



Interreg IIIB Project, Alpine Space Programme, EU

Monitoring of regional development in the Alps by means of indicators

The main task of Work Package 7 (WP7) was developing indicators to map the basic themes of sustainable regional development within the Alpine area. The DIAMONT system of indicators complements existing work on indicators in the Alps in a meaningful way and builds on methodological approaches and on the results of international, national, and regional efforts to formulate indicators for sustainability and regional development.



October 2006



Workpackage 7 (WP7): Identification and selection of indicators

Contact: Konstanze Schönthaler, Bosch & Partner GmbH, Munich (Germany)

Authors: Konstanze Schönthaler, Stefan von Andrian-Werburg

Main objective: To develop a convincing methodological concept for selecting indicators to describe regional development within the Alpine area; to suggest and document indicators.

Duration: December 2005 to May 2006

Why do we need yet more indicators?

Over the past few years a plethora of indicator systems has been developed within the Alpine Convention, INTERREG projects and other research activities centred on Alpine areas, not to mention national and regional initiatives of individual Alpine states. Not all of these are ready to be deployed, but they represent valuable contributions for a better description of the Alpine area in ecological, economic and socio-cultural terms and of current developments.

Taking into account all these efforts and concepts one may well ask what would justify yet another indicator system. A closer look at the already existent indicator sets shows that:

- even if the Alpine area is covered spatially by the European indicator systems (of the OECD, EEA or EUROSTAT, among others), these systems take insufficient account of the specific natural and socio-economic conditions and issues in the Alps.
- Existing and emerging national indicator systems in the Alpine states do not allow cross-Alpine comparisons of the findings or are not tailored to the special circumstances in the individual Alpine areas of the states involved. Moreover, many of these systems have not been implemented to date.

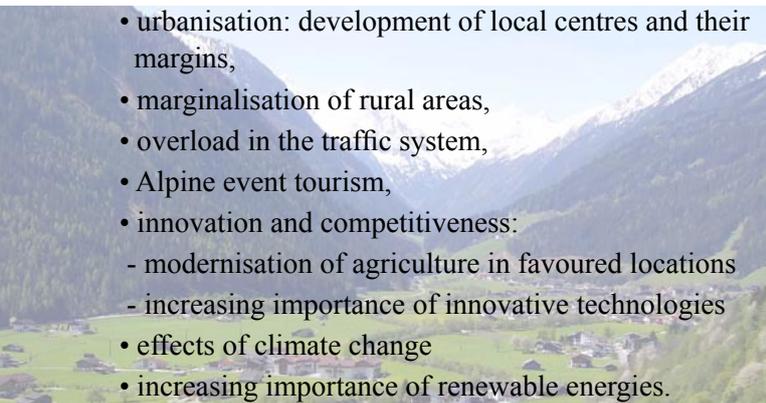
- The indicators developed by the working group “Environmental objectives and indicators“ within the Alpine Convention and the SOIA indicators focus on the themes that were taken up by the Alpine Convention and included in its protocols. This means that problems such as climate change and its impact the development of Alpine towns have so far been disregarded.

The DIAMONT indicators aim to

- describe the dominant regional trends in the Alps through a carefully selected set of values and to close existing thematic indication gaps;
- differentiate if possible at LAU2 level,
- be detailed enough to allow calculation of the indicators,
- and to take sufficient account of wide-spread existing efforts to develop other indicator systems.

The selection of indicators is based on the concept of sustainability. Unlike other indicator systems dedicated to the idea of sustainability, this concept does not determine the basic structure of the DIAMONT indicator system. Indication focuses on the main trends of regional development within the Alps. To identify these, we looked at national strategies for sustainability and spatial development, social reports as well as the results of research projects. At the same time, expert opinions from the Delphi survey of WP6 were included.

The following main trends emerged:

- 
- urbanisation: development of local centres and their margins,
 - marginalisation of rural areas,
 - overload in the traffic system,
 - Alpine event tourism,
 - innovation and competitiveness:
 - modernisation of agriculture in favoured locations
 - increasing importance of innovative technologies
 - effects of climate change
 - increasing importance of renewable energies.

The DIAMONT indicators are meant to answer the following questions:

- Which main trends occur in which parts of the Alps (communities, districts) and to what extent?
- Is the individual manifestation of a trend linked to ecological, economic or social problems or risks?

With these questions in mind the DIAMONT indicators were divided into two groups. The so-called “identification indicators” should help to identify municipalities (or groups of communities) in which the trends mentioned above can be observed and to assess to what extent the individual trend manifests itself. The “evaluation indicators” look at selected sub-processes to assess which ecological, economic and social problems and risks might be linked to an individual trend.

The work centres on the trend towards urbanisation, which is the chosen focus of the DIAMONT project.

Why Alpine towns?

Spatial development in the Alps is characterised as highly polarised. Urban centres and suburban areas stretch along the valley floors. Land use conflicts flare up as residential and commercial areas, traffic infrastructure, agricultural production as well as recreation and landscape protection compete for the limited spatial resources. Marginal areas are becoming even more marginalised.

The basic processes of urbanisation (including so-called post-suburbanisation) take a similar course in the Alps as in the flatlands, except that the problem of limited space is exacerbated in the mountains. This makes it necessary for Alpine towns to seek close cooperation both with their environs and with other towns in order to achieve a feasible spatial distribution of functions and services.

In the light of the tendencies described above it is hardly surprising that Alpine towns and their development are beginning to receive more interest within the context of Alpine spatial development.

Within the Alpine Convention and its protocols, Alpine

towns have not received any attention so far. In 2005, however, the Standing Committee of the Alpine Conference chose “The socio-economic dimension of the Alpine Convention with particular attention to the role of Alpine towns” as the theme for its 30th meeting. These towns should receive particular attention in the development of a declaration on population and culture. Alpine towns and their rural environs should develop in such a way that they retain their economic and cultural attractiveness for future generations. Alliances between Alpine towns and city networks can contribute to resolving problems and to mutual support.

Against the background of the enormous economic and socio-cultural importance of towns for the Alpine area, CIPRA too is calling for measures to support towns in their responsibility for nature and landscape as well as their efforts at improving the quality of living and to encourage regional strengths and solidarity. Cooperation within pan-Alpine networks and exchanges with centres beyond the Alps should strengthen socio-cultural identity and socio-economic competitiveness.

In the light of the scant attention that Alpine towns have received within the Alpine Convention so far, of current developments and the towns’ increasing importance in political and scientific contexts, the DIAMONT partners have agreed to concentrate on studying Alpine towns more thoroughly for the remainder of the project.

As there are hardly any larger metropolises within the Alpine area, the analysis focuses on local centres. These we define as small and medium-sized towns (SMESTOs) or contiguous settlements of less than 50,000 inhabitants. In the past such towns took on essential supply functions unlike comparable towns outside the Alps.

How small and medium-sized Alpine towns develop, has varied greatly and still does, depending on natural circumstances, historical background, regional labour market, etc.. Some gain in importance and develop functions beyond the regional level – e. g. as international tourist destinations or by another specialisation – or they become integrated into larger and expanding urban regions (dynamic development type). Others retain their traditional functions because they are situated far from other towns and centres within thinly populated rural areas (stagnating development type). A third group is characterised by a decline of former key sectors which have lost their relevance for the national or global market (shrinking development type).

How do indicators help describe the development of Alpine towns?

One essential objective of DIAMONT is to argue the selection of indicators convincingly and to set it up as broadly as possible with the concept of sustainability in mind. This is why the level of the so-called “dimensions” was introduced into the methodological concept. The dimensions differentiate the three pillars of sustainability further and ensure the integration of as many partial aspects as possible in the search for indicators, even if the indication opportunities are limited, given the limited availability of data.

The main trends are further differentiated by “phenomena”, i.e. typical features that accompany an individual trend. They were arrived at by searching through the literature and from gathering expert knowledge.

Identification indicators

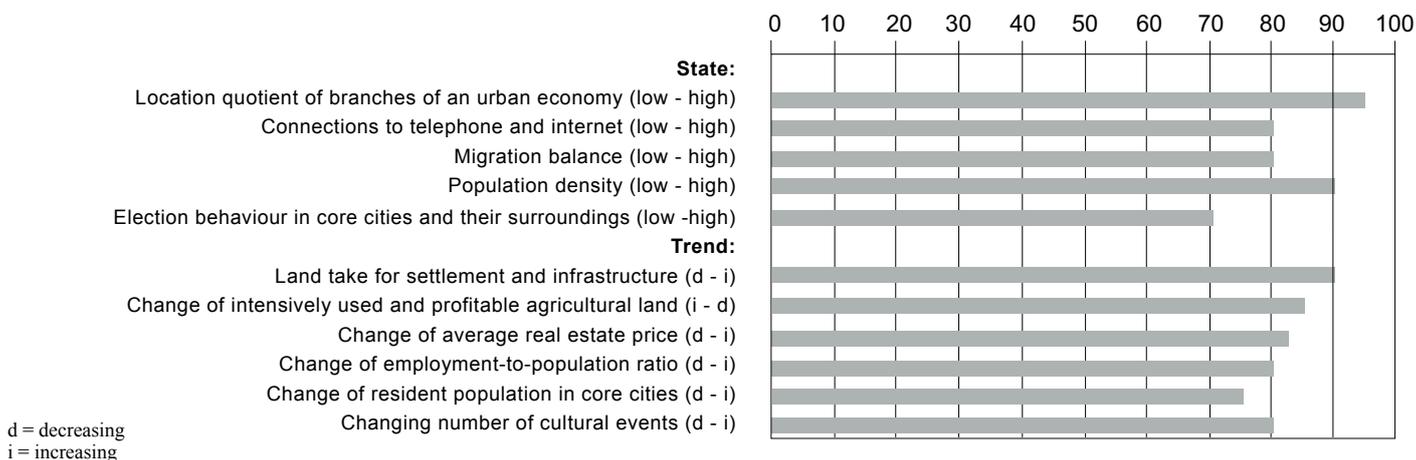
To characterize the spatial reference level of urban processes so-called „urbanization zones“ were conducted. The classifications are based on Perlik (2001), who has developed, assuming that there are different national approaches, an alpine wide adaptive approach to localize areas with tendencies towards urbanization. The indicators he has used were taken on in the set of identification-indicators (see identification-indicators (I) in Tab. 1).

The data on municipality level has to be aggregated to characterize the urbanization zones with respect to their development status. Experiments on the methodology are being currently undertaken. Another step on aggregation is to consolidate the results on the specific identification-indicators to an overall picture in order to be able to compare the urbanization zones. On the base of

Table 1: Identification indicators

Identification indicators (I) to identify the SMESTOs and to delineate the urban area			
Pillar and Dimension		Phenomenon	Indicator
En	Labour	Strong labour market	Number of employees (S)
		Strong functional interrelation between municipalities	Outbound commuter ratio (to core city and/or in a inner-periurban zone) (S)
	Public services and security	Provision of central and administrative functions	District capital (S)
S	Population	High attractiveness of town as place of residence	Resident population (S)
Identification indicators (II) to identify dynamically developing urban areas			
Pillar and Dimension		Phenomenon	Indicator
Ec	Economic performance and infrastructure	High importance of branches of an urban economy	Location quotient of branches of an urban economy (S)
		Increasing land take for infrastructure and settlement	Land take for settlement and infrastructure (P)
		Increasing competition of land use	Change of intensively used and profitable agricultural land (P)
	Public and private financing	Increasing competition of land use	Change of average real estate price (P)
	Labour	Strong labour market	Change of employment-to-population ratio (P)
Innovation, technology and information	High density of communication infrastructure	Connections to telephone and internet (S)	
S	Population	High attractiveness of town as place of residence	Migration balance (S)
			Population density (S)
		Population growth in the core city	Change of resident population in the core city (P)
	Social participation and freedom	Urban renewal	Election behaviour in core cities and their surroundings (S)
Culture	Increasing cultural relevance	Cultural events (P)	
En = Environment, Ec = Economy S = Society / culture			(S) = status quo (P) = process

Main trend image for an urbanisation zone with dynamic development



a comprehensive review and discussion on the different aggregation methods a visual aggregation with main trend images is being proposed. Prior to the aggregation steps will be taken to transform indicator values. The figure below shows the fictitious example of an urbanisation zone.

The practical work on the data will show if the main trends do indeed reflect the real situation on the ground. For the moment these trends must still be seen as hypotheses that have been formulated on the basis of searches through the literature and interviews with experts.

Evaluation indicators

Even if suitable indicators are available it is not immediately clear whether an observable trend is sustainable or not. Values and the prioritisation of objectives play an important role here and can only be decided upon within the context of a debate involving the whole of society. The work in the trial areas of DIAMONT opens up an opportunity to discuss objectives with local interest groups and thus arrive at a balanced overall view of the ecological, economic and socio-cultural objectives for sustainability.

The phenomena for the evaluation indicators (see table 2) have been formulated in terms of risks and/or problems associated with the three pillars of sustainability: ecology, economy and social issues. In reality a different picture may emerge, for instance in a dynamically developing urbanisation zone. One might expect a dynamic development to be accompanied by an invigorated labour market, which is seen as a positive development in economic terms. Such a dynamic might also be the source of impulses for an improvement in the ecological situation, for instance in the technology areas of air and water purification

Table 2: Evaluation indicators

Evaluation Indicators			
Pillar and Dimension		Phenomenon	Indicator
En	Structure	Loss of typical natural biotopes of Alpine valleys	Change of natural and semi-natural areas (P)
		Increasing land take for infrastructure and settlement	Land take for infrastructure and settlement – Variant (P)
		Fragmentation of green areas	Effective mesh size (S)
	Species	Declining species diversity	Species diversity (P)
	Matter exchange	Bad air quality	Air quality index for urban areas (short term) (S)
	Water exchange	Decreasing river water quality	Change of river water quality categories (P)
		High dependency on water importation	Local water consumption and water abstraction (S)
		Low water absorbing capacity	Municipal water balance (S)
	Human health	Impairment of human health by noise	Population exposed to noise (S)
		Low healthiness of urban life style	Children suffering from asthma (S)
Aesthetics	Loss of landscape diversity	Landscape diversity (S)	
	Lack of recreational areas	Disposability of recreational area (S)	
Ec	Economic performance and infrastructure	Increasing competition of land use	Development of infrastructure and settlement in designated advice zones of natural hazards (P)
		Coupling of economic and population growth to space consumption	Efficiency of land use (P)
	Public and private financing	Financial squeeze of the municipality	Indebtedness-by-revenues-ratio (S)
	Labour	Low qualification of labour force	Educational attainment of labour force (S)
		Unemployment	Long-term unemployment rate (S)
	Production and consumption	High waste generation	Municipal waste generation (S)
	Innovation, technology and information	Low importance of branches of a high added value and high innovative potentialities	Change of number of employees subject to social insurance contribution in branches of a high added value and high innovative potentialities (P)
Number of patent applications (S)			
S	Population	Unfavourable age structure	Change of age dependency index (P)
		Low potential for social interactions	Degree of population mixture (age groups, educational level, nationalities) (S)
		Gender inequity	Women's labour market participation (S)
	Public services and security	Bad provision of public transport	Access to public transport (S)
		Bad provision of business related services	Employment in business related services (S)
		Bad provision of educational services	Employment in educational sector (S)
	Social participation and freedom	Low participation in democratic processes	Participation in local elections (S)
	Culture	Low interest in cultural attractions	Visitors of cultural attractions (S)
En = Environment, Ec = Economy S = Society / Culture			(S) = status quo (P) = process

Database as information hub

All indicators have been documented in an internet-assisted database. It serves to exchange information and data between the DIAMONT partners.

The Bavarian state ministry for the environment, health and consumer protection developed the database with a view to its future use in the Alpine monitoring and information system ABIS and has adapted it to the requirements of DIAMONT within WP7. The basic set-up takes into account the recommendations of the working group “Environmental objectives and indicators” of the Alpine Convention. The database is available to the partners on www.diamont.bayern.de.



© Axel Borsdorf

Increasing land take for infrastructure and settlement

Information on the indicators is compiled in fact sheets that follow international recommendations for meta data documentation in terms of their content and structure.

They also contain arguments for the selection of each indicator with references to literature, a detailed description of the indicator (measuring unit, categorisation as status quo or process indicator, notes on its calculation, etc.), its position within the DIAMONT indicator system (relation to the main trend, dimension and phenomenon) as well as suggestions for the interpretation of the indicator value (such as whether a rising or falling indicator value points to a strong manifestation of the trend, or whether a high or low value indicates an ecological problem or risk). The indicator fact sheets may be downloaded as pdf files from the DIAMONT website.

In WP 7 no detailed survey of the availability of data for the individual indicators was envisaged. It will be carried out as the project continues. The fact sheets do however contain already available expert knowledge and provide a preliminary assessment of data availability.

The database can be used as a platform for further work within DIAMONT to debate the suggested indicators and phenomena and develop them further. Country-specific information, e.g. on the availability of data and on national or regional objectives, can be added too. The database offers an opportunity for the ensuing work packages WP8

and WP9 to manage and process the data (WP8) and to relate the indicators and phenomena to instruments for controlling regional development (WP9).

Perlik M. 2001: Alpenstädte zwischen Metropolisation und neuer Eigenständigkeit. Geographica Bernensia P38. Verlag des Geographischen Institut der Universität Bern, Bern.