in the number of farms
- Travel time by car to nearest commercial airport
- Travel time by car to nearest motorway or major road
- General fertility rate
- Average annual net migration balance

- Old age dependency ratio
- Older people living in single-person households
- Employment rate of older people
- Female employment rate
- Change in female employment rate
- Road distance to nearest hospital
- Artificial areas
- Land-cover diversity of agricultural, near-natural and natural areas
- Non-grassland areas in agricultural use
- Effective mesh size of agricultural, near-natural and natural areas
- Patch density of agricultural areas
- Change in used agricultural area

Nine of these indicators have missing values ranging from 1.2% to 4.8%. Proxies without missing data do not exist in these cases. The missing values were replaced by the mean indicator value. For the interpretation of the results one should bear in mind that for Germany 6 indicators were missing and replaced by the mean value.

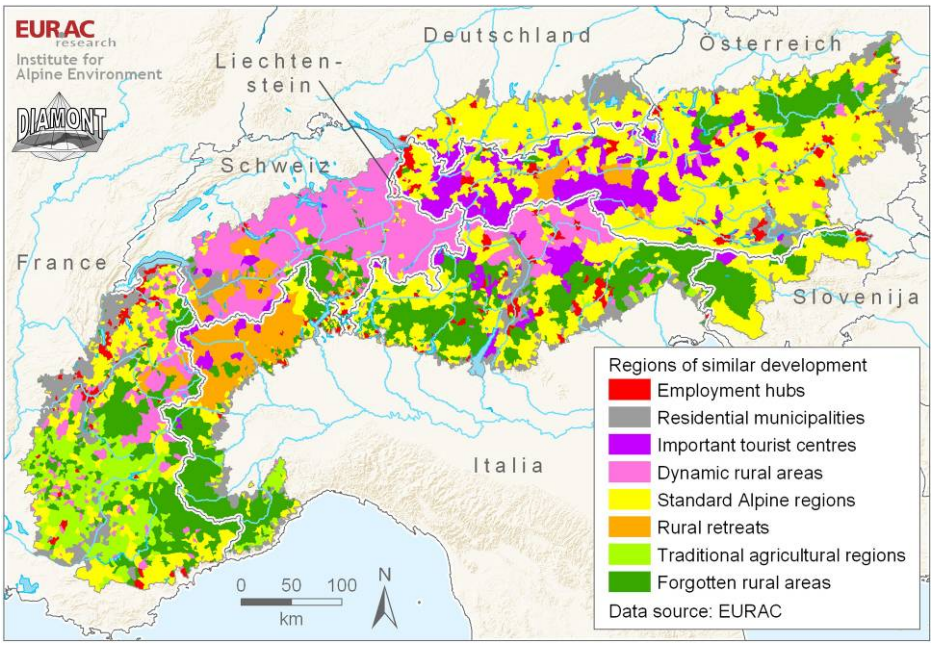
2.3.2.3 Results

Using the 20 indicators, we identified 9 groups or clusters of municipalities. 4 clusters are relatively frequent with more than 10% of the municipalities (Table 2-27). The smallest cluster is composed of 17 municipalities and because of the small number of cases it is not described below.

Interpretation of these groups of municipalities can be facilitated by calculating the cluster centres (i.e. the mean indicator values within an individual cluster). A comparison of cluster centres supports the interpretation (see Appendix III).

Table 2-27: Number of municipalities in the respective clusters

No	Cluster	Frequency	Percent
1	Residential municipalities	902	15.3
2	Employment hubs	378	6.4
3	Standard Alpine regions	1878	31.9
4	Forgotten rural areas	1061	18.0
5	Important tourist centres	192	3.3
6	Dynamic rural areas	712	12.1
7	Rural retreats	316	5.4
8	Traditional agricultural regions	431	7.3
9	-	17	0.3
	total	5887	100



Map 2-33: Typology of the Alps, based on economic, environmental and social aspects with the help of cluster analysis

Residential municipalities

Typical residential and dormitory municipalities are found in the vicinity of large employment hubs. Transport infrastructure is better than average, daily commuting into the employment hubs is possible without great loss of time. Due to the great appeal of pleasant surroundings and lower land prices, these municipalities are attractive as places of residence and they draw residents. Their inhabitants commute daily to work in the larger centres. Like in the employment hubs, agriculture is retreating and there are a lot of artificial areas.

Employment hubs

Employment hubs show a high positive commuter balance, i.e. many employed persons commute into such a hub on a daily basis while the number of out-commuters is relatively small compared to the in-commuters. These centres have a very good transport infrastructure and are built up on a large scale. Business parks, industrial facilities and shopping centres offer a good supply of jobs. Thanks to the abundance of jobs the employment rates are high, especially also for women and older people. The local economy is characterized by a domination of the tertiary sector, while the primary sector is in sharp decline. As the cluster incorporates urban imprinted municipalities, there are many artificial areas.

Important tourist centres

A typical tourist centre has very well developed accommodation facilities; the labour market is better developed than average because of an abundance of jobs in the service sector. An established tourist sector allows for a functioning agricultural sector: agricultural areas can be maintained or even increased even when the number of farms is decreasing slightly. This results in an intact cultural landscape with little landscape dissection.

Dynamic rural areas

Such an area is characterized by a rural location and a dynamic labour market. Employment, particularly for women and older people, is very high and has improved significantly, not least as a result of positive developments in tourism. The commuter balance is negative but rather low compared to the other types of municipalities because the local economy provides more jobs than average. Moreover, agriculture is still intact in such areas, with few farms or pieces of land being abandoned.

Standard Alpine regions

This region has no outstanding features and in all aspects returns average values for the Alps. Typical characteristics include low tourist intensity, a decline of agriculture and a negative commuter balance. Balanced migration and birth rates, however, prevent excessive overaging in these areas.

Rural retreats

Characteristic for this cluster are good transport links, which the residents use to commute even further to work while retaining the centre of their life in the rural hinterland. In recent decades, agriculture has largely retreated from such areas, resulting in large natural spaces with little fragmentation and a highly diverse landscape.

Traditional agricultural regions

Typical for such a region are severe overaging and a poor transport infrastructure. Unlike in the cluster “Rural retreat”, agriculture is not retreating to any great extent from these areas but farms are run extensively. Overall, this results in a rich traditional landscape. The poor employment situation in the service and tourist sectors in this region might also contribute to the lower rate of abandoned farms.

Forgotten rural areas

This cluster is dominated by distinct overaging and a particularly sharp decline in farming. A major reason for this could be the poor transport infrastructure

in such an area. These areas are real passive spaces: employment is low for all population groups and jobs are scarce; both the service sector in general and tourism in particular are small-sized; many old people are living alone.

2.4 Identification of Alpine-wide local centres and fringes and regions with increased land pressure in the Alps

2.4.1 Methodological approach

One of the most important objectives of WP8 was identifying local centres and fringes throughout the Alps. The results were the basis for the delineation of six DIAMONT test regions, in which selected regional instruments to steer sustainable development (Marzelli et al. 2008) were discussed in two successive workshops and adapted to the experiences of the stakeholders (Zumaglini et al. 2008).

But how can regions of similar development be derived at? Starting point for our considerations were the so-called "urban areas" (Perlik 2001). Urban areas are regions whose centre is a small or medium-sized town (SMESTO). These centres are surrounded by municipalities, which are strongly linked to the centre due to natural conditions, historical background and the regional labour market. Together with the core cities they form the urban areas. However, the urban areas delineated by Perlik could not be taken into consideration, because (1) they are based on 1990s data and are therefore not up-to-date, and (2) the areas were constructed by quantitative as well as by qualitative data without a transparent explanation. They actually did not allow an update for the whole Alps but only for some countries (for example Germany: see (Schönthaler & von Andrian-Werburg 2008). Nevertheless we were able to adopt the basic idea of connected regions, which had to be especially adjusted to the DIAMONT project. A clear distinction between our regions and Perlik's "urban areas" is drawn by the fact that we do not take into consideration cultural and historical connections with the surrounding municipalities. Our main focus is the labour market. That is why we are talking of "Labour Market Regions" (LMRs). In their centre there is a Labour Market Centre (LMC), that is a municipality or city with the following features:

more than 10,000 inhabitants or

more than 5,000 jobs and

a positive commuter balance.

Ideally a city or a rural municipality forms the centre of an LMR. In some cases, however, several municipalities with corresponding features are situ-

ated so close to each other, that they form a joint LMC. Examples of this structure can be found in the following regions: Salzburg - Wals-Siezenheim – Freilassing, or Grenoble - Saint-Martin-d'Hères or Annecy - Annecy-le-Vieux. As a distance limit we fixed an interval of 8.6 minutes of car travel, which corresponds to half the average commuter time in Switzerland (Carnazzi Weber & Rühl 2006).

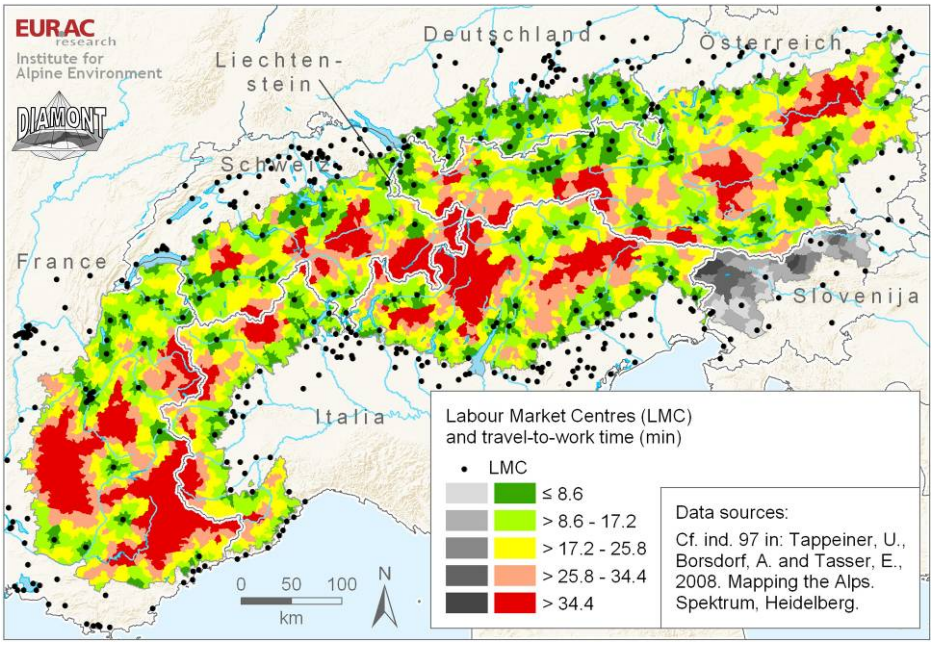
Therefore, besides a certain number of work places, another very important factor in the selection of centres is a positive commuter balance. Only such centres actually exert a force of attraction on employees of neighbouring municipalities. Nevertheless, through lack of data about real commuter flows, we do not know where employees come from. We do however assume that a large part of commuters are coming in from surrounding municipalities. This leads to the next methodological point, i.e. the definition of how municipalities belong to the respective centres: in the absence of commuter flow data, we used the distance to the centres to define the LMRs. For this purpose we calculated the travel-to-work time from individual Alpine municipalities to their nearest labour market centre. We based our work on the TeleAtlas road-data (Tele Atlas Austria GmbH 2006) and the TeleAtlas centres-of-municipality-data set (Tele Atlas Austria GmbH 2007). In our calculation we also incorporated a 50 km buffer zone outside the Alpine Convention area to include the closer LMCs around the Alps. Finally we assigned the municipalities to the nearest centre. We started from our hypotheses that (a) on average a worker prefers to spend as little time as possible to reach his/her work place and therefore will prefer to commute to the nearest centre and (b) that in all LMCs comparable jobs and same working conditions are present. Of course these hypotheses do not apply everywhere (see Schönthaler & von Andrian-Werburg 2008) but can safely be assumed for most cases. We were only interested in LMRs inside the Alpine arc: all LMRs situated not entirely within the Alpine space have therefore been excluded from the following analysis. Altogether there are 108 LMRs within the Alpine arc, most of them are situated in Austria (28), 24 are in Italy, 20 in Switzerland, 17 in Germany, 16 in France, and 3 in Slovenia. In Liechtenstein there is no proper LMR, but the municipalities of Liechtenstein have been assigned to the LMR of Buchs (CH).

As distance increases, the importance of the centres as work places decreases (Bundesamt für Bauwesen und Raumordnung 2006). This aspect has been described in a subsequent work phase. Large LMRs have been reduced by applying several criteria. The following factors have been used as exclusion criteria from an LMR:

Distance: there is a large range of possible accessibility limitations. We used the Switzerland mean commuter time of 17.2 minutes (Carnazzi Weber & Rühl 2006). Given the geographical position of Switzerland, these time indications should be applicable to the whole Alpine area. In this way all municipalities with a distance from the centre of the LMR of more than 17.2 minutes driving

time have been excluded from that LMR.

Commuter balance: according to our estimations, only municipalities with a negative commuter balance should be assigned to an LMR because municipalities with a positive commuter balance are less dependant or quite independent from an LMC in terms of jobs.



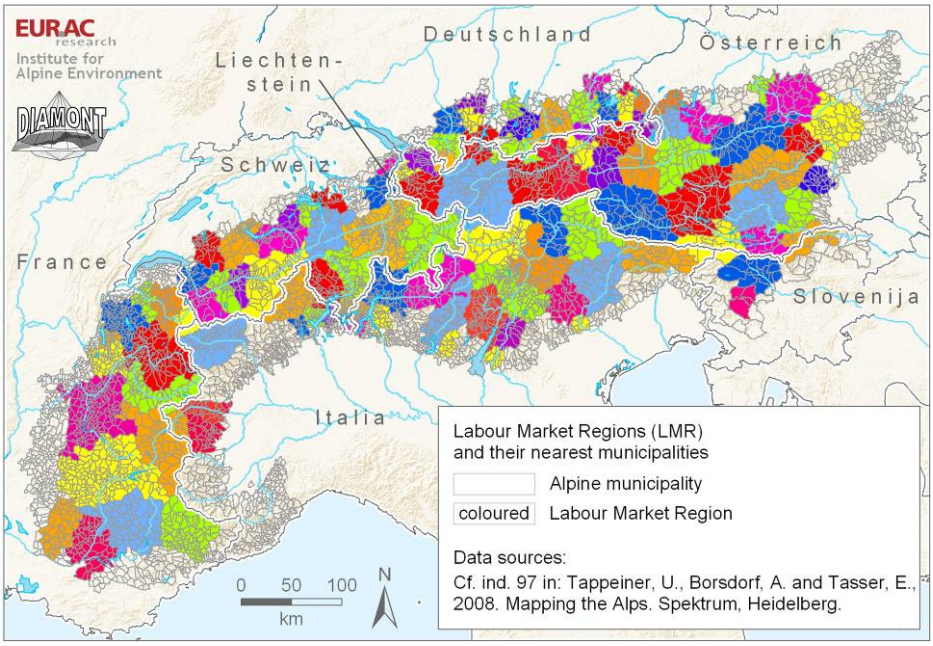
Map 2-34: Travel-to-work time to the nearest Labour Market Centre

2.4.2 Results

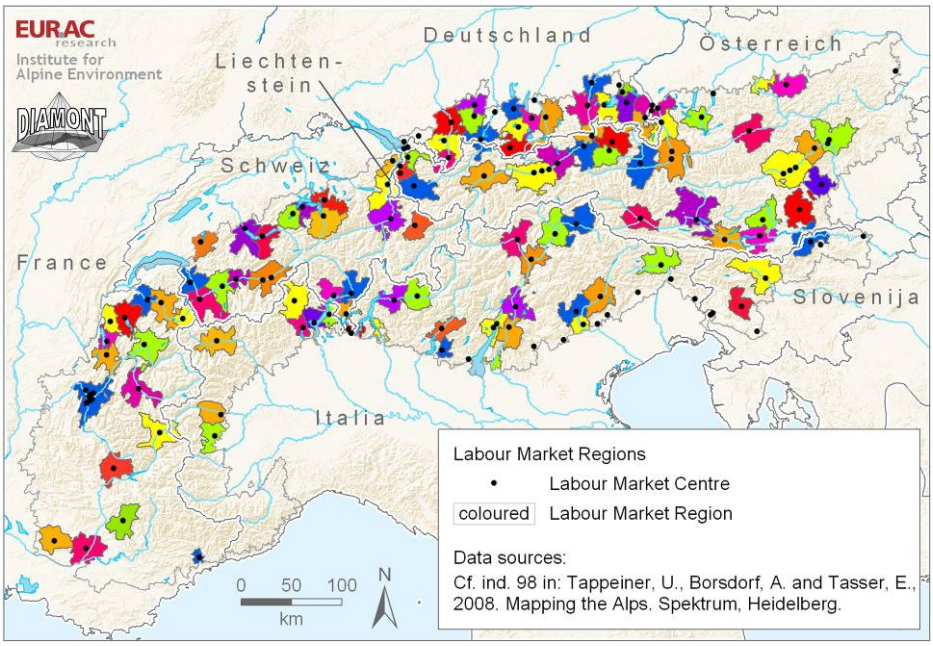
2.4.2.1 Characterization of the LMR

In the Alpine arc we identified a total of 108 LMRs, to which we first assigned all municipalities according to distance. This resulted in the distribution shown in Map 2-35. Without further limitations, an LMR therefore consists of 39 municipalities on average and its mean extension is about 1,300 km². Nevertheless clear differences between national contexts emerge: France is clearly above average, both for the number of municipalities and for the size of the total LMR. This is due both to the consistently very small size of the municipalities and to the small number of LMCs in the French Alps. By contrast, in Germany and Slovenia LMCs consist of far fewer municipalities, although there are quite big differences in the area dimensions of these two nations. While Slovenian LMRs are of average size, in Germany these dimensions are significantly below average, which means that LMCs in Germany lie much closer

together. Their total areas are therefore very small and below average, whereas in Slovenia a municipality area above the average emerges: very few but very big municipalities form an LMR.



Map 2-35: The distribution of LMRs without further limitations



Map 2-36: The distribution of LMRs with limitations: maximum travel-to-work time of 17.2 min and a negative commuter balance of the municipalities

If LMRs are reduced according to travel-to-work time and commuter balance, the resulting picture is much more balanced (see Fig. 2-2 and Fig. 2-3): on average LMRs are formed by approx. 20 municipalities, whereas in French and Swiss LMRs slightly more municipalities are grouped together and in Germany and Slovenia significantly fewer municipalities make up one LMR.

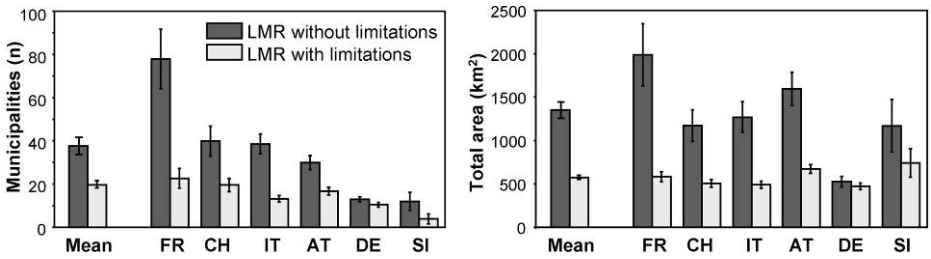


Fig. 2-2: Spatial characterization of LMRs with and without limitations for the whole Alpine arc and for individual nations

A similarly balanced picture emerges from the total area of LMRs. On average it is approx. 550 km², whereas German LRMs are a slightly below the average and Slovenian LMRs are clearly above it. To sum up, these results show that the LMRs that we delineated create a uniform picture on the whole Alpine arc in terms of their spatial and administrative basic conditions.

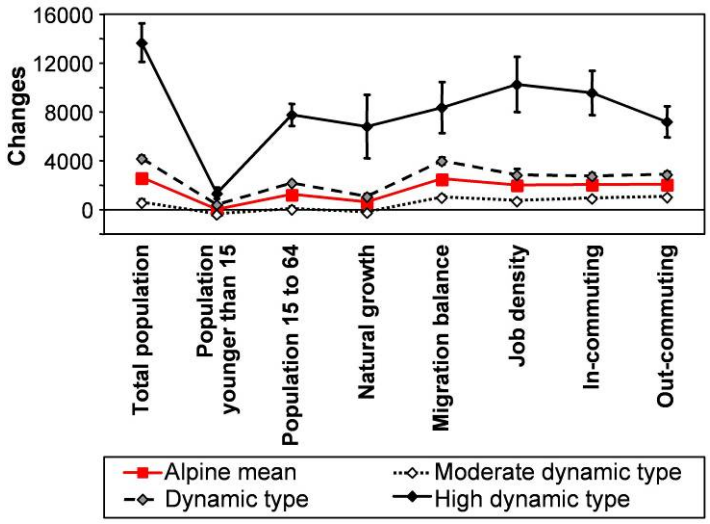
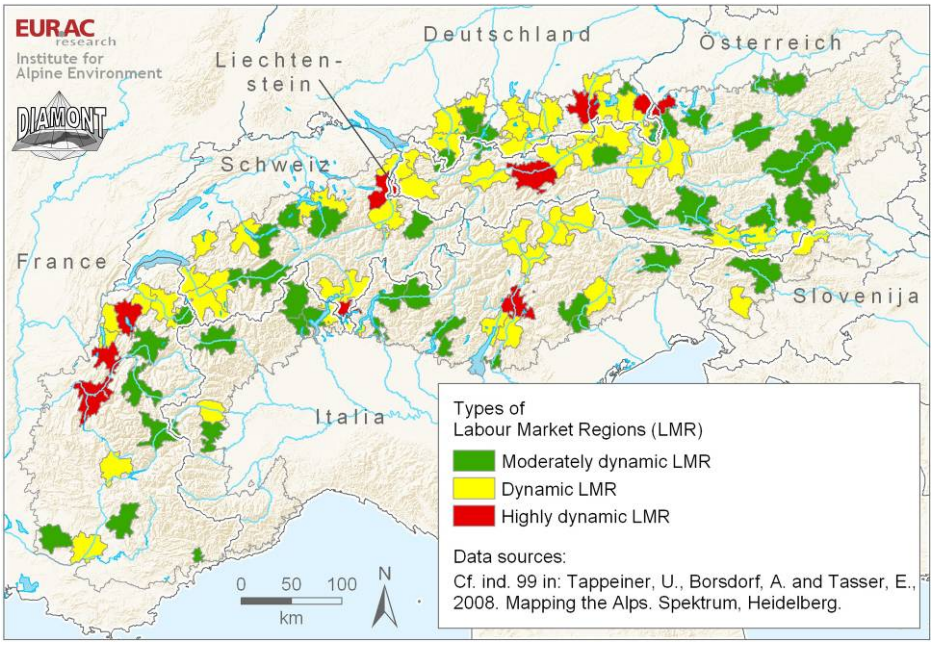


Fig. 2-3: Characterization of LMR types by indicator changes between 1991 and 2001 (10 year sum).

In a next step we concentrated on checking whether LMRs develop differently in their dynamics. For this reason in indicators were defined and tested WP7 (Schönthaler & von Andrian-Werburg 2008) for the German Alpine area, which could describe this process and help to classify LMRs. All indicators for which

Alpine-wide data were available, have been calculated (see Appendix IV). Among the major indicators to describe these dynamics are changes in population and job situation and the commuter balance (see Fig. 2-3).

Thanks to a hierarchical cluster analysis (Ward methods, Euclidian distance) it was possible to discern 3 LMR types (Fig. 2-3). They can be correctly explained (92.6%) by the implemented indicators. Ten Labour Market Regions experienced particularly strong growth in recent years. They include Annecy (FR), Chambery (FR), Grenoble (FR), Lugano (CH), Rapperswil / Freienbach (CH), Buchs (LI), Innsbruck / Hall in Tirol / Wattens (AT), Rosenheim (DE), Salzburg / Wals-Siezenheim / Freilassing (AT/DE), and the Trento region (IT). They are all characterized by very high growth in all areas. The Labour Market Regions of the second type experienced slightly above average development and include regions such as Bruneck/Brunico (IT), Imst (AT) and Idrija (SL). The third type, however, presents only modest if positive development in many areas with negative trends in youth quota and birth rate. This indicates an age overhang in the population and potential emigration trends. This type of Labour Market Region includes Apt (FR), Altdorf (CH), Tolmezzo (IT), and Liezen (AT).



Map 2-37: Distribution of the LMR types in the Alps

2.4.2.2 Identification of regions with increased land pressure in the Alps by means of a problem-oriented cluster analysis

As the ensuing WP9 was going to focus on a discussion of regional development instruments for managing Alpine land resources, we tried to identify municipalities where - according to theory - statistical data suggests an increased pressure on land resources. The underlying idea of this problem-oriented approach was that an overlapping of spatial and demographic indicators that suggest increased land take would point to those municipalities in the Alps that are most urgently confronted with this phenomenon. In this we were restricted to those indicators that are available for the entire Alpine space, which is why aspects that would be feasible for some Alpine countries (such as sectoral split, land use changes below 25 ha etc.) could not be taken into account. With a view to cluster interpretability, it was decided to select a limited set of indicators that would still allow a transparent interpretation.

Underlying hypotheses

Within the restricted data set, land pressure was considered to be determined by the following factors:

(1) Population dynamics (difference between 1991 and 2001)

Positive population dynamics (natural growth and/or migration) result in an increased demand for building land for housing, commercial and industrial activities. Furthermore, population dynamics can be seen as an indication of attractive municipalities. Attractive either in terms of economic development and employment opportunities, vicinity to other employment centres, in terms of affordable land prices or soft location factors such as attractive landscape and high recreational value.

(2) Youth rate (population <15/population 15-64)

Generally speaking, the segment of the population between 20 and 40 years of age is at a stage of life where housing property is being realized and where the individual demand in terms of accommodation size increases. A high youth rate (population under 15/population between 15 and 64) suggests that a disproportionate part of the population is in this age segment either as parents or approaching this age group.

(3) Distance to core city

Core cities are by definition cities that exert substantial influence on their surrounding territory in terms of employment opportunities, provision of shopping facilities and cultural and social activities. Therefore close vicinity of a municipality to a core city as defined by the indicator “Distance in minutes” is

believed to be a significant factor in terms of land use and pressure on land resources for housing in these municipalities.

Considering massive land-take increases that evidently also take place in more remote areas, one has to keep in mind that the assumption of the correlation of vicinity to urban areas and above-average land-take rates only covers one of many essential driving forces. Low land prices in remote rural areas are also a major driving force behind land take, but have not been available as statistical indicators at municipal level on a pan-Alpine scale.

Methodology:

Considering national differences within the Alpine arc

As the Alpine average of population dynamics and youth ratio conceals national differences, the national average of population dynamics has been subtracted from the municipal value (e.g. municipal population dynamics of 115%, minus a national average of 104%, means a value for population dynamics above the national average of 11%; in IT (with a national average of 101%) the same municipality would return 14%). The indicator value for population dynamics and youth rate therefore reflects national differences within the Alpine region.

Cluster Analysis

The clustering procedure has been split into two steps. In the first step, a hierarchical clustering was carried out for the data set, which produced information on appropriate numbers of clusters to be built (see Fig. 2-4). Hierarchical clustering in general starts with assigning one cluster to every municipality, thus building 5,887 clusters in the Alpine region. From there, cases are combined in clusters according to their proximity to each other. In the end, after 5,887 steps, only one cluster would remain. In the diagram, the last 40 steps of this procedure are displayed with the respective Euclidean distance between the remaining clusters. From a methodological point of view, it is advisable to set a number of clusters following a significant step in terms of Euclidean distance. On the basis of this diagram, it has been decided to build five clusters.

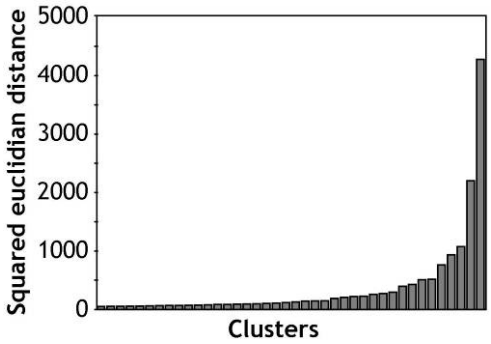


Fig. 2-4: Distance between clusters

In a second step – building on the information on appropriate numbers of clusters - five clusters were created using the Cluster Centre Analysis. Of these five clusters, cluster number four shows characteristics that comply with our theory (see Table 2-28). It contains

municipalities with below-average driving distance to the core city and above average population dynamics and youth rate in the national context. The values in Table 2-28 represent average indicator values in each cluster on a standardised scale (z-value).

Table 2-28: Cluster centres

	Cluster				
	1	2	3	4	5
Standardised value (Distance to core city in min.)	0.857	-0.549	1.364	-0.470	1.801
Standardised value (Population dynamics in national context)	0.014	-0.282	-1.044	1.110	8.449
Standardised value (Youth rate in national context)	0.840	-0.291	-1.149	0.503	12.271

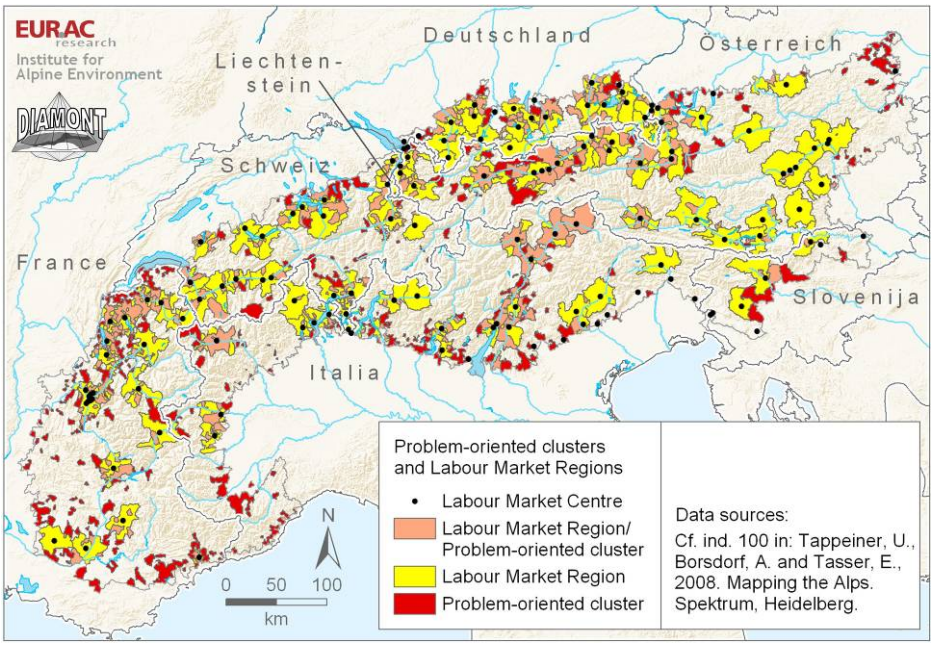
Table 2-29 shows the number of municipalities that were assigned by Cluster Centre Analysis to each cluster. Cluster 4 thus represents about ¼ of Alpine municipalities.[5]

Table 2-29: Cluster counts

		Number of municipalities	%
Cluster	1	1138	19.3
	2	2576	43.8
	3	794	13.5
	4	1378	23.4
	5	1	0
Valid		5887	100.0

Map 2-38 shows the distribution of Cluster-4 municipalities (problem-oriented cluster) across the Alpine region with regard to labour market areas as calculated by EURAC.

[5] Cluster 5 contains only one municipality and can thus be neglected.



Map 2-38: Problem-oriented cluster and LMR

Problem-oriented clustering in perspective

Summing up, the significance of the problem-oriented cluster can be characterized as follows.

It has to be kept in mind that the clustering method contains significant restrictions:

First it is based on a theoretical assumption concerning the driving forces of land take at municipal level. This means that in reality certainly a more complex system of determinants is at work, involving political processes, individual preferences and subjective decisions by local stakeholders. This complexity, however, is not reflected in the Alpine-wide available set of harmonized indicators and thus cannot feed into the problem-oriented data analysis.

Other aspects worth considering, such as land availability due to agricultural decline, industrial and commercial demand for land or the level of land prices were not covered in the database to a degree that would have allowed a pan-Alpine analysis of land take.

The clustering contains municipalities that feature indicator values which suggest some degree of pressure on land resources. However, this does not mean that in every case these municipalities do in fact experience disproportionate land take. The opposite could be the case; municipalities that are subject to increased pressure on land resources could already have developed strategies

on how to limit excessive land take while remote municipalities might still be unaware of the problem and thus might feature much higher rates of actual land conversion.

On the other hand, the clustering transparently reflects three variables that are undoubtedly related to an increased pressure on land resources – proximity to core cities and their labour markets, above-average population dynamics and a disproportionately young population.

3 Subjective perception of regional development

3.1 Introduction

The indicators and quantitative data described in subchapter 2.2 are used for the objective description of the municipalities' development status. However, regional development is determined mainly by the actions of decision-makers that are based on their perception of the situation. For this reason, objective data on development levels are complemented by the subjective perceptions of decision-makers.

In this context, a survey has two major advantages:

It is possible to address topics for which no quantitative data exist, such as consumption of resources, social participation or economic innovation.

The mayor is able to give a general view of the situation, without being directly confronted with the problem of having to choose appropriate weighting to individual aspects, a process that is unconscious and may depend on personal background and experiences.

The results of the survey allow a comparison of the subjective positioning of a municipality to its objective condition. From this comparison we can discern differences between the internal and the external assessment, which can deliver important development impulses but also show up impediments to development.

3.2 Survey

3.2.1 Questionnaire

3.2.1.1 Outline of the questionnaire

The questionnaire is composed of three main sections (see V):

In section A the mayors were invited to give an evaluation of the current situation of their municipality in terms of a set of sustainability aspects and at the same time they were asked about the priority of these sustainability dimensions.

Section B asked the mayors to evaluate their own and some neighbouring municipalities in terms of their development status in the three sustainability pillars. The purpose of this part was– after the detailed evaluation of the own municipality – to get a view of neighbouring municipalities and therefore an evaluation of the surroundings. At the same time, we generated several statements on how the municipality is seen by others. Confronting the image others have about the municipality with the self-perception could lead to interesting conclusions.

Section C dealt with instruments of regional development. It complemented sections A and B, asking which type of instrument was thought to be successful or preferable in the present situation. Section C also asked for the relative importance of the instrument and its likely future importance.

Section A was further subdivided into two parts: the first part asked the mayor to evaluate the status quo of their municipality in terms of the individual aspects while the second part demanded a ranking of the priority of those aspects.

The choice of the rating scale – the continuum on which the answers were to be placed – involved a decision on whether to use a middle category or not. The decision depends on the context of the analysis. As the use of an even number of categories forces the respondents away from the middle category, it can bias the answers, so an uneven number of scale categories was chosen.

The scale used for the evaluation in both parts ranked from 1 to 5 (from very good or extremely important to very bad or not important); moreover it was possible to refuse a ranking saying either that the question was unclear or that one had no opinion on specific aspects. As Iarossi emphasizes (Iarossi 2006), it is important to discriminate between "neutral" and "no opinion". The WP8 survey went even further and included "unclear question" as a third possibility. Hence, the mayors were given the option to state that they did not fully understand the question, that they did not have an opinion on the addressed topic (perhaps it was of no relevance to them) or that they understood the question and had an opinion but that they took up a neutral stance.

3.2.1.2 The pre-test

Careful planning of the survey is vital for its success. This involves review of the literature and talks with experts in the countries the survey takes place in order to conceptualize potential problems (Iarossi 2006). All DIAMONT partners acted as national experts, contributed comments and recommendations for the realization of the survey and added their experiences in this field. With their help, an extensive questionnaire was created that had to be tested in the field before sending it to the mayors of all Alpine municipalities.

This pre-test is a critical component in the design of a questionnaire, usually being the first live test and the last step towards finalizing the questionnaire. The purpose of the pre-test is to evaluate the adequacy of the questionnaire (see also Iarossi 2006).

In the case of the WP8 survey this was not the only purpose of the pre-test:

During surveys it often happens that the number of plausible and apparently necessary questions very quickly exceeds the maximum number that is acceptable from the point of view of survey techniques. Therefore it is necessary to find a procedure to filter questions with the highest information content out of a very big pool of questions. To this purpose a very extensive questionnaire containing 45 aspects of sustainability was completed by 250 students of economic sciences and biology at the University of Innsbruck (it is well known that students are very patient test objects, and for this reason they play an disproportionate role in many studies). The results of this survey were put to a factor analysis according to the specific line of studies, from which it emerged that the dimension of the question pool as well as the assignment of individual questions to the established factors according to defined main focuses, were perfectly matching between the two lines of studies. Between 2 and 4 questions were selected for each sustainability dimension thus determined, which created the questionnaire for the mayors of Alpine municipalities.

The resulting questionnaire (part A) was composed of 24 aspects of sustainable development: 7 questions for the economic pillar, 9 for the social pillar and 8 for the environmental pillar.

Although the question pool used was closely oriented to the objective indicators, for obvious reasons it systematically diverged from them. A short example should illustrate this fact: survey techniques allow questions on the supply of a municipality with near natural areas, but not on their structural variety. Moreover the survey made it possible to get information about indicators for which no area-wide data were available. So we were able to capture some components that because of the data situation are only partially described in the quantitative indicator set.

3.2.1.3 The distribution of the questionnaire

The questionnaire was accompanied by a covering letter introducing the DIAMONT project to the respondents. It focused on the purpose of the survey mentioning its unique characteristics and practical benefit. There is no clear empirical evidence that the use of a covering letter increases participation. What seems to be quite clear is the fact that the number of times a respondent is contacted has a significant impact on the decision to participate (Iarossi 2006).

As distribution method we chose an online questionnaire because it could be realized at relatively low costs and errors in the development of the question-

naire could be minimized thanks to the possibility of automating individual operations. Other possible methods would have been

a personal interview which generally leads to a better response rate because of the high motivation. The disadvantage is the high costs of such a survey which would have made it impossible to cover the whole Alpine arc and its 5,887 municipalities

a survey by telephone, which is associated with lower costs than a personal interview but is also quite time-consuming.

distribution by mail or fax.

For our purposes, a direct interview was out of the question, reducing the possible techniques to mail/fax or internet. As an internet-based survey is cheaper and reduces errors in the processing of the questionnaire (removing the need for manual entry of the returned questionnaires) we chose this method.

Each municipality received the covering letter by email with a link to their personal questionnaire. After completion the questionnaire had to be submitted and was fed directly into the database.

Since it was not possible to find email addresses for all municipalities, a small group (611 municipalities) received their questionnaire per fax or mail. These were mainly small municipalities with less than 1,000 inhabitants.

After two reminders the response rate was quite satisfactory in some countries but much lower in others. We therefore decided to enhance the motivation to participate through phone calls in France and Slovenia as well as in South Tyrol and Tyrol.

3.2.2 Participation rate

In literature, several factors are known that affect participation: a covering letter, the timing of the survey, the length of the questionnaire and the topic. As already mentioned above, no clear empirical evidence exists that a covering letter increases the motivation to participate. The same it true of the length of the questionnaire. Timing and topic on the other hand are essential: surveys in times of religious holidays or vacation times tend to have a lower participation rate. Highly interesting topics increase the response rate (see Iarossi 2006).

As the number of times the participants are contacted seems to increase the participation rate, two reminders were sent. After the two reminders the return was quite satisfactory at about 22.8% (see Fig. 3-1). Nevertheless, relatively big differences emerged between nations. While the return was quite high in Slovenia, Germany, and Liechtenstein, it was much lower in France. This might have been due to the fact that in France there are a lot of small municipalities, which claimed not to be suitable to answering such questions.

Generally the responses showed that in many municipalities the internet is not yet accepted as a communication medium. This fact is supported by the experience that many municipalities either do not have an email account or do not use it regularly, resulting in an overflowing mailbox.

Interestingly, the response rate of the questionnaires sent back by post was very high: from the 611 questionnaires sent by post, 278 were returned, which corresponds to a response rate of 47%.

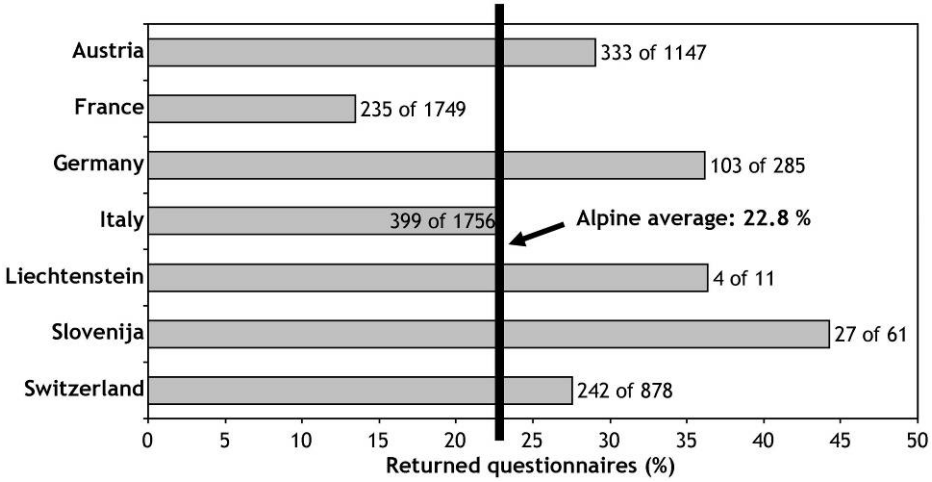


Fig. 3-1: Response rate per country

The distribution of the returned questionnaires is reproduced in Map 3-1. The share of returned questionnaires is considerably higher in the regions where phone calls were conducted. This is the case in Slovenia, Tyrol and South Tyrol[6]. It is clear that France has the lowest response rate.

In Austria there are some areas with very low participation, like the hinterland of Salzburg or some parts of Styria. Italy seems to be divided into a western and an eastern part. West of Ticino the response rate is quite low, while in the provinces of Sondrio, Brescia or Belluno, there are some larger areas with higher participation.

[6] The method has been tested in Tyrol and South Tyrol in the context of a diploma thesis. Therefore the response rate had to be as high as possible.

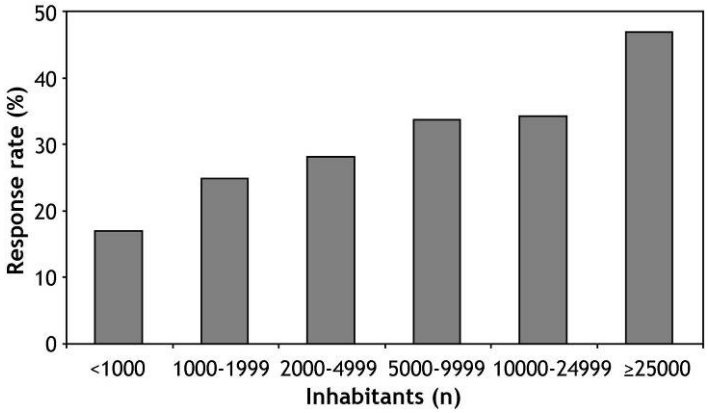
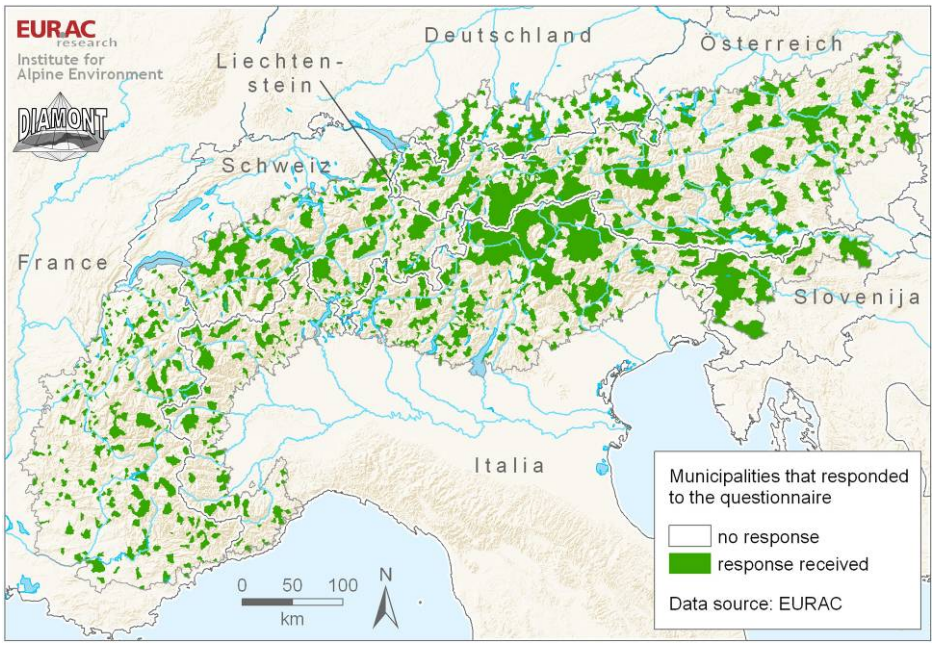


Fig. 3-2: Response rate by size of municipality

Fig. 3-2 illustrates the response rate by municipality size. 50% of the Alpine municipalities are small municipalities with less than 1,000 inhabitants. These have a low response rate (17%) while the bigger municipalities have higher response rates (up to more than 45% in large municipalities with more than 25,000 inhabitants). Generally one can say that the more inhabitants the higher the response rate.



Map 3-1: Municipalities that completed the questionnaire

The distribution of the feedback was adequate for analysing the results of sections A and C as the returned questionnaires came from all over the Alpine arc. For section B ,a higher response rate would have been preferable because

several statements from outside each municipality were needed. As this was not the case, the approach had to be modified, finding other methods to analyse the result. This was not possible within the DIAMONT project but will be pursued later.

3.2.3 Selected results

3.2.3.1 Section A

In order to get a first overview of the mayors' answers, the arithmetic means of the answers were calculated and compared with each other to point out differences between individual aspects of sustainability. Following the outline of the questionnaire, status quo and priority were analysed separately.

The first part of section A dealt with the mayors' perception of the status quo. Fig. 3-3 shows the average assessment of the status quo and the respective standard deviation (red bar).

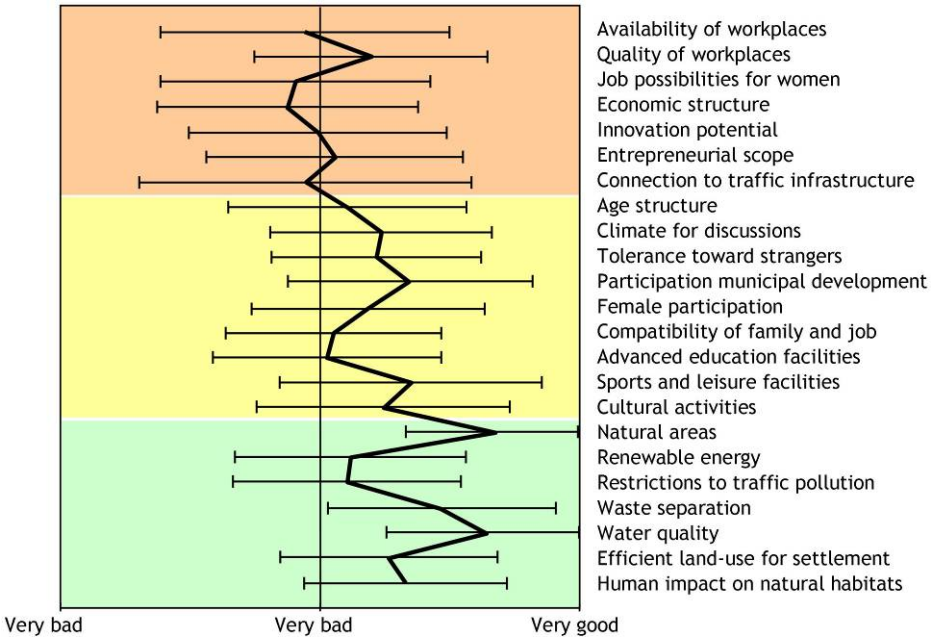


Fig. 3-3: Arithmetic mean and standard deviation of the answers - status quo

The best ranks are occupied by some of the environmental aspects: the availability of semi-natural areas, water quality and waste separation. In general the environmental aspects get higher marks than the other two pillars of sustainability.

Within the social pillar, participation in municipal development and commu-

nity life and provision with sports and leisure facilities are the indicators with the highest average marks. Compared to the environmental and social pillar, the economic aspects have a lower development status in the mayors' opinion. The lowest standard deviations and therefore the most homogeneous answers can be found in the environmental pillar. The mayors agree in their assessment of the environmental issues. On economic and also on some social questions the opinion diverge more, resulting in a higher standard deviation (the standard deviation on environmental issues ranges from 0.69 to 0.89, whereas the standard deviation on economic aspects ranges from 0.89 to 1.26).

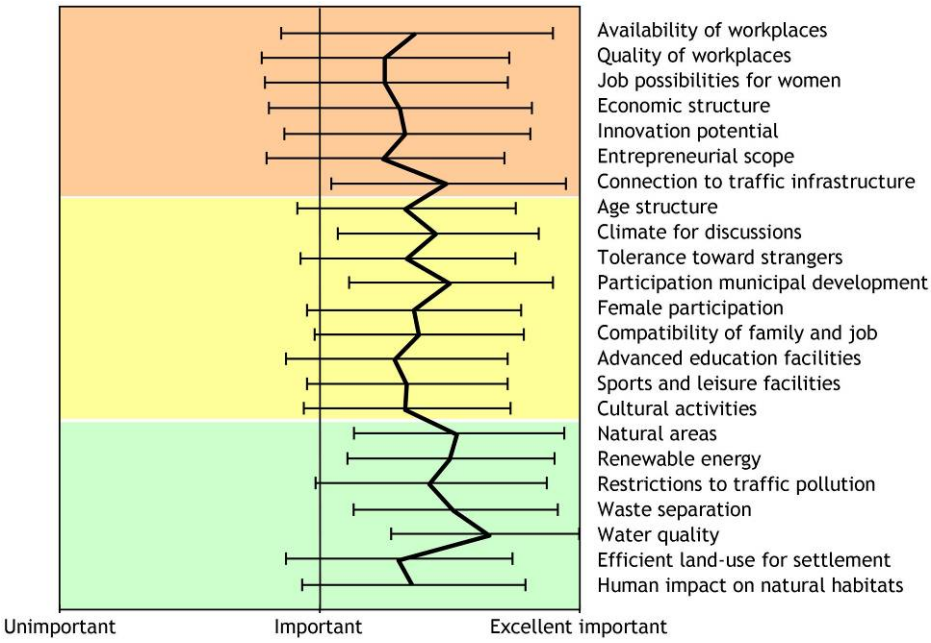


Fig. 3-4: Arithmetic mean and standard deviation of the answers - priority

In the second part of section A the mayors were asked to assess the priority they attribute to the same 24 aspects of sustainability. Fig. 3-4 shows clearly that the arithmetic means diverge less than in the first part but nevertheless some differences can be found. Again the environmental topics get the highest average priority and again the availability of semi-natural areas, waste separation and water quality get top ranks. Connection to the nationwide transport infrastructure is the only indicator in the economic pillar with a high priority, while the other economic and some of the social aspects are given a lower priority. Again the economic aspects have the highest standard deviation, while the answers on environmental and social aspects are more homogeneous.

The differences in the answers on the priority of the selected sustainability aspects may have various reasons:

objectively different situations: e.g. in municipalities where the problem of drinking water supply does not exist, this is actually stated in this way,

general structural differences, for example the size of the municipality,

different personal experiences and background of the interviewed person

cultural differences regarding the value system. This last aspect in particular is a really interesting research field for such a multifaceted cultural area like the Alpine arc.

3.3 Dimensions of sustainability in the perception of the mayors

In order to analyse the dimensions of sustainability in the eyes of the mayors and in order to detect the phenomena that lie behind the answers given, a factor analysis was calculated. Parts 1 and 2 were analysed separately. The answers "no opinion" and "unclear question" were not included in the analyses and the aspect "climate change" was omitted in the factor analysis because 6.9% of the mayors said that the question was unclear and 3.0% had no opinion[7]. This represents by far the highest share of refusal.

3.3.1 Part 1: Perceived status quo of the municipalities

First, the perceived status quo of the municipalities was analysed. The factor analysis used for identifying the dimensions that mayors had in mind answering the questionnaire extracted 4 factors. Together they explain 50.7% of the total variance, each of them between 9% and 18%. Table 3-1 reports the explained total variance.

Table 3-1: Explained total variance, status quo

	Rotated sums of squared loadings		
Component	Total	% of variance	cumulative %
1	4.13	17.95	17.95
2	3.04	13.23	31.18
3	2.40	10.45	41.63
4	2.10	9.12	50.75

[7] Values calculated for the questions about the status quo of the municipality.

In general, the information provided by economic and social questions was better exploited than the information of the environmental questions (see communalities displayed in Table 3-2). Ranking the questions by their communality, the environmental question with the highest communality ended up on the seventh and the second on the fourteenth rank (limited interventions on natural space and implementation of energy saving measures).

Table 3-2: Communalities

Indicators	Communalities
Availability of workplaces	0.71
Provision of cultural activities	0.70
Provision of sports and leisure facilities	0.67
Balanced economic structure	0.65
Participation at municipal development and community life	0.61
Job possibilities for women	0.60
Limited interventions on natural spaces	0.59
Innovation	0.57
Quality of workplaces	0.56
Participation of women in municipal development	0.56
Climate of discussion and dialogue	0.55
Supply of specializing education	0.52
Entrepreneurial scope	0.49
Implementation of energy saving measures	0.47
Little land use for settlements & traffic	0.45
Water quality	0.44
Balance of age structure	0.41
Compatibility of family and job for women	0.41
Waste separation	0.40
Availability of near-natural areas	0.39
Ability of containing pollution from traffic	0.33
Tolerance towards strangers and minorities	0.30
Connection to nationwide transport infrastructure	0.28

The 4 phenomena correspond to the pillars of sustainability, whereby the social pillar is split up into 2 factors. Table 3-3 lists the questions that load highly into the four factors and the respective factor loadings.

Two issues need further explanation:

First, the age structure does not load very highly into any factor but correlates both with the economic and with the social factor. It therefore cannot be attributed unambiguously to a single factor. As the factor loading was higher in the economic factor, here it was assigned to this pillar (factor loading 0.46).

Secondly, the connection to the nationwide transport infrastructure loaded very low into the 4 factors (highest factor loading: 0.39 in the economic factor) and is therefore not represented in the table.

Table 3-3: Questions of the 4 factors of the status quo and their factor loadings

Factor 1: Economic pillar	Factor loadings
Availability of workplaces	0.828
Balanced economic structure	0.780
Job possibilities for women	0.742
Innovation	0.711
Quality of workplaces	0.687
Entrepreneurial scope	0.662
Balance of age structure	0.460
Factor 2: Environmental pillar	
Limited interventions on natural spaces	0.754
Little land use for settlements & traffic	0.634
Water quality	0.629
Availability of near natural areas	0.599
Implementation of energy saving measures	0.595
Ability of containing pollution from traffic	0.563
Waste separation	0.537
Factor 3: Social pillar – social open-mindedness	
Participation of women in municipal development	0.730
Participation in municipal development and community life	0.719
Climate of discussion and dialogue	0.648
Tolerance towards strangers and minorities	0.498
Compatibility of family and job for women	0.473
Balance of age structure	0.407
Factor 4: Social pillar – cultural capital	
Provision of cultural activities	0.772
Provision of sports and leisure facilities	0.726
Provision of specializing education	0.597

3.3.2 Why do the answers differ from each other?

Of course, the answers given by the mayors differ from each other. The obvious reason is that the status quo of the municipalities differs. But section 3.2.3 suggests that maybe the differences can be traced back to other reasons too.

Two possible explanations have already been indicated in the previous sections: first, the results may diverge in the different Alpine countries depending on the cultural background of the mayor. The second hypothesis is that the answers given depend on the size of the municipality, i.e. that large municipalities have other problems to deal with and therefore have another perception of the sustainability dimensions. The first hypothesis is resumed in this section calculating and comparing the mean factor value per country.

In order to get a deeper interpretation of the phenomena, the mean factor value per country can be calculated and compared. As the factor values are z-standardized, the pan-Alpine mean equals zero.

Fig. 3-5 shows the national profiles for the status quo. The low number of returned questionnaires in Liechtenstein (4) means that the results are not representative and it was therefore left out of this illustration.

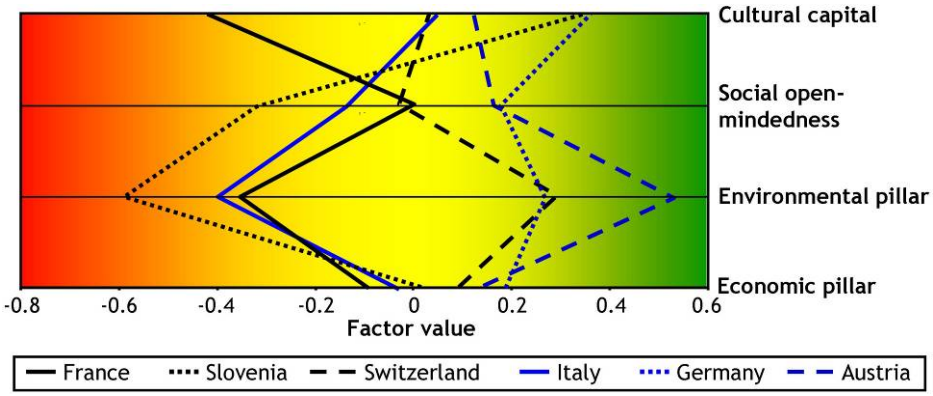


Fig. 3-5: Arithmetic mean of the factor values per country – status quo

Two facts must be noted: (i) the degree of homogeneity varies between the factors and (ii) some countries generally perceive their status quo more optimistically than others. There seem to be groups of countries that rate their performance in a similar way.

(i) The perception of the economic aspects is most homogenous and ranges from -0.09 in France to 0.19 in Germany. There are no significant differences between the countries. In the social pillar, the range of country-specific mean values is smaller for the cultural capital than for the social open-mindedness if one neglects France, which is the only country that sees its performance below the Alpine average and can be considered an outsider. A one-way analysis of variance (ANOVA) supports this impression, showing that the difference between France and all other countries (with the exception of Slovenia) is statistically significant[8].

By contrast, the environmental pillar is rated much more heterogeneously.

(ii) The environmental pillar presents a very interesting picture with two distinct groups of countries emerging: Slovenia, Italy, and France form the first group with negative average factor loadings. The second group is composed of Germany, Switzerland, and Austria, which judge the environmental state of their municipalities above the Alpine average. A one-way ANOVA shows that the difference between these two groups of countries is statistically significant.

In general, Italy and France have rather pessimistic views: most mean factor

[8] The ANOVA is a statistical test for differences of two or more independent groups.

values are negative (below the Alpine average), only the mean factor value for the cultural capital in France and the mean factor value for the social open-mindedness in Italy are positive. The German-speaking countries Austria and Germany are far more optimistic: all mean factor values are positive.

3.3.3 Part 2: Priority

In part 2 of the questionnaire the mayors were asked to assess the priority of the selected 24 aspects of sustainable development. The answers were analysed following the same procedure as that for the status quo.

The factor analysis extracted 3 factors, which explain 55.6% of the total variance (see Table 3-4).

Table 3-4: Explained total variance, priority

	Rotated sums of squared loadings		
Component	**Total**	**% of variance**	**cumulative %**
1	4.42	19.22	19.22
2	4.23	18.38	37.60
3	4.13	17.95	55.55

Again, some questions have low communalities but they are generally higher than for the status quo. The balanced age structure and the connection to the nationwide traffic infrastructure returned the lowest communalities.

Table 3-5: Communalities

Indicators	**Communalities**
Job possibilities for women	0.65
Quality of workplaces	0.65
Innovation	0.65
Implementation of energy saving measures	0.63
Limited interventions on natural spaces	0.63
Balanced economic structure	0.62
Participation in municipal development and community life	0.60
Entrepreneurial scope	0.60
Participation of women in municipal development	0.60
Availability of near-natural areas	0.58
Little land use for settlements & traffic	0.58
Climate of discussion and dialogue	0.57
Compatibility of family and job for women	0.56
Waste separation	0.55
Availability of workplaces	0.54
Tolerance towards strangers and minorities	0.53
Provision of specializing education	0.53
Provision of cultural activities	0.52

Ability of containing pollution from traffic	0.51
Provision of sports and leisure facilities	0.48
Water quality	0.47
Connection to nationwide transport infrastructure	0.39
Balance of age structure	0.33

The three factors perfectly reflect the three pillars of sustainability (see Table 3-6).

Table 3-6: Questions in the three factors of the priority and their factor loadings

Factor 1: Economic Pillar	**Factor loadings**
Quality of workplaces	0.786
Innovation	0.760
Job possibilities for women	0.760
Balanced economic structure	0.755
Entrepreneurial scope	0.732
Availability of workplaces	0.713
Connection to nationwide transport infrastructure	0.564
Factor 2: Social Pillar	
Participation in municipal development and community life	0.727
Participation of women in municipal development	0.713
Climate of discussion and dialogue	0.703
Tolerance towards strangers and minorities	0.695
Compatibility of family and job for women	0.659
Provision of cultural activities	0.563
Provision of specializing education	0.551
Provision of sports and leisure facilities	0.547
Balance of age structure	0.458
Factor 3: Environmental Pillar	
Limited interventions on natural spaces	0.770
Little land use for settlements & traffic	0.745
Availability of near natural areas	0.736
Implementation of energy-saving measures	0.712
Waste separation	0.695
Ability of containing pollution from traffic	0.679
Water quality	0.619

3.3.4 National differences

Again, the mean factor values can be used to analyse national differences. Liechtenstein is excluded from the analysis because of the low response rate.

Some points are worth noting:

Germany and Austria show a similar pattern: the environmental pillar has the lowest priority, the social pillar is a bit more important and the economic pillar is by far the most important factor.

Slovenia attributes a very high priority to the environmental pillar whereas the

other countries all have an average factor value near the mean within a range of ±0.2.

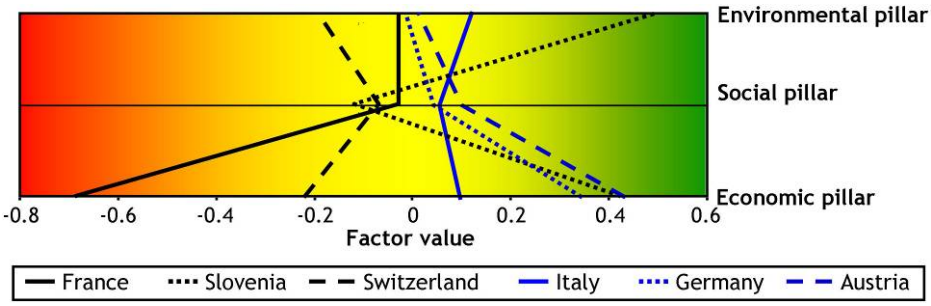


Fig. 3-6: Arithmetic mean of the factor values per country – priority

Also striking is the low priority of economic themes in France.

In the first factor (economic pillar), France differs significantly from all other countries. Furthermore, the ANOVA shows differences between Austria and Germany on the one hand and Italy, Switzerland, and France, on the other. Switzerland plays a separate role as it also differs from Italy and France.

The national differences in the social factor are not statistically significant.

As to the environmental pillar, Switzerland differs significantly from Italy and Slovenia but not from the other countries.

3.3.5 Conclusions

The previous sections show only one possible approach for a deeper analysis of the survey results. The search for the reasons for different patterns in the answers can be extended to many other hypotheses. Further analyses will depend on the interest of the Alpine Convention. By communicating with the Alpine Convention, research fields could be identified and developed.

3.4 Perception of regional development instruments by Alpine mayors

Below, we discuss the results of the mayors' questionnaire on the perception of regional development instruments, focussing on national differences and different perceptions depending on municipality size. Furthermore, correlations between the assessment of the municipality's economic and land-use situation and the perception of regional development instruments will be discussed.

The response rate for the mayors' assessment of regional development instruments was 20.7% (1,223 responses out of 5,887 Alpine municipalities, see

Table 3-7). Italy and Austria had the highest share of total responses, while Slovenia, Liechtenstein, and Germany hold the highest national response rate.

Table 3-7: Response rate of questionnaire on regional development instruments

	Number of municipalities	Number of responses for Part C	National response rate for Part C in %	National share in overall return in %
Austria	1147	327	28.5	26.7
France	1749	144	8.2	11.8
Germany	285	102	35.8	8.3
Italy	1756	383	21.8	31.3
Liechtenstein	11	4	36.4	0.3
Slovenia	61	26	42.6	2.1
Switzerland	878	237	27.0	19.4
Sum	5887	1223	---	100.0

3.4.1 National differences in the perception of instruments

In general, the whole range of regional development instruments was rated positively by the Alpine mayors, which means that every type of instrument met more approval than disapproval.

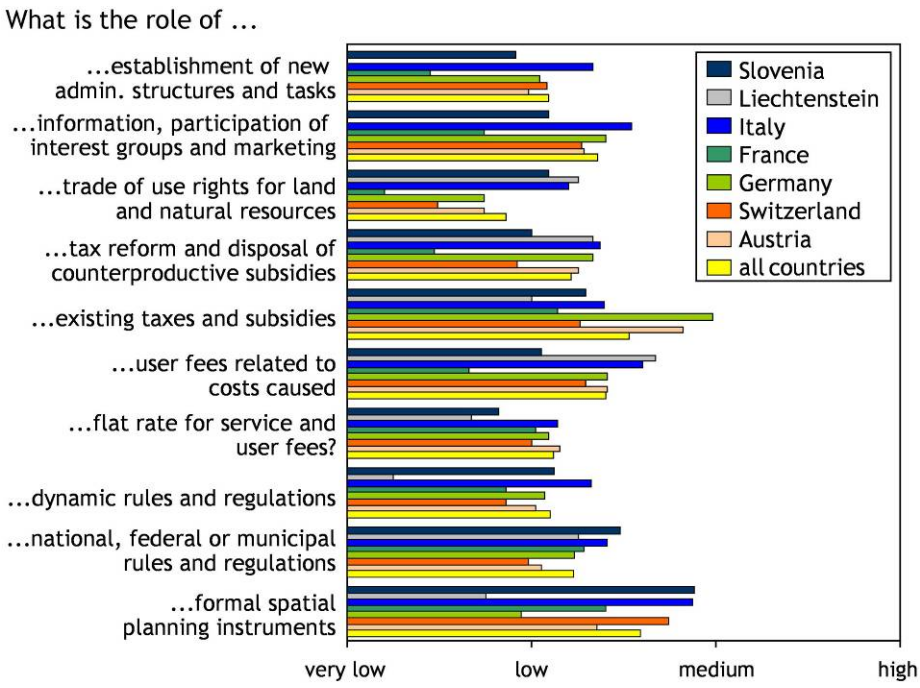


Fig. 3-7: National differences in the role of regional development instruments for municipal development

Nonetheless, there were differences in the national assessments of instru-

ments across the Alpine region (see Fig. 3-7). The role of existing taxes and subsidies was ranked particularly high in Germany and Austria, while formal spatial planning instruments were considered to be particularly important in Slovenia, Italy, and Switzerland. The trade in rights of use was seen relatively critical in France, while Slovenia and Italy assessed it rather positively.

Asked which instruments would be desirable for the future, mayors responded in favour of spatial planning, use-related fees and existing taxes and subsidies (see Fig. 3-8). In general, this question uncovered a rather critical perception of regional development instruments. No instrument was rated as being desirable in the future by more than 1/3rd of the respondents.

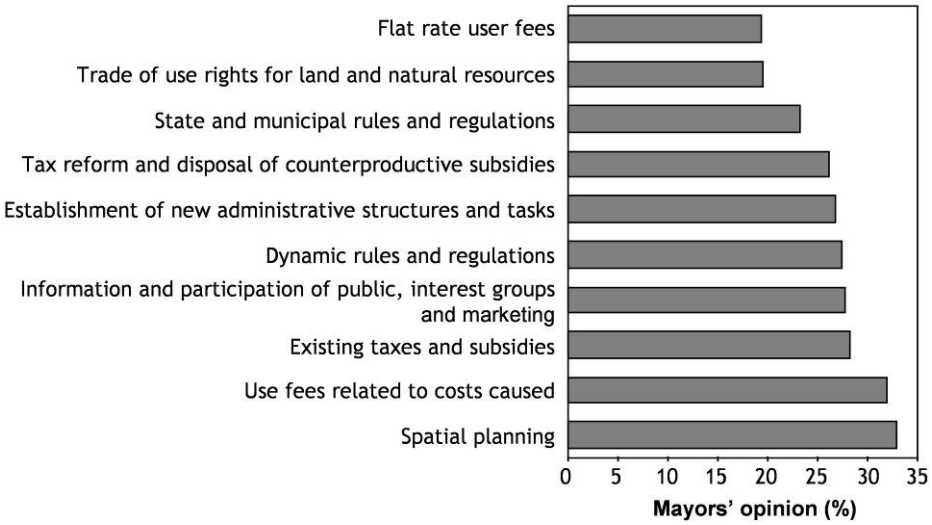


Fig. 3-8: Mayors' opinion on the future desirability of instruments

3.4.2 Small and large municipalities – different perspectives on instruments

For our analysis, we have differentiated municipalities by size in the following four categories:

Table 3-8: Small and large municipalities - different perspectives on instruments

Municipal category	Population	Percent	Frequency
Micro-municipality	< 500	31.4	1850
Small municipality	500 – 4999	59.0	3474
Medium municipality	5000 – 9999	5.8	341
Large municipality	Above 10000	3.8	222
Sum		100.0	5887[9]

[9] Number of municipalities that received the questionnaire.

The underlying assumption was that the different municipal categories are confronted with different policy issues in terms of type, scope and intensity. Therefore, we analysed differences in the mayors' perception depending on the population size they represent.

In general, with increasing population size mayors hold a more positive attitude towards regional development instruments, while mayors from smaller municipalities seem to be more reluctant. This holds particularly true for the perception of "Information, participation of public and interest groups and marketing", which about 67% of the larger but only about 33% of the smallest municipalities saw as a very high or a high priority (see Fig. 3-9).

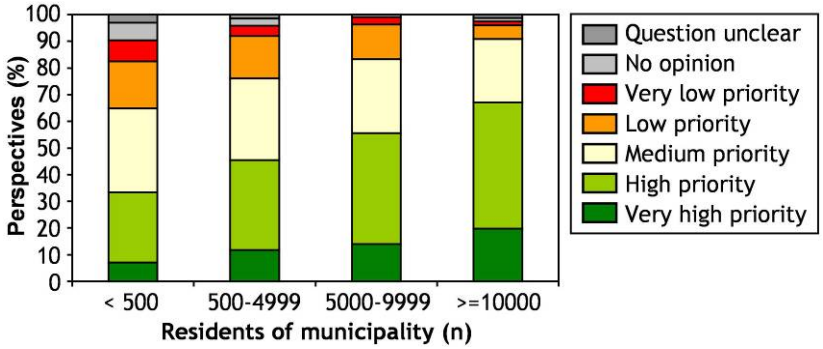


Fig. 3-9: The role of information, participation of public and interest groups and marketing by municipality size

This result reflects the level of institutionalization of participative structures such as local Agenda 21 groups, which is usually higher in larger municipalities.

The significant difference in the importance of spatial planning instruments suggests that larger municipalities, which are confronted with spatial development trends that require steering capabilities on regional government level, are more willing to implement these instruments (see Fig. 3-10). In contrast, smaller municipalities seem to perceive spatial planning as a constraint on their municipal authority and therefore have a less positive attitude towards this instrument.

While the interpretation of these results will require deeper investigations in the subsequent work packages, it can be assumed that mayors from larger municipalities are generally confronted with a wider variety of policy issues which require a wider variety of instruments to address them.

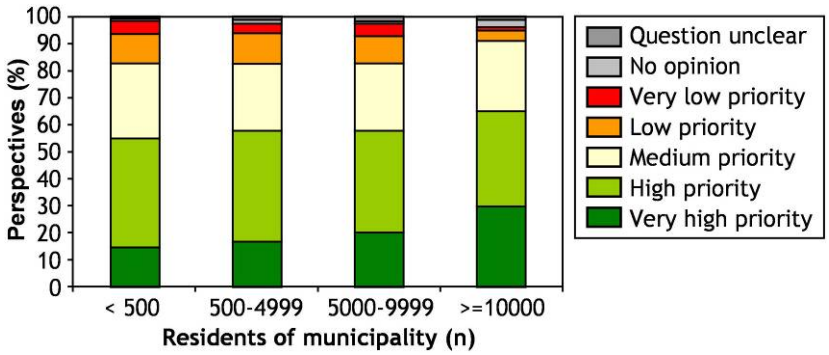


Fig. 3-10: The role of formal spatial and regional planning instruments by municipality size

Interestingly, the general trend is inverted for the aspect of user fees and the idea to relate their level to actual costs (see Fig. 3-11). This could be interpreted in context with the ongoing discussion about the trade-offs between countryside and urban areas. Ecological compensation, recreation and landscape aesthetics are factors that – while being consumed by residents of urban areas – are not yet financially internalized.

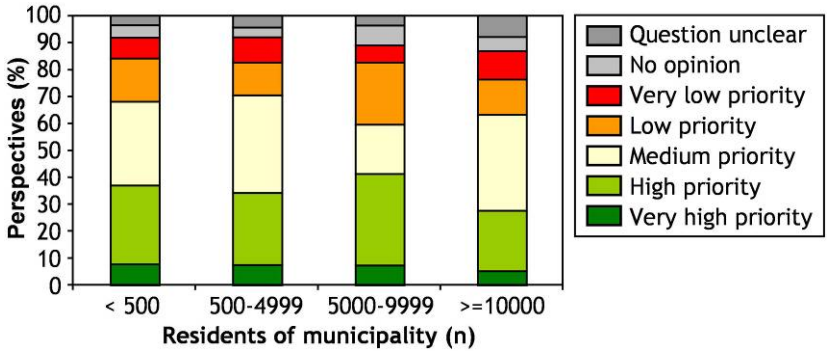


Fig. 3-11: The role of flat rate service and user fees by municipality size

Moreover, small municipalities in particular are suffering from high costs for the provision of basic infrastructure. There seems to be an increasing share of decision-makers from these smaller municipalities that are less reluctant towards instruments that internalize these hitherto external costs in fees and user charges.

3.5 Comparison of objective and subjective data

The last step in the analysis of Alpine sustainability in WP8 was combining the findings from both parts, the results following on from the analysis of the quantitative and from the analysis of the qualitative data, to come to a final conclusion. The underlying hypothesis was that the decision-makers base their actions on their perception of the status quo. If the perception is not consistent with the real (objective) situation, this could lead to inappropriate decisions and activities. In this subchapter we will show one possible example of how the results can be integrated.

3.5.1 Data and method

For comparing objective and subjective results, only those municipalities were analysed that returned the questionnaire, i.e. a sample of 1,333 cases. The subjective data consist in the answers of the mayors to the questions regarding the status quo of their municipality. As quantitative data, not the single indicators but the phenomena of regional development described in chapter 2.3.1.3 that had been deduced thereof were taken as basis. If possible, each phenomenon of regional development (factor) was allocated to the corresponding survey question. Factors or survey questions that covered aspects not represented in the other data set were not considered.

Table 3-9: Factors and the corresponding survey questions that were selected for comparing objective situation and subjective statements of the mayors

Factor	Survey question
Factor 2: „Labour market“	Availability of jobs
Assign rank 1 to lowest factor value (poorly developed labour market)	Assign rank 1 to lowest value (very bad status quo)
Factor 16: Transport connection	Connection to the nationwide transport infrastructure
Assign rank 1 to highest value (high distance / travel time to next road)	Assign rank 1 to lowest value (very bad status quo)
Factor 10: Gender integration	Compatibility of family and job for women
Assign rank 1 to lowest value (low employment rates for women)	Assign rank 1 to lowest value (very bad status quo)
Factor 14: Ageing	Balanced age structure
Assign rank 1 to highest value (old population)	Assign rank 1 to lowest value (very bad status quo)
Factor 9: Landscape fragmentation	Availability of near-natural areas
Assign rank 1 to highest value	Assign rank 1 to lowest value (very bad status quo)

Table 3-9 shows the factors and the assigned survey questions that were chosen to show selected results.

Both factor values and subjective statements were ranked and the difference between the ranks was calculated in such a way that negative differences show an underestimation of the objective situation and positive differences show an overestimation of the objective situation.

3.5.2 Results

Below we present selected results. First, a general overview is given in form of the average absolute ranking difference between subjective opinion and objective situation. The average absolute ranking difference gives a first idea of how much subjective and objective positioning diverge. Secondly, two aspects of sustainability were chosen to illustrate the comparison in detail. These aspects constitute the two extreme cases with the smallest and the largest average ranking differences.

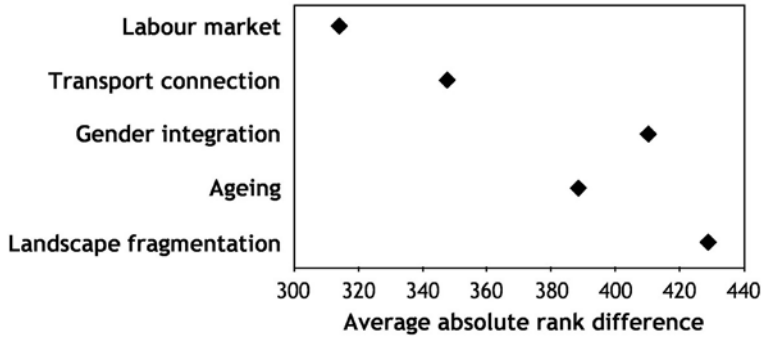


Fig. 3-12: Average absolute ranking differences between the ranking of the answers by the mayors and the ranking of the factor values

Fig. 3-12 shows the average absolute ranking difference. The two economic aspects clearly rank below both social and environmental aspects. This means that on average the labour market and the transport connection are judged more accurately and that over- and underestimations of the current status quo are kept within a certain limit. Gender integration, landscape fragmentation, and ageing show much higher ranking differences. The mayors' answers either overestimate or underestimate the measured status quo, and most clearly this concerns landscape fragmentation.

In the latter three cases, roughly one third of the mayors' answers diverge more than 500 places from the objective rank. Given the total number of roughly 1,300 municipalities, this is a considerable difference.

The two extreme cases – the labour market and landscape fragmentation - are singled out and described as examples for a deeper analysis of such ranking differences.

3.5.2.1 Labour market

For our first example we take the labour market. Factor 2 is composed of indicators describing the amount of jobs and the resulting commuter flows. This corresponds exactly to question 1 – the availability of jobs.

If the ranked factor values are compared to the ranked subjective statements about the local labour market, we must say that most mayors have a very realistic picture of the current state of their municipality. Fig. 3-13 presents this fact in the middle of the histogram where the ranking differences are small.

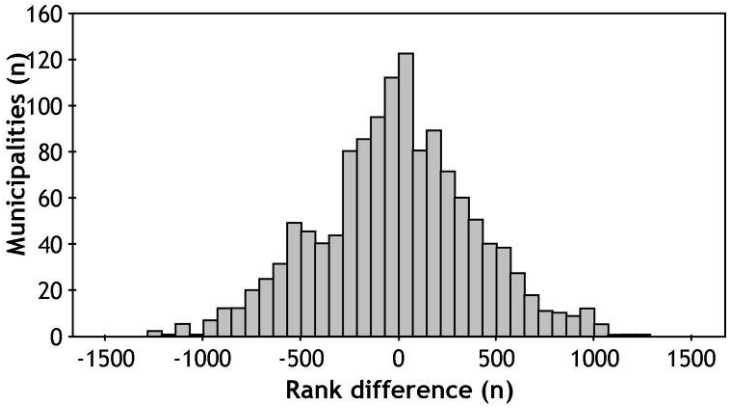


Fig. 3-13: Frequencies of the ranking differences between the rank of the survey answer and the rank of the factor value for the labour market.

Negative ranking differences signal that the mayor underestimated the labour market while positive ranking differences suggest an overestimation of the objective situation.

However, there were some mayors who either under- or overestimated their situation: municipalities whose mayor believed that the status quo was better than it actually was show positive rank differences and lie on the right end of the scale. The opposite is true for the left end of the histogram: there the mayor considered the status quo to be bad while the objective data show a clear positive labour market compared to the other Alpine countries. The figure shows that extreme differences – i.e. extreme discrepancies between personal view and objective situation – are quite rare.

40% of the municipalities have ranking differences of less than 180 positions, which corresponds to perfect concordance (transforming a Likert scale into ranks leads inevitably to differences between the possible rank positions of the case and the average rank that is assigned to the case. In the example of the labour market, these differences are up to 183 positions).

Although most mayors assessed the local labour market correctly, some of them clearly over- or underestimated the situation. In order to further exploit these discrepancies, both the highest over- and underestimations were studied more in detail. For both extremes, those 10% of the municipalities were selected that have the highest ranking differences and they are described below.

In

Table 3-10, 10% of the municipalities with the highest negative difference in rank were selected and the qualitative statement about the status quo was compared to the objective situation as measured by the quantitative data.

Table 3-10: Mayors' answers to the question about availability of work places - municipalities with the highest negative ranking differences

	Frequency	Percent	Cumulated percent
very bad	43	32.8	32.8
bad	66	50.4	83.2
neutral	22	16.8	100
total	131	100	

Negative ranking differences signify that the results of the quantitative analysis show good labour market conditions while the mayors saw labour market problems in their municipality. Table 3-10 lists the frequencies of the given answers: almost one third of the mayors judged their local labour market as very poorly developed and a further 50% as poorly developed. The subjective positioning of the municipalities clearly lies below the measured status quo.

The second possible reason for large discrepancies between subjective and objective positioning occurred when the mayor overestimated the local labour market and judged it much better developed than it actually was. The subjective positioning of the municipalities with the highest differences in this direction is presented in Table 3-11. Almost 80% of the mayors that overestimated their situation assessed the labour market as good or very good. Further 22% rated it as neutral.

Table 3-11: Mayors' answers to the question about availability of work places of the municipalities with the highest positive rank differences

	Frequency	Percent	Cumulated percent
neutral	30	22.9	22.9
good	81	61.8	84.7
very good	20	15.3	100.0
total	131	100.0	

3.5.2.2 Landscape fragmentation

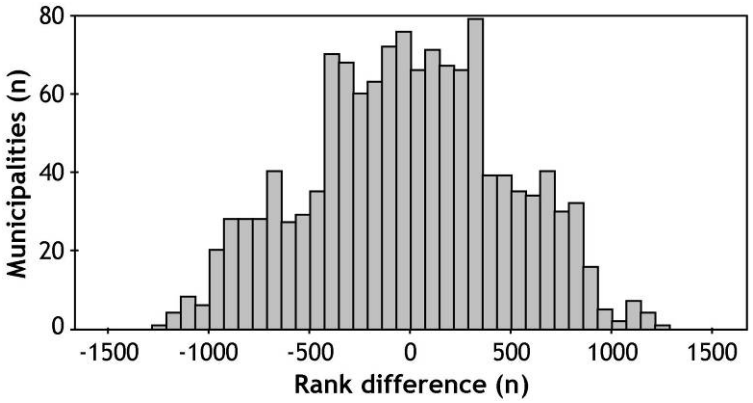


Fig. 3-14: Frequencies of the ranking differences between the rank of the survey answer and the rank of the factor value for the factor landscape fragmentation.

Negative ranking differences signal that the mayor overestimated the landscape fragmentation while positive ranking differences suggest an underestimation of the objective situation.

The second example is landscape fragmentation where on average much larger differences between qualitative statement and quantitative situation were detected. Again, the ranking differences are shown in a histogram. The negative ranking differences on the left end of the scale mean that the ranks of the factor values are higher than the ranks of the answers. In these cases the landscape fragmentation was more pronounced than the mayor admitted. On the right end of the scale, the mayor feared that the landscape fragmentation was more serious than it actually was.

In order to further examine the rank differences, only 10% of the municipalities are considered, first the 10% with the highest positive and then the 10% with the highest negative ranking differences.

An examination of 10% of the municipalities with the highest negative ranking differences yields Table 3-12 below.

Table 3-12: Mayors' answers on the availability of near-natural areas of the municipalities with the highest negative ranking differences

	Frequency	Percent	Cumulated percent
very bad	1	0.8	0.8
bad	9	6.8	7.5
neutral	40	30.1	37.6
good	83	62.4	100.0
total	133	100.0	

A negative ranking difference means that the objective rank was higher than the subjective rank, i.e. the quantitative analysis showed less fragmentation and more near-natural spaces than the mayors believed. According to the quantitative situation, they were supposed to answer that the availability of natural spaces was high and that there was little landscape fragmentation. The table shows that this was the case for most of the selected mayors: more than 60% of the mayors estimated the status quo as good and a further 30% as neutral. The overestimation of the landscape fragmentation was indeed quite small and differed from the objective positioning only by one category.

The second extreme were high positive ranking differences: the mayors may have stated in the survey that there were many near-natural areas available. In the case of positive ranking differences, the factor values revealed that the opposite was true: there were few near-natural areas and large-scale landscape fragmentation. A look at the answers given by the mayors reveals a surprising result: without exception they answered that the availability of near-natural areas was very good in their municipality.

Table 3-13: Mayors' answers on the availability of near-natural areas of the municipalities with the highest positive ranking differences

	Frequency	Percent	Cumulated percent
Very good	133	100	100

This result clearly shows that the mayors did not consider the availability of near-natural areas and landscape fragmentation as a problem. Even if there were some problems with regard to this aspect, they were not perceived as such. The problems of landscape fragmentation detected by the quantitative analyses were not apparent to the mayors and this is a good example for discrepancies between perception and reality.

3.5.2.3 Concluding remarks

In this chapter we detected differences between the objective situation that was measured by the quantitative data and the subjective positioning of the mayors. Two cases were selected to show these discrepancies. The identification of further discrepancies between subjective and objective data as well as the underlying causes requires very detailed analyses that were not envisaged within the scope of DIAMONT. These examinations are planned to be part of subsequent projects and scientific publications after the end of DIAMONT.

4 Conclusions and perspetives for future steps

4.1 Achieved targets and shortcomings

The expectations for WP8 were high for the DIAMONT team. The Work Package had to provide a series of very important results, which should either feed into the ensuing WP10 or provide an important input to the SOIA process:

I. A comprehensive, Alpine-wide, harmonized data pool at municipal level, appropriate for sustainability monitoring across the Alps

The lack of available data or the poor quality of the data have been deplored in many studies, as they make working with indicators difficult and complex, often resembling a complicated balancing act. In DIAMONT too, we experienced this problem: the indicator selection was based on the theoretical approach of WP7 (Schönthaler & von Andrian-Werburg 2008). However, it was not always possible to calculate the indicators that would have been desirable from a theoretical point of view because of missing data or problems of data incompatibility between countries (see subchapter 2.2). As an alternative, a more strongly data-driven approach was employed in WP8. Through this combination we managed to create a comprehensive basis of data and at the same time show up the areas where more work on such a data basis is needed, i.e. missing indicators that would be needed for sustainability monitoring across the Alps but are (as yet) unavailable. All in all, we were able to generate 81 harmonized indicators across the Alps at municipal level. Nevertheless, as far as their data situation is concerned, these indicators are not distributed in a balanced way across the three pillars of sustainability: 46 indicators cover economic aspects, 18 indicators deal with environmental aspects and 17 indicators with social aspects. The selected and calculated indicators provide a remarkable breadth of information, but it is difficult to distil an overview from this abundance of information. It may be possible to bundle the selected indicators roughly under themes, but this raises questions about the feasibility of a combined interpretation. It was therefore desirable to gather the data in some form or to compress them and to consolidate their content. This was accomplished in the next working step.

II. A method to extract the actually relevant information from the indicator set

DIAMONT was mainly interested in general topics or phenomena important for sustainable regional development (see subchapter 2.3). Factor analysis seemed a very appropriate instrument for this purpose. The DIAMONT factor analysis generated 23 phenomena (or factors) from 81 indicators, which explain 76% of the variance (see section 2.3.1). One factor consolidates several indicators. The factor value of a municipality characterizes the position of that municipality on the factor and thus represents the aggregated (consolidated) indicator values. From the factor value one can see that municipality's position vis-à-vis other municipalities and read off the relative strength of that phenomenon in that municipality. Hence, the method used opens up new opportunities for reducing the effort required for effectively gathering, analysing and interpreting data without major loss of information.

III. The development of a typology of the Alpine space, based on economic, environmental and social aspects

One of the main objectives of WP8 was identifying regions with similar development structures, even across borders. For the entire Alps and using the 20 most meaningful indicators, we were able to delineate a total of eight different clusters that characterize the different regions (employment hubs, residential municipalities, important tourist centres, dynamic rural areas, standard Alpine regions, rural retreats, traditional agricultural regions, forgotten rural areas). Municipalities of a cluster share a similar development but differ in essential aspects from municipalities of other clusters. These findings show that quite varied concepts are needed, tailored to individual regions, to keep sustainable development going and/or get it going in the first place (see subchapter 2.3).

IV. The identification of local centres and fringes throughout the Alpine space as a basis for the selection of test regions

The work in the test regions with representatives and actors at local level was an integrated element of the last phase of the DIAMONT project (WP10, WP11) and served as a feedback on the results. In order to make results in the test regions as comparable as possible, a special analysis was carried out on the basis of the Alpine-wide collected indicators, so that local centres and fringes could be identified throughout the Alps. In this way the so-called Labour Market Regions (LMR) radiate outwards from a Labour Market Centre (LMC), which are rural or urban municipalities of over 10,000 inhabitants or more than 5,000 jobs and a

positive commuter balance (see subchapter 2.4). A total of 108 LMRs were identified within the Alpine arc, which formed a good basis for the selection of the six test regions in the individual countries. Studying processes of spatial relevance on the level of individual municipalities can lead to misinterpretations. What is needed is looking at them in terms of groups of municipalities. Finally a detailed analysis of these LMRs was carried out to identify regions with increased land pressure in the Alps by means of a problem-oriented cluster analysis.

An analysis of stakeholders' perception of sustainable regional development in the Alpine municipalities

Stakeholders' strategies often are less influenced by the effective status of the environmental, social and economic system than by their perception of the current status. Hence, DIAMONT complemented quantitative data with qualitative perceptions. In an Alpine-wide enquiry, all mayors in the Alps were asked to assess the status quo of their municipality, the importance of different aspects of sustainability in their political work, and their perception of development instruments (see chapter 3). Beyond these more concrete results, one important conclusion can be drawn: the priorities of the decision-makers are fundamental to understanding the developments. The motivations for these priorities and the possible differences between the effective and the perceived development status open up a chain of reasoning vis-à-vis the stakeholders that will significantly sustain an open discussion about future development strategies.

4.2 Perspectives for future steps

At the end of WP8 a number of well developed results are available, yet the question obviously arises, where new challenges for future research and implementation strategies will come along. Some of the main challenges are:

I. Generating new indicators on sustainable development

The DIAMONT project was able to show for selected data how national data can be gathered and harmonized at a very detailed level, and how these data can be calculated to give meaningful indicators for monitoring sustainable development. Nevertheless, the detailed and painstaking work also identified many gaps, where insufficient data are available or where it is not possible to harmonize data across national borders. This particularly affects the social and environmental pillar of sustainable regional development. In these sectors it would be very important for individual nations but also international entities, like the EU or the Al-

pine Convention, to undertake efforts to launch and accomplish a cross-border standardised data survey for the social and environmental sectors too. Such a survey should be carried out at regular intervals as has been done in the economic sector. Only in this way will it be possible to establish a monitoring of sustainable regional development within the Alpine space in the longer term. Moreover, the methods tested in DIAMONT to extract the relevant information from a reasonable number of indicators could be used to build up an efficient information management that would cover all essential elements of sustainable regional development on the basis of a scientifically sound selection of core and key indicators for the entire Alpine space.

II. Broad, unlimited access to spatial information

The DIAMONT project was able to provide new spatial and cross-border information in the Alpine Space (Tappeiner et al. 2008). With increasing regional and global interdependence, such data will become an even more important source of information for decision-makers in politics, economy and administration, as well as for citizens and NGOs. Establishing such a data structure as well as other data on specific topics in publicly accessible, self-updating form would be an essential future development of this impulse from the DIAMONT project. A web-based GIS that can represent the relations between content and space in an easily understandable and, ideally, interactive manner would be an appropriate form and at the same time capable of showing the spatial peculiarity of the data.

III. The need for functionally coherent regions

Within DIAMONT the complex theme of cross-sectoral and cross-border regional cooperation emerged as one of the central challenges for future development (Marzelli et al. 2008). The question arises how we can arrive at functionally coherent spatial units (FCUs) that would allow dealing with the various issues within Alpine spatial development, such as settlement trends and development of transport, infrastructural policies, labour markets and education, prevention of natural hazards and nature conservation in an effective way whilst staying close to the citizens. The first attempts in DIAMONT to identify regions of different development structures in the Alps, or coherent labour market regions, showed a promising way to follow up in upcoming projects. Such an outlook would add a new facet to the existing administrative, economic and historic regions of the Alpine space and enrich the perspectives for political action. In addition, the already existing objective data basis of indicators, which has been harmonized for the entire Alpine space at municipal level, may support local actors in identifying appropriate re-

gions for cooperation, sometimes across national borders, and to make use of them.

IV. Perceived sustainability

The existing data basis of indicators and stakeholders' perception at municipal level offers a direct comparison between the subjective position of each municipality and its objective status quo. A detailed analysis of differences between the internal and external perception could represent the basis for a better understanding of barriers or stimuli that influence sustainable development. Regardless of such development potential it must be stressed that the DIAMONT results may offer a basis for possible new ways of solving problems within the Alps, but it is up to the local and regional actors and decision-makers to implement them and make them come to life.

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Appendix

I – Indicator fact sheets

The fact sheets contain detailed information on each indicator calculated within WP8. In addition to the indicator number (see **Fehler! Verweisquelle konnte nicht gefunden werden.**), the title and the indicator unit, a precise calculation formula is given. In the case of some indicators based on GIS data, it was not always possible to create a comprehensible formula. There a description of ArcGIS functions used to calculate these indicators is given instead.

Each indicator is assigned to one of the three pillars of sustainability - economy, society and environment - within the field "Pillar" (see also **Fehler! Verweisquelle konnte nicht gefunden werden.**). The data sources applied are usually listed by country. Only in some cases they are shown in an aggregated form for those countries, for which the same data sources were utilized (e.g. GIS data). The data sources are mainly given in the language of the respective country.

The field "References" provides information on similar or identical indicators in indicator sets on European or world level according to EU (2005b). These indicator sets are described by the following abbreviations:

Abbrev.	Indicator set
SDI	Sustainable Development Indicators - European Commission, Eurostat (EUROSTAT 2008c)
CSD	Indicators of Sustainable Development. CSD Theme Indicator Framework from 2001 - United Nations Division for Sustainable Development (UN 2007)
ECHI	European Community Health Indicators - European Commission, DG Health and Consumer Protection (European Commission 2008)
EEA	EEA Core Set of Indicators (CSI) - European Environment Agency (EEA 2008b)
IRENA	Indicator reporting on the integration of environmental concerns into agricultural policy - European Commission (Agriculture and Rural Development DG, Environment DG, Eurostat, Joint Research Centre JRC), European Environment Agency (EEA 2005)
MDG	Millenium Development Goals Indicators - United Nations Statistics Division (UN 2008)

OECD	OECD Factbook 2007 - Economic, Environmental and Social Statistics, Organization for Economic Cooperation and Development (OECD 2007a)
SI	Structural Indicators - European Commission, Eurostat (EUROSTAT 2008b)
SPC	Indicators' Subgroup of the Social Protection Committee - European Commission, Employment, Social Affairs and Equal Opportunities DG (European Commission 2006a)
TERM	TERM: indicators tracking transport and environment in the European Union - European Environment Agency (EEA 2007)

In order to facilitate understanding in some special cases, further information on the respective indicator may be given in the section "Comments".

No. *Indicator title*		**1** **Employment Rate**
Indicator formula		$\left(\frac{\text{employed persons}}{\text{residents aged 15-64}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
References *		SDI, MDG, OECD, SI
Comments		/
Editor		EURAC
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No. *Indicator title*		**2** **Change in Employment Rate**
Indicator formula		$\left(\frac{\text{employment rate}_{t1}}{\text{employment rate}_{t0}}\right)\cdot 100$
Indicator unit		none
Pillar		Economy
Data sources	*AT*	Statistik Austria (1991/2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (1990/2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1990/1999): Recensement de la population.
	IT	ISTAT (1991): 13° Censimento generale della popolazione e delle abitazioni. ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (1990/2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (1991/2002): Popis prebivalstva.
*References **		SI
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*		**3** **Jobs Density**
Indicator formula		$\left(\frac{\text{total number of jobs}}{\text{residents aged 15-64}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Beschäftigungs- und Arbeitsplätzestatistik; Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.

*References **		/
Comments		/
Editor		EURAC
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No. *Indicator title*		**4** **Change in Jobs Density**
Indicator formula		$\left(\frac{\text{jobs density}_{t1}}{\text{jobs density}_{t0}}\right)\cdot 100$
Indicator unit		none
Pillar		Economy
Data sources	*AT*	Statistik Austria (1991/2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (1990/2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1990/1999): Recensement de la population.
	IT	ISTAT (1991): 13° Censimento generale della popolazione e delle abitazioni. ISTAT (2001): 8° Censimento dell'industria e dei servizi; 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (1990/2000): Volkszählung.
	SI	no data available
*References **		/
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*		**5** **Female Employment Rate**
Indicator formula		$\left(\frac{\text{female employed persons}}{\text{female residents aged 15-64}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung.
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available

	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		SDI, OECD, SI
Comments		/
Editor		EURAC
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No. *Indicator title*	**6** **Change in Female Employment Rate**
Indicator formula	$\left(\frac{\text{female employment rate}_{t1}}{\text{female employment rate}_{t0}}\right)\cdot 100$
Indicator unit	none
Pillar	Economy

Data sources	*AT*	Statistik Austria (1991/2001): Volkszählung.
	CH	Bundesamt für Statistik (1990/2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1990/1999): Recensement de la population.
	IT	ISTAT (1991): 13° Censimento generale della popolazione e delle abitazioni. ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (1990/2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (1991/2002): Popis prebivalstva.
*References **		SI
Comments		/
Editor		EURAC
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No. *Indicator title*	**7** **Rate of Female Employed to Total Employed Persons**
Indicator formula	$\left(\frac{\text{female employed persons}}{\text{total employed persons}}\right)\cdot 100$

Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung.
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		SDI, MDG, OECD, SI
Comments		/
Editor		EURAC
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No. *Indicator title*	**8** **Change in Rate of Female Employed to Total Employed Persons**
Indicator formula	$\left(\frac{\text{rate of female employed to total employed persons}_{t1}}{\text{rate of female employed to total employed persons}_{t0}}\right)\cdot 100$
Indicator unit	none
Pillar	Economy
Data sources *AT*	Statistik Austria (1991/2001): Volkszählung.
CH	Bundesamt für Statistik (1990/2000): Eidgenössische Volkszählung.
DE	no data available
FR	INSEE (1990/1999): Recensement de la population.
IT	ISTAT (1991): 13° Censimento generale della popolazione e delle abitazioni. ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
LI	Amt für Volkswirtschaft (1990/2000): Volkszählung.
SI	Statistični urad Republike Slovenije (1991/2002): Popis prebivalstva.
*References **	SDI, MDG, OECD, SI
Comments	/
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No. *Indicator title*		**9** **Rate of Jobs held by Women to Female Residents**
Indicator formula		$\left(\frac{\text{jobs held by women}}{\text{female residents aged 15-64}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung.
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	no data available
*References **		/
Comments		/
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No. *Indicator title*		**10** **Change in Rate of Jobs held by Women to Female Residents**
Indicator formula		$\left(\frac{\text{rate of jobs held by women to female residents}_{t1}}{\text{rate of jobs held by women to female residents}_{t0}}\right)\cdot 100$
Indicator unit		none
Pillar		Economy
Data sources	*AT*	Statistik Austria (1991/2001): Volkszählung.
	CH	Bundesamt für Statistik (1990/2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1990/1999): Recensement de la population.
	IT	ISTAT (1991): 13° Censimento generale della popolazione e delle abitazioni. ISTAT (2001): 8° Censimento dell'industria e dei servizi; 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (1990/2000): Volkszählung.
	SI	no data available
*References **		/

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No. *Indicator title*		**11** **Jobs held by Women**
Indicator formula		$\left(\frac{\text{jobs held by women}}{\text{total number of jobs}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	no data available
*References **		/
Comments		/
Editor		EURAC
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No. *Indicator title*		**12** **Change in Jobs held by Women**
Indicator formula		$\left(\frac{\text{jobs held by women}_{t1}}{\text{jobs held by women}_{t0}}\right)\cdot 100$
Indicator unit		none
Pillar		Economy
Data sources	*AT*	Statistik Austria (1991/2001): Volkszählung.
	CH	Bundesamt für Statistik (1990/2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1990/1999): Recensement de la population.
	IT	ISTAT (1991): 13° Censimento generale della popolazione e delle abitazioni. ISTAT (2001): 8° Censimento dell'industria e

		dei servizi.
	LI	Amt für Volkswirtschaft (1990/2000): Volkszählung.
	SI	no data available
*References **		/
Comments		/
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No. *Indicator title*		**13** **Female Employment Rate in the Age Group 25-45**
Indicator formula		$\left(\frac{\text{female employed persons aged 25-45}}{\text{female residents aged 25-45}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung.
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		SDI, OECD, SI
Comments		/
Editor		EURAC
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No. *Indicator title*		**14** **Employment Rate of Older People**
Indicator formula		$\left(\frac{\text{employed persons aged} \geq 55}{\text{residents aged} \geq 55}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).

	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		SDI, OECD, SI
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*	**15** **Older Employed Persons**
Indicator formula	$\left(\frac{\text{employed persons aged} \geq 55}{\text{total employed persons}}\right) \cdot 100$
Indicator unit	%
Pillar	Economy

Data sources	*AT*	Statistik Austria (2001): Volkszählung.
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		SDI, OECD, SI
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*	**16** **Self-employed Rate**

Indicator formula		$\left(\frac{\text{self-employed persons}}{\text{total employed persons}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung.
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		OECD
Comments		/
Editor		EURAC
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No.	**17**
Indicator title	**Primary Sector Jobs**

Indicator formula		$\left(\frac{\text{primary sector jobs}}{\text{total number of jobs}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Beschäftigungs- und Arbeitsplätzestatistik.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
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No. *Indicator title*		**18** **Secondary Sector Jobs**
Indicator formula		$\left(\frac{\text{secondary sector jobs}}{\text{total number of jobs}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Beschäftigungs- und Arbeitsplätzestatistik.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
Editor		EURAC
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No. *Indicator title*		**19** **Tertiary Sector Jobs**
Indicator formula		$\left(\frac{\text{tertiary sector jobs}}{\text{total number of jobs}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.

	LI	Amt für Volkswirtschaft (2000): Beschäftigungs- und Arbeitsplätzestatistik.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*		**20** **Public Sector Jobs**
Indicator formula		$\left(\frac{\text{public sector jobs}}{\text{total number of jobs}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Beschäftigungs- und Arbeitsplätzestatistik.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*	**21** **Private Service Sector Jobs**
Indicator formula	$\left(\frac{\text{private service sector jobs}}{\text{total number of jobs}}\right)\cdot 100$
Indicator unit	%
Pillar	Economy

Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Beschäftigungs- und Arbeitsplätzestatistik.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
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No.	**22**
Indicator title	**Sectoral Breakdown of Jobs**

Indicator formula

$$\sum_{i=1}^{n}\sum_{j=1}^{m}(X_{ij} - \bar{X}_j)^2$$

X	share of jobs in the j sector (%)
$i \ldots n$	municipalities
$j \ldots m$	three economic sectors

Indicator unit		none
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Beschäftigungs- und Arbeitsplätzestatistik.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		
Comments		/
Editor		EURAC

Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*		**23** **Average Enterprise Size**
Indicator formula		$\frac{\text{jobs in secondary and tertiary sector}}{\text{local units of enterprises in secondary and tertiary sector}}$
Indicator unit		jobs/enterprise
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Arbeitsstättenzählung; Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung. Eidgenössisches Departement des Innern (2001): Betriebszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population; SIRENE.
	IT	ISTAT (2001): 8° Censimento dell'industria e dei servizi; 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva; Poslovni register Slovenije.
*References **		OECD
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*		**24** **Enterprise Density**
Indicator formula		$\frac{\text{local units of enterprises in secondary and tertiary sector}}{\text{residents}}$
Indicator unit		local units/resident
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Arbeitsstättenzählung; Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung. Eidgenössisches Departement des Innern (2001): Betriebszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population; SIRENE.

	IT	ISTAT (2001): 8° Censimento dell'industria e dei servizi; 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva; Poslovni register Slovenije.
*References **		/
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*	**25** **New Enterprises in the Secondary and Tertiary Sector**
Indicator formula	$\left(\frac{\text{new local units of enterprises in secondary and tertiary sector}}{\text{local units of enterprises in secondary and tertiary sector}}\right) \cdot 100$
Indicator unit	%
Pillar	Economy
Data sources *AT*	no data available
CH	Bundesamt für Statistik (2000): Unternehmensdemographie. Eidgenössisches Departement des Innern (2001): Betriebszählung.
DE	no data available
FR	INSEE (1999): SIRENE.
IT	Infocamere (2001): Special analysis. ISTAT (2001): 8° Censimento dell'industria e dei servizi.
LI	no data available
SI	Statistični urad Republike Slovenije (2002): Poslovni register Slovenije; special analysis.
*References **	SI
Comments	/
Editor	EURAC
Editor Contact	alpine.environment@eurac.edu

No. *Indicator title*	**26** **Commuter Balance**
Indicator formula	$\left(\frac{\text{in-commuters - out-commuters}}{\text{total employed persons}}\right) \cdot 100$
Indicator unit	%

Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
Editor		EURAC
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No.	**27**
Indicator title	**In-commuters Ratio**
Indicator formula	$\left(\frac{\text{in-commuters}}{\text{total employed persons}}\right) \cdot 100$
Indicator unit	%

Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
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No.	**28**

Indicator title		**Out-commuters Ratio**
Indicator formula		$\left(\frac{\text{outcommuters}}{\text{total employed persons}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
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No. *Indicator title*		**29** **Rate of Farms to Total Enterprises**
Indicator formula		$\left(\frac{\text{total number of farms}}{\text{local units of enterprises in secondary and tertiary sector + total farms}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (1999): Agrarstrukturerhebung. Statistik Austria (2001): Arbeitsstättenzählung.
	CH	Bundesamt für Statistik (1992-1997): Arealstatistik. Eidgenössisches Departement des Innern (2001): Betriebszählung.
	DE	no data available
	FR	INSEE (1999): SIRENE. Agreste (2000): Recensement agricole; special analysis.
	IT	ISTAT (2000): Censimento generale dell'agricoltura. ISTAT (2001): 8° Censimento dell'industria e dei servizi.
	LI	Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung; Volkszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva. Statistični urad Republike Slovenije (2002): Poslovni register

		Slovenije.
*References **		/
Comments		/
Editor		EURAC
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No. *Indicator title*		**30** **Farms Run as a Part-time Concern**
Indicator formula		$\left(\frac{\text{farms run as a part - time concern}}{\text{total number of farms}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (1999): Agrarstrukturerhebung.
	CH	Bundesamt für Statistik (2000): Eigenössische Betriebszählung im 1. Wirtschaftssektor.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2003): Allgemeine Agrarstrukturerhebung.
	FR	Agreste (2000): Recensement agricole; special analysis.
	IT	ISTAT (2000): Censimento generale dell'agricoltura.
	LI	Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva.
*References **		/
Comments		Further reading: Tappeiner, U., Tappeiner, G., Hilbert, A. and Mattanovich, E. (Editors), 2003. The EU Agricultural Policy and the Environment. Evaluation of the Alpine Region. Blackwell, Berlin.
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No. *Indicator title*		**31** **Mean Used Agricultural Area per Farm**
Indicator formula		$\frac{\text{used agricultural area}}{\text{total number of farms}}$
Indicator unit		ha/farm
Pillar		Economy
Data sources	*AT*	Statistik Austria (1999): Agrarstrukturerhebung.

	CH	Bundesamt für Statistik (1992-1997): Arealstatistik.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Allgemeine Agrarstrukturerhebung.
	FR	Agreste (2000): Recensement agricole; special analysis.
	IT	ISTAT (2000): Censimento generale dell'agricoltura.
	LI	Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva.
*References **		/
Comments		/
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No.	**32**
Indicator title	**Used Agricultural Area per Municipality**

Indicator formula		$\left(\frac{\text{used agricultural area}}{\text{municipal area}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (1999): Agrarstrukturerhebung.
	CH	Bundesamt für Statistik (1992-1997): Arealstatistik.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Allgemeine Agrarstrukturerhebung.
	FR	Agreste (2000): Recensement agricole, special analysis.
	IT	ISTAT (2000): Censimento generale dell'agricoltura.
	LI	Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva.
*References **		/
Comments		Further reading: Tappeiner, U., Tappeiner, G., Hilbert, A. and Mattanovich, E. (Editors), 2003. The EU Agricultural Policy and the Environment. Evaluation of the Alpine Region. Blackwell, Berlin.
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No.	**33**
Indicator title	**Non-grassland Areas in Agricultural Use**

Indicator formula		$\left(\frac{\text{non-grassland areas in agricultural use}}{\text{used agricultural area}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (1999): Agrarstrukturerhebung.
	CH	Bundesamt für Statistik (1992-1997): Arealstatistik.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Allgemeine Agrarstrukturerhebung.
	FR	Agreste (1988/2000): Recensement agricole, special analysis.
	IT	ISTAT (2000): Censimento generale dell'agricoltura.
	LI	Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva.
*References **		CSD
Comments		/
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No. *Indicator title*		**34** **Change in the Number of Farms**
Indicator formula		$\left(\frac{\text{total number of farms}_{t1} - \text{total number of farms}_{t0}}{\text{total number of farms}_{t0}}\right)\cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (1990): Land- und Forstwirtschaftliche Betriebszählung. Statistik Austria (1999): Agrarstrukturerhebung.
	CH	Bundesamt für Statistik (1990): Eidgenössische Landwirtschaftszählung. Bundesamt für Statistik (2000): Eigenössische Betriebszählung im 1. Wirtschaftssektor.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (1991/2003): Allgemeine Agrarstrukturerhebung.
	FR	Agreste (1988/2000): Recensement agricole; special analysis.
	IT	ISTAT (1990/2000): Censimento generale dell'agricoltura.
	LI	Amt für Volkswirtschaft (1990): Liechtensteinische Landwirtschaftszählung. Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung.

	SI	Statistični urad Republike Slovenije (1991): Popis prebivalstva. Statistični urad Republike Slovenije (2000): Popis kmetijstva.
*References **		/
Comments		Further reading: Tappeiner, U., Tappeiner, G., Hilbert, A. and Mattanovich, E. (Editors), 2003. The EU Agricultural Policy and the Environment. Evaluation of the Alpine Region. Blackwell, Berlin.
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No. *Indicator title*		**35** **Change in Used Agricultural Area**
Indicator formula		$\left(\frac{\text{used agricultural area}_{t1} - \text{used agricultural area}_{t0}}{\text{used agricultural area}_{t0}}\right) \cdot 100$
Indicator unit		%
Pillar		Economy
Data sources	*AT*	Statistik Austria (1990): Land- und Forstwirtschaftliche Betriebszählung. Statistik Austria (1999): Agrarstrukturerhebung.
	CH	Bundesamt für Statistik (1992-1997): Arealstatistik
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (1992/2001): Allgemeine Agrarstrukturerhebung.
	FR	Agreste (1988/2000): Recensement agricole, special analysis.
	IT	ISTAT (1991/2000): Censimento generale dell'agricoltura.
	LI	Amt für Volkswirtschaft (1990): Liechtensteinische Landwirtschaftszählung. Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva.
*References **		/
Comments		Further reading: Tappeiner, U., Tappeiner, G., Hilbert, A. and Mattanovich, E. (Editors), 2003. The EU Agricultural Policy and the Environment. Evaluation of the Alpine Region. Blackwell, Berlin.
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No. *Indicator title*	**36** **Patch Density of Agricultural Areas**
Indicator formula	$$pd^{CBC} = \frac{1}{A_{total}} \sum_{i=1}^{n} A_i / A_i^{cmpl}$$ pd^{CBC} patch density - cross-boundary connections (CBC) A_{total} total area of reporting unit n number of patches A_i size of patch i inside the boundaries of the reporting unit ($i = 1, 2, 3, \ldots, n$) A_i^{cmpl} area of the complete patch that A_i is a part of
Indicator unit	n/km²
Pillar	Economy
Data sources	*AT - DE - FR - IT - LI - SI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. *CH* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **	/
Comments	CLC1990 Switzerland was adapted to the CLC2000 spatial resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation, as calculation was conducted on level 2.
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No. *Indicator title*	**37** **Mean Capacity of Tourist Accommodation Establishments**
Indicator formula	$$\frac{\text{number of tourist beds}}{\text{tourist accomodation establishments}}$$
Indicator unit	beds/establishment
Pillar	Economy
Data sources	*AT* Statistik Austria (2001): Arbeitsstättenzählung; Tourismusstatistik - jährliche Bestandsstatistik.

	CH	Bundesamt für Statistik (2000): Schweizerische Tourismus-statistik.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Monatserhebung im Tourismus.
	FR	INSEE (1999): Pôle de compétence tourisme.
	IT	ISTAT (2001): Statistiche del turismo.
	LI	Amt für Volkswirtschaft (2001): Fremdenverkehrsstatistik.
	SI	no data available
*References **		/
Comments		/
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No.	**38**
Indicator title	**Tourist Beds per Resident**
Indicator formula	$\frac{\text{number of tourist beds}}{\text{residents}}$
Indicator unit	beds/resident
Pillar	Economy

Data sources	*AT*	Statistik Austria (2001): Tourismusstatistik - jährliche Be-standsstatistik; Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung; Schweizerische Tourismusstatistik.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes; Monatser-hebung im Tourismus.
	FR	INSEE (1999): Pôle de compétence tourisme; Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni; Statistiche del turismo.
	LI	Amt für Volkswirtschaft (2001): Fremdenverkehrsstatistik.
	SI	Statistični urad Republike Slovenije (2002): Letni pregled turizma; Popis prebivalstva.
*References **		/
Comments		/
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No.	**39**

Indicator title	**Road Distance to Nearest Motorway or Major Road**
Indicator formula	Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit	km
Pillar	Economy
Data sources	*AT - CH - DE - FR - IT - LI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04. *SI* EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
*References **	/
Comments	The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths. This information was used for the indicator calculation.
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No. *Indicator title*	**40** **Travel Time by Car to Nearest Motorway or Major Road**
Indicator formula	Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit	min
Pillar	Economy
Data sources	*AT - CH - DE - FR - IT - LI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04.

	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
*References **		/
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths as well as on average travelling time per road segment. This information was used for the indicator calculation.
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No. *Indicator title*	**41** **Road Distance to Nearest Commercial Airport**
Indicator formula	Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit	km
Pillar	Economy
Data sources	*AT - CH - DE - FR - IT - LI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04. DIAMONT project partners.
	SI EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. DIAMONT project partners.
*References **	TERM
Comments	The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The

		Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths. This information was used for the indicator calculation. All commercial airports within the Alpine space as well as within a radius of 50km around the Alpine space were included in the indicator calculation.
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No. *Indicator title*		**42** **Travel Time by Car to Nearest Commercial Airport**
Indicator formula		Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit		min
Pillar		Economy
Data sources	*AT - CH - DE - FR - IT - LI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04. DIAMONT project partners.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. DIAMONT project partners.
*References **		TERM
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used;

		> for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths as well as on average travelling time per road segment. This information was used for the indicator calculation. All commercial airports within the Alpine space as well as within a radius of 50km around the Alpine space were included in the indicator calculation.
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No. *Indicator title*		**43** **Road Distance to Regional Capital**
Indicator formula		Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit		km
Pillar		Economy
Data sources	*AT - CH - DE - FR - IT - LI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
*References **		/
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths. This information was used for the indicator calculation. The regional capitals were selected from the following national territorial units: AT - Bundesländer (NUTS2), CH - Kantone, DE - Länder (NUTS1), FL - Nation, FR - Départements (NUTS3), IT: Regioni (NUTS2) except Tren-

		tino and South Tyrol (Province, NUTS3), SI: Nation
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No. *Indicator title*		**44** **Travel Time by Car to Regional Capital**
Indicator formula		Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit		min
Pillar		Economy
Data sources	*AT - CH - DE - FR - IT - LI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
*References **		/
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths as well as on average travelling time per road segment. This information was used for the indicator calculation. The regional capitals were selected from the following national territorial units: AT - Bundesländer (NUTS2), CH - Kantone, DE - Länder (NUTS1), FL - Nation, FR - Départements (NUTS3), IT: Regioni (NUTS2) except Trentino and South Tyrol (Province, NUTS3), SI: Nation
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No. *Indicator title*		**45** **Road Distance to Nearest Municipality with More than 5,000 Residents**
Indicator formula		Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit		km
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes.
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04.
	SI	Statistični urad Republike Slovenije (2002): Popis prebival-stva.
		EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
*References **		TERM
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths. This information was used for the indicator calculation.
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No. *Indicator title*		**46** **Travel Time by Car to Nearest Municipality with More than**

		5,000 Residents
Indicator formula		Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit		min
Pillar		Economy
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes.
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04.
	SI	Statistični urad Republike Slovenije (2002): Popis prebival-stva.
		EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
*References **		TERM
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths as well as on average travelling time per road segment. This information was used for the indicator calculation.
Editor		EURAC
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No.		**47**

Indicator title		**Natural Population Growth**
Indicator formula		$\left(\frac{births_{t0\text{-}t1} - deaths_{t0\text{-}t1}}{residents}\right) \cdot 100$
Indicator unit		%
Pillar		Society
Data sources	*AT*	Statistik Austria (1991-2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung; Statistik der natürlichen Bevölkerungsbewegung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes; Statistik der Geburten; Statistik der Sterbefälle.
	FR	INSEE (1990-1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni; special analysis.
	LI	Amt für Volkswirtschaft (2000): Statistisches Jahrbuch; Zivilstandstatistik.
	SI	Ministrstvo za notranje zadeve (2002): Centralni register prebivalstva. Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		CSD, OECD
Comments		/
Editor		EURAC
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No. *Indicator title*		**48** **Total Population Growth**
Indicator formula		$\left(\frac{residents_{t1}}{residents_{t0}}\right) \cdot 100$
Indicator unit		none
Pillar		Society
Data sources	*AT*	Statistik Austria (1991/2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (1990/2000): Eidgenössische Volkszählung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (1987/2001): Fortschreibung des Bevölkerungsstandes.
	FR	INSEE (1990/1999): Recensement de la population.
	IT	ISTAT (1991): 13° Censimento generale della popolazione e delle abitazioni. ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.

	LI	Amt für Volkswirtschaft (1990/2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (1991/2002): Popis prebivalstva.
*References **		CSD, OECD
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*	**49** **General Fertility Rate**
Indicator formula	$\left(\frac{\text{births in the year of the census}}{\text{female residents aged 15 - 44}}\right) \cdot 1000$
Indicator unit	births/1000 female residents
Pillar	Society
Data sources	*AT* Statistik Austria (2001): Statistik der natürlichen Bevölkerungsbewegung; Volkszählung.
	CH Bundesamt für Statistik (2000): Eidgenössische Volkszählung; Statistik der natürlichen Bevölkerungsbewegung.
	DE Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes; Statistik der Geburten.
	FR INSEE (1990-1999): Recensement de la population.
	IT ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni; special analysis.
	LI Amt für Volkswirtschaft (2000): Volkszählung.
	SI Ministrstvo za notranje zadeve (2002): Centralni register prebivalstva. Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **	SDI, ECHI
Comments	/
Editor	EURAC
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No. *Indicator title*	**50** **Average Annual Net Migration Balance**
Indicator formula	$\sqrt[n]{1+\frac{(\text{immigrants} - \text{emigrants})}{\text{residents}}}$
Indicator unit	none

Pillar		Society
Data sources	*AT*	Statistik Austria (1991-2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung; Statistik des jährlichen Bevölkerungsstandes.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes; Wanderungsstatistik.
	FR	INSEE (1990-1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni; special analysis.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva; special analysis.
*References **		SDI, OECD
Comments		/
Editor		EURAC
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No.	**51**
Indicator title	**Foreign Residents**
Indicator formula	$\left(\frac{\text{foreign residents}}{\text{residents}}\right)\cdot 100$
Indicator unit	%

Pillar		Society
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Ministrstvo za notranje zadeve (2002): Centralni register prebivalstva. Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		OECD
Comments		/
Editor		EURAC
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No. *Indicator title*		**52** **Young Age Dependency Ratio**
Indicator formula		$\left(\frac{\text{residents aged} < 15}{\text{residents aged } 15\text{-}64}\right) \cdot 100$
Indicator unit		%
Pillar		Society
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes.
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebival-stva.
*References **		ECHI
Comments		/
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No. *Indicator title*		**53** **Old Age Dependency Ratio**
Indicator formula		$\left(\frac{\text{residents aged} \geq 65}{\text{residents aged } 15\text{-}64}\right) \cdot 100$
Indicator unit		%
Pillar		Society
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes.
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.

	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		SDI, ECHI, OECD
Comments		/
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No. *Indicator title*		**54** **Total Dependency Ratio**
Indicator formula		$\left(\frac{\text{residents aged} < 15 + \text{residents aged} \geq 65}{\text{residents aged } 15-64}\right) \cdot 100$
Indicator unit		%
Pillar		Society
Data sources	*AT*	Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Fortschreibung des Bevölkerungsstandes.
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		SDI, ECHI, OECD
Comments		/
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No. *Indicator title*		**55** **Average Household Size**
Indicator formula		$\frac{\text{residents}}{\text{total private households}}$
Indicator unit		residents/household
Pillar		Society
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).

	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
Editor		EURAC
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No. *Indicator title*	**56** **Single-person Households**
Indicator formula	$\left(\frac{\text{single-person households}}{\text{total private households}}\right)\cdot 100$
Indicator unit	%
Pillar	Society
Data sources	*AT* Statistik Austria (2001): Volkszählung.
	CH Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE no data available
	FR INSEE (1999): Recensement de la population.
	IT ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI Amt für Volkswirtschaft (2000): Volkszählung.
	SI Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **	/
Comments	/
Editor	EURAC
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No. *Indicator title*	**57** **Older People Living in Single-person Households**
Indicator formula	$\left(\frac{\text{residents aged} \geq 65 \text{ living in single-person households}}{\text{residents aged} \geq 65}\right)\cdot 100$

Indicator unit		%
Pillar		Society
Data sources	*AT*	Statistik Austria (2001): Volkszählung (some data provided via GALPIS).
	CH	Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE	no data available
	FR	INSEE (1999): Recensement de la population.
	IT	ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Volkszählung.
	SI	Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **		/
Comments		/
Editor		EURAC
Editor Contact		alpine.environment@eurac.edu

No. *Indicator title*	**58** **Older Single-person Households**
Indicator formula	$\left(\frac{\text{residents aged} \geq 65 \text{ living in single-person households}}{\text{single-person households}}\right) \cdot 100$
Indicator unit	%
Pillar	Society
Data sources	*AT* Statistik Austria (2001): Volkszählung.
	CH Bundesamt für Statistik (2000): Eidgenössische Volkszählung.
	DE no data available
	FR INSEE (1999): Recensement de la population.
	IT ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI Amt für Volkswirtschaft (2000): Volkszählung.
	SI Statistični urad Republike Slovenije (2002): Popis prebivalstva.
*References **	/
Comments	/
Editor	EURAC
Editor Contact	alpine.environment@eurac.edu
No. *Indicator title*	**59** **Population Density per Available Settlement Area**

Indicator formula		$\left(\frac{\text{residents}}{\text{settlement area + intensively used agricultural area}}\right) \cdot \text{municipal area}$
Indicator unit		residents/ha
Pillar		Society
Data sources	*AT*	Statistik Austria (1999): Agrarstrukturerhebung. Statistik Austria (2001): Volkszählung (data provided via GALPIS).
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Allgemeine Agrarstrukturerhebung; Fortschreibung des Bevölkerungsstandes.
	FR	Agreste (2000): Recensement agricole; special analysis. INSEE (1999): Recensement de la population.
	IT	ISTAT (2000): Censimento generale dell'agricoltura. ISTAT (2001): 14° Censimento generale della popolazione e delle abitazioni.
	LI	Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung; Volkszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva. Statistični urad Republike Slovenije (2002): Popis prebivalstva.
		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	Bundesamt für Statistik (1992-1997): Arealstatistik. Bundesamt für Statistik (2000): Eidgenössische Volkszählung. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		/
Comments		/
Editor		EURAC
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No. *Indicator title*	**60** **Road Distance to Nearest Hospital**
Indicator formula	Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit	km
Pillar	Society
Data sources	*AT - CH - DE - FR - IT - LI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04.

		Tele Atlas GmbH (2007): Multinet Vs. 2007.04.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. DIAMONT project partners.
*References **		CSD, SPC, TERM
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths. This information was used for the indicator calculation. All hospitals within the Alpine space as well as within a radius of 50km around the Alpine space were in-cluded in the indicator calculation.
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No. *Indicator title*	**61** **Travel Time by Car to Nearest Hospital**
Indicator formula	Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit	min
Pillar	Society
Data sources	*AT - CH - DE - FR - IT - LI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04. *SI* EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. DIAMONT project partners.
*References **	CSD, SPC, TERM

Comments	The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths as well as on average travelling time per road segment. This information was used for the indicator calculation. All hospitals within the Alpine space as well as within a radius of 50km around the Alpine space were included in the indicator calculation.
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No. *Indicator title*	**62** **Road Distance to Nearest University**
Indicator formula	Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit	km
Pillar	Society
Data sources	*AT - CH - DE - FR - IT - LI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04. *SI* EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. DIAMONT project partners.
*References **	/
Comments	The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space:

		> for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths. This information was used for the indicator calculation. All universities within the Alpine space as well as within a radius of 50km around the Alpine space were included in the indicator calculation.
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No. *Indicator title*		**63** **Travel Time by Car to Nearest University**
Indicator formula		Calculated in ArcGIS 9.1 using the Network Analyst (Closest Facility)
Indicator unit		min
Pillar		Society
Data sources	*AT - CH - DE - FR - IT - LI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas GmbH (2006): Multinet Vs. 2006.04. Tele Atlas GmbH (2007): Multinet Vs. 2007.04.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. DIAMONT project partners.
*References **		/
Comments		The centres of settlement (Tele AtlasGmbH 2007) in each municipality were used as starting points for calculating the road distance for all Alpine countries except Slovenia. The Slovenian centres of settlement were set manually using CLC2000 in combination with roads from EuroGlobalMap (EuroGeographics 2005). The distance calculation was conducted on a road network which covers the Alpine space and a 50km radius around the Alpine space: > for all Alpine countries except Slovenia a road network with the categories FRC 0-6 from TeleAtlas GmbH (2006) was used; > for Slovenia (as TeleAtlas data is not available for this country) roads from EuroGlobalMap were used to create a network; the EuroGlobalMap road categories were adapted to the TeleAtlas categories FRC 0, 1, and 3. The combined networks contain information on road-segment lengths as well as on average travelling time per

		road segment. This information was used for the indicator calculation. All universities within the Alpine space as well as within a radius of 50km around the Alpine space were included in the indicator calculation.
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No. *Indicator title*		**64** **Forest Areas**
Indicator formula		$\left(\frac{\text{forest areas}}{\text{municipal area}}\right)\cdot 100$
Indicator unit		%
Pillar		Environment
Data sources	*AT - DE - FR - IT - LI - SI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		CSD, MDG
Comments		CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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No. *Indicator title*		**65** **Near-natural and Natural Open Areas**
Indicator formula		$\left(\frac{\text{near-natural and natural open areas}}{\text{municipal area}}\right)\cdot 100$
Indicator unit		%
Pillar		Environment
Data sources	*AT - DE - FR - IT - LI - SI*	

		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		/
Comments		CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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No. *Indicator title*	**66** **Artificial Areas**
Indicator formula	$\left(\frac{\text{artificial areas}}{\text{municipal area}}\right) \cdot 100$
Indicator unit	%
Pillar	Environment
Data sources	*AT - DE - FR - IT - LI - SI*
	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **	SDI, CSD, EEA
Comments	CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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No. *Indicator title*	**67** **Hemeroby**
Indicator formula	$100 \cdot \sum_{h=1}^{n} \frac{f_n}{n} \cdot h$ n number of categories of hemeroby f_n proportion of the area of the category n h hemeroby - value (linear from $h = 1$ for minimal and $h = n$ for maximal hemeroby)
Indicator unit	index
Pillar	Environment
Data sources	*AT - DE - FR - IT - LI - SI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. *CH* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **	/
Comments	CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Further reading: Tasser, E., Sternbach, E. and Tappeiner, U., 2008. Biodiversity indicators for sustainability monitoring at municipality level: An example of implementation in an alpine region. Ecological Indicators, 8(3): 204-223.
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Editor Contact	alpine.environment@eurac.edu

No. *Indicator title*	**68** **Land-cover Diversity of Agricultural, Near-natural and Natural Areas**
Indicator formula	Calculated with ArcGIS 9.1 command Focal Statistics: Land-cover diversity within a Moving Window (circle radius = 1000m)
Indicator unit	n/km²
Pillar	Environment
Data sources	*AT - DE - FR - IT - LI - SI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0).

		European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		IRENA
Comments		CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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No. *Indicator title*		**69** **Land-cover Diversity of Near-natural and Natural Areas**
Indicator formula		Calculated with ArcGIS 9.1 command Focal Statistics: Land-cover diversity within a Moving Window (circle radius = 1000m)
Indicator unit		n/km²
Pillar		Environment
Data sources	*AT - DE - FR - IT - LI - SI*	
		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		/
Comments		CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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Editor Contact		alpine.environment@eurac.edu
No. *Indicator title*		**70** **Land-cover Diversity of Agricultural Areas**
Indicator formula		Calculated with ArcGIS 9.1 command Focal Statistics: Land-cover diversity within a Moving Window (circle radius = 1000m)

Indicator unit		n/km²
Pillar		Environment
Data sources	*AT - DE - FR - IT - LI - SI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		IRENA
Comments		CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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No. *Indicator title*	**71** **Patch Density of Agricultural, Near-natural and Natural Areas**

Indicator formula

$$pd^{CBC} = \frac{1}{A_{total}} \sum_{i=1}^{n} A_i / A_i^{cmpl}$$

pd^{CBC} patch density - cross-boundary connections (CBC)
A_{total} total area of reporting unit
n number of patches
A_i size of patch i inside the boundaries of the reporting unit ($i = 1, 2, 3, \ldots, n$)
A_i^{cmpl} area of the complete patch that A_i is a part of

Indicator unit		n/km²
Pillar		Environment
Data sources	*AT - DE - FR - IT - LI - SI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover

	(CLC1990) Switzerland.
*References **	/
Comments	CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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No.	**72**
Indicator title	**Patch Density of Near-natural and Natural Areas**
Indicator formula	$$pd^{CBC} = \frac{1}{A_{total}} \sum_{i=1}^{n} A_i / A_i^{cmpl}$$

pd^{CBC} patch density - cross-boundary connections (CBC)
A_{total} total area of reporting unit
n number of patches
A_i size of patch i inside the boundaries of the reporting unit ($i = 1, 2, 3, \ldots, n$)
A_i^{cmpl} area of the complete patch that A_i is a part of

Indicator unit		n/km²
Pillar		Environment
Data sources	*AT - DE - FR - IT - LI - SI*	
		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
	CH	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0) European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		/
Comments		CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation as calculation was conducted on level 2.
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No. *Indicator title*		**73** **Road Density of Major Roads**
Indicator formula		$\frac{\text{road length (FRC 0-4)}}{\text{municipal area}}$
Indicator unit		m/km²
Pillar		Environment
Data sources	*AT - CH - DE - FR - IT - LI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas Austria GmbH (2006): Multinet Vs. 2006.04.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0).
*References **		OECD, TERM
Comments		Road-network base data for all Alpine countries except Slovenia: road categories FRC 0-4 from TeleAtlas GmbH (2006). Road-network base data for Slovenia (as TeleAtlas data is not available for this country): roads from EuroGlobalMap (EuroGeographics, 2005); the EuroGlobalMap road-categories were adapted to the TeleAtlas categories FRC 0, 1, 3.
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No. *Indicator title*		**74** **Road Density of All Roads**
Indicator formula		$\frac{\text{road length (FRC 0-7)}}{\text{municipal area}}$
Indicator unit		m/km²
Pillar		Environment
Data sources	*AT - CH - DE - FR - IT - LI*	EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). Tele Atlas Austria GmbH (2006): Multinet Vs. 2006.04.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0).
*References **		OECD, TERM
Comments		Road-network base data for all Alpine countries except Slovenia: road categories FRC 0-7 from TeleAtlas GmbH

	(2006). Road-network base data for Slovenia (as TeleAtlas data is not available for this country): roads from EuroGlobalMap (EuroGeographics, 2005); the EuroGlobalMap road-categories were adapted to the TeleAtlas categories FRC 0, 1, 3.
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No. *Indicator title*	**75** **Effective Mesh Size of Agricultural, Near-natural and Natural Areas**
Indicator formula	$$m_{eff}^{CBC} = \frac{1}{A_{total}} \sum_{i=1}^{n} A_i \cdot A_i^{cmpl}$$ m_{eff}^{CBC} effective mesh size - cross-boundary connections (CBC) A_{total} total area of reporting unit n number of patches A_i size of patch i inside the boundaries of the reporting unit ($i = 1, 2, 3, \ldots, n$) A_i^{cmpl} area of the complete patch that A_i is a part of
Indicator unit	km²
Pillar	Environment
Data sources	*AT - DE - FR - IT - LI* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. Tele Atlas Austria GmbH (2006): Multinet Vs. 2006.04. *CH* EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover (CLC1990) Switzerland. Tele Atlas Austria GmbH (2006): Multinet Vs. 2006.04. *SI* EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
*References **	TERM
Comments	CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation, as calculation was conducted on level 1.

Corine land-use data was combined with a transportation network:
> Base data transportation for all Alpine countries except Slovenia: road-categories FRC 0-4 from TeleAtlas GmbH (2006) and railways from EuroGlobalMap (EuroGeographics, 2005).
> Base data transportation for Slovenia (as TeleAtlas data is not available for this country): roads and railways from EuroGeographics EGM (2005); the EGM roads-categories were adapted to the TeleAtlas categories FRC 0, 1, 3.

Further reading:
Moser, B., Jaeger, J.A.G., Tappeiner, U., Tasser, E. and Eiselt, B., 2007. Modification of the effective mesh size for measuring landscape fragmentation to solve the boundary problem. Landscape Ecology, 22(3): 447-459.

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Indicator title **76**
Effective Mesh Size of Near-natural and Natural Areas

Indicator formula

$$m_{eff}^{CBC} = \frac{1}{A_{total}} \sum_{i=1}^{n} A_i \cdot A_i^{cmpl}$$

m_{eff}^{CBC} effective mesh size - cross-boundary connections (CBC)
A_{total} total area of reporting unit
n number of patches
A_i size of patch i inside the boundaries of the reporting unit ($i = 1, 2, 3, \ldots, n$)
A_i^{cmpl} area of the complete patch that A_i is a part of

Indicator unit km²

Pillar Environment

Data sources *AT - DE - FR - IT - LI*

EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0).
European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.
Tele Atlas Austria GmbH (2006): Multinet Vs. 2006.04.

CH EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0).
European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
Tele Atlas Austria GmbH (2006): Multinet Vs. 2006.04.

SI EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1.
EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0).
European Environment Agency (2005): Corine land cover

		2000 (CLC2000) 100 m.
*References **		TERM
Comments		CLC1990 Switzerland was adapted to the CLC2000 spatial-resolution of 100m. Land-cover classes within CLC1990 Switzerland are described with less detail (only on the second out of three CLC2000 hierarchical class levels). Missing thematic accuracy of Swiss CLC did not cause problems for indicator calculation, as calculation was conducted on level 1. Corine land-use data was combined with a transportation network: > Base data transportation for all Alpine countries except Slovenia: road-categories FRC 0-4 from TeleAtlas GmbH (2006) and railways from EuroGlobalMap (EuroGeographics, 2005). > Base data transportation for Slovenia (as TeleAtlas data is not available for this country): roads and railways from EuroGeographics EGM (2005); the EGM roads-categories were adapted to the TeleAtlas categories FRC 0, 1, 3. Further reading: Moser, B., Jaeger, J.A.G., Tappeiner, U., Tasser, E. and Eiselt, B., 2007. Modification of the effective mesh size for measuring landscape fragmentation to solve the boundary problem. Landscape Ecology, 22(3): 447-459.
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No. *Indicator title*		**77** **Sites of Community Importance (SCI)**
Indicator formula		$\left(\frac{\text{SCI areas}}{\text{municipal area}}\right)\cdot 100$
Indicator unit		%
Pillar		Environment
Data sources	*AT*	Amt der Tiroler Landesregierung (2006): NATURA2000 - Sites of Community Importance (SCI; Stand: April 2004).
	CH	Centre Suisse de Cartographie de la Faune (2006): Vorstudie Smaragd-Gebiete in der Schweiz (WWF-Schweiz 2002).
	DE	Bayerisches Landesamt für Umwelt (2006): Bayerische Gesamtmeldung FFH (Stand: März 2006).
	FR	Direction régionale de l'environnement Provence Alpes Côte d'Azur & Direction régionale de l'environnement Rhône-Alpes (2006): Sites d'Importance Communautaire (SIC).
	IT	Ministero dell'Ambiente (2006): GIS NATURA - Il GIS delle conoscenze naturalistiche in Italia. Siti di Interesse Comunitario (SIC).
	LI	Amt für Wald, Natur und Landschaft (2006): CDDA Boundaries 2006.

	SI	Ministrstvo za okolje in prostor (2006): Natura2000 pSCI (preliminary Sites of Community Importance).
*References **		SDI, CSD, EEA, MDG, SI
Comments		As Sites of Community Importance (SCI) do not exist in Liechtenstein and Switzerland, data sets containing comparable information were used for these countries. Further reading: Zanini, E. and Reithmayer B. (Editors): 2004. Natura 2000 in Österreich. Neuer Wissenschaftlicher Verlag, Wien/Graz, 344 pp.
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No. *Indicator title*		**78** **Special Protected Areas (SPA)**
Indicator formula		$\left(\frac{\text{SPA areas}}{\text{municipal area}}\right)\cdot 100$
Indicator unit		%
Pillar		Environment
Data sources	*AT*	Amt der Tiroler Landesregierung (2006): NATURA2000 - Special Protected Areas (SPA; Stand: April 2004).
	CH	Centre Suisse de Cartographie de la Faune (2006): Important Bird Areas (IBA).
	DE	Bayerisches Landesamt für Umwelt (2006): Bayerische Gesamtmeldung SPA (Stand: Juni 2006).
	FR	Direction régionale de l'environnement Provence Alpes Côte d'Azur & Direction régionale de l'environnement Rhône-Alpes (2006): Zones de Protection Spéciale (ZPS).
	IT	Ministero dell'Ambiente (2006): GIS NATURA - Il GIS delle conoscenze naturalistiche in Italia. Zone di Protezione Speciale (ZPS).
	LI	no data available
	SI	Ministrstvo za okolje in prostor (2006): Natura2000 SPA (Special Protected Areas).
*References **		CSD, EEA, MDG
Comments		As Special Protected Areas (SPA) do not exist in Liechtenstein and Switzerland, data sets containing comparable information were used for these countries. Further reading: Zanini, E. and Reithmayer B. (Editors): 2004. Natura 2000 in Österreich. Neuer Wissenschaftlicher Verlag, Wien/Graz, 344 pp.
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No. *Indicator title*		**79** **Natura 2000 Areas**
Indicator formula		$\left(\frac{\text{total Natura 2000 areas}}{\text{municipal area}}\right)\cdot 100$
Indicator unit		%
Pillar		Environment
Data sources	*AT*	Amt der Tiroler Landesregierung (2006): NATURA2000 - Sites of Community Importance (SCI; Stand: April 2004) & NATURA2000 - Special Protected Areas (SPA; Stand: April 2004).
	CH	Centre Suisse de Cartographie de la Faune (2006): Vorstudie Smaragd-Gebiete in der Schweiz (WWF-Schweiz 2002) & Important Bird Areas (IBA).
	DE	Bayerisches Landesamt für Umwelt (2006): Bayerische Gesamtmeldung FFH (Stand: März 2006) & Bayerische Gesamtmeldung SPA (Stand: Juni 2006)
	FR	Direction régionale de l'environnement Provence Alpes Côte d'Azur & Direction régionale de l'environnement Rhône-Alpes (2006): Sites d'Importance Communautaire (SIC) & Zones de Protection Spéciale (ZPS).
	IT	Ministero dell'Ambiente (2006): GIS NATURA - Il GIS delle conoscenze naturalistiche in Italia, Siti di Interesse Comunitario (SIC) & Zone di Protezione Speciale (ZPS).
	LI	Amt für Wald, Natur und Landschaft (2006): CDDA Boundaries 2006.
	SI	Ministrstvo za okolje in prostor (2006): Natura2000 pSCI (preliminary Sites of Community Importance) & Natura2000 SPA (Special Protected Areas).
*References **		SDI, CSD, EEA, MDG, SI
Comments		As Sites of Community Importance (SCI) and Special Protected Areas (SPA) do not exist in Liechtenstein and Switzerland, data sets containing comparable information were used for these countries. For Liechtenstein data comparable to Special Protected Areas (SPA) were not available and could thus not be included in the calculation of this indicator. Further reading: Zanini, E. and Reithmayer B. (Editors): 2004. Natura 2000 in Österreich. Neuer Wissenschaftlicher Verlag, Wien/Graz, 344 pp.
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No. *Indicator title*		**80** **Altitude of Centre of Settlement**
Indicator formula		Combination of DEM (digital elevation model) with municipality centers in ArcGIS 9.2
Indicator unit		m
Pillar		Environment
Data sources	*AT - CH - DE - FR - IT - LI*	
		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). NASA (2005): Shuttle Radar Topography Mission (SRTM) v.2, 2000. Tele Atlas GmbH (2007): Multinet Vs. 2007.04.
	SI	EuroGeographics (2005): EuroGlobalMap (EGM) v. 1.1. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m. NASA (2005): Shuttle Radar Topography Mission (SRTM) v.2, 2000.
*References **		/
Comments		/
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No. *Indicator title*		**81** **Available Settlement Area**
Indicator formula		$\left(\frac{\text{settlement area} + \text{intensively used agricultural area}}{\text{municipal area}}\right) \cdot 100$
Indicator unit		%
Pillar		Environment
Data sources	*AT*	Statistik Austria (1999): Agrarstrukturerhebung.
	DE	Bayerisches Landesamt für Statistik und Datenverarbeitung (2001): Allgemeine Agrarstrukturerhebung.
	FR	Agreste (2000): Recensement agricole; special analysis.
	IT	ISTAT (2000): Censimento generale dell'agricoltura.
	LI	Amt für Volkswirtschaft (2000): Landwirtschaftliche Betriebszählung.
	SI	Statistični urad Republike Slovenije (2000): Popis kmetijstva.
		EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover 2000 (CLC2000) 100 m.

	CH	Bundesamt für Statistik (1992-1997): Arealstatistik. EuroGeographics (2005): Seamless Administrative Boundaries of Europe (SABE2004 v1.0). European Environment Agency (2005): Corine land cover (CLC1990) Switzerland.
*References **		/
Comments		/
Editor		EURAC
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II - Communalities (sorted)

Communalities (sorted) of the factor analysis used to identify phenomena of regional development (see section **Fehler! Verweisquelle konnte nicht gefunden werden.**).

Indicators	Communalities
New enterprises in the secondary and tertiary sector	0,31
Public sector jobs	0,45
Patch density of near-natural and natural areas	0,47
Non-grassland areas in agricultural use	0,50
Foreign residents	0,54
Patch density of agricultural areas	0,54
Mean capacity of tourist accommodation establishments	0,55
Older single person households	0,56
Sectoral breakdown of jobs	0,58
Farms run as part-time concern	0,58
Jobs held by women (%)	0,59
Change in the number of farms (%)	0,60
Tourist beds per resident	0,60
Population density per available settlement area	0,61
Change in used agricultural area	0,65
Mean used agricultural area per farm	0,67
Altitude of centre of settlement	0,68
Change in employment rate	0,68
Used agricultural area per municipality	0,69
Out-commuters ratio	0,69
Older employed persons	0,71
General fertility rate	0,71
Average annual net migration balance	0,71
Average enterprise size	0,72
Road density of major roads	0,72
Special Protected Areas (SPA)	0,72
Natural population growth	0,73
Rate of female employed persons to total employed persons	0,73
Forest Areas	0,74
Young age dependency ratio	0,74
Total population growth	0,75
Road distance to regional capital	0,75
Single-person households	0,75
Enterprise density	0,76
Average household size	0,77

Sites of Community Importance (SCI)	0,77
Land-cover diversity of near-natural and natural areas	0,77
Female employment rate in the age group 25-44	0,77
Self-employed rate	0,78
Road distance to nearest university	0,78
Rate of farms to total enterprises	0,78
Road distance to nearest municipality with more than 5,000 residents	0,78
Land-cover diversity of agricultural, near-natural and natural areas	0,79
Change in jobs density	0,79
Patch density of agricultural, near-natural and natural areas	0,79
Older people living in single person households	0,79
Road distance to nearest commercial airport	0,80
Artificial areas	0,80
Travel time by car to nearest municipality with more than 5,000 residents	0,80
Travel time by car to regional capital	0,81
Primary sector jobs	0,82
Semi-natural and natural open areas	0,82
Travel time by car to nearest university	0,82
Travel time by car to nearest commercial airport	0,83
Travel Time by car to nearest hospital	0,84
Road density of all roads	0,85
Employment rate	0,85
Land-cover diversity of agricultural areas	0,85
Road distance to nearest hospital	0,85
Change in jobs held by women	0,85
In-commuters ratio	0,85
Employment rate of older people	0,85
Secondary sector jobs	0,85
Change in rate of female employed to total employed persons	0,86
Available settlement area	0,87
Private service sector jobs	0,88
Travel time by car to nearest motorway or major road	0,89
Road distance to nearest motorway or major road	0,89
Old age dependency ratio	0,90
Rate of jobs held by women to female residents	0,90
Hemeroby	0,91
Change in rate of jobs held by women to female residents	0,91
Total dependency ratio	0,92
Female employment rate	0,92
Effective mesh size of agricultural, near-natural and natural	0,92

areas	
Effective mesh size of near-natural and natural Areas	0,93
Change in female employment rate	0,94
Jobs density	0,95
Tertiary sector jobs	0,95
Natura 2000 Area	0,95
Commuter balance	0,96

III - Cluster centres (average indicator values in each cluster)

Cluster centres given by the Cluster analysis in order to identify similar regions of development in the Alps (see section **Fehler! Verweisquelle konnte nicht gefunden werden.**)

9 Cluster, average	1	2	3	4	5	6	7	8	9	Total
Commuter balance	-0.463	0.141	-0.394	-0.388	-0.143	-0.244	-0.402	-0.278	-0.451	-0.335
Tertiary sector employment	0.465	0.578	0.485	0.475	0.637	0.531	0.476	0.465	0.533	0.495
Tourist beds per resident	0.031	0.042	0.089	0.078	1.394	0.176	0.105	0.016	0.088	0.124
Change in the number of farms	-26.089	-31.481	-25.735	-38.972	-15.704	-23.824	-38.261	-27.088	174.657	-28.178
Travel time by car to nearest commercial airport	29.672	26.689	42.619	51.309	52.277	51.541	38.055	70.170	51.603	44.371
Travel time by car to nearest motorway or major road	7.235	5.432	10.706	22.766	14.379	13.307	14.476	20.277	20.703	13.375
General fertility rate	0.048	0.048	0.047	0.048	0.045	0.060	0.045	0.049	0.062	0.049
Average annual net migration balance	0.008	0.004	0.006	0.003	0.002	-0.005	0.002	0.008	0.004	0.004
Old age dependency ratio	0.246	0.236	0.256	0.370	0.222	0.257	0.324	0.417	0.357	0.288
Older people living in single person households	0.272	0.291	0.275	0.373	0.273	0.271	0.350	0.234	0.327	0.294
Employment rate of older people	0.145	0.166	0.122	0.111	0.159	0.257	0.132	0.111	0.149	0.144
Female employment rate	0.567	0.578	0.542	0.511	0.539	0.661	0.555	0.511	0.529	0.555
Change in female employment rate	115.851	110.392	115.475	124.190	114.215	126.088	122.103	107.405	136.037	117.844
Road distance to nearest hospital	9.917	5.541	12.164	16.849	20.562	11.980	14.425	15.030	13.270	12.825
Artificial areas	5.379	31.324	3.655	2.664	1.802	1.398	2.064	0.756	5.159	4.890
Land-cover diversity of agricultural, near-natural and natural areas	3.164	2.695	2.565	2.531	2.560	2.699	2.652	3.245	2.412	2.729
Non-grassland areas in agricultural use	0.524	0.259	0.106	0.097	0.026	0.066	0.043	0.438	0.110	0.192
Effective mesh size of agricultural, near-natural and natural areas	130.310	152.162	366.823	601.225	1545.573	973.895	4253.803	209.064	597.162	668.672
Patch density of agricultural areas	0.461	0.710	0.568	1.269	0.759	0.490	0.926	0.588	0.605	0.705
Change in used agricultural area	-0.019	-0.082	-0.005	0.194	0.233	0.024	0.016	0.088	16.884	0.092

IV - Characterization of the LMRs according to indicators defined by DIAMONT-project

LMR types: 1 = highly dynamic LMR; 2 = dynamic LMR; 3 = moderately dynamic LMR

LMR	Total population in 2001	Change in total population between 1991 and 2001	Population younger than 15 in 2001	Change in population younger than 15 between 1991 and 2001	Population 15 to 64 in 2001	Change in population 15 to 64 between 1991 and 2001	Natural population growth between 1991 and 2001	Migration balance from 1991 to 2001 (10 years sum)	Jobs density in 2001	Change in jobs density between 1991 and 2001	In-commuting in 2001	Change in in-commuting between 1991 and 2001	Out-commuting in 2001	Change in out-commuting between 1991 and 2001	LMR type
Aix-les-Bains	54372	6510	9615	685	35010	3713	1394	5116	18316	1232	10545	2468	13766	3186	**2**
Albertville	66618	2153	12155	-416	43445	359	1924	309	25444	-136	14300	1557	15812	2756	**1**
Altdorf (UR)	32099	676	6057	-243	20878	477	1585	-1290	13333	-594	7085	333	8480	963	**1**
Altstaetten	51817	5064	10879	1198	33783	3198	1430	1965	20098	1319	9642	1851	13822	2486	**2**
Annecy	177977	17413	32259	1171	120615	10034	10123	7387	80835	6540	53937	6593	52621	6564	**3**
Aosta	69995	2516	9074	177	47363	-386	-1110	3600	28835	1307	17010	2921	16639	2612	**1**
Apt	28075	167	4627	-573	17526	-272	110	102	8902	81	3954	891	4812	682	**1**
Arco / Riva del Garda	48757	3924	6934	466	32925	1816	55	3940	21047	2321	9967	1835	10372	1260	**2**
Avigliana	77086	6286	10036	593	51757	2632	-2525	8920	21818	2924	13964	2799	23401	2729	**2**
Bad Ischl	28007	1322	4956	-67	18454	1112	327	922	10772	130	4484	762	5659	1396	**1**
Bad Reichenhall	38689	146	5098	-139	24699	-197	-2463	6865	20029	-3527	7516	-131	6028	669	**2**
Bad Toelz	76134	7543	12854	1711	50898	4589	1245	8325	33413	3807	13309	3678	17631	3843	**2**
Bellinzona	64601	5246	10072	634	44095	2814	710	3815	28065	-517	17036	-58	16650	407	**2**
Belluno	81734	761	10162	-391	54980	-1219	-1940	3115	38625	6587	21194	5054	17404	3525	**2**
Bischofshofen / Sankt Johann im Pongau	54759	3756	10659	-66	36775	2497	2785	845	23323	4533	12004	3375	13421	3221	**2**
Bludenz	55989	3593	10788	-45	37940	2398	3008	468	22618	2696	14569	2399	17055	3284	**2**
Bolzano	160283	4095	23866	1391	108078	-2493	2630	1725	86889	14067	32399	5852	21369	2030	**2**
Bonneville	66040	9341	13943	1648	44610	6172	3650	5755	22079	3047	13856	4595	22539	5525	**2**
Bressanone	45162	3307	8563	174	30234	1710	2955	1050	19357	3182	9420	1943	9701	1869	**2**
Briancon	23070	556	4449	-277	15359	269	1128	-587	10491	317	4228	1061	3953	929	**1**
Brig-Glis / Visp	47832	3286	8557	-204	32112	1888	2130	845	20838	738	11505	1134	10962	1124	**1**
Brunico	42297	3491	8014	37	28932	2049	2865	850	20889	4509	10750	2513	8728	1827	**2**
Buchs (SG)	89481	9696	17219	1257	61424	7051	3965	10855	49647	14304	30265	14730	26014	6577	**3**
Bulle	33949	4577	6748	1273	22155	2723	1205	3875	14136	688	7900	946	9257	1505	**2**
Bussolengo	23560	2183	3671	306	16025	1178	405	2080	9403	572	4666	220	6789	854	**1**

LMR	Total population in 2001	Change in total population between 1991 and 2001	Population younger than 15 in 2001	Change in population younger than 15 between 1991 and 2001	Population 15 to 64 in 2001	Change in population 15 to 64 between 1991 and 2001	Natural population growth between 1991 and 2001	Migration balance from 1991 to 2001 (10 years sum)	Jobs density in 2001	Change in jobs density between 1991 and 2001	In-commuting in 2001	Change in in-commuting between 1991 and 2001	Out-commuting in 2001	Change in out-commuting between 1991 and 2001	LMR type
Carros	28372	2974	5528	-19	18906	1921	1254	1724	10714	630	7168	1424	8020	1739	**1**
Chambery	143916	11846	25637	326	96618	7441	6037	5793	62424	3514	40626	6710	36763	6084	**3**
Chamonix-Mont-Blanc	13746	1153	2724	260	9223	483	1102	46	6907	655	1877	788	1681	628	**1**
Chur	91338	5752	15747	531	62433	3597	3100	2620	45633	988	20184	3378	19001	3518	**2**
Cluses	85000	8444	17325	819	57125	4909	6038	2422	41308	3399	22622	6278	21313	6003	**2**
Darfo Boario Terme	84550	2114	11797	-1075	58817	-77	225	2010	33661	1120	22465	1909	22192	2887	**1**
Davos	16341	920	2495	-75	11557	706	430	-1200	8892	592	1167	446	953	283	**1**
Digne-les-Bains	25064	996	4365	78	16207	399	387	645	10591	575	4213	1162	3725	756	**1**
Domodossola	53139	-1705	6174	-976	36212	-2965	-2035	1985	16957	-331	10185	-163	12649	191	**1**
Dornbirn	74230	3622	14387	-271	50601	2154	4423	-865	33118	3627	14647	4377	15836	3454	**2**
Feldkirch / Götzis / Rankweil	50936	88	6176	-451	33411	-725	-2670	2575	16686	629	10181	1498	11789	2207	**1**
Feltre	55399	1756	9004	-100	36634	1181	518	3477	32064	2498	14380	4107	11198	2963	**1**
Füssen	52967	5190	9372	470	34084	3036	1391	3788	22534	2356	6728	2213	6071	2024	**2**
Gap	68872	1855	9944	-775	48231	-95	1035	1770	30422	1701	14095	1850	15933	1800	**1**
Gardone Val Trompia	54747	-361	7800	583	35619	-1452	-1235	6070	27977	-1346	7301	336	7493	1343	**2**
Garmisch-Partenkirchen	109825	8282	21675	627	75421	5297	7078	1129	44234	7705	26024	7128	33627	6000	**2**
Grenoble	493477	25185	86327	-1351	339810	12680	29084	-3786	215833	10256	151673	20300	134645	15235	**3**
Hallein	61961	3294	11278	300	42026	2161	2335	1571	23886	-383	11685	335	17863	3850	**1**
Idrija	21898	112	3576	-976	14931	523	-460	-10	9653	9653	1899	1899	1730	1730	**2**
Immenstadt i. Allgaeu	65936	2665	11010	710	43325	788	245	5810	35184	-2268	12741	2495	12853	3476	**2**
Imst	48788	3573	9798	197	32588	2329	2683	845	20113	3785	12299	3361	13037	2834	**2**
Innsbruck / Hall in Tirol / Wattens	248786	7555	41163	374	172588	4523	6283	645	128953	21748	71443	13413	58443	11480	**3**
Interlaken	33259	1030	5493	159	21622	497	350	2790	14852	711	7730	1086	8567	1234	**1**
Judenburg/Zeltweg/Knittelfeld	76656	-1195	12247	-1508	50915	-1149	-434	-1025	30362	2648	18235	2418	19148	2833	**1**
Kapfenberg / Bruck an der Mur	78754	-2090	11519	-1566	52623	-2230	-2639	375	32490	1197	18819	3566	19185	3938	**1**
Kaufbeuren	74134	4341	12848	1007	48008	2115	410	7450	33072	-2447	10788	490	14440	3665	**2**
Kempten (Allgaeu)	130324	6204	22144	1446	85914	2144	1075	11385	62167	-755	24011	3831	26061	6174	**2**
Kitzbühel	23999	2423	3976	265	16404	1591	714	1607	10748	1782	5092	1238	5193	1225	**1**
Klagenfurt	135101	3781	21158	-385	92265	3220	52	3546	74207	7676	36750	5890	21547	3476	**2**

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Kranj	144602	6737	23202	-7077	100922	7024	-620	-1530	58879	2033	24757	2080	27742	2087	**1**
Kufstein	47341	4513	8371	623	31978	3383	830	3599	19234	2022	9954	2717	11940	3020	**2**
Lecco	56744	2747	8228	-93	38837	512	295	3260	17556	-167	9121	1378	19240	1387	**1**
Leoben	54301	-3709	7425	-1065	36229	-3199	-1612	-2233	23408	2827	13608	2946	12210	1746	**1**
Lienz	30898	1368	5598	-461	20598	1292	857	344	13737	2530	8212	1724	7243	1296	**1**
Liezen	38028	-104	6316	-757	25334	-259	306	-580	17252	1858	9740	1779	8632	1391	**1**
Locarno	60376	4109	8486	668	39838	1689	-260	3730	23409	-909	12975	-54	14698	-79	**2**
Lugano	125098	12027	18503	2732	85184	5423	1770	12555	59886	2396	42434	2599	36817	-133	**3**
Luino	62167	2251	8600	-352	42182	778	-915	6455	15881	1203	10716	1682	19786	850	**2**
Manosque	53290	4122	9328	901	33049	885	658	3387	16322	1630	7429	2823	9747	2002	**2**
Marktoberdorf	36815	2052	6973	257	23745	1063	600	2795	15558	-92	5493	1643	7513	2046	**1**
Martigny	48688	5038	9268	505	31911	2851	1935	2905	19280	856	7360	1479	9686	2193	**2**
Mendrisio / Chiasso / Como	81600	2144	11425	99	55095	-637	-45	3850	24528	-1715	15183	-491	27187	-148	**2**
Merano	81153	4261	13264	403	54615	1585	2410	2795	34610	2466	13011	1814	14425	2321	**2**
Monthey	61658	5384	12149	1335	40677	2342	2895	5690	23752	-1450	11691	1034	14136	2565	**2**
Morbegno	51855	1824	7357	-752	35746	671	185	2015	19399	2954	11842	2383	12564	1876	**1**
Murnau a. Staffelsee	33502	3614	5654	1079	22029	1763	95	4740	14194	1415	5437	1500	7124	1114	**2**
Oberstdorf	19560	-788	2811	-129	13145	-806	-785	1684	10735	377	2801	1004	2342	270	**1**
Omegna	38328	-170	4725	-502	25885	-930	-1175	770	15236	780	8045	1124	9620	1061	**1**
Penzberg	37211	4042	6340	834	24677	2500	340	4975	17082	2122	6599	3059	8158	1412	**2**
Pinerolo	94069	347	11146	-250	61403	-3069	-4730	6445	31237	2797	21213	1953	23384	277	**1**
Prien a. Chiemsee	64025	7230	10140	1095	41800	4582	-265	11590	24122	1137	9972	2830	12685	3340	**2**
Ravne na Koroskem	51530	168	8164	-2817	36089	809	-194	-2045	18100	15134	8449	7054	11092	8887	**2**
Rosenheim	175002	17215	29349	3859	118116	10232	1985	20535	86508	8514	37337	8646	38274	7833	**3**
Rovereto	72538	3535	10474	770	48643	329	280	4205	30079	2990	15680	1877	17511	2338	**2**
Rumilly	38636	5913	8170	878	25475	3960	2053	3868	13583	2251	8174	2917	11717	3591	**2**
Saint-Jean-de-Maurienne	25888	-178	4283	-484	16633	-568	247	-446	11060	1132	5890	1644	5731	896	**1**
Salzburg / Wals-Siezenheim / Freilassing	256772	12890	40016	1007	177056	9322	2349	9396	148944	20871	73922	13742	45897	7445	**3**
Sankt Johann in Tirol	32727	3160	6181	105	22353	2156	1775	1358	14301	2461	6806	2009	8096	2184	**2**

LMR	Total population in 2001	Change in total population between 1991 and 2001	Population younger than 15 in 2001	Change in population younger than 15 between 1991 and 2001	Population 15 to 64 in 2001	Change in population 15 to 64 between 1991 and 2001	Natural population growth between 1991 and 2001	Migration balance from 1991 to 2001 (10 years sum)	Jobs density in 2001	Change in jobs density between 1991 and 2001	In-commuting in 2001	Change in in-commuting between 1991 and 2001	Out-commuting in 2001	Change in out-commuting between 1991 and 2001	LMR type
Sankt Veit an der Glan	43806	2270	7720	-152	29309	1349	1163	927	15028	1405	8584	1705	12042	2037	**1**
Sarnen	28883	2816	5764	185	19109	2280	1285	2285	12369	720	5424	1237	7084	1927	**1**
Schwaz	53488	5014	10330	680	36471	3343	2691	2198	21837	3300	13514	3711	16926	4386	**2**
Schwyz	46751	4740	9322	761	30766	3040	2260	3315	18853	715	7538	1917	10832	2965	**2**
Sierre	43746	2196	7368	80	29291	520	1365	1495	16636	-489	8229	563	10062	544	**1**
Sion	65569	5189	11813	674	43703	1868	2430	6525	29851	-1000	15063	928	13252	1482	**2**
Sondrio	54911	-565	6949	-989	37298	-1658	-1115	175	21497	1527	13601	505	11649	868	**1**
Spittal an der Drau	55058	1936	9635	-693	36792	1353	1119	632	21916	3568	12644	2643	13538	2038	**1**
Stans	38274	4229	7030	343	26141	2828	2300	2840	15880	820	8993	1204	12539	2397	**2**
Steyr	19043	1049	3685	16	12638	581	596	371	4600	636	2232	485	6044	1098	**1**
Thun	113254	6003	18626	556	74003	4008	-270	6745	45232	1190	22885	2208	30512	6171	**2**
Tolmezzo	32246	-1130	3845	-768	21600	-681	-1480	620	12094	994	7533	994	7231	1166	**1**
Traunreut	23343	266	3448	-177	15416	-435	-160	2760	15536	-986	5689	1882	3656	1384	**1**
Traunstein	60636	4240	9412	431	40004	2642	-895	6735	31712	1819	14475	2891	12306	2531	**2**
Trento	178490	11298	26743	2415	120435	3169	2235	9855	85623	12763	39593	6134	26952	5470	**3**
Valdobbiadene	37022	2058	5185	193	24591	938	-520	1920	14976	711	8344	1791	9163	1679	**1**
Verbania	70840	10	8485	-17	46668	-2197	-3290	3915	25269	2391	14706	2122	16047	313	**1**
Villach	109422	5359	17434	-370	73939	3923	139	4823	46604	4135	22632	3293	21718	4544	**2**
Voitsberg	52379	-659	8007	-1134	35236	-530	-717	-48	15367	260	8724	1333	15803	2499	**1**
Waidhofen an der Ybbs	51242	4175	9809	505	34835	2556	2671	1447	24964	4297	15577	4442	14690	3066	**2**
Wasserburg a. Inn	36171	552	7033	-435	23203	230	1060	-579	13772	1406	6782	2118	8622	1565	**1**
Weilheim i. OB	48189	6418	9281	1155	32111	4025	1190	6955	23433	4435	10661	3701	11789	2959	**2**
Wörgl	54046	6296	9562	1425	35889	3509	455	8570	22653	-1962	9313	572	12214	2264	**2**
Wolfsberg	50499	819	8729	-821	33564	174	1096	-425	19280	3175	8085	3433	9939	1915	**1**
Zell am See	47552	5474	9070	529	32434	3864	2454	2902	21762	3573	10644	2901	10618	3065	**2**

V - Questionnaire

The questionnaires for the survey of the mayors within WP8 were prepared in French, German, Italian and Slovene. Each of the 5,887 municipalities within the perimeter of the Alpine Convention received a personalized questionnaire in its official language including the name of the municipality. The questionnaires in the four languages are included below.

ABSCHNITT A: EINSCHÄTZUNG DER EIGENEN GEMEINDE

1. Status der Gemeinde bezüglich verschiedener Aspekte der Nachhaltigkeit

Nachhaltige Entwicklung wird in jeder Gemeinde ein wenig anders interpretiert und mit unterschiedlichen Schwerpunkten versehen. Die Gemeindeverwaltung ist deshalb gezwungen, Prioritäten zu setzen. Wir versuchen zu verstehen, welche Aspekte von nachhaltiger Entwicklung für Sie von besonderer Bedeutung sind.

Wenn Sie nun an die derzeitige Situation in Ihrer Gemeinde denken, wie schätzen Sie den Zustand Ihrer Gemeinde bezüglich der folgenden Aspekte ein?

Wenn Sie sich nicht in der Lage sehen sollten, eine solche Beurteilung abzugeben oder wenn eine der Fragen für Ihre Gemeinde irrelevant ist, können Sie das durch das Ankreuzen der Spalte „Keine Meinung" anzeigen. Sollte die Frage unklar formuliert sein, kreuzen Sie bitte die letzte Spalte „Unklare Frage" an. Bitte versuchen Sie aber für so viele Fragen wie möglich ein „echtes" Urteil abzugeben.

WIRTSCHAFT							
Wie schätzen Sie den Zustand Ihrer Gemeinde ein hinsichtlich..	Sehr gut	Gut	Neutral	Schlecht	Sehr schlecht	Keine Meinung	Unklare Frage
..der Ausstattung mit Arbeitsplätzen?	○	○	○	○	○	○	○
..der Qualität der Arbeitsplätze?	○	○	○	○	○	○	○
..der Arbeitsmöglichkeiten für Frauen?	○	○	○	○	○	○	○
..einer ausgewogenen Wirtschaftsstruktur?	○	○	○	○	○	○	○
..ihrer Innovationskraft?	○	○	○	○	○	○	○
..des unternehmerischen Spielraums, den sie der Wirtschaft bietet?	○	○	○	○	○	○	○
..ihrer Anbindung an die überregionale Verkehrsinfrastruktur?	○	○	○	○	○	○	○

SOZIALES							
Wie schätzen Sie den Zustand Ihrer Gemeinde ein hinsichtlich...	Sehr gut	Gut	Neutral	Schlecht	Sehr schlecht	Keine Meinung	Unklare Frage
..der Ausgewogenheit ihrer Altersstruktur?	○	○	○	○	○	○	○
..des herrschenden Diskussions- und Gesprächsklimas?	○	○	○	○	○	○	○
..des Grads an Toleranz in der Bevölkerung gegenüber "Fremden" und Minderheiten?	○	○	○	○	○	○	○
..der Teilnahme der Bevölkerung an der Gemeindeentwicklung und am Vereinsleben?	○	○	○	○	○	○	○
..der Beteiligung von Frauen an der Gemeindeentwicklung?	○	○	○	○	○	○	○
..Möglichkeiten, die es Frauen erleichtern, Beruf und Familie zu vereinbaren?	○	○	○	○	○	○	○
..ihres Weiterbildungsangebotes für die gesamte Bevölkerung?	○	○	○	○	○	○	○
..des Angebots an Sport und Freizeiteinrichtungen?	○	○	○	○	○	○	○
..des Angebots an kulturellen Aktivitäten?	○	○	○	○	○	○	○

SOZIALES							
Wie wichtig ist Ihnen in Ihrer Gemeindepolitik, dass..	Außerordentlich wichtig	Sehr wichtig	Wichtig	Eher unwichtig	Unwichtig	Keine Meinung	Unklare Frage
..Ihre Gemeinde über eine ausgewogene Altersstruktur (d.h. keine Überalterung) verfügt ?	○	○	○	○	○	○	○
..ein offenes Diskussionsklima in der Gemeinde herrscht?	○	○	○	○	○	○	○
..ein tolerantes Gemeindeklima gegenüber "Fremden" und Minderheiten herrscht?	○	○	○	○	○	○	○
..sich die Bürger verstärkt in der Gemeindeentwicklung und im Vereinswesen engagieren?	○	○	○	○	○	○	○
..sich besonders auch Frauen an dieser Gemeindeentwicklung beteiligen?	○	○	○	○	○	○	○
..gute Rahmenbedingungen für eine Vereinbarkeit von Familie und Beruf gegeben sind?	○	○	○	○	○	○	○
..gute Weiterbildungsmöglichkeiten für die ganze Bevölkerung angeboten werden?	○	○	○	○	○	○	○
..der Bevölkerung genügend Sport- und Freizeiteinrichtungen zur Verfügung stehen?	○	○	○	○	○	○	○
..kulturelle Aktivitäten in Ihrer Gemeinde angeboten werden?	○	○	○	○	○	○	○

UMWELT							
Wie wichtig ist Ihnen in Ihrer Gemeindepolitik, dass..	Außerordentlich wichtig	Sehr wichtig	Wichtig	Eher unwichtig	Unwichtig	Keine Meinung	Unklare Frage
..naturnahe Flächen erhalten werden?	○	○	○	○	○	○	○
..sparsam mit Energie umgegangen wird?	○	○	○	○	○	○	○
..die Verkehrsbelastung in der Gemeinde in Grenzen gehalten wird?	○	○	○	○	○	○	○
..effiziente Mülltrennung erfolgt?	○	○	○	○	○	○	○
..die Qualität von Grund- und Oberflächenwasser gesichert und verbessert wird?	○	○	○	○	○	○	○
..der Flächenverbrauch durch Siedlungs- und Verkehrsflächen gering gehalten wird?	○	○	○	○	○	○	○
..Eingriffe des Menschen auf die natürlichen Lebensräume von Tieren und Pflanzen gering sind?	○	○	○	○	○	○	○
..die Gemeinde auf die zukünftigen Folgen des Klimawandels vorbereitet ist?	○	○	○	○	○	○	○

ALPENWEITE BEFRAGUNG DER BÜRGERMEISTER

"Nachhaltige Gemeindeentwicklung im Alpenraum" im Rahmen des INTERREG IIIB Projekts DIAMONT

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Mils

UMWELT								
Ich schätze den Entwicklungsstand im Umwelt-Bereich wie folgt ein:	Sehr Gut	Gut	Eher Gut	Neutral	Eher Schlecht	Schlecht	Sehr Schlecht	Kann ich nicht beurteilen
Eigene Gemeinde	○	○	○	○	○	○	○	○
Baumkirchen	○	○	○	○	○	○	○	○
Hall in Tirol	○	○	○	○	○	○	○	○
Fritzens	○	○	○	○	○	○	○	○
Gnadenwald	○	○	○	○	○	○	○	○
Absam	○	○	○	○	○	○	○	○
Innsbruck	○	○	○	○	○	○	○	○

UMWELT							
Wie schätzen Sie den Zustand Ihrer Gemeinde ein hinsichtlich...	Sehr gut	Gut	Neutral	Schlecht	Sehr schlecht	Keine Meinung	Unklare Frage
..der Ausstattung mit naturnahen Flächen?	○	○	○	○	○	○	○
..dem Einsatz von Energiesparmaßnahmen?	○	○	○	○	○	○	○
..Maßnahmen, die die Bevölkerung vor den nachteiligen Auswirkungen des Verkehrs schützt?	○	○	○	○	○	○	○
..der Situation der Mülltrennung?	○	○	○	○	○	○	○
..der Qualität von Grund- und Oberflächenwasser?	○	○	○	○	○	○	○
..des Flächenverbrauchs durch Siedlungs- und Verkehrsflächen?	○	○	○	○	○	○	○
..der Eingriffe des Menschen auf die natürlichen Lebensräume von Tieren und Pflanzen?	○	○	○	○	○	○	○
..der Vorbereitung auf zukünftige Folgen des Klimawandels?	○	○	○	○	○	○	○

II. Wichtigkeit von Aspekten der Nachhaltigkeit in der Gemeindepolitik

Wenn Sie nun an Ihre politische Arbeit denken, wie wichtig sind Ihnen die folgenden Aspekte in Ihrer politischen Arbeit? Bitte ordnen Sie jedem Aspekt der drei Bereiche Wirtschaft, Soziales und Umwelt eine der fünf Wichtigkeitsstufen zu.

WIRTSCHAFT							
Wie wichtig ist Ihnen in Ihrer Gemeindepolitik, dass..	Außerordentlich wichtig	Sehr wichtig	Wichtig	Eher unwichtig	Unwichtig	Keine Meinung	Unklare Frage
..die Bevölkerung einen Arbeitsplatz in Ihrer Gemeinde findet?	○	○	○	○	○	○	○
..die Arbeitsplätze in der Gemeinde qualitativ hochwertig sind?	○	○	○	○	○	○	○
..es ein ausreichendes Arbeitsplatzangebot für Frauen gibt?	○	○	○	○	○	○	○
..die Wirtschaft in der Gemeinde ausgewogen ist, dass man also nicht nur von einer Branche oder wenigen Unternehmen abhängig ist?	○	○	○	○	○	○	○
..die Unternehmen in Ihrer Gemeinde innovativ sind?	○	○	○	○	○	○	○
..die Wirtschaft einen breiten unternehmerischen Spielraum hat?	○	○	○	○	○	○	○
..die Gemeinde über eine gute Anbindung an die überörtlichen Verkehrsinfrastrukturen verfügt?	○	○	○	○	○	○	○

..die Etablierung neuer Verwaltungsstrukturen und -aufgaben?	z.B. Regionalmanager, -geschäftsstelle, gemeindeübergreifende Verwaltungseinrichtungen, Entwicklung und Abgrenzung funktionaler Regionen, Integration von Minderheiten							
	○	○	○	○	○	□	○	○

Wir bedanken uns sehr für Ihre Mitarbeit!

Ich möchte die Ergebnisse der Studie zugesandt bekommen: □

ABSCHNITT B: EINSCHÄTZUNG DER EIGENEN GEMEINDE IM VERGLEICH ZU ANDEREN GEMEINDEN

Gemeinden befinden sich aus diversen Gründen in unterschiedlichen Entwicklungsstadien. Bitte schätzen Sie den Entwicklungsstand der nachfolgenden Gemeinden für die drei Bereiche Wirtschaft, Soziales und Umwelt aus Ihrer persönlichen Sicht ein. Bitte orientieren sie sich dabei an den im Abschnitt AI abgefragten Aspekten.

Es ist sehr schwierig so komplexe Bereiche wie Wirtschaft, Umwelt und Soziales abzuwägen, aber wir sind Ihnen sehr dankbar für den Versuch.

WIRTSCHAFT								
Ich schätze den wirtschaftlichen Entwicklungsstand wie folgt ein:	Sehr Gut	Gut	Eher Gut	Neutral	Eher Schlecht	Schlecht	Sehr Schlecht	Kann ich nicht beurteilen
Eigene Gemeinde	○	○	○	○	○	○	○	○
Baumkirchen	○	○	○	○	○	○	○	○
Hall in Tirol	○	○	○	○	○	○	○	○
Fritzens	○	○	○	○	○	○	○	○
Gnadenwald	○	○	○	○	○	○	○	○
Absam	○	○	○	○	○	○	○	○
Innsbruck	○	○	○	○	○	○	○	○

SOZIALES								
Ich schätze den Entwicklungsstand im sozialen Bereich wie folgt ein:	Sehr Gut	Gut	Eher Gut	Neutral	Eher Schlecht	Schlecht	Sehr Schlecht	Kann ich nicht beurteilen
Eigene Gemeinde	○	○	○	○	○	○	○	○
Baumkirchen	○	○	○	○	○	○	○	○
Hall in Tirol	○	○	○	○	○	○	○	○
Fritzens	○	○	○	○	○	○	○	○
Gnadenwald	○	○	○	○	○	○	○	○
Absam	○	○	○	○	○	○	○	○
Innsbruck	○	○	○	○	○	○	○	○

ABSCHNITT C: INSTRUMENTE DER REGIONAL- UND GEMEINDEENTWICKLUNG

Zur gezielten (Weiter-)Entwicklung ihrer Gemeinde stehen Ihnen verschiedene Instrumente zur Verfügung, die häufig in mehreren Bereichen der nachhaltigen Entwicklung eingesetzt werden können. Im folgenden Abschnitt werden aus unserer Sicht wichtige Gruppen von Instrumenten genannt. Wir würden dazu gerne von Ihnen erfahren:

1. Welche Priorität haben die genannten Instrumente **derzeit** für die **positive** Entwicklung ihrer Gemeinde und
2. wären diese bzw. ähnliche Instrumente aus Ihrer Sicht **künftig anstrebenswert** oder sollten **ausgebaut werden**.

Zum besseren Verständnis der Instrumente sind einige Beispiele angegeben, die in Ihrem Land jedoch auch anders gelagert sein können. Sollte eine Frage unklar formuliert sein, kreuzen Sie bitte die letzte Spalte „Unklare Frage" an. Bitte versuchen Sie aber für so viele Fragen wie möglich ein „echtes" Urteil abzugeben.

	derzeit					**künftig**		
Welche Rolle spielen für Ihre Gemeindeentwicklung...	Sehr hohe Priorität	Hohe Priorität	Mittlere Priorität	Geringe Priorität	Keine Priorität	anstrebens-wert	Keine Meinung	Unklare Frage
..die staatliche Raum- und Regionalplanung?	z.B. Regionalpläne, zentrale Orte, Entwicklungs-/ Verkehrsachsen, großräumige Wasserschutz- / Naturschutzgebiete, Ausstattung mit öffentlichen Bildungs-, Kultur-, Sport-, Freizeiteinrichtungen							
	○	○	○	○	○	□	○	○
..staatliche oder kommunale Ge- oder Verbote?	z.B. Schutzgebiete, Schadstoffgrenzwerte							
	○	○	○	○	○	□	○	○
..dynamische Ge- und Verbote?	z.B. Stufenplan zur Absenkung von Grenzwerten, Mindestwerten, Vorschriften für Wärmedämmung, Solarnutzung							
	○	○	○	○	○	□	○	○
..pauschale Nutzungsgebühren?	z.B. Straßenerschließung, Abwasser, Müllentsorgung, Leihbibliothek, Schulgeld, Kurtaxe							
	○	○	○	○	○	□	○	○
...die Anpassung der Nutzungsgebühren an reale Verursacherkosten?	z.B. Verpflichtung zur Rücknahme und Recycling von Produkten und Einrichtungen, nutzungsabhängige Verkehrsgebühren, allg. Internalisierung externer Kosten							
	○	○	○	○	○	□	○	○
..vorhandene Steuern und Subventionen?	z.B. Gewerbesteuer, Subvention von Gewerbeansiedlungen, Arbeitsplätzen, Förderung von Kinderbetreuungseinrichtungen							
	○	○	○	○	○	□	○	○
..eine Steueränderung und Abbau kontraproduktiver Subventionen?	z.B. aufkommensneutrale Steuer auf Energie, Rohstoffe, Schadstoffe und Entlastung von Sozialbeiträgen							
	○	○	○	○	○	□	○	○
..Handel von Nutzungsrechten für Flächen und natürliche Ressourcen?	z.B. Rechte zur Flächennutzung, Aufbau von Flächenbörsen, Rohstoffgewinnung, Nutzung von Primärenergie, Emissionszertifikate							
	○	○	○	○	○	□	○	○
..Information, Beteiligung von Interessensgruppen und Bürgern sowie Marketing?	z.B. Informationsnetzwerke Produzenten, Vermarktung, Regionalmanagement, Agenda 21, Umweltberichterstattung, Umweltsiegel, regionales Marketing, "runde Tische", Bürgerplanung							
	○	○	○	○	○	□	○	○

ENQUÊTE SUR LE DEVELOPPEMENT LOCAL DURABLE DANS LES ALPES

réalisée auprès des maires des communes du Massif des Alpes dans le cadre du projet INTERREG IIIB DIAMONT

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Chamrousse

PARTIE A : APPRECIATION DE LA SITUATION DE VOTRE COMMUNE

I. Situation actuelle de la commune par rapport à divers aspects de la durabilité

Le développement durable est interprété différemment d'une commune à l'autre et conduit à des démarches elles aussi différenciées. Les pouvoirs publics locaux sont donc obligés de fixer des priorités.

En analysant dans cette première partie du questionnaire la situation de votre commune, nous vous demandons de qualifier son état actuel par rapport à divers aspects économiques, sociaux et environnementaux du développement durable. Nous vous invitons à renseigner les diverses rubriques qui vous sont proposées ci-dessous en donnant une appréciation qualitative selon l'échelle indiquée.

Si vous estimez ne pas être en mesure de formuler de jugement ou si un des aspects est sans importance pour votre commune, vous le signalerez en cochant la case «sans opinion». Au cas où la question serait mal formulée, vous cocherez la dernière case. Veuillez toutefois essayer de formuler un maximum d'opinions.

ECONOMIE							
Quel jugement portez-vous sur l'état de votre commune en ce qui concerne :	Très bon	Bon	Correct, sans plus	Médiocre	Très médiocre	Sans opinion	A préciser
le nombre d'emplois disponibles ?	○	○	○	○	○	○	○
la qualité des emplois proposés ?	○	○	○	○	○	○	○
les perspectives professionnelles ouvertes aux femmes ?	○	○	○	○	○	○	○
la diversification des activités économiques?	○	○	○	○	○	○	○
le potentiel d'innovation des entreprises°?	○	○	○	○	○	○	○
la liberté d'action qu'ont les chefs d'entreprise ?	○	○	○	○	○	○	○
les accès aux réseaux de transport supra-régionaux ?	○	○	○	○	○	○	○

DEVELOPPEMENT SOCIAL							
Quel jugement portez-vous sur l'état de votre commune en ce qui concerne :	Très bon	Bon	Correct, sans plus	Médiocre	Très médiocre	Sans opinion	A préciser
l'équilibre de la structure par âge de la population ?	○	○	○	○	○	○	○
la qualité du climat local d'échange d'idées et de débats ?	○	○	○	○	○	○	○
l'esprit de tolérance vis à vis des étrangers et des minorités ?	○	○	○	○	○	○	○
la participation des habitants au développement local et à la vie associative ?	○	○	○	○	○	○	○
la participation des femmes au développement local ?	○	○	○	○	○	○	○
les possibilités données aux femmes pour concilier travail et vie familiale ?	○	○	○	○	○	○	○
les possibilités offertes à tout habitant en matière de formation continue ?	○	○	○	○	○	○	○
le parc existant d'installations sportives et de loisirs ?	○	○	○	○	○	○	○
l'éventail d'activités culturelles proposées ?	○	○	○	○	○	○	○

ENVIRONNEMENT							
Quel jugement portez-vous sur l'état de votre commune en ce qui concerne :	Très bon	Bon	Correct, sans plus	Médiocre	Très médiocre	Sans opinion	A préciser
la préservation d'espaces semi-naturels ?	○	○	○	○	○	○	○
les mesures en vue d'utiliser rationnellement l'énergie ?	○	○	○	○	○	○	○
les mesures susceptibles de protéger les habitants contre les nuisances liées au trafic ?	○	○	○	○	○	○	○
l'efficacité du tri sélectif des déchets ?	○	○	○	○	○	○	○
la qualité des eaux souterraines et des eaux de surface ?	○	○	○	○	○	○	○
la maîtrise de la consommation d'espace pour l'habitation ou les infrastructures ?	○	○	○	○	○	○	○
les pressions humaines sur les habitats naturels de la flore et de la faune ?	○	○	○	○	○	○	○
la sensibilité aux effets à venir du changement climatique ?	○	○	○	○	○	○	○

II. Importance de divers aspects du développement durable dans la politique locale

Nous aimerions maintenant nous faire une idée des aspects du développement durable que vous jugez les plus importants **pour les politiques que vous menez dans votre commune**. Il ne s'agit pas d'évaluer ces politiques, mais de repérer quels aspects sont placés en priorité dans les choix qu'elles impliquent nécessairement.

Nous vous invitons de même à renseigner cette partie du questionnaire en qualifiant, selon l'échelle proposée, l'importance attribuée dans les politiques que vous menez aux questions se rapportant aux aspects évoqués dans la partie précédente.

ECONOMIE							
Quelle importance attribuez-vous dans votre politique locale au fait que :	Fondamentale	Très grande	Grande	Limitée	Aucune	Sans opinion	A préciser
les habitants trouvent de l'emploi dans votre commune ?	○	○	○	○	○	○	○
les emplois proposés dans la commune soient des emplois qualifiés ?	○	○	○	○	○	○	○
la commune offre un nombre suffisant d'emplois pour les femmes ?	○	○	○	○	○	○	○
les activités économiques soient assez diversifiées pour éviter de dépendre d'une seule branche ou d'un petit nombre d'entreprises ?	○	○	○	○	○	○	○
les entreprises de votre commune soient des entreprises innovantes ?	○	○	○	○	○	○	○
les chefs d'entreprise disposent de marges de manœuvre suffisantes ?	○	○	○	○	○	○	○
la commune soit bien reliée aux réseaux de transport supra-régionaux ?	○	○	○	○	○	○	○

DEVELOPPEMENT SOCIAL							
Quelle importance attribuez-vous dans votre politique locale au fait que :	Fondamentale	Très grande	Grande	Limitée	Aucune	Sans opinion	A préciser
la structure par âge de votre commune soit bien équilibrée (pas de vieillissement démographique) ?	○	○	○	○	○	○	○
le climat local soit propice à l'échange d'idées et aux débats ?	○	○	○	○	○	○	○
le climat local soit tolérant envers les « étrangers » et les minorités ?	○	○	○	○	○	○	○
les habitants se mobilisent pour organiser le développement local et la vie associative ?	○	○	○	○	○	○	○
les femmes soient à leur tour très impliquées dans le développement local ?	○	○	○	○	○	○	○
les conditions générales permettent de concilier sans difficulté travail et vie familiale ?	○	○	○	○	○	○	○
toute la population puisse bénéficier d'une offre de formation continue de qualité ?	○	○	○	○	○	○	○
les habitants puissent bénéficier d'installations sportives et de loisirs satisfaisantes ?	○	○	○	○	○	○	○
des activités culturelles soient proposées dans votre commune ?	○	○	○	○	○	○	○

ENVIRONNEMENT							
Quelle importance attribuez-vous dans votre politique locale au fait que :	Fondamentale	Très grande	Grande	Limitée	Aucune	Sans opinion	A préciser
les espaces semi-naturels soient préservés ?	○	○	○	○	○	○	○
l'énergie soit utilisée rationnellement ?	○	○	○	○	○	○	○
les nuisances liées au trafic soient limitées dans la commune ?	○	○	○	○	○	○	○
les déchets soient triés de manière efficace ?	○	○	○	○	○	○	○
la qualité des eaux souterraines et des eaux de surface soit assurée et améliorée ?	○	○	○	○	○	○	○
les surfaces affectées à l'habitat et aux réseaux de transport restent limitées ?	○	○	○	○	○	○	○
les interventions humaines dans les habitats naturels de la flore et de la faune soient limitées ?	○	○	○	○	○	○	○
la commune soit préparée aux conséquences à venir du changement climatique ?	○	○	○	○	○	○	○

PARTIE B : APPRECIATION DE LA COMMUNE PAR RAPPORT A D'AUTRES COMMUNES

Pour diverses raisons, toutes les communes ne se trouvent pas au même stade du développement. Bien qu'il en soit pas facile de donner des avis synthétiques sur ces questions, nous vous demandons maintenant de qualifier le niveau de développement économique, social ou environnemental de votre commune en prenant notamment en considération les aspects abordés dans la première partie du questionnaire.

Nous souhaitons également comparer diverses appréciations du niveau de développement des mêmes communes. Si vous acceptez de vous livrer à cet exercice, ce dont nous vous serions gré, nous vous invitons à indiquer comment vous situez le niveau de développement des communes voisines de la votre indiquées sur le tableau. Vos appréciations ne seront pas communiquées à qui que ce soit, notre but étant uniquement d'analyser la diversité des perceptions des niveaux de développement selon les interlocuteurs.

ECONOMIE								
J'estime le niveau de développement économique des communes ci-dessous :	Très bon	Bon	Plutôt bon	Moyen	Plutôt médiocre	Médiocre	Très médiocre	Je ne peux en juger
Ma propre commune	○	○	○	○	○	○	○	○
Livet-et-Gavet	○	○	○	○	○	○	○	○
Vaulnaveys-le-Haut	○	○	○	○	○	○	○	○
Saint-Martin-d'Uriage	○	○	○	○	○	○	○	○
Revel	○	○	○	○	○	○	○	○
Vaulnaveys-le-Bas	○	○	○	○	○	○	○	○
Vizille	○	○	○	○	○	○	○	○
Saint-Martin-d'Hères	○	○	○	○	○	○	○	○
Grenoble	○	○	○	○	○	○	○	○

DEVELOPPEMENT SOCIAL								
J'estime le niveau de développement social des communes ci-dessous :	Très bon	Bon	Plutôt bon	Moyen	Plutôt médiocre	Médiocre	Très médiocre	Je ne peux en juger
Ma propre commune	○	○	○	○	○	○	○	○
Livet-et-Gavet	○	○	○	○	○	○	○	○
Vaulnaveys-le-Haut	○	○	○	○	○	○	○	○
Saint-Martin-d'Uriage	○	○	○	○	○	○	○	○
Revel	○	○	○	○	○	○	○	○
Vaulnaveys-le-Bas	○	○	○	○	○	○	○	○
Vizille	○	○	○	○	○	○	○	○
Saint-Martin-d'Hères	○	○	○	○	○	○	○	○
Grenoble	○	○	○	○	○	○	○	○

ENVIRONNEMENT								
J'estime le niveau de développement environnemental des communes ci-dessous :	Très bon	Bon	Plutôt bon	Moyen	Plutôt médiocre	Médiocre	Très médiocre	Je ne peux en juger
Ma propre commune	○	○	○	○	○	○	○	○
Livet-et-Gavet	○	○	○	○	○	○	○	○
Vaulnaveys-le-Haut	○	○	○	○	○	○	○	○
Saint-Martin-d'Uriage	○	○	○	○	○	○	○	○
Revel	○	○	○	○	○	○	○	○
Vaulnaveys-le-Bas	○	○	○	○	○	○	○	○
Vizille	○	○	○	○	○	○	○	○
Saint-Martin-d'Hères	○	○	○	○	○	○	○	○
Grenoble	○	○	○	○	○	○	○	○

PARTIE C : LES OUTILS DU DEVELOPPEMENT REGIONAL ET LOCAL

Pour stimuler le développement de votre commune, vous disposez de divers outils dont certains sont utilisables dans plusieurs domaines du développement durable. Par rapport à divers types d'outils que nous jugeons importants, nous souhaitons recueillir votre propre avis sur les priorités que vous leur accordez pour améliorer la situation de votre commune et sur l'opportunité de maintenir ou de développer à l'avenir ces outils spécifiques ou des outils similaires.

Les types d'outils auxquels nous pensons sont précisés à l'aide d'exemples donnés en référence aux trois dimensions de la durabilité, étant entendu que vous pourrez avoir d'autres exemples en tête pour chez vous. Au cas où l'une des questions serait mal formulée, nous vous prions de cocher la dernière case . Veuillez toutefois essayer de formuler un maximum d'avis.

	Importance actuelle de l'outil					**Futur**		
Quelle est l'importance accordez vous, pour le développement de votre commune, aux outils suivants :	Très grande	Grande	Moyenne	Limitée	Très faible	Développement souhaitable à l'avenir	Sans avis	A préciser
outils d'aménagement du territoire et de planification régionale des pouvoirs publics ?	Par exemple : schémas d'aménagement régional, places centrales, axes de développement / de circulation, réserves naturelles / périmètres de protection élargie des captages d'eau potable, schémas d'équipements publics destinés à l'éducation, à la culture, aux sports, aux loisirs							
	○	○	○	○	○	□	○	○
prescriptions et interdictions édictées par l'Etat ou les collectivités territoriales ?	Par exemple : espaces protégés, limites fixées aux émissions polluantes							
	○	○	○	○	○	□	○	○
prescriptions et interdictions à caractère dynamique ?	Par exemple : plan d'abaissement progressif des valeurs limites / seuils, prescriptions en matière d'isolation thermique, d'exploitation de l'énergie solaire							
	○	○	○	○	○	□	○	○
redevances forfaitaires ?	Par exemple : épuration des eaux usées, collecte des ordures, bibliothèque de prêt, droits de scolarité, taxe de séjour							
	○	○	○	○	○	□	○	○
redevances calculées en fonction du coût d'usage réel ?	Par exemple : reprise et recyclage obligatoire de produits et d'équipements, redevances routières liées aux prestations, internalisation généralisée des coûts externes							
	○	○	○	○	○	□	○	○
taxes et aides publiques existantes ?	Par exemple : taxe professionnelle, subventions pour l'installation d'entreprises et la création d'emplois, soutien aux structures assurant la garde des enfants							
	○	○	○	○	○	□	○	○
modifications de la fiscalité et suppression de subventions produisant des effets pervers ?	Par exemple : taxation de l'énergie, des matières premières, des substances polluantes sans augmentation du produit fiscal et compensée par l'exonération des charges sociales							
	○	○	○	○	○	□	○	○
marché de droits d'occupation des surfaces et de permis d'utilisation de ressources naturelles ?	Par exemple : droits d'occupation de surfaces, création de bourses de foncier négociable, extraction de matières premières, exploitation des énergies primaires, certificats d'émission							
	○	○	○	○	○	□	○	○
information, implication des acteurs socio-économiques et des citoyens, marketing municipal ?	Par exemple : réseaux d'information des producteurs et de commercialisation, agendas 21 et gestion de projets locaux, état des lieux environnementaux, labels écologiques, marketing local, tables rondes, urbanisme participatif							
	○	○	○	○	○	□	○	○
mise en place de nouvelles structures et fonctions administratives ?	Par exemple : structures de gestion de l'aménagement régional, antennes locales, services administratifs intercommunaux, développement et définition de régions fonctionnelles, structures d'intégration des minorités							
	○	○	○	○	○	□	○	○

Merci beaucoup pour votre coopération !

Je désire recevoir les résultats de l'étude: □

SONDAGGIO RIVOLTO AI SINDACI DELL'ARCO ALPINO

"Lo sviluppo sostenibile nei comuni del territorio alpino" elaborato nell'ambito del progetto DIAMONT (INTERREG IIIB)

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Arba

SEZIONE A: VALUTAZIONE DEL PROPRIO COMUNE

I. La situazione attuale ed effettiva del comune dal punto di vista dello sviluppo sostenibile

Ogni comune interpreta lo sviluppo sostenibile in modo leggermente diverso dagli altri, adottando approcci e affrontando tematiche diverse. Ecco perché un'amministrazione comunale deve stabilire delle priorità. Vorremmo capire a quali aspetti dello sviluppo sostenibile Lei personalmente attribuisce un'importanza maggiore.

Se ora considera la situazione attuale ed effettiva, che valutazione darebbe del Suo comune in merito ai diversi aspetti dello sviluppo sostenibile elencati di seguito?

Se non ritenesse il Suo giudizio adatto o se il quesito specifico non fosse rilevante per il Suo comune, barri semplicemente la casella "nessun giudizio". Se invece avesse l'impressione che il quesito fosse formulato in termini poco chiari, può barrare la casella "quesito non chiaro". Le saremmo comunque grati se ci riuscisse a fornire ugualmente un giudizio reale a quanti più quesiti possibile.

ECONOMIA							
Come giudica lo stato attuale del Suo comune per quanto riguarda:	Ottimo	Buono	Normale	Carente	Molto carente	Nessun giudizio	Quesito non chiaro
…disponibilità di sbocchi occupazionali	○	○	○	○	○	○	○
…qualità dei posti di lavoro	○	○	○	○	○	○	○
…opportunità occupazionali per le donne	○	○	○	○	○	○	○
…distribuzione equilibrata delle attività produttive	○	○	○	○	○	○	○
…capacità innovativa delle imprese esistenti	○	○	○	○	○	○	○
…possibilità di sviluppo per le imprese	○	○	○	○	○	○	○
…collegamento alla rete viaria interregionale	○	○	○	○	○	○	○

SOCIETÀ							
Come giudica lo stato attuale del Suo comune per quanto riguarda:	Ottimo	Buono	Normale	Carente	Molto carente	Nessun giudizio	Quesito non chiaro
…distribuzione equilibrata delle fasce d'età	○	○	○	○	○	○	○
…confronto aperto di idee ed opinioni	○	○	○	○	○	○	○
…grado di tolleranza nei confronti di stranieri e minoranze	○	○	○	○	○	○	○
…partecipazione attiva dei cittadini allo sviluppo del comune e all'associazionismo	○	○	○	○	○	○	○
…partecipazione delle donne alla vita pubblica	○	○	○	○	○	○	○
…opportunità per le donne di conciliare impegni professionali e familiari	○	○	○	○	○	○	○
…opportunità di aggiornamento per la popolazione	○	○	○	○	○	○	○
…offerta di strutture sportive e ricreative	○	○	○	○	○	○	○
…offerta di attività culturali	○	○	○	○	○	○	○

AMBIENTE							
Come giudica lo stato attuale del Suo comune per quanto riguarda:	Ottimo	Buono	Normale	Carente	Molto carente	Nessun giudizio	Quesito non chiaro
…presenza di aree naturali	○	○	○	○	○	○	○
…esistenza di misure per il contenimento del consumo energetico	○	○	○	○	○	○	○
…misure per la tutela della popolazione dall'impatto del traffico veicolare	○	○	○	○	○	○	○
…situazione della raccolta differenziata dei rifiuti	○	○	○	○	○	○	○
…qualità delle risorse idriche superficiali e sotterranee	○	○	○	○	○	○	○
…utilizzo di superficie per insediamenti e infrastrutture viarie	○	○	○	○	○	○	○
…impatto delle attività umane sull'habitat naturale di flora e fauna	○	○	○	○	○	○	○
…preparazione alle conseguenze future imputabili ai cambiamenti climatici	○	○	○	○	○	○	○

II. L'importanza attribuita allo sviluppo sostenibile nella politica comunale

Se considera l'aspetto politico del Suo lavoro, quanto ritiene importanti i seguenti aspetti nel Suo impegno politico? La preghiamo di dare un giudizio relativo all'importanza degli aspetti elencati in ambito economico, sociale ed ambientale.

ECONOMIA							
Per le scelte politiche del Suo comune, secondo Lei quanto è importante che …	Estremamente importante	Assai importante	Importante	Poco importante	Irrilevante	Nessun giudizio	Quesito non chiaro
…la popolazione trovi sbocchi occupazionali all'interno del territorio comunale?	○	○	○	○	○	○	○
…i posti di lavoro disponibili nel territorio comunale siano di qualità elevata?	○	○	○	○	○	○	○
…ci siano sufficienti sbocchi occupazionali per le donne?	○	○	○	○	○	○	○
…le attività produttive nel territorio comunale siano equilibrate, e quindi non concentrate su pochi settori o poche imprese?	○	○	○	○	○	○	○
…le imprese che operano nel territorio comunale siano innovative?	○	○	○	○	○	○	○
…le imprese possano espandersi contando su ampi margini d'autonomia?	○	○	○	○	○	○	○
…il comune sia ben collegato alla rete viaria regionale?	○	○	○	○	○	○	○

SOCIETÀ							
Per le scelte politiche del Suo comune, secondo Lei quanto è importante che …	Estremamente importante	Assai importante	Importante	Poco importante	Irrilevante	Nessun giudizio	Quesito non chiaro
…nel comune ci sia una distribuzione equilibrata delle fasce d'età (senza una prevalenza degli anziani)?	○	○	○	○	○	○	○
…ci sia un confronto aperto tra idee e opinioni diverse?	○	○	○	○	○	○	○
…regni un clima di tolleranza verso gli stranieri e le minoranze?	○	○	○	○	○	○	○
…i cittadini si impegnino attivamente nello sviluppo del proprio comune e nell'associazionismo?	○	○	○	○	○	○	○
…soprattutto le donne siano coinvolte in queste forme di partecipazione?	○	○	○	○	○	○	○
…si creino dei presupposti favorevoli per conciliare efficacemente il lavoro e gli impegni familiari?	○	○	○	○	○	○	○
…si offrano alla popolazione opportunità concrete di aggiornamento?	○	○	○	○	○	○	○
…i cittadini possano usufruire di strutture sportive e ricreative sufficienti?	○	○	○	○	○	○	○
…nel territorio comunale si svolgano delle attività culturali?	○	○	○	○	○	○	○

AMBIENTE							
Per le scelte politiche del Suo comune, secondo Lei quanto è importante …	Estremamente importante	Assai importante	Importante	Poco importante	Irrilevante	Nessun giudizio	Quesito non chiaro
…conservare intatte delle aree naturali?	○	○	○	○	○	○	○
…contenere i consumi energetici?	○	○	○	○	○	○	○
…ridurre l'impatto del traffico veicolare?	○	○	○	○	○	○	○
…attuare la raccolta differenziata dei rifiuti?	○	○	○	○	○	○	○
…difendere e migliorare la qualità delle risorse idriche superficiali e sotterranee	○	○	○	○	○	○	○
…contenere l'utilizzo della superficie con insediamenti e infrastrutture viarie?	○	○	○	○	○	○	○
…ridurre al minimo l'impatto delle attività umane	○	○	○	○	○	○	○

sull'habitat naturale di flora e fauna?							
…preparare il comune alle conseguenze future imputabili ai cambiamenti climatici?	○	○	○	○	○	○	○

SEZIONE B: VALUTAZIONE DEI COMUNI LIMITROFI

Per diversi motivi, i comuni, anche vicini, sono caratterizzati da gradi di sviluppo diversi. Le chiediamo quindi di valutare, dal Suo punto di vista personale, il grado di sviluppo dei comuni sotto elencati, in merito all'aspetto economico, sociale ed ambientale. Nel farlo, Le suggeriamo di tener conto degli aspetti elencati nella sezione AI del questionario. Sappiamo che non è semplice valutare degli ambiti tanto complessi come l'economia, l'ambiente o le questioni sociali, ma Le saremmo molto grati se riuscisse comunque a fornirci la Sua opinione.

ECONOMIA								
Come giudico il grado di sviluppo dei seguenti comuni in ambito economico:	Ottimo	Buono	Discreto	Sufficiente	Un po' carente	Carente	Molto carente	Non sono in grado di giudicare
Proprio comune	○	○	○	○	○	○	○	○
Sequals	○	○	○	○	○	○	○	○
Fanna	○	○	○	○	○	○	○	○
Cavasso Nuovo	○	○	○	○	○	○	○	○
Maniago	○	○	○	○	○	○	○	○
Travesio	○	○	○	○	○	○	○	○
Aviano	○	○	○	○	○	○	○	○
Bolzano / Bozen	○	○	○	○	○	○	○	○

SOCIETÀ								
Come giudico il grado di sviluppo dei seguenti comuni in ambito sociale:	Ottimo	Buono	Discreto	Sufficiente	Un po' carente	Carente	Molto carente	Non sono in grado di giudicare
Proprio comune	○	○	○	○	○	○	○	○
Sequals	○	○	○	○	○	○	○	○
Fanna	○	○	○	○	○	○	○	○
Cavasso Nuovo	○	○	○	○	○	○	○	○
Maniago	○	○	○	○	○	○	○	○
Travesio	○	○	○	○	○	○	○	○
Aviano	○	○	○	○	○	○	○	○
Bolzano / Bozen	○	○	○	○	○	○	○	○

AMBIENTE								
Come giudico il grado di sviluppo dei seguenti comuni in ambito ambientale:	Ottimo	Buono	Discreto	Sufficiente	Un po' carente	Carente	Molto carente	Non sono in grado di giudicare
Proprio comune	○	○	○	○	○	○	○	○
Sequals	○	○	○	○	○	○	○	○
Fanna	○	○	○	○	○	○	○	○
Cavasso Nuovo	○	○	○	○	○	○	○	○
Maniago	○	○	○	○	○	○	○	○
Travesio	○	○	○	○	○	○	○	○
Aviano	○	○	○	○	○	○	○	○
Bolzano / Bozen	○	○	○	○	○	○	○	○

SEZIONE C: GLI STRUMENTI PER PROMUOVERE LO SVILUPPO LOCALE E COMUNALE

Per favorire in modo mirato lo sviluppo del Suo comune può ricorrere a diversi strumenti, più o meno diffusi anche per promuovere lo sviluppo sostenibile. In quest'ultima sezione ne trova elencati alcuni che, a nostro avviso, sono fra i più importanti ed efficaci. Le chiederemmo quindi di indicarci:

1. quale importanza questi strumenti rivestono **attualmente** per lo sviluppo **positivo** del Suo comune in ciascuno dei tre ambiti di sostenibilità;
2. quali di questi strumenti, o altri simili, secondo Lei, saranno invece **auspicabili o da potenziare in futuro**.

Per agevolare la comprensione dei concetti, alle varie voci abbiamo aggiunto qualche esempio concreto, che tuttavia non deve rispecchiare necessariamente la realtà del Suo territorio. Se un quesito fosse formulato in termini poco chiari, barri la casella "quesito non chiaro", altrimenti Le saremmo grati se riuscisse a darci un giudizio "reale" a quanti più quesiti possibile.

	Attualmente					**In futuro**		
Che importanza riveste per il Suo comune …	Priorità molto alta	Priorità alta	Priorità media	Priorità limitata	Nessuna priorità	Auspicabile	Nessun giudizio	Quesito non chiaro
…la pianificazione urbanistica locale e regionale?	Es.: piani urbanistici regionali e territoriali, aree di rispetto idrico o naturale intercomunali, presenza d'infrastrutture pubbliche per l'istruzione, la cultura, lo sport, le attività ricreative							
	○	○	○	○	○	□	○	○
…le prescrizioni o i divieti, pubblici o comunali?	Es.: aree protette, valori limite da non superare per le emissioni inquinanti							
	○	○	○	○	○	□	○	○
…le prescrizioni e i divieti dinamici?	Es.: piano di riduzione graduale dei valori limite, soglie minime, prescrizioni per l'isolamento termico o per l'uso dell'energia solare							
	○	○	○	○	○	□	○	○
…le tariffe d'utenza forfetarie?	Es.: urbanizzazione e collegamenti alla rete viaria, acque di scarico, asporto rifiuti, biblioteche, tasse scolastiche, tasse di soggiorno							
	○	○	○	○	○	□	○	○
…l'adeguamento delle tariffe d'utenza ai reali fattori di costo?	Es.: obbligo per i rivenditori di ritirare e riciclare prodotti, apparecchiature e oggetti usati, tariffe sui trasporti e pedaggi stradali calcolati in base alle percorrenze, internalizzazione dei costi esterni in generale							
	○	○	○	○	○	□	○	○
…le imposte e le sovvenzioni già in vigore?	Es.: IRAP e altre imposte sulle attività produttive, sovvenzioni per insediamenti produttivi o per posti di lavoro creati, contributi per asili nido e scuole materne aziendali							
	○	○	○	○	○	□	○	○
…una riforma delle imposte locali e l'abolizione delle sovvenzioni controproducenti?	Es.: imposte sui consumi energetici, sulle materie prime e sulle emissioni inquinanti, senza sconti per le grandi utenze, riduzione degli oneri sociali sul lavoro							
	○	○	○	○	○	□	○	○
…i diritti negoziabili per l'utilizzo d'aree pubbliche e risorse naturali?	Es.: compravendita del diritto di occupare aree, creazione di "borse" delle aree disponibili, diritti a pagamento sull'estrazione o l'uso di materie prime e sul consumo d'energia primaria, "certificati" negoziabili per le emissioni inquinanti							
	○	○	○	○	○	□	○	○
	Es.: reti informative su produttori, commercializzazione, gestione del							

…la sensibilizzazione, l'informazione e la partecipazione di cittadini e gruppi d'interesse?	territorio, Agenda 21, rapporti ambientali, marchi ecologici, marketing locale, tavole di confronto, coinvolgimento dei cittadini nelle attività di pianificazione.							
	○	○	○	○	○	□	○	○
…la creazione di nuove strutture e funzioni amministrative?	Es.: gestione intercomunale del territorio, strutture amministrative intercomunali, creazione d'entità territoriali "funzionali", integrazione delle minoranze							
	○	○	○	○	○	□	○	○

GRAZIE DI CUORE PER IL SUO AIUTO E LA SUA DISPONIBILITÀ!

Desidero che mi vengano inviati i risultati dell'indagine: □

VPRAŠALNIK ZA ŽUPANE ALPSKIH OBČIN

»Trajnostno sonaravni regionalni razvoj Alp« v okviru Interreg IIIB projekta DIAMONT

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Nova Gorica

ENOTA A: OCENA STANJA V VAŠI OBČINI

I. Status vaše občine glede na različne trajnostno sonaravne vidike

V vsaki občini si trajnost, sonaravnost razlagajo po svoje in se pri svojih razvojnih načrtih srečujejo z različnimi težavami in problemi. Vodstvo občine mora zato postavljati prioritete. Ugotoviti želimo, kateri vidiki trajnostnega, sonaravnega razvoja so za Vas še posebej pomembni.

Razmislite prosim o trenutnem stanju v vaši občini. Kako bi ocenili njen položaj glede na sledeče vidike?

Če se ne morete odločiti, ali kadar je zastavljeno vprašanje za vašo občino nepomembno, označite »brez mnenja«. V primeru, da je vprašanje zastavljeno nejasno, označite zadnjo možnosti »nejasno vprašanje«. Prosimo vas, da poskusite ovrednotiti čim več vprašanj.

GOSPODARSTVO							
Kako ocenjujete stanje v Vaši občini glede na...	Zelo dobro	Dobro	Nevtralno	Slabo	Zelo slabo	Brez mnenja	Nejasno vprašanje
...razpoložljivost delovnih mest?	○	○	○	○	○	○	○
...kakovost delovnih mest?	○	○	○	○	○	○	○
…zaposlitvene možnosti žensk?	○	○	○	○	○	○	○
…dobro uravnoteženo gospodarsko strukturo?	○	○	○	○	○	○	○
...stopnjo inovativnosti?	○	○	○	○	○	○	○
...podjetniško svobodo, ki jo nudi gospodarsko okolje?	○	○	○	○	○	○	○
…njeno povezavo s prometnim omrežjem višjega reda (nadregionalnega pomena)?	○	○	○	○	○	○	○

DRUŽBA							
Kako ocenjujete stanje v vaši občini glede na...	Zelo dobro	Dobro	Nevtralno	Slabo	Zelo slabo	Brez mnenja	Nejasno vprašanje
…uravnoteženost starostne strukture prebivalcev?	○	○	○	○	○	○	○
…ozračje za diskusije?	○	○	○	○	○	○	○
...stopnjo tolerance do tujcev in manjšin?	○	○	○	○	○	○	○
...udeležbo državljanov pri lokalni politiki in v različnih klubih ter društvih?	○	○	○	○	○	○	○
...udeležbo žensk pri lokalni politiki?	○	○	○	○	○	○	○
…možnosti, da ženske uskladijo službene obveznosti in družinsko življenje?	○	○	○	○	○	○	○
…možnosti rednega in dodatnega izobraževanja?	○	○	○	○	○	○	○
…ponudbe športnih in prostočastnih aktivnosti?	○	○	○	○	○	○	○
…možnosti kulturnega udejstvovanja?	○	○	○	○	○	○	○

OKOLJE							
Kako ocenjujete stanje v vaši občini glede na...	Zelo dobro	Dobro	Nevtralno	Slabo	Zelo slabo	Brez mnenja	Nejasno vprašanje
…ohranjanje naravnih območij?	○	○	○	○	○	○	○
…uporabo ukrepov varčne in učinkovite rabe energije?	○	○	○	○	○	○	○
…zaščitnih ukrepov proti negativnim vplivom prometa?	○	○	○	○	○	○	○
...ločevanje odpadkov?	○	○	○	○	○	○	○
...kakovost površinske in talne vode?	○	○	○	○	○	○	○
…porabo površin za gradnjo stanovanjskih, gospodarskih in infrastrukturnih objektov?	○	○	○	○	○	○	○
…pritisk na pokrajino in življenjsko okolje rastlin in živali?	○	○	○	○	○	○	○
…pripravljenost na možne posledice podnebnih sprememb?	○	○	○	○	○	○	○

II. Pomen vidikov trajnosti in sonaravnosti na lokalni ravni

Pomislite, prosim, na vaše politično delovanje. Kako pomembni so pri tem sledeči vidiki? Razvrstite vsak vidik s področja gospodarstva, družbe in okolja v eno od petih stopenj po pomembnosti.

GOSPODARSTVO							
Kako pomembno v Vaši občinski politiki je, da...	Izjemno pomembno	Zelo pomembno	Pomembno	Manj pomembno	Nepomembno	Brez mnenja	Nejasno vprašanje
…je dovolj delovnih mest za občane?	○	○	○	○	○	○	○
…so delovna mesta v Vaši občini kakovostna?	○	○	○	○	○	○	○
...je dovolj delovnih mest za ženske?	○	○	○	○	○	○	○
…je gospodarstvo v Vaši občini dobro uravnoteženo, t. j. da ne temelji na zgolj eni panogi ali le nekaj podjetjih?	○	○	○	○	○	○	○
…da so v Vaši občini inovativna podjetja?	○	○	○	○	○	○	○
…da ima gospodarstvo dovolj podjetniške svobode?	○	○	○	○	○	○	○
…da ima občina dobre povezave s prometnim omrežjem višjega reda (nadregionalnega pomena)?	○	○	○	○	○	○	○

DRUŽBA							
Kako pomembno v Vaši občinski politiki je, da...	Izjemno pomembno	Zelo pomembno	Pomembno	Manj pomembno	Nepomembno	Brez mnenja	Nejasno vprašanje
…je starostna struktura prebivalcev dobro uravnotežena (da ni ostarevanja)?	○	○	○	○	○	○	○
…v družbi vlada ugodno ozračje za diskusije?	○	○	○	○	○	○	○
…je prisoten toleranten odnos do tujcev in manjšin?	○	○	○	○	○	○	○
...da občani sodelujejo v lokalni politiki in tudi v različnih klubih in društvih?	○	○	○	○	○	○	○
...so še posebej ženske aktivne v lokalni politiki?	○	○	○	○	○	○	○
…je ženskam omogočeno, da uskladijo službene obveznosti in družinsko življenje?	○	○	○	○	○	○	○
…imajo prebivalci dobre možnosti rednega in dodatnega izobraževanja?	○	○	○	○	○	○	○
…je dovolj športnih in prostočasnih možnosti?	○	○	○	○	○	○	○
...je na voljo dovolj možnosti kulturnega udejstvovanja?	○	○	○	○	○	○	○

OKOLJE							
Kako pomembno v vaši občinski politiki je, da...	Izjemno pomembno	Zelo pomembno	Pomembno	Manj pomembno	Nepomembno	Brez mnenja	Nejasno vprašanje
…se ohranjajo naravna območja?	○	○	○	○	○	○	○
...se energija porablja varčno in učinkovito?	○	○	○	○	○	○	○
…so obremenitve zaradi prometa znosne in da ne naraščajo?	○	○	○	○	○	○	○
...se odpadki učinkovito ločujejo?	○	○	○	○	○	○	○
…je kakovost površinskih in podzemnih voda zagotovljena in se še izboljšuje?	○	○	○	○	○	○	○
…so zazidalne površine (za naselitev, gospodarske dejavnosti in infrastrukturo) rabljene smotrno?	○	○	○	○	○	○	○
…je vpliv ljudi na življenjsko okolje rastlin in živali omejen?	○	○	○	○	○	○	○
…je Vaša občina							

pripravljena na soočenje z morebitnimi podnebnimi spremembami?	○	○	○	○	○	○	○

ENOTA B: OCENA VAŠE OBČINE V PRIMERJAVI Z OSTALIMI OBČINAMI

Zaradi več vzrokov so občine v različnih razvojnih obdobjih. Prosimo ocenite stanje v sledečih občinah glede na gospodarski, socialni in okoljski položaj iz vašega osebnega zornega kota. Za orientacijo naj vam bodo vidiki iz poglavja AII. Zavedamo se, da je ta kompleksna področja težko oceniti. Zato Vam bomo še posebej hvaležni, če boste poskusili.

GOSPODARSTVO								
Gospodarski položaj ocenjujem kot sledi:	Zelo dobro	Dobro	Dokaj dobro	Nevtralno	Dokaj slabo	Slabo	Zelo slabo	Ne morem oceniti
svoja občina	○	○	○	○	○	○	○	○
Gorizia	○	○	○	○	○	○	○	○
San Floriano del Collio	○	○	○	○	○	○	○	○
Kanal	○	○	○	○	○	○	○	○
Brda	○	○	○	○	○	○	○	○
Savogna d'Isonzo	○	○	○	○	○	○	○	○
Žiri	○	○	○	○	○	○	○	○
Kranj	○	○	○	○	○	○	○	○

DRUŽBA								
Družbeni položaj ocenjujem kot sledi:	Zelo dobro	Dobro	Dokaj dobro	Nevtralno	Dokaj slabo	Slabo	Zelo slabo	Ne morem oceniti
svoja občina	○	○	○	○	○	○	○	○
Gorizia	○	○	○	○	○	○	○	○
San Floriano del Collio	○	○	○	○	○	○	○	○
Kanal	○	○	○	○	○	○	○	○
Brda	○	○	○	○	○	○	○	○
Savogna d'Isonzo	○	○	○	○	○	○	○	○
Žiri	○	○	○	○	○	○	○	○
Kranj	○	○	○	○	○	○	○	○

OKOLJE								
Okoljski položaj ocenjujem kot sledi:	Zelo dobro	Dobro	Dokaj dobro	Nevtralno	Dokaj slabo	Slabo	Zelo slabo	Ne morem oceniti
svoja občina	○	○	○	○	○	○	○	○
Gorizia	○	○	○	○	○	○	○	○
San Floriano del Collio	○	○	○	○	○	○	○	○
Kanal	○	○	○	○	○	○	○	○
Brda	○	○	○	○	○	○	○	○
Savogna d'Isonzo	○	○	○	○	○	○	○	○
Žiri	○	○	○	○	○	○	○	○
Kranj	○	○	○	○	○	○	○	○

ENOTA C: INŠTRUMENTI REGIONALNEGA IN OBČINSKEGA RAZVOJA

Za uresničevanje zastavljenih ciljev (nadaljnjega) razvoja Vaše občine so na voljo različni inštrumenti, ki jih je mogoče uporabiti na različnih področjih trajnostnega, sonaravnega razvoja. V nadaljevanju bomo po lastni presoji predstavili pomembne skupine teh inštrumentov. Pri tem bi od vas radi izvedeli:

1. Kakšno prioriteto imajo imenovani inštrumenti **trenutno** za **pozitiven** razvoj Vaše občine in
2. ali naj bi si po vašem mnenju za uveljavljanje takih oziroma podobnih inštrumentov v **prihodnje prizadevali** ali naj bi jih (če že obstajajo) **nadgrajevali**?

Za boljše razumevanje teh inštrumentov smo navedli nekaj primerov, ki pa bi bil za Slovenijo lahko tudi drugačni. Če je vprašanje zastavljeno nejasno, označite zadnjo možnost „nejasno vprašanje“. Prosimo Vas, da poskusite odgovoriti na čim več vprašanj.

	Trenutno					**V prihodnje**		
Kako pomemben/no/na/ne/ni je/sta/so za razvoj vaše občine…	Zelo prioritetno	Prioritetno	Srednje prioritetno	Omejeno prioritetno	Ni prioritetno	Zaželen	Brez mnenja	Nejasno vprašanje
…državno prostorsko in regionalno načrtovanje?	Npr. regionalni razvojni plani, centralna naselja, razvojne in prometne osi, velikopotezna zaščita vodnih in drugih naravnih območij, opremljenost z javnimi izobraževalnim, kulturnimi, športnimi in prostočasnimi ustanovami							
	○	○	○	○	○	□	○	○
…državne in občinske prepovedi in zahteve?	Npr. zaščitena območja, mejne vrednosti škodljivih snovi							
	○	○	○	○	○	□	○	○
…"dinamične" prepovedi in zahteve?	Npr. načrt za postopno nižanje mejnih in srednjih vrednosti, predpisi za toplotne izolacije, rabo obnovljivih virov energije							
	○	○	○	○	○	□	○	○
…pavšalne uporabne pristojbine?	Npr. za uporabo cestnega omrežja, čiščenje odpadnih vod, odvoz odpadkov, članstvo v knjižnicah, zdravstveno zavarovanje							
	○	○	○	○	○	□	○	○
…usklajevanje uporabnih pristojbin z dejanskimi stroški?	Npr. obvezno vračanje in recikliranje izdelkov in naprav, prometne pristojbine glede na dejansko rabo							
	○	○	○	○	○	□	○	○
…obstoječi davki in subvencije?	Obrtni davek, subvencije za spodbujanje obrti, subvencioniranje delovnih mest							
	○	○	○	○	○	□	○	○
…spreminjanje obdavčitve in zmanjševanje neučinkovitih subvencij?	Npr. enotna obdavčitev energije, surovin, škodljivih snovi ne glede na dohodek podjetja							
	○	○	○	○	○	□	○	○
…trgovanje z uporabnimi dovoljenji za rabo prostora in naravnih surovin?	Npr. pravice za rabo prostora, rabo naravnih virov, certifikati za škodljive snovi							
	○	○	○	○	○	□	○	○
…informacije, udeležba interesnih skupin ter	Npr. izdelovalci informacijskih omrežij, trženje, regionalni management, Agenda							

občanov in marketing?

	21. poročila o okolju, regionalni marketing, okrogle mize							
	○	○	○	○	○	□	○	○
...uveljavljanje novih upravnih struktur in novih nalog?	Npr. regionalni manager, upravni organi, ki bi v vedno večji meri zajemali širšo skupnost, razvoj in omejevanje funkcijskih regij, integracija tujcev							
	○	○	○	○	○	□	○	○

Najlepša hvala za sodelovanje!

Želim prejeti rezultate raziskave: □