

REGALP

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Work package 2

Analysing the interrelation between regional development and cultural landscape change in the Alps

Work Package Report

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1. SUMMARIES

1.1 Summary

1.1.1 Aims of WP2

WP2 is a core work package of REGALP. The analysis of nearly 5.700 alpine municipalities and especially of 7 pilot regions should help to find a new understanding of the interrelation between regional development and cultural landscape change in the younger past – as a basis for updated and better policies to manage balanced changes.

The two main research questions concerning WP2 are (see Technical Annex, P.6):

- Which types of regional development and cultural landscape change can be discerned?
- How are regional development and cultural landscape change interacting?

1.1.2 Methodology and work programme

The above questions were answered within three steps:

- (1) The first step was to classify the nearly 5.700 alpine communities following the typology of W: BÄTZING in different periods between 1971 and 2001.
- (2) The second step was to identify the main 'regional development trends' on the base of this classification.
- (3) The third step was to analyse these main 'regional development trends' with regard to the indicators for cultural landscape change.

As the BÄTZING typology is strongly economy-oriented, information about the change of spatial structures are limited. The REGALP team agreed, that an accessibility analysis should be done in order to better integrate the aspects of transport and traffic into the interrelation between regional development and cultural landscape change.

After the general hypotheses on the interrelation have been made for the level of the whole Alps, the research partners tried to examine these hypotheses by the example of the 7 pilot regions selected. Finally the results gained in the different steps of analysis were summarised and conclusions for further spatial development and cultural landscape change in the Alps were draw. The results of WP2 are an important basis for WP4 (Scenarios 2020) as well as for WP5 (Making public the view of locals).

1.1.3 Results

Between 1971 and today we could identify 6 main regional development trends, which can be precised by 9 sub-trends as follows:

The most important development trend is the 'centrally dominated development trend' (1) including 65-80% of the communities analysed. This trend is followed by the 'balanced development trend' (2) including ca. 4-20% of the communities. The third trend is the 'tourism-

dominated development trend' (6) with 6-9%. The three other development trends (agriculture- (3), industry- (4) and service-dominated (5) trends) altogether include not more than 4-5% of the communities analysed.

The 'centrally dominated development trend' contains the following five important sub-trends:

- Transition to commuter dominated development with a weak (1.1) and a strong variant (1.2) including between 20 and 40% of the communities
- Commuter dominated development with a weak (1.3) and a strong variant (1.4) (23-46%)
- Local centers (1.5) (6-8% of the communities analysed).

The interrelation between these regional development trends and cultural landscape change can be described as follows:

(1) Urban as well as the sub-and peri-urban areas are the centers of growth (sub-trends 1.2, 1.4 and 1.5)

In the last 30 years the Aps are facing a significant polarisation of spatial development: urban centers and strong sub-urban areas in the valley floors (28% of all alpine communities) are the centers of growth: in 1991 57% of the alpine population and more than 70% of all alpine working places and 29% of all touristic beds are concentrated in these booming regions, which represent only 23% of the total alpine area.

These regions still contain 33% of all agricultural businesses, 30% of all cattle and 27% of all agricultural land in the Alps. Agriculture is characterised by a strong decline of population, businesses and agricultural land. In addition there is a shift from full time to part time farming and a significant trend to extensification of agricultural land use.

The influence of spatial development on cultural landscape in strong central areas is characterised by two opposite phenomena: on one hand there is an increase of various land use interests and conflicts between housing, transport and economic development, leisure areas and agriculture. The corresponding landscape change can be observed on the one hand in larger parcel sizes in the valley floors and on the other hand in the lying fallow of unfavourable parcels. The extensification leads to natural succession towards forest. From various studies we know that intensification as well as extensification both can cause a decline of biodiversity with increasing risks for the ecosystems concerned.

(2) Tourism-dominated areas are the second pole of growth (sub-trends 6.1 and 6.2)

The tourism-dominated areas, located on an average sea level of more than 1.000 m and including ca. 7,5% of the alpine communities are the second pole of growth in the Alps. The tourism-dominated communities represent only 4,6% of the alpine population, but 6,3% of all working places and 39% of all touristic beds. These communities cover about 15% of the total Alpine area. In some aspects the tourism-dominated trend is similar to urban and sub-urban areas in the valley floors: the increase of residential buildings between 1981 and 1991 (33%) is higher than in any other development trend. This is also due to the massive increase of second homes. In the younger past, the numbers of inhabitants, migration and people in productive age

are showing a stable, average growth. The commuter balance is positive. In addition, the share of agricultural population is as low as in urban areas.

The tourism-dominated trend is the only backbone of touristic growth in the Alps. Opposite to the general trend in the Alps, touristic beds are still increasing.

The tourism-dominated communities contain 10% of the alpine agricultural land, but only 5,4% of cattle and 5% of all agricultural businesses in the Alps. It seems that there are certain synergies between tourism and agriculture: the decline of agricultural businesses is lower than in other development trends, on the other hand there is a strong shift from full time to part time farming and from intensive to extensive use of grassland, so agriculture seems to be quite stable on an extensified level.

Increasing population and working places, large scale touristic and transport infrastructure as well as increasing land consumption for residential buildings cause heavy pressure on landscape and sensible mountain ecosystems. In the agricultural sector, the two opposite trends can be observed (see REGIONAL CONSULTING 2000): favoured sites are facing intensification, whereas less favoured sites are extensified, often turn to fallow land and forests. This is often combined with a loss of biodiversity and visual quality.

(3) The stagnating balance (Sub-trends 2.1 and 2.2)

The balanced development trend represents about 23% of alpine communities, this trend covers 29% of the alpine area but only 18% of all inhabitants and 12% of all working places. In the younger past these communities can be characterised all in all by a more or less stable development of population and economy, but nearly half of the communities are facing a decline of population and working places. This is a clear indicator for structural problems. Compared to other areas tourism is developing relatively better: opposite to the general alpine trend the number of touristic beds is increasing.

The communities of the balanced development trend include 25% of agricultural land, 32% of cattle and even 43% of all agricultural businesses. This indicates that agriculture still plays a more important role than in other areas. Full time farming is more represented than in other development trends. The decline of agricultural businesses and the shift to part time farming is at average, whereas the tendency towards extensification of agricultural land is lower than in other development trends.

Compared to the strong central areas and the touristic centers, land use conflicts seem to be less intensive. Negative impacts on landscape mainly result from land consumption for housing and from intensive agriculture. Tendencies of urban sprawl are often supported by traditionally scattered settlement structures.

(4) Rural areas 'in between' without specific potentials are facing a remarkable crisis (sub-trends 1.1 and 1.3)

Weak communities in side valleys, on valley slopes and/or communities with bad accessibility and lacking touristic potential, in addition dormitory communities near urban centers are repre-

senting about 36% of all alpine communities. They cover 27% of the alpine area but include only 15% of all inhabitants, 16% of all touristic beds and 8% of all working places. These weak areas become more and more dependent on the central regions and their economic welfare. The younger past is characterised by a decline of working places leading to a negative commuter balance and a high rate of out-commuters. Residential buildings are increasing massively. Tourism is in decline.

In these less favoured areas agriculture is playing a more important role than in other regions: these communities represent 26% of all agricultural businesses, 30% of all cattle and 34% of all agricultural land. In the younger past agricultural land use is characterised by two main aspects: on one hand agricultural land is decreasing stronger than in other areas, on the other hand, the trend towards extensification is less significant than elsewhere, on the contrary: intensive grassland is increasing in some areas. Later on in the 90ies trends towards extensification can be observed in the countries analysed (France, Slovenia).

Land use conflicts seem to be less intensive than in the strong urban and suburban areas. They arise mainly from land requirements for housing and from intensive agriculture.

(5) Sector-dominated development trends (agricultural, industrial or service) do not play an important role (sub-trends 3, 4 and 5)

The communities of the agriculture-, industry- or service-dominated trends all in all do not represent more than 6% of all alpine communities. These communities include 6% of the alpine area, 4% of the alpine population and only 2% of all alpine working places. In the younger past the agriculture-, and industry-dominated communities are facing a massive demographic decline and economic crisis, whereas the service-dominated communities show an average growth. In the agriculture- and the service-dominated trends, tourism seems to be a new, but limited alternative. In these two trends – similar to the tourism-dominated areas – it seems that there is a certain synergy between tourism and agriculture leading to a reduced decline of agricultural businesses and agricultural land. Also the trend towards extensification of agricultural land use is less significant than in other regions.

The results describing the triangle accessibility – regional development – cultural landscape change seem s to be quite plausible:

- (1) Lowest accessibilities in the Alps can be found in service- and tourism- as well as in agriculture-dominated areas. These areas are located on high sea level. The decline of agriculture is lower than in other regional development trends.
- (2) The highest accessibilities can be found in industrial areas, which are situated on low sea level.
- (3) High accessibilities can also be observed in the balanced development trend. These areas can be described by a strong decline of agriculture, nevertheless agriculture still plays an important role.

- (4) High accessibility and economic prosperity do not necessarily have to be connected. The areas with the highest accessibilities in the Alps are not those with the highest economic prosperity. More than 50% of the communities of the balanced development trend are characterised by economic stagnation or even crisis.
- (5) On the other hand, the economically strongest areas in the Alps (sub-trends 1.2, 1.4 and 1.5) only show average accessibility. These areas with average accessibility have the highest growth of population and migration, of working places and of in- and outcommuters as well as of residential buildings.
- (6) The second pole of economic strength in the Alps, the tourism-dominated development trend, is characterised by very low accessibilities.
- (7) Another interesting finding: the areas with the highest accessibilities – located in the Italian Alps between Torino and Verona – are characterised by a decline of inbound commuters between 1981 and 1991. So the hypotheses could be: if a weak region is well connected to strong neighbouring regions, the high accessibility level can lead to further losses of inner regional potentials.
- (8) It turns out, that accessibility is an important location-factor, but it is not the one and only. There are prospering areas with very low accessibility and there are very weak areas with very high accessibilities, as the example of the Italian Alps shows.

For the future development of the interrelation in the triangle accessibility – regional development – cultural landscape change following estimations can be made:

Areas with high accessibility and strong economic performance are those with the highest potentials for future development.

In the Alps these areas are the Salzburg region, the Lower Inn Valley, the Innsbruck region and the Rhine Valley, the Rosenheim region in Germany, the Luzern region, the region east of Lausanne, the Rhone Valley in the Valais and the Ticino region in Switzerland, the Chambéry – Grenoble region in France as well as the Aosta Valley, the whole alpine border region from Como to Brescia, central parts of Alto Adige and the Trentino in Italy.

Areas with low accessibility and weak economic performance are those where future crises seem to be very probable.

In the Alps these areas are the whole south eastern parts of Austria (main parts of Styria and Carinthia, the regional centers excluded), Eastern Tyrol, the Upper Inn Valley and the Lech Valley in Austria, the southern parts of the Engadin, Hinterrhein and Vorderrhein in Switzerland, the rural areas of the whole Alpes Provencales and Alpes Maritimes in France, the Valtellin and the Val Venosta, as well as side valleys of the Val Pusteria and finally the Mežiška Valley as well as the Soča Valley in Slovenia.

Areas with weak economic performance cannot be improved just by enhancing their accessibility through transport infrastructure projects.

Some typical areas with high 3h accessibility in the year 2020 and more or less weak regional development in the Alps are for example the side valleys of the Wipptal, the Emmental - Brienz region, the Val Muestair, Goms, higher parts of the Rhone Valley in the Valais in Switzerland, the whole south western part of the Italian Alps (Cottic and Ligurian Alps) with the Valle di Lanzo, Valle del Po, Valle Varaita, Valle Maira, Valle Stura; furthermore the Valle d'Ossola and the higher parts around the Como and Garda lakes in Italy.

Areas with strong economic performance will not necessarily suffer because of low accessibility in the future.

Some typical areas with low 3h accessibility in the year 2020 and more or less strong regional development in the Alps are for example the central Carinthian region, the Lower Inn Valley, the central Upper Austria region around Steyr in Austria, the local and regional centers of the whole Alpes Provencales and Alpes Maritimes in France.

The findings of WP 2 are an important basis for the scenario building in WP4. The scenarios will be based on the different regional types and they will include the accessibility-forecasts for 2020. The regional reports elaborated in Task 2.5 are an important basis for the regional scenarios in WP4 (Task 4.4) and for the local workshops in WP5. In WP3 the research team will make use of the results for the evaluation of public actions in different regions. Finally WP6 takes into account the main findings as a starting point for proposing adjustments to present policies and instruments.

1.2 Zusammenfassung

Ziele

Im Arbeitspaket 2 hat das Forschungsteam die Zusammenhänge zwischen der raumstrukturellen Entwicklung und der Veränderung der Kulturlandschaft im Alpenraum untersucht. Die Analyse umfaßte knapp 5.700 Gemeinden im Zeitraum von 1971 bis 2001. Zudem gab es vertiefte Untersuchungen in 7 Pilotregionen.

Arbeitsprogramm

Zunächst haben wir die knapp 5.700 Gemeinden des Alpenraums nach der Typisierung von BÄTZING et al 1995 für die Zeiträume 1971, 1981, 1991, 2001 klassifiziert. Da nicht in allen Alpenländern Daten für alle vier Zeitschnitte vorlagen, haben wir uns auf den Zeitraum 1981-1991 konzentriert.

Aus den statischen Typen haben wir danach Entwicklungstrends abgeleitet und in einem dritten Schritt diese unterschiedlichen Entwicklungstrends mit Hilfe von ausgewählten Kulturlandschafts-Indikatoren näher beschrieben.

Auf Basis der Ergebnisse haben wir dann Hypothesen über die Zusammenhänge zwischen der raumstrukturellen Entwicklung und der Veränderung der Kulturlandschaft im Alpenraum formuliert. Diese Hypothesen wurden im Zuge der vertieften Analysen in den Pilotregionen überprüft und modifiziert.

Zusätzlich haben wir eine Erreichbarkeitsanalyse der Alpen auf Nuts 3 Ebene durchgeführt und dabei die Zeiträume 1995 und 2020 näher betrachtet. Für den Zeitraum 2020 haben wir angenommen, dass die Transeuropäischen Verkehrsnetze (TEN) realisiert sind.

Abschließend haben wir die Hypothesen über die Zusammenhänge zwischen der raumstrukturellen Entwicklung und der Veränderung der Kulturlandschaft mit den Ergebnissen der Erreichbarkeitsanalyse zusammengeführt und daraus eine Synthese und Schlussfolgerungen erarbeitet.

Ergebnisse

Im Zeitraum zwischen 1971 und 2001 konnten wir 6 räumliche Entwicklungstrends identifizieren, die durch 9 Sub-Trends weiter untergliedert werden können: der wichtigste Trend ist die 'zentrendominierte Entwicklung', der im Zeitraum 1981-1991 knapp 64 % aller Alpengemeinden zuzurechnen sind. Danach folgen die 'ausgeglichene Entwicklung' mit ca. 23% aller Gemeinden und die tourismusdominierte Entwicklung mit ca. 7% aller Gemeinden im Alpenraum. Die landwirtschafts-, industrie- und dienstleistungsdominierten Trends umfassen zusammen weniger als 6% aller Alpengemeinden.

Die zentrendominierte Entwicklung setzt sich aus folgenden 5 Sub-Trends zusammen:

- aus der pendlerdominierten Entwicklung mit einer strukturschwachen Variante: Sub-Trends 1.1 und 1.3 mit zusammen 36% aller Alpengemeinden und mit einer

- strukturstarken Variante: Sub-Trends 1.2 und 1.4 mit zusammen 22% aller Alpengemeinden sowie
- aus den Lokalzentren (Sub-Trend 1.5) mit 6% aller Alpengemeinden.

Die Zusammenhänge zwischen raumstruktureller Entwicklung und Wandel der Kulturlandschaft können wie folgt zusammengefasst werden:

Die Ballungsgebiete in den Becken- und Tallagen sind die Zentren des Wachstums in den Alpen (Sub-Trends 1.2, 1.4 und 1.5)

In den letzten 30 Jahren hat die räumliche Polarisierung deutlich zugenommen: in den Ballungsgebieten – sie umfassen knapp 28% aller Gemeinden und 23% der Fläche der Alpen fanden sich im Jahr 1991 ca. 57% der alpinen Bevölkerung und sogar 70% aller Arbeitsplätze in den Alpen. In den Ballungsgebieten spielt auch die Landwirtschaft eine bedeutende Rolle: 33% aller Betriebe, 30% des Rinderbestandes und 27% der Landwirtschaftsfläche der Alpen befinden sich in den Becken und Tallagen. Die Landwirtschaft ist von einem starken Rückgang der Betriebe, von einer Verschiebung zum Nebenerwerb und von einer parallelen Intensivierung der Gunstlagen und Extensivierung der Ungunstlagen geprägt.

In den Becken und Tallagen spitzen sich die räumlichen Nutzungskonflikte immer mehr zu: Siedlungs- und Betriebsflächenentwicklung, Verkehrsinfrastruktur, Landwirtschaft, Freizeit und Naherholung sowie der Naturschutz: sie alle konkurrieren um die knappen Flächen. Diese Nutzungskonflikte spiegeln sich in der Kulturlandschaft wieder: Gunstlagen werden zunehmend intensiviert, während ungünstig gelegene Flächen extensiviert werden, bis hin zur Verwaldung. Damit verbunden ist eine Abnahme der Biodiversität.

Die Tourismusorte sind neben den Agglomerationsräumen der zweite Wachstumsträger in den Alpen (Sub-Trends 6.1 und 6.2)

Zu den tourismusdominierten Gebieten zählen ca. 7% aller Alpengemeinden, sie umfassen ca. 15% der Alpenfläche und liegen auf einer durchschnittlichen Seehöhe von über 1.000 m. Hier lebten 1991 ca. 4,6% der alpinen Bevölkerung, hier waren 6,3% aller Arbeitsplätze und 39% aller Tourismusbetten in den Alpen. Die Tourismusgebiete sind in einigen Aspekten den Agglomerationsgebieten sehr ähnlich: vielfältige Nutzungsansprüche konzentrieren sich auf engstem Raum, eine besondere Rolle spielt dabei die touristische Infrastruktur wie z.B. Seilbahnen, Schipisten usw.

Die Siedlungsentwicklung war in den Tourismusorten zwischen 1981 und 1991 mit 33% Zuwachs höher als in allen anderen alpinen Gebieten. Die Tourismusgebiete sind auch Träger des touristischen Wachstums in den Alpen: während in allen anderen Gebieten die Zahl der Betten sank, hat die Bettenzahl in den Tourismusorten zugenommen.

Die Landwirtschaft in den Tourismusgebieten ist nicht nur aufgrund der Seehöhe extensiver als in den Tallagen: die Erwerbskombination mit dem Tourismus führt zu einer Dominanz des Nebenerwerbs und zu extensiveren Betriebsformen. Da der Tourismus am Offenhalten der Kultur-

landschaft vielerorts interessiert ist, weisen diese extensiven Betriebsformen oftmals eine große Stabilität auf.

Die ausgeglichene Entwicklung: der Weg in die Stagnation? (Sub-Trends 2.1 und 2.2)

Zu diesem Entwicklungstrend zählen ca. 23% aller Alpengemeinden, ihr Anteil an der Gesamtfläche der Alpen beträgt ca. 29%. Hier fanden sich 1991 18% der Einwohner und nur 12% der Arbeitsplätze in den Alpen. Knapp 50% aller Gemeinden dieses Trends zeigten zwischen 1981 und 1991 deutliche Krisensymptome: Abwanderung und Arbeitsplatzrückgang.

In den Gebieten mit ausgeglichener Entwicklung spielt die Landwirtschaft eine wichtige Rolle: 43% aller Betriebe, 32% des Rinderbestandes und 25% der Landwirtschaftsfläche in den Alpen sind dieser Gruppe zuzuordnen. Der Rückgang der Landwirtschaft und der Trend zur Extensivierung fällt hier vergleichsweise geringer aus als in anderen Gebieten der Alpen. Auch räumliche Nutzungskonflikte treten hier in geringerem Ausmaß auf als etwa in den Ballungsgebieten oder in den Tourismuszentren. Allerdings ist gerade das Phänomen der Zersiedelung auch hier zu beobachten.

Ländliche Gebiete 'im Zwischenraum' befinden sich in der Krise (Sub-Trends 1.1 und 1.3)

Gemeinden in abgelegenen Seitentälern mit fehlendem touristischen Potential und schlechter Erreichbarkeit, Hanggemeinden in der Nähe von Agglomerationsräumen und andere strukturschwache Gemeinden umfassen zusammen ca. 36% aller Alpengemeinden auf 27% der Alpenfläche. Hier fanden sich 1991 nur 15% der alpinen Bevölkerung, 16% der Tourismusbetten und gar nur 8% aller Arbeitsplätze in den Alpen.

Die strukturschwachen Gebiete werden mehr und mehr von den Ballungsräumen und deren wirtschaftlicher Entwicklung abhängig. Die Landwirtschaft erfüllt hier eine gewisse Pufferfunktion: knapp 26% aller Betriebe, 30% des Rinderbestandes und 34% der gesamten Landwirtschaftsfläche der Alpen sind den strukturschwachen Gemeinden zuzurechnen.

Zwischen 1981 und 1991 ging der Landwirtschaftssektor zwar deutlich zurück, im Vergleich zu anderen Gebieten der Alpen fiel der Trend zum Nebenerwerb und zu extensiveren Bewirtschaftungsformen vergleichsweise geringer aus, in einigen Gebieten hat sogar eine Intensivierung stattgefunden.

Räumliche Nutzungskonflikte sind – abgesehen vom Problem der Zersiedelung – weniger häufig als in den Ballungsräumen und in den Tourismusgebieten.

Sektordominierte Entwicklungstrends spielen keine große Rolle (Trends 3, 4 und 5)

Die Gemeinden mit den oben genannten sektordominierten Entwicklungstrends (Landwirtschaft, Industrie, Dienstleistungen) umfassen 6% aller Alpengemeinden, 6% der Alpenfläche, 4% der alpinen Bevölkerung und nur 2% der Arbeitsplätze. Auch diese Gruppe war zwischen 1981 und 1991 zum Teil von deutlichen Bevölkerungs- und Arbeitsplatzverlusten gekennzeichnet. Manche der Gemeinden setzten Impulse im Tourismus, allerdings vorerst nur

mit begrenztem Erfolg. Auch hier übernimmt die Landwirtschaft zum Teil eine Pufferfunktion und schrumpft langsamer als in den weniger krisengeschüttelten Gebieten der Alpen.

Die Bedeutung der Erreichbarkeit für die raumstrukturelle Entwicklung und die Veränderung der Kulturlandschaft in den Alpen

Die Zusammenschau von Erreichbarkeit, Raumstruktur und Kulturlandschaft brachte folgende wichtige Ergebnisse:

- (1) Die geringste Erreichbarkeit in den Alpen weisen die dienstleistungs-, tourismus- und landwirtschaftsdominierten Gemeinden auf. Diese Gemeinden liegen zumeist auf großer Seehöhe. Der Rückgang der Landwirtschaft ist geringer als bei den anderen Entwicklungstrends.
- (2) Die höchsten Erreichbarkeitswerte treten bei den Industriegemeinden auf: sie liegen zumeist nahe an den großen Verkehrsträgern in Tälern und Becken.
- (3) Hohe Erreichbarkeiten weist auch der ausgeglichene Entwicklungstrend auf. In diesen Gebieten spielt die Landwirtschaft eine große Rolle, sie ist jedoch von einem starken Rückgang betroffen.
- (4) Gute Erreichbarkeit und wirtschaftliche Prosperität müssen nicht unbedingt zusammenhängen: in den Alpen weisen viele Regionen trotz guter Erreichbarkeit massive Strukturprobleme auf, umgekehrt gibt es viele prosperierende Regionen mit vergleichsweise geringer Erreichbarkeit. Die wirtschaftsstärksten Gebiete der Alpen weisen nur durchschnittliche Erreichbarkeitswerte auf.
- (4) Die Tourismusorte, der zweite Wachstumspol in den Alpen, haben aufgrund ihrer Lage und Seehöhe zumeist sehr niedrige Erreichbarkeitswerte.
- (5) Die Gebiete mit den höchsten Erreichbarkeitswerten liegen zwischen Turin und Verona. Ein auffälliges Detail: in diesem Gebiet kam es zwischen 1981 und 1991 zu einer Abnahme der Einpendler, während die Zahl der Auspendler deutlich anstieg. Man könnte daraus die Hypothese ableiten, dass strukturschwache Gebiete, die in der Nähe von prosperierenden Agglomerationen liegen, durch eine Verbesserung der Erreichbarkeit zusätzlich an Boden verlieren.
- (6) Insgesamt wird deutlich, dass die Erreichbarkeit zwar ein wichtiger Standortfaktor ist, jedoch kaum alleine ausschlaggebend für die Stärke oder Schwäche einer Region ist.

Für die zukünftige Entwicklung der Alpen unter Berücksichtigung von Erreichbarkeit, Raumstruktur und Kulturlandschaft treffen wir folgende Einschätzungen:

Gebiete mit guter Erreichbarkeit und einer gegenwärtig starken wirtschaftlichen Entwicklung sind die potentiellen zukünftigen Gewinnergebiete der Alpen

Zu diesen Regionen zählen: der Raum Salzburg, der Raum Innsbruck und das Vorarlberger Rheintal in Österreich, der Raum Rosenheim in Deutschland, in der Schweiz der Raum Luzern,

der Raum Lausanne, Das Rhonetal im Wallis und Teile des Tessins, in Frankreich die Region Chambéry-Grenoble, in Italien das Aostatal sowie der gesamte südliche Alpenrand zwischen Como und Brescia, der Raum Bozen in Südtirol und die Region Trentino.

Gebiete mit geringer Erreichbarkeit und einer schwachen wirtschaftlichen Entwicklung sind die potentiellen zukünftigen Krisengebiete der Alpen

Zu diesen Gebieten zählen der südöstliche österreichische Alpenraum mit Teilen der Steiermark, Kärntens und Osttirols, das Oberinntal und das Lechtal, in der Schweiz die südlichen Teile des Engadins, Hinterrhein und Vorderrhein; in Frankreich die ländlichen Gebiete in den gesamten Südwest-Alpen, in Italien das Veltlin und der Vinschgau sowie Seitentäler des Pustertales, in Slowenien das Mießtal und das Sočatal.

Strukturschwache Gebiete können ihre Situation durch eine Erhöhung ihrer Erreichbarkeit mittels Ausbau der (Straßen)Verkehrsinfrastruktur nur unwesentlich verbessern

Zu den strukturschwachen Gebieten mit hoher 3h Erreichbarkeit zählen: Seitentäler des Wipptales, die Region Emmental-Brienz in der Schweiz, der gesamte südwestliche italienische Alpenrand, die Täler um Domodossola sowie höher gelegene Orte am Como- und am Gardasee.

Strukturstarke Gebiete werden durch geringere Erreichbarkeiten nicht wesentlich beeinträchtigt.

Zu den strukturstarken Gebieten mit vergleichsweise geringer Erreichbarkeit zählen: der Kärntner Zentralraum, das Unterinntal, der oberösterreichische Zentralraum sowie die Regionalzentren der Alpes Provençales und der Alpes Maritimes in Frankreich.

Die Ergebnisse des Arbeitspakets 2 sind eine wichtige Ausgangsbasis für die Alpenszenarien im Arbeitspaket 4. Die Berichte zu den Pilotregionen im Arbeitspaket 2 dienen als Grundlage für die lokalen Workshops im Arbeitspaket 5. Das Arbeitspaket 6 wird bei der Erarbeitung von Verbesserungsvorschlägen für Politiken und Programme auf die Eckdaten und Trends des Arbeitspakets 2 aufbauen.

1.3 Resumée

Le WP2 est une phase de travail fondamentale de REGALP. L'analyse globale de presque 5.700 communes alpines et plus en détail de 7 régions pilotes doit aider à comprendre l'interrelation entre le développement régional et l'évolution récente des paysages « culturels » - comme un point de départ pour remettre à jour et améliorer les politiques liées au développement durable.

Les deux principales questions de recherche concernant le WP2 sont :

- Quels types de développement régional et d'évolution des paysages « culturels » peut-on distinguer ?
- De quelle manière interagissent le développement régional et les modifications des paysages « culturels » ?

Méthodologie et organisation du travail

Les questions posées ci-dessus ont été traitées en trois étapes :

- (1) La première étape consistait à classer les communes suivant la typologie de W. BÄTZING pendant différentes périodes comprises entre 1971 et 2001.
- (2) La deuxième étape devait permettre l'identification des principales « tendances de développement régional » sur la base de cette classification.
- (3) La troisième étape avait pour but l'analyse de ces principales «tendances de développement régional» en regard de ces indicateurs de changement des paysages.

Comme la typologie BÄTZING est fortement axée sur l'économie, les informations sur les évolutions des structures spatiales sont limitées. L'équipe REGALP s'est mise d'accord sur la nécessité de réaliser une analyse sur l'accessibilité pour mieux intégrer les aspects concernant le transport et la circulation dans l'interrelation développement régional et évolution des paysages. Les résultats du WP2 sont une base importante pour le WP4 (Scénarios 2020) aussi bien que pour le WP5 (la diffusion auprès des acteurs locaux).

Résultats

Entre 1971 et aujourd'hui il est possible d'identifier 6 tendances de développement régionales principales, qui peuvent être subdivisées en 9 sous-catégories comme suit :

La tendance de développement la plus importante est 'le type de développement polarisé' (1) incluant 65-80 % des communes analysées. Cette tendance est suivie par ' le type de développement équilibré ' (2) incluant 4-20 % des communes. La troisième tendance est ' le type de développement dominé par le tourisme ' (6) avec 6-9 %. Les trois autres tendances de développement réunies (où les secteurs agricoles (3), industriels - (4) et de service (5) sont dominants) n'incluent guère plus de 4-5 % des communes.

'le type de développement polarisé' contient les cinq sous-catégories suivantes :

- les communes en transition vers un développement polarisé où les migrations quotidiennes se font majoritairement vers l'extérieur (1.1) ou bien dans les deux sens (1.2). Cette catégorie inclut entre 20 et 40 % des communes
- les communes au type de développement polarisé où les migrations quotidiennes se font majoritairement vers l'extérieur (1.2) ou bien dans les deux sens (1.4) (23-46 %)
- des pôles locaux (1.5) (6-8 % des communes analysées).

Parmi ces communes, les aires urbaines et périurbaines constituent le pôle de croissance (1.2, 1.4, et 1.5), alors que les aires rurales intermédiaires (1.1 et 1.3) sans potentiel spécifique sont en proie à une crise profonde.

Concernant l'avenir de l'interrelation entre accessibilité, développement régional et changement des paysages, certaines remarques peuvent être formulées:

- Les zones très accessibles, et économiquement fortes possèdent le meilleur potentiel pour leur développement futur
- Les zones peu accessibles et économiquement faibles sont celles où les situations de crises semblent les plus probables à l'avenir.
- Les zones économiquement faibles ne peuvent pas accroître leur attractivité économique juste en améliorant leur accessibilité par des projets d'infrastructure de transport.
- Les zones économiquement fortes ne pâtiront pas nécessairement d'une mauvaise accessibilité à l'avenir.

1.4 Riassunto

1.4.1 Obiettivi del WP2

Il WP2 è il fulcro del work package di REGALP. Le analisi dei circa 5.700 comuni alpini ed in particolare delle 7 “regioni pilota” dovrebbero aiutare a trovare una nuova conoscenza dell’interrelazione tra sviluppo regionale e cambiamento del paesaggio culturale nel passato più recente – come base per aggiornamenti e politiche migliori per dirigere cambiamenti equilibrati.

Le due principali domande della ricerca riguardante il WP2 sono (v. Technical Annex, P.6):

- Quali tipi di sviluppo regionale e di cambiamenti del paesaggio culturale possono essere distinti?
- Come possono interagire lo sviluppo regionale e i cambiamenti del paesaggio culturale?

1.4.2 Metodologia e programma di lavoro

Alle domande suddette si risponderà in tre fasi successive:

- La prima fase è stata classificare i circa 5.700 comuni alpini seguendo la tipologia di W. BÄTZING in diversi periodi compresi tra il 1971 e il 2001.
- La seconda fase è stata identificare i principali “trend di sviluppo regionale” sulla base di questa classificazione.
- La terza fase è stata analizzare questi “trend di sviluppo regionale” con particolare attenzione agli indicatori per il cambiamento del paesaggio culturale.

Dato che la tipologia di BÄTZING è fortemente orientata all’aspetto economico, le informazioni circa il cambiamento delle strutture nello spazio sono limitate. Il team di REGALP ritiene che un’analisi dell’accessibilità dovrebbe essere fatta secondo una migliore integrazione degli aspetti dei trasporti e del traffico nell’ambito dell’interrelazione tra sviluppo regionale e cambiamento del paesaggio culturale.

In seguito le ipotesi generali sull’interrelazione sono state fatte per l’intero arco alpino, i partners della ricerca hanno cercato di esaminare tali ipotesi attraverso l’esempio delle 7 “regioni pilota” prescelte. Infine i risultati ottenuti nelle differenti fasi dell’analisi sono stati riassunti, e sono state tracciate le conclusioni per un ulteriore sviluppo spaziale e un cambiamento nel paesaggio culturale nelle Alpi. I risultati del WP2 sono una base importante per il WP4 (gli scenari al 2020) ed anche per il WP5 (Costruendo le politiche pubbliche: il punto di vista della popolazione locale)

1.4.3 I risultati

Tra il 1971 ed oggi abbiamo potuto identificare 6 principali trend di sviluppo regionale, i quali possono essere espressi dai 9 sub-trends seguenti.

Il più importante trend di sviluppo è lo “sviluppo controllato da località centrale” (1) comprendente il 65-80% dei comuni analizzati. Questo trend è seguito dal “trend a sviluppo in equi-

librio” (2) comprendente circa il 4-20% dei comuni. Il terzo trend è il “trend di sviluppo controllato dal turismo” (6) con 6-9%. Gli altri tre trend di sviluppo (sviluppo controllato dall’agricoltura (3), dall’industria (4) e dai servizi (5)) comprendono tutti insieme non più del 4-5% dei comuni analizzati.

Il trend “sviluppo controllato da località centrale” contiene i seguenti cinque sub-trend importanti:

- Transizione a sviluppo equilibrato dal pendolarismo variante debole (1.1) e variante forte (1.2) comprendente il 20 e il 40% dei comuni.
- Sviluppo controllato dal pendolarismo variante debole (1.3) e variante forte (1.4) (23-46%)
- Centri locali (1.5) (6-8% dei comuni analizzati).

L’interrelazione tra questi trend di sviluppo regionale e i cambiamenti del paesaggio culturale possono essere descritti come segue:

(1) Le aree urbane, sub-urbane e peri-urbane sono i centri in crescita (sub-trends 1.2, 1.4 e 1.5).

Negli ultimi 30 anni le Alpi si sono orientate verso una significativa polarizzazione dello sviluppo spaziale: i centri urbani e le aree sub-urbane forti nei fondovalle (28% di tutti i comuni alpini) sono i centri in crescita: nel 1991 il 57% della popolazione alpina e oltre il 70% del totale dei posti di lavoro nelle Alpi e il 29% dei letti turistici alpini si sono concentrati in queste regioni “boom”, le quali rappresentano solo il 23% del totale dell’area alpina.

Queste regioni contano ancora il 33% del totale degli addetti all’agricoltura, il 30% dei capi di bestiame e il 27% di tutta la superficie agricola nelle Alpi. L’agricoltura è caratterizzata da un consistente declino di popolazione, di addetti e di superficie agricola. Inoltre c’è un passaggio da aziende agricole full time a part time e un trend particolarmente significativo nell’uso estensivo della superficie agricola.

L’influenza dello sviluppo spaziale sul paesaggio culturale nelle aree centrali forti è caratterizzato da due fenomeni opposti: da un lato c’è un incremento negli interessi delle differenti utilizzazioni della superficie agricola e dei conflitti tra edilizia abitativa, trasporti e sviluppo economico, aree libere ed agricoltura. I corrispondenti cambiamenti del paesaggio possono essere osservati da un lato nelle maggiori dimensioni dei terreni nei fondovalle e dall’altro negli appezzamenti di terreno a riposo non propizi. Le coltivazioni di tipo estensivo guidano la successione naturale verso le foreste. Da diversi studi sappiamo che sia l’agricoltura intensiva sia quella estensiva possono essere entrambe causa di un declino della biodiversità con un aumento dei rischi riguardanti l’ecosistema.

(2) Le aree controllate dal turismo sono il secondo polo di crescita (sub-trends 6.1 e 6.2)

Le aree controllate dal turismo, situate a un’altitudine sul livello del mare oltre 1.000 m e comprendenti circa il 7,5% dei comuni alpini sono il secondo polo di crescita nelle Alpi. I comuni controllati dal turismo rappresentano solo il 4,6% della popolazione alpina, ma il 6,3% dei posti

di lavoro e il 39% dei letti turistici. Questi comuni comprendono circa il 15% dell'area alpina totale. Per alcuni aspetti il trend controllato dal turismo è simile alle aree urbane e sub-urbane nei fondovalle: l'incremento delle abitazioni tra il 1981 e il 1991 (33%) è il più elevato di ogni altro trend di sviluppo. Questo è dovuto anche al consistente incremento delle seconde case. Nel passato più recente il numero di abitanti, migrazioni e popolazione in età produttiva è stabile, l'incremento nella media. L'indice di pendolarismo è positivo. Inoltre la percentuale di popolazione agricola è minore che nelle aree urbane.

Il trend controllato dal turismo è l'unico fulcro delle aree turistiche in crescita nelle Alpi. Contrariamente al trend generale nelle Alpi, il numero di letti turistici è in aumento.

I comuni controllati dal turismo comprendono il 10% della superficie agricola alpina, ma solo il 5,4% dei capi di bestiame e il 5% degli addetti all'agricoltura nelle Alpi. Sembra che ci sia una certa sinergia tra il turismo e l'agricoltura: il declino degli addetti all'agricoltura è minore che negli altri trend di sviluppo, ma d'altra parte c'è un consistente passaggio da aziende agricole full time a part time e da un'utilizzazione intensiva dei prati ad una estensiva, così l'agricoltura sembra essere abbastanza stabile da un punto di vista estensivo.

L'incremento della popolazione e dei posti di lavoro, il turismo su larga scala e le infrastrutture per i trasporti, così come l'incremento nell'utilizzazione del suolo per la costruzione di abitazioni, causa una pesante pressione sul paesaggio e sui sensibili ecosistemi montani. Nel settore agricolo, possono essere osservati due trend opposti (v. REGIONAL COSULTING 2000): i terreni più favorevoli sono orientati verso coltivazioni di tipo intensivo, mentre i terreni meno favorevoli verso coltivazioni di tipo estensivo, che spesso volgono poi verso terreni a maggese e foreste. Questo generalmente è unito a una perdita di biodiversità e qualità visibili.

(3) Lo sviluppo in equilibrio (sub-trends 2.1 e 2.2)

Il trend sviluppo in equilibrio riguarda circa il 23% dei comuni alpini, questo trend comprende il 29% dell'area alpina ma soltanto il 18% del totale degli abitanti e il 12% del totale dei posti di lavoro. Nel passato più recente questi comuni sono stati caratterizzati soprattutto da un più o meno stabile sviluppo di popolazione ed economia ma circa metà dei comuni si stanno dirigendo verso un declino di popolazione e di posti di lavoro. Questo è un chiaro indicatore per quanto riguarda i problemi strutturali.

In confronto alle altre aree il turismo si sta sviluppando in modo relativamente migliore: contrariamente al trend generale dell'arco alpino il numero di letti turistici è in incremento.

I comuni del trend a sviluppo in equilibrio comprendono il 25% della superficie agricola, il 32% dei capi di bestiame e addirittura il 43% degli addetti all'agricoltura. Questo indica che l'agricoltura riveste un ruolo più importante che nelle altre aree. L'azienda agricola full time è rappresentata maggiormente rispetto ad altri trend di sviluppo. Il declino degli addetti all'agricoltura e il passaggio ad aziende agricole part time è nella media, mentre la tendenza verso l'utilizzo estensivo della superficie agricola è minore che in altri trend di sviluppo.

In confronto alle aree centrali forti e ai centri turistici, i conflitti per l'uso del suolo sembrano essere meno intensi. Gli impatti negativi sul paesaggio derivano principalmente dall'utilizzo del

suolo per le abitazioni e per l'agricoltura intensiva. Le tendenze dell'espansione urbana sono spesso supportate dalla tradizione di insediamenti di tipo sparso.

(4) Le aree rurali marginali con potenzialità specifiche si stanno orientando verso una crisi notevole.

I deboli comuni delle valli laterali, sui declivi della valle e/o i comuni con una difficile accessibilità e con una mancanza di potenzialità turistiche, sommati ai comuni dormitorio vicini ai centri urbani rappresentano circa il 36% di tutti i comuni alpini. Essi comprendono il 27% dell'area alpina ma includono solo il 15% degli abitanti, il 16% dei letti turistici e l'8% del totale dei posti di lavoro. Queste aree deboli stanno diventando sempre più dipendenti dalle regioni centrali e dalla loro assistenza economica. Il passato più recente è caratterizzato da un declino di posti di lavoro che portano a un indice di pendolarismo negativo e a un alto tasso di pendolari in uscita. Le abitazioni di residenza sono in consistente incremento. Il turismo è in declino.

In queste aree meno favorite l'agricoltura svolge ancora un ruolo di notevole importanza diversamente da altre regioni: questi comuni rappresentano il 26% degli addetti all'agricoltura, il 30% dei capi di bestiame e il 34% del totale della superficie agricola. Nel passato più recente l'utilizzo della superficie agricola è caratterizzato da due aspetti principali: da un lato la superficie agricola sta diminuendo in modo più consistente che in altre aree, dall'altro il trend verso l'uso estensivo è meno significativo che altrove, o al contrario: la superficie a prati permanenti intensivi è in aumento in altre aree. Questo trend verso l'uso estensivo della superficie agricola può essere osservato nei paesi analizzati (Francia, Slovenia).

I conflitti per l'uso del suolo sembrano essere meno intensi che nelle aree urbane forti e nelle aree suburbane. Essi dipendono principalmente dalle richieste del suolo per le abitazioni e dall'agricoltura intensiva.

(5) Trend di sviluppo controllati dai settori (agricolo, industriale o dei servizi) che non rivestono un ruolo importante.

I comuni dei trend controllati dall'agricoltura, dall'industria o dai servizi, in tutto non rappresentano più del 6% del totale dei comuni alpini. Questi comuni comprendono il 6% dell'area alpina, il 4% della popolazione e solo il 2% di tutti i posti di lavoro delle Alpi. Nel passato più recente i comuni controllati dall'agricoltura e dall'industria si sono orientati verso un consistente declino demografico e una crisi economica, mentre i comuni controllati dai servizi mostrano una crescita nella media. Nei trend controllati dall'agricoltura e dai servizi, il turismo sembra essere una nuova ma limitata alternativa. In questi due trend - similmente alle aree controllate dal turismo - sembra che ci sia una certa sinergia tra turismo e agricoltura, ridotti a un declino di addetti all'agricoltura e di superficie agricola. Anche il trend verso l'uso estensivo della superficie agricola è meno significativo che in altre regioni.

I risultati che descrivono il triangolo accessibilità – sviluppo regionale – cambiamenti del paesaggio culturale sembrano essere abbastanza plausibili.

(1) La minore accessibilità nelle Alpi si può trovare nelle aree controllate dai servizi, dal turismo ed anche da quelle controllate dall'agricoltura. Queste aree sono situate a un'elevata altitudine sul livello del mare. Il declino dell'agricoltura è minore che in altri trend di sviluppo regionale.

(2) La maggiore accessibilità si può trovare nelle aree industriali, che sono situate a una bassa altitudine sul livello del mare.

(3) Elevate accessibilità si possono osservare nei trend a sviluppo in equilibrio. Queste aree possono essere descritte da un consistente declino dell'agricoltura, sebbene quest'ultima svolga ancora un ruolo importante.

(4) Elevata accessibilità e prosperità economica non necessariamente sono collegate. Le aree con la più elevata accessibilità nelle Alpi non sono quelle con la più elevata prosperità economica. Più del 50% dei comuni del trend a sviluppo in equilibrio sono caratterizzati da una stagnazione economica o addirittura da una crisi.

(5) D'altra parte le aree economiche più forti nelle Alpi (sub-trend 1.2, 1.4 e 1.5) mostrano soltanto un'accessibilità nella media. Queste aree con accessibilità nella media registrano l'incremento più consistente della popolazione e delle migrazioni, di posti di lavoro e di pendolari in entrata e in uscita oltre che di abitazioni.

(6) Il secondo polo di forza economica nelle Alpi, il trend di sviluppo controllato dal turismo, è caratterizzato da un'accessibilità molto scarsa.

(7) Un'altra interessante scoperta: le aree con elevata accessibilità – situate nelle Alpi italiane tra Torino e Verona – sono caratterizzate da un declino di pendolari in entrata tra il 1981 e il 1991. Dunque l'ipotesi potrebbe essere: se una regione debole è ben collegata alle forti regioni vicine, l'elevato livello di accessibilità può essere ricondotto alle ulteriori perdite delle potenziali regioni interne.

(8) Dunque l'accessibilità è un importante fattore di localizzazione ma non è l'unico e il solo. Ci sono aree prospere con una scarsa accessibilità e ci sono aree molto deboli con un'accessibilità molto elevata, come mostra l'esempio delle Alpi italiane.

Per lo sviluppo futuro dell'interrelazione del triangolo accessibilità - sviluppo regionale - cambiamenti del paesaggio culturale possono essere fatte le seguenti considerazioni:

Le aree con elevata accessibilità e performance economica forte sono quelle con le più elevate potenzialità per lo sviluppo futuro.

Nelle Alpi queste aree sono: la regione di Salisburgo, la Bassa Valle dell'Inn, la regione di Innsbruck e la Valle del Reno, la regione di Rosenheim in Germania, la regione di Lucerna, la regione ad est di Losanna, la Valle del Rodano nel Vallese e la regione del Ticino in Svizzera, la regione Chambery – Grenoble in Francia, la Valle d'Aosta in Italia, il confine della regione

alpina compreso tra Como a Brescia, le zone centrali del Südtirol/Alto Adige e del Trentino in Italia.

Le aree con scarsa accessibilità e prosperità economica debole sono quelle dove le crisi future sembrano essere molto probabili.

Nelle Alpi queste aree sono: l'intera zona sud orientale dell'Austria (le principali aree di Stiria e Carinzia, esclusi i centri regionali), il Tirolo Orientale, l'Alta Valle dell'Inn e del Lech in Austria, l'area meridionale dell'Engadina, l'Interrhein e il Vorderrhein in Svizzera, le aree rurali delle Alpi Provenzali e delle Alpi Marittime in Francia, la Valtellina e la Val Venosta/Vinschgau, così come i versanti della Val Pusteria/Pustertal e infine la Valle di Mežiška e di Soča in Slovenia.

Le aree con performance economica debole non possono essere migliorate solo dall'aumento della loro accessibilità attraverso progetti riguardanti le infrastrutture dei trasporti.

Alcune tipiche aree con elevata accessibilità nel 2020 e sviluppo regionale più o meno debole nelle Alpi sono ad esempio: le Valli laterali del Wipptal, la regione dell'Emmental – Brienz, la Val Müstair, il Goms, la parte superiore della Valle del Rodano nel Canton Vallese (Svizzera), l'intera area sud occidentale delle Alpi italiane (Alpi Liguri e Cozie) con la Valle di Lanzo, la Valle del Po, la Valle Varaita, la Valle Maira, la Valle Stura, la Val d'Ossola e le aree intorno al Lago di Como e al Lago di Garda in Italia.

Le aree con performance economica forte non necessariamente soffriranno in futuro a causa della bassa accessibilità.

Alcune tipiche aree con scarsa accessibilità nel 2020 e uno sviluppo regionale più o meno forte nelle Alpi sono ad esempio: la regione centrale della Carinzia, la Bassa Valle dell'Inn, la regione centrale dell'alta Austria attorno alla Steyr, i centri locali e regionali delle Alpi Provenzali e Marittime in Francia.

I risultati raggiunti nel WP2 sono la base fondamentale per costruire lo Scenario nel WP4. Gli scenari saranno basati su differenti tipi regionali ed includeranno le previsioni dell'accessibilità nel 2020. I report regionali elaborati nel Task 2.5 sono un caposaldo importante per gli scenari regionali nel WP4 (Task 4.4) e per i workshop locali nel WP5. Nel WP3 il team di ricerca utilizzerà i risultati per la valutazione delle azioni pubbliche in regioni diverse. Infine il WP6 prende in considerazione i risultati principali come punto di partenza per proporre modifiche e strumenti alle politiche odierne.

1.5 Povzetek v slovenskem jeziku

1.5.1 Cilji delovnega paketa 2

Drugi delovni paket je usmerjen v ugotavljanje razmerja med regionalnim razvojem in spremembami kulturne krajine. Vključuje analizo približno 5.700 alpskih občin in podrobno analizo sedmih izbranih testnih območij (pilotnih regij). Spoznanja bodo služila kot podlaga za dopolnitev in izboljšanje obstoječih politik, s čimer bo zagotovljeno doseganje uravnoteženih sprememb.

V delovnem paketu 2 sta bili zastavljeni raziskovalni vprašanji:

- Katere tipe regionalnega razvoja in spremembe kulturne krajine lahko zaznamo,
- Kakšen je medsebojni vpliv regionalnega razvoja in sprememb kulturne krajine.

1.5.2 Metodologija in program dela

- Ocena in klasifikacija alpskih občin za obdobje 1971-2001 (osnova za klasifikacijo: Local development types on municipal level, Baetzing et al 1995),
- Določitev glavnega regionalnega razvojnega trenda na osnovi klasifikacije razvojnih tipov,
- Analiza glavnih regionalnih razvojnih trendov z upoštevanjem indikatorjev sprememb kulturne krajine.

Dodatno so bile opravljene še analize dostopnosti, ki so omogočile boljše razumevanje prostorskih razmerij ter medsebojnega vpliva med regionalnim razvojem in spremembami kulturne krajine. Na podlagi analize so bili opredeljeni trendi prostorskega razvoja z upoštevanjem indikatorjev kulturne krajine. Rezultati pomenijo tudi prve hipoteze o razmerju oziroma medsebojnemu vplivu med regionalnim razvojem in spremembami kulturne krajine.

1.5.3 Rezultati

Za obdobje od leta 1971 do danes je bilo identificiranih šest glavnih trendov prostorskega razvoja:

- razvojni trend **prevladujočega vpliva središča** (1) je najpomembnejši razvojni trend in je zastopan v 65-80% analiziranih skupnostih,
- trend **uravnoteženega razvoja** (2) je naslednji z zastopanostjo v 4-20% skupnosti,
- **turistični** razvojni trend (6) je tretji s 6-9%, sledijo
- **kmetijski** (3),
- **industrijski** (4) ter
- trend **prevladujočih storitvenih dejavnosti** (5), ki skupno ne zajemajo več kot 4-5% analiziranih skupnosti.

(1) Trend prevladujočega vpliva središča – urbana, sub-urbana in peri-urbana območja razvojnih središč

V zadnjih 30-ih letih je na prostoru Alp prisotna očitna polarizacija prostorskega razvoja v urbanih centrih in močnih sub-urbanih območjih v dolinskem svetu. Za vpliv prostorskega razvoja na spremembe kulturne krajine v območjih rasti sta značilna povečevanje števila različnih rab prostora in konfliktov. Spremembe kulturne krajine obsegajo predvsem združevanje zemljiških parcel v dolinskem svetu in opuščanje ter zaraščanje parcel na manj ugodnih legah. Za ta razvojni trend je značilna v povprečju stabilna demografska in ekonomska rast. Razvoj turizma vpliva na povečevanje gradnje stanovanjskih objektov. Povečanje števila stanovanjskih gradenj (za 33% med leti 1981 in 1991) je večje kot v vseh drugih trendih.

Trend prevladujočega vpliva središča lahko razdelimo na tri pod-trende:

- 1.2. Prehod na razvoj s prevladujočimi migracijami, šibka in močna varianta (vključuje od 20 do 40% skupnosti). Ta trend še vedno poteka, vendar v zmanjšanem obsegu. Šibka varianta trenda s prevladujočo migracijo (proti 'P') je bolj zastopana kot močna (proti 'PE')
- 1.3. Razvoj s prevladujočimi migracijami, šibka varianta (23-46%)
- 1.5. Lokalna središča (6-8% skupnosti). Ta se rahlo večajo.

(2) Območja s prevladujočim turizmom - sekundarni poli rasti

Območja s turističnim razvojnim trendom so v povprečju locirana na nadmorski višini nad 1.000 m. Delno je ta razvojni trend podoben trendu urbanih in sub-urbanih središč, porast stanovanjske gradnje med leti 1981 in 1991 (33%) je višji kot v drugih razvojnih trendih. Na povečanje vpliva tudi množična gradnja sekundarnih bivališč. Očiten je vpliv turizma na kmetijstvo: upadanje števila kmečkih gospodinjstev je manjše kot v drugih razvojnih trendih, opaziti je sicer veliko sprememb iz čistih v mešane kmetije in opazno opuščanje intenzivnih travnikov – kmetijstvo kot ekstenzivna panoga pa ostaja stabilno. Rast števila prebivalcev in delovnih mest, razvoj turistične in prometne infrastrukture ter povečevanje obsega stavbnih zemljišč pomenijo velik pritisk za krajino in občutljive gorske ekosisteme. V kmetijskem sektorju je opaziti dva nasprotna trenda: intenzifikacijo rabe na prednostnih območjih in opuščanje drugih zemljišč, ki vodi do zaraščanja z gozdom.

(3) Trend uravnoteženega razvoja

V preteklem obdobju je bil v teh skupnostih zabeležen bolj ali manj stabilen razvoj prebivalstva in gospodarstva, vendar pa je v skoraj polovici teh skupnosti prisotno upadanje števila prebivalcev in delovnih mest, kar jasno nakazuje strukturne probleme. V primerjavi z drugimi trendi se število turističnih postelj povečuje. Za kmetijstvo je značilna velika prisotnost čistih kmetij. Upadanje števila kmečkih gospodarstev in prehod iz čistih v mešane kmetije je povprečen, težnje po ekstenziviranju kmetijskih površin pa so prisotne manj kot v drugih razvojnih trendih. Negativni vplivi na krajino so v glavnem posledica stanovanjske gradnje in

intenzivnega kmetijstva. Težnje po širjenju poselitve – suburbanizaciji olajšuje tradicionalno razpršena oblika poselitve.

(4) Kmetijska območja brez specifičnih razvojnih potencialov, z opaznim nazadovanjem

Razvojno šibke skupnosti na težje dostopnih območjih v stranskih dolinah in na pobočjih, brez turističnih potencialov ter spalna naselja v bližini urbanih centrov - ta šibka območja postajajo vse bolj odvisna od centralnih regij in njihove gospodarske blaginje. V preteklih letih jih je zaznamovalo upadanje števila delovnih mest, kar je vodilo v negativno migracijsko razmerje in visok delež dnevnih imigrantov. Obseg stanovanjske gradnje se množično povečuje, turizem pa upada. V preteklih letih se je obseg kmetijskih zemljišč zmanjševal bolj kot v drugih trendih, ponekod pa je bila manj prisotna ekstenzifikacija kmetijskih zemljišč. Konflikti med različnimi rabami tal so manj intenzivni kot v urbanih in suburbanih območjih. Izvirajo pa predvsem iz zahtev po širjenju stanovanjske gradnje in intenzivnih kmetijskih zemljišč.

(5) Razvojni trend s prevladujočim sektorjem (kmetijstvo, industrija ali storitvene dejavnosti) brez pomembnejše vloge

Skupnosti s prevladujočim kmetijstvom, industrijo ali storitvenimi dejavnostmi so se v zadnjih desetletjih soočale z obsežnim demografskim upadanjem in gospodarskimi krizami, delež servisnih dejavnosti pa je v povprečju rasel. Turizem je alternativna dejavnost, podobno kot v turističnem razvojnem trendu, je tudi tu moč opaziti sinergijo med turizmom in kmetijstvom, ki vodi do zmanjševanja upadanja kmečkih gospodarstev in kmetijskih zemljišč, manjša je tudi ekstenzifikacija kmetijskih zemljišč.

Preglednica: Razporeditev deležev po posameznih trendih za izbrane indikatorje

	% glede na skupno število/površino na celotnem obravnavanem prostoru Alp				
	(1) Trend prevladujočega vpliva središča	(2) Območja s prevladujočim turizmom	(3) Trend uravnotežene ga razvoja	(4) Kmetijska območja	(5) Trend s prevladujočim sektorjem
delež skupnosti	28	7,5	23	36	6
površina od celotnega alpskega prostora	23	15	28	27	6
št.prebivalcev	57	4,6	18	15	4
delovna mesta	70	6,3	12	8	2
turistične postelje	29	39	/	16	/
kmečka gospodarstva	33	5	43	26	26
število glav velike živine	30	5,4	32	30	30
kmetijskih zemljišč	27	10	25	34	34

Rezultati, ki sledijo iz proučevanja razmerja v trikotniku dostopnost – regionalni razvoj – spremembe kulturne krajine so:

- Manjša dostopnost v Alpah sovпада z območji s turističnim in kmetijskim razvojnim trendom, ter razvojnim trendom s prevladujočimi servisnimi dejavnostmi, ki so tudi na višjih nadmorskih višinah. Upadanje kmetijstva je manj prisoten kot v drugih razvojnih trendih.
- Najboljša je dostopnost na industrijskih območjih, ki se nahajajo na nižjih nadmorskih višinah, večinoma v dolinskem svetu.
- Večja dostopnost se pojavlja tudi pri trendu uravnoveženega razvoja. Na območjih je prisotno veliko upadanje kmetijstva, ki pa ima še vedno pomembno vlogo med dejavnostmi.
- Visoka dostopnost ni nujno povezana z gospodarskim razvojem. V Alpah območja z največjo dostopnostjo niso hkrati tudi območja največje gospodarske uspešnosti. Več kot 50% skupnosti s trendom uravnoveženega razvoja se sooča z gospodarsko stagnacijo ali celo upadanjem.
- Območja z največjo gospodarsko rastjo v Alpah so povprečno dostopna. Imajo največjo rast števila prebivalstva in porast dnevih migracij, delovnih mest in stanovanjske gradnje.
- Sekundarni poli rasti v Alpah – območja s turističnim razvojnim trendom - imajo zelo nizko dostopnost.
- Na območju z največjo dostopnostjo – v Italijanskih Alpah med Torinom in Verono, – je značilno upadanje pod-trenda s prevladujočo migracijo, med leti 1981 in 1991. Postavlja se hipoteza, da v šibkejših regijah ob dobri prometni povezanosti s sosednjimi regijami povečevanje dostopnosti vodi do nadaljnega zmanjševanja izrabe notranjih potencialov.
- Dostopnost je pomemben lokacijski faktor, ni pa edini. Obstajajo izjeme – regije z visoko gospodarsko rastjo ter nizko dostopnostjo in obratno, kot v primeru območja med Torinom in Verono.

Spoznanja iz delovnega paketa 2 bodo služila kot podlaga za delovni paket 4. Zasnovani scenariji razvoja bodo temeljili na regionalnih razvojnih tipih in bodo vključevali napovedi dostopnosti za leto 2020. Regionalna poročila, ki so bila izdelana v delovnem paketu 2 pa bodo osnova za izdelavo regionalnih scenarijev in pripravo lokalnih delavnic, ki bodo sledile v delovnem paketu 5. Spoznanja iz delovnega paketa 2 bodo osnova za predloge prilagoditev obstoječih politik in instrumentov v končnem- šestem delovnem paketu.

2. INTRODUCTION

WP2 is a core work package of REGALP. The analysis of nearly 6.000 alpine municipalities and especially of the pilot regions should help to find a new understanding of the interrelation between regional development and cultural landscape change in the younger past – as a basis for updated and better policies to manage balanced changes in the Alps.

2.1 Aims, tasks and deliverables as it is laid down in the Technical Annex

The objectives of work package 2 are:

- To describe the interrelation between regional development and cultural landscape change in the Alps between 1970 and today
- To describe driving forces and impacts
- To select 6-10 typical pilot regions corresponding to the main development trends identified
- To create a basis for WP3, WP4, WP5 and WP6.

Work package 2 can be split up into following Tasks (T):

- T 2.1 Testing and adjusting the method
- T 2.2 Collecting and harmonising data for types and for indicators
- T 2.3 Data processing and analyses, tables, maps
- T 2.4 Selecting pilot regions
- T 2.5 Analysing pilot regions, hypotheses of the interrelation
- T 2.6 Locations of economic decision making
- T 2.7 Discussing the hypotheses in a team workshop, drawing conclusions
- T 2.8 Summarising results in a work package report, delivering report to target groups.

List of deliverable (D) in work package 2:

- D2.1 Verified and adjusted method for development types
- D2.2 Database including all data to define types and indicators
- D2.3 Tables and maps
- D2.4 List of pilot regions
- D2.5 Description of interrelations in the pilot regions, hypotheses of interrelation
- D2.6 Summarising work package report including the team's conclusion.

2.2 How to read this report

In section three we give a short description of the steps of work performed and the methodologies used. Section four contains the main outcomes and results. First we described the spatial development trends and types, then we analysed the interrelation between regional development and cultural landscape change. The main findings and hypotheses have been examined by the example of the pilot regions in chapter 4.4.

Finally the report includes the results of the accessibility analysis of the Alps (chapter 4.6) where we described the influence of transport and traffic on the interrelation between regional development and cultural landscape change.

Based on these results on the level of the Alps as a whole and of the pilot regions, the REGALP team drew final hypotheses for further spatial development and cultural landscape change in the Alps in chapter 4.7

On the last page we added the list of annexes to this work package report.

3. WORK PROGRAMME AND METHODOLOGY

In the following sub-sections 3.1-3.6 we give a short description of the steps of work performed and the methodologies used:

3.1 Task 2.1 Testing and adjusting the method

As REGIONAL CONSULTING and THE URBAN PLANNING INSTITUTE OF THE REPUBLIC OF SLOVENIA had already worked on the topic before, the team decided to follow the methodology used in previous projects (see Annexes 2 and 3 to WP2 report). This methodology is based on two pillars:

- a typology of municipalities following BÄTZING and his colleagues
- a selection of cultural landscape indicators to be combined with the different types.

In the first team meetings the research team also discussed the strengths and weaknesses of the BÄTZING typology. Finally the team decided to work with the BÄTZING typology but to make some adaptations (see Annex 1 to WP2 report).

Under Task T2.1 the team also agreed on some key words for a common understanding of the research questions. Some of these key words regarding WP2:

Regional development

Regional development is used as a shortened version of the term 'regional spatial development'. In the REGALP proposal we mentioned that we will analyse the 'change of spatial structures' and how this will influence (cultural) landscape change. So the definition of regional development leads to 'regional spatial development', which is nothing but spatial development on a local or regional level. (see Annex 1 to WP2 report). To describe this spatial development we use the typology of BÄTZING mentioned above and a specific accessibility analysis (see Annex 3 to WP2 report).

Cultural landscape

„Cultural (man-dominated) landscape is a spatial system of activity that is perceived by human beings as a unit and results from mans' interaction with what is to be found in his natural environment. Cultural (man-dominated) landscape may be regarded as stages in complex processes. They are initiated by factors and influences which may be socio-economic, cultural or related to natural space, but which are merely intermediate stages within a framework of continuous development.“ (Austrian Cultural Landscape Research Programme, 1995).

3.2 Task 2.2 Collecting and harmonising data

The analyses in WP2 are strongly based on statistical data on municipal level for the years 1971, 1981, 1991 and 2001. When working with data sets of about 20 different indicators for 4 periods and a sample of ca. 5.900 units various questions and problems occur. Indeed, the preparation and processing of data was more complicated and time consuming than expected.

On the other hand, it has been stated by different authors, that spatial development in the Alps has become more and more differentiated in the younger past. Therefore, neglecting the municipal level as well as different periods of time would have made it impossible to work out the different spatial development trends as it has been done in Task T2.3 (see Annex 2 to WP2 report).

3.2.1 Defining the project area

For defining the project area, the REGALP team combined the definitions of the alpine area from the Alpine Convention with the definition used by BÄTZING. The REGALP project area is the same as in the SUSTALP project (see Fig. 1)

3.2.2 Defining the data sets

Local development types

The typology of BÄTZING and his colleagues is mainly based on the influence of economic sectors and the commuter rate. A special focus is on tourism. The types are:

- Agricultural Communities (A)
- Industrial Communities (I)
- Service dominated Communities (D)
- Communities with Dominating II / III. Sectors (DS)
- Tourism-dominated Communities (T)
- Outbound Commuter Communities (P)
- In- and Outbound Commuter Communities (PE)
- Working centers (AZ)
- Local centers (LZ)
- Balanced Communities (G)
- Small Communities (K).

From 'local development types' to 'regional development trends'

In order to fulfill the research tasks of REGALP, the static typology of BÄTZING had to be developed further to a more dynamic approach. We called it: 'the regional development trends':

these regional development trends are based on the above BÄTZING types. How did we come to the trends? We analysed, to which type a community belonged in 1971, in 1981, in 1991 and in 2001. Some communities always belonged to the same type, others changed to other types. All communities with the same affiliation to specific types in different periods represent a regional development trend. To give an example: all communities in the Alps belonging to type A (=agricultural community) in the periods observed, belong to the regional development trend A-A (= agriculture-dominated development trend). All communities belonging to type G (= balanced communities) in the 70ies but changing to T (=touristic communities) in the 80ies and/or 90ies, belong to the regional development trend G-T (=tourism-dominated development trend).

As the availability of data was quite different in the partners' countries, the trends have been analysed in different periods (see Tab. 2). The period 1981-1991 is the central period. The main spatial development trends are based on the changes in these ten years. The periods 1971 – 1991 and 1981 – 2001 extend the analyses to the past and to the present. They were analysed separately.

Tab. 1: Periods, countries, communities

Periods	Countries	Communities classified
1981-1991	All countries	5.799
1971-1981-1991	All countries except France and Italy	2.370
1981-1991-2001	Only France and Slovenia	1.802

Source: own computations

The cultural landscape indicators

For describing cultural landscape change, we used a set of statistical data (socio-economic and land use data).

Tab. 2: Cultural landscape development indicators

Sector	Indicator
Natural conditions	<ul style="list-style-type: none"> • Average sea level • Total area
Population	<ul style="list-style-type: none"> • Inhabitants • Migration • Population in productive age (15-64)
Working places	<ul style="list-style-type: none"> • Working places • Inbound commuters • Outbound commuters
Settlements	<ul style="list-style-type: none"> • Residential buildings

Touristic development	<ul style="list-style-type: none"> • Touristic beds
Agriculture	<ul style="list-style-type: none"> • Agricultural population • Agricultural businesses • Full time businesses • Part time businesses • Cattle per farm
Agricultural and use	<ul style="list-style-type: none"> • Agricultural land • Arable land • Cropland • Intensive grassland • Extensive grassland

Source: own computations

The selection of data sets was made after several steps of proposals and feedback between RC and the partners. The partners finally ordered the data at their national statistical offices and sent the raw data to RC, where data harmonisation and processing was made. Due to several problems at the statistical offices in some countries the data collection caused a delay of several months in spring and summer 2002.

3.3 Task 2.3 Analysing data, producing tables and maps

Interrelation between regional development and cultural landscape change

The two main research questions concerning WP2 are (see Technical Annex, P.6):

- Which types of regional development and cultural landscape change can be discerned?
- How are regional development and cultural landscape change interacting?

These questions were answered within three steps:

- (1) The first step was to classify the communities in different periods between 1971 and 2001.
- (2) The second step was to identify the main 'regional development trends' on the base of this classification.
- (3) The third step was to analyse these main 'regional development trends' with regard to the indicators for cultural landscape change.

3.3.1 Describing the interrelation between regional development and cultural landscape change

Regional development and cultural landscape have been defined above. The interrelation between regional development and cultural landscape change has been analysed by combining the periodic changes of cultural landscape indicators with the different spatial development trends.

To give two examples:

- We tried to find out if and to which extent the development of working places between 1971 and 2001 differs between the agriculture dominated trend (A-A) and the tourism-dominated trend (G-T) or
- if and to which extent the development of intensive grassland between 1971 and 2001 differs between the agriculture dominated trend (A-A) and the tourism-dominated trend (G-T) etc.

We described how the main the main spatial development trends can be characterised by the cultural landscape indicators. This lead to a general overview of the main spatial development trends in the Alps, the main consequences for landscape change and the reasons (or at least hypotheses) for the interrelations identified.

The interrelation between regional development and cultural landscape change (RD/CL interrelation) has been verified by statistical methods (variance analysis). Most relations are significant, but not all.

This task has mainly been carried out by RC. The partners gave feedback to the hypotheses and conclusions drawn by RC.

Accessibility analysis of the Alps

As the BÄTZING types are strongly economy-oriented, information about the change of spatial structures are limited. The REGALP team agreed, that an accessibility analysis should be done in order to better understand the interrelation between regional development and cultural landscape change.

As Regional Consulting had already worked on the topic in previous projects, we decided to enlarge the accessibility analyses we carried out in research projects to the level of the whole Alps. The methodological approach: spatial structure of the region determines the distribution of activities in space. Activities take place at locations. The transport system makes the locations accessible. Locations with high accessibility are more attractive than less accessible ones. This is the basic land use transportation feed back cycle. Therefore accessibility is seen as important indicator describing regional development potentials. For REGALP we chose accessibility of inhabitants as an indicator for socio-economic potentials in space. We described 1h and 3h accessibility – representing different transport purposes – for 171 Nuts 3 areas of the Alps. Accessibility has been calculated by taking into account spatial distance, transport infrastructure, travel modes and impediment functions. The analysis was done for 1995 and for a future hori-

zon, where many TEN projects could already be realised: 2020. Details can be found in Annex 3 to WP2 report.

The results of the accessibility analysis have been compared with the regional development types and the cultural landscape indicators in order to better understand the interrelations in the triangle accessibility – regional development – cultural landscape change.

3.4 Task 2.4 Selecting pilot regions

In REGALP the research team intends to integrate a top down and a bottom up approach. This bottom up approach is represented by the different activities and contributions of actors in the pilot regions. Therefore the pilot regions play a crucial role in the project, also in WP2. In Task T2.3 we worked out general hypotheses about the interrelation between regional development and cultural landscape change on the level of the whole Alps. These hypotheses should be examined by deeper analyses of the pilot regions (Tasks T2.5 and T2.6).

In the REGALP Kick Off Meeting in Vienna in October 2001 the research team agreed on following criteria for the selection of pilot regions:

- all main development trends (identified by analysing the Bätzing types) have to be covered (representative areas)
- all team member states have to be covered
- relevant national institutions have to agree: the selection should take into account planning and programming activities on national and regional level
- regional actors have to be interested to co-operate with the research team: locals will only be willing to co-operate, if they can expect direct output for their own aims and activities: this has to be verified by initial talks to local and regional decision makers
- the pilot regions should be covered by EU and national subsidies like Objective 5b, Leader, Interreg and others
- the size of pilot regions should not differ too much.

In springtime 2002 the partners presented a number of potential pilot regions. In a common workshop the partners finally agreed on the selection of 6 pilot regions. Later on the Italian partners decided to add the pilot region of Piemonte, where a 'light' version of Tasks 2.5 and 2.6 have been done. In winter 2002, Regional Consulting decided to add another pilot region in the Lower Tauern, Styria. This region is analysed with the same methodology, but it does not follow the WP2 time schedule.

3.5 Tasks 2.5 and Task 2.6 Locations of economic decision making

In these two tasks all partners detailed the work performed in Task 2.3 on the level of their pilot regions. The analyses of the interrelation between regional development and cultural landscape change in the pilot region was based on one hand the outcomes of Task 2.3, where hypotheses for the whole level of the Alps were drafted. On the other hand the partners used additional information like regional development concepts and plans, project descriptions, additional data etc. The third pillar for the analyses of the pilot regions were stakeholder interviews (ca. 10 per region).

Based on this material the partners developed hypotheses about the interrelation between regional development and cultural landscape change in their pilot region and then compared their hypotheses with the hypotheses on the level of the total Alps.

3.6 Task 2.7 Discussion of hypotheses, conclusions

In this task the findings of Task 2.3 (Data processing and analysis), the main description of development trends and the interrelation to cultural landscape as well as the results of the accessibility analysis were examined by the findings of the different pilot regions (Tasks 2.5 and 2.6). This examination lead to hypotheses on further spatial development and on the interrelation with cultural landscape change in the Alps. In addition the findings and hypotheses on the level of the whole Alps as well as on the level of pilot regions were compared with the results of other recent research projects and studies).

4. RESULTS

4.1 Interrelation between regional development and cultural landscape change

4.1.1 The main spatial development trends on the level of the whole Alps

In this chapter you find three tables. The first table (Tab. 3) describes the 'central period' 1981-1991, the second table (Tab. 4) the period 1971-1981-1991 and the third table (Tab. 5) the period 1981-1991-2001. The results:

Between 1971 and today we could identify 6 main spatial development trends, which can be precised by 9 sub-trends as follows:

The most important development trend is the 'centrally dominated development trend' (1) including 65-80% of the communities analysed. This trend is followed by the 'balanced development trend' (2) including ca. 4-20% of the communities. The third trend is the 'tourism-dominated development trend' (6) with 6-9%. The three other development trends: agriculture- (3), industry- (4) and service-dominated (5) trends) altogether include not more than 4-5% of the communities analysed.

The 'centrally dominated development trend' contains the following five important sub-trends:

- Transition to commuter dominated development with a weak (1.1) and a strong variant (1.2) including between 20 and 40% of the communities
- Commuter dominated development with a weak (1.3) and a strong variant (1.4) (23-46%)
- Local centers (1.5) with 6-8% of the communities analysed.

The three different tables show following further results:

- The centrally dominated development trend becomes more and more important. Between 1981 and today more than 80% of the communities analysed belong to this category
- Also the tourism-dominated development trend is increasing from (6 to 10%)
- Balanced development is more and more disappearing (from 20% in the period 1971-1991 to 4% in the period 1981-2001)
- The three other development trends (agriculture-, industry- and service-dominated trends) are decreasing. So the main focus is on the centrally dominated development trend and his sub-trends. Further results concerning these sub-trends:
 - The transition process to commuter-dominated development is still going on, but its volume is decreasing
 - The weak variant (towards 'P') stays higher than the strong variant (towards 'PE')
 - The local centers are increasing slightly.

Tab. 3: The main spatial development trends in the period 1981-1991 (whole area of the Alps)

Trend	Sub-trend	Change of types 81-91	Frequency	%
1. Centrally dominated development	1.1 Transition to commuter-dominated development, weak variant	A-P D-P G-P I-P T-P	615	10,61
	1.2 Transition to commuter-dominated development, strong variant	A-PE D-PE G-PE I-PE T-PE	521	8,98
	1.3 Commuter dominated-development, weak variant	P-P PE-P LZ-P	1.454	25,07
	1.4 Commuter dominated-development, strong variant	PE-PE P-PE LZ/AZ-PE	764	13,18
	1.5 Local centers	LZ-LZ AZ-AZ/LZ G-LZ D-LZ P/PE-LZ T-LZ	336	5,80
2. Balanced development	2.1 Balanced development	G-G	1.071	18,47
	2.2 Transition to balanced development	A-G I-G P/PE-G AZ/LZ-G T-G	249	4,30
3. Agriculture-dominated development		A-A G-A P/PE-A	75	1,30
4. Industry-dominated development		I-I G-I P/PE-I AZ-I	106	1,83
5. Service-dominated development		D-D A-D G-D P/PE/LZ-D T-D	177	3,05
6. Tourism-dominated development	6.1 Tourism-dominated development	T-T	260	4,48
	6.2 Transition to tourism-dominated development	G-T D-T A-T I-T P/PE/AZ-T	171	2,95
TOTAL			5.799	

Source: own computations

Tab. 4: The main spatial development trends in the period 1971-1981-1991 (A, CH, D, FL, Slo)

Trend	Sub-trend	Change of types 71-91	Frequency	%
1. Centrally dominated development	1.1 Transition to commuter-dominated development, weak variant	A-G/P-P D-D/P-P G-G/P-P I-G/P-P T-T/P-P	579	24,43
	1.2 Transition to commuter-dominated development, strong variant	A-A/G-PE D-D/PE-PE G-G/PE-PE I-I/G-PE T-T/PE-PE	381	16,08
	1.3 Commuter dominated-development, weak variant	P-P-P PE/LZ-P-P	341	14,39
	1.4 Commuter dominated-development, strong variant	PE-PE-PE P-P/PE-PE LZ/AZ-X-PE	212	8,95
	1.5 Local centers	LZ-LZ-LZ AZ-AZ/LZ-LZ G-G/X-LZ I-AZ-AZ P/PE-LZ-LZ T-LZ-LZ	165	6,96
2. Balanced development	2.1 Balanced development	G-G-G	325	13,71
	2.2 Transition to balanced development	A-A/G-G I-I/G-G P-P/G-G AZ/LZ-X-G	118	4,98
3. Agriculture-dominated development		A-A-A	14	0,59
4. Industry-dominated development		I-I-I G-I-I	13	0,55
5. Service-dominated development		D-D-D G-G/D-D I-G/T-D T-D-D	72	3,04
6. Tourism-dominated development	6.1 Tourism-dominated development	T-T-T	56	2,36
	6.2 Transition to tourism-dominated development	G-G/T-T	94	3,97
TOTAL			2.370	

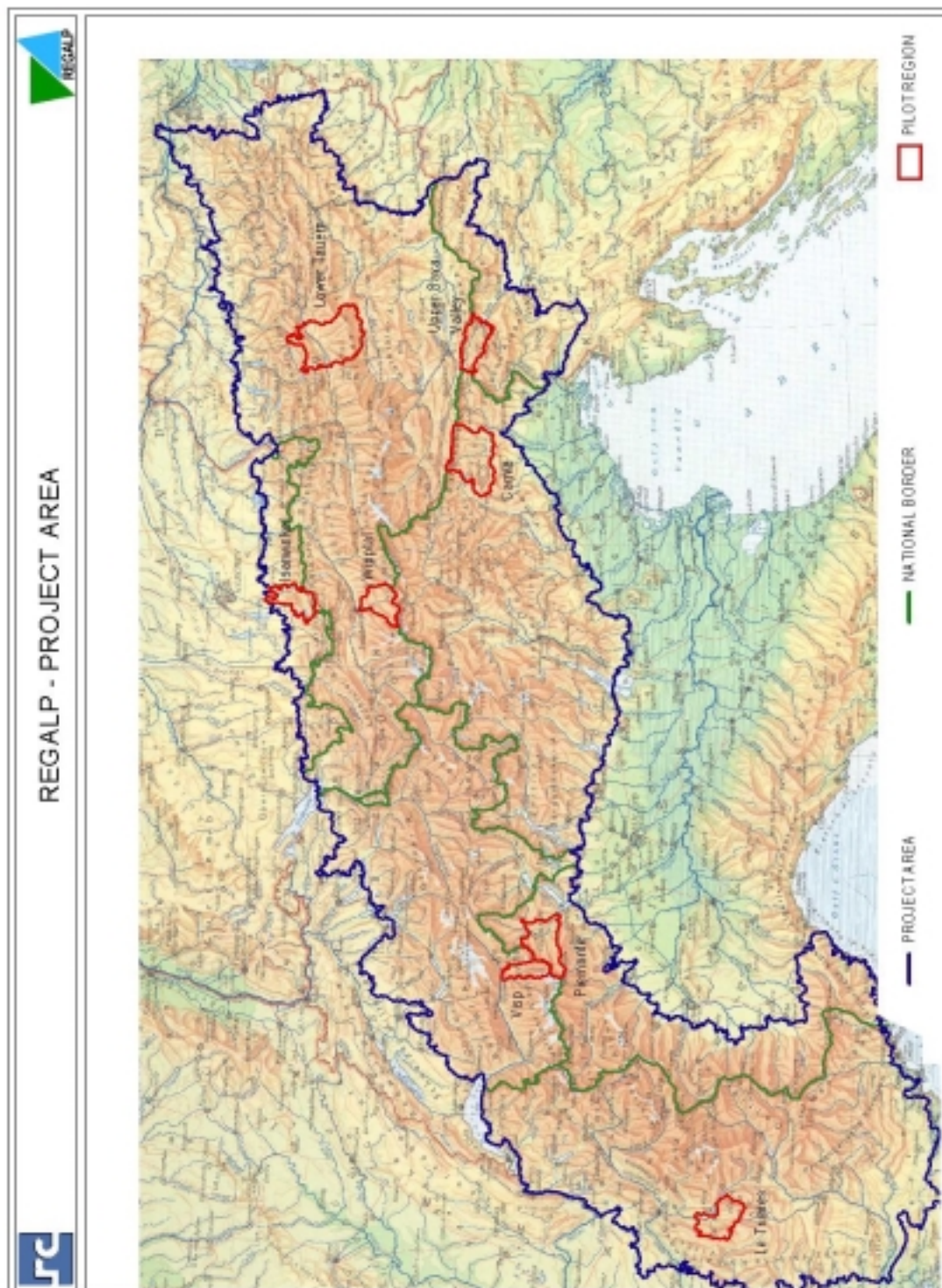
Source: own computations

Tab. 5: The main spatial development trends in the period 1981-1991-2001 (only F, Slo)

Trend	Sub-trend	Change of types 81-01	Frequency	%
1. Centrally dominated development	1.1 Transition to commuter-dominated development, weak variant	A-G/P-P D-D/P-P G-G/P-P I-I-P T-T/P-P	258	14,32
	1.2 Transition to commuter-dominated development, strong variant	A-A/P-PE D-D/P-PE G-G/PE-PE I-G/PE-PE T-T/PE-PE	241	13,38
	1.3 Commuter dominated-development, weak variant	P-P-P PE PE/P-P	564	31,30
	1.4 Commuter dominated-development, strong variant	PE-PE-PE P-P/PE-PE	260	14,43
	1.5 Local centers	LZ-LZ-LZ AZ-AZ/LZ-LZ D-LZ-LZ G-LZ-LZ I-I-AZ P/PE-PE -LZ T-LZ-LZ	154	8,55
2. Balanced development	2.1 Balanced development	G-G-G	29	1,61
	2.2 Transition to balanced development	A-A/G-G I-I/G-G P-P/G-G	48	2,66
3. Agriculture-dominated development		A-A-A G/PE-A-A	14	0,78
4. Industry-dominated development		I-I-I A-A/P-I	5	0,28
5. Service-dominated development		D-D-D A-P/D-D G-G/D-D P/PE-P-D T-T/D-D	51	2,83
6. Tourism-dominated development	6.1 Tourism-dominated development	T-T-T	109	6,05
	6.2 Transition to tourism-dominated development	G-G/T-T D-D/T-T I-T-T P/PE-P/T-T	69	3,83
TOTAL			1.802	

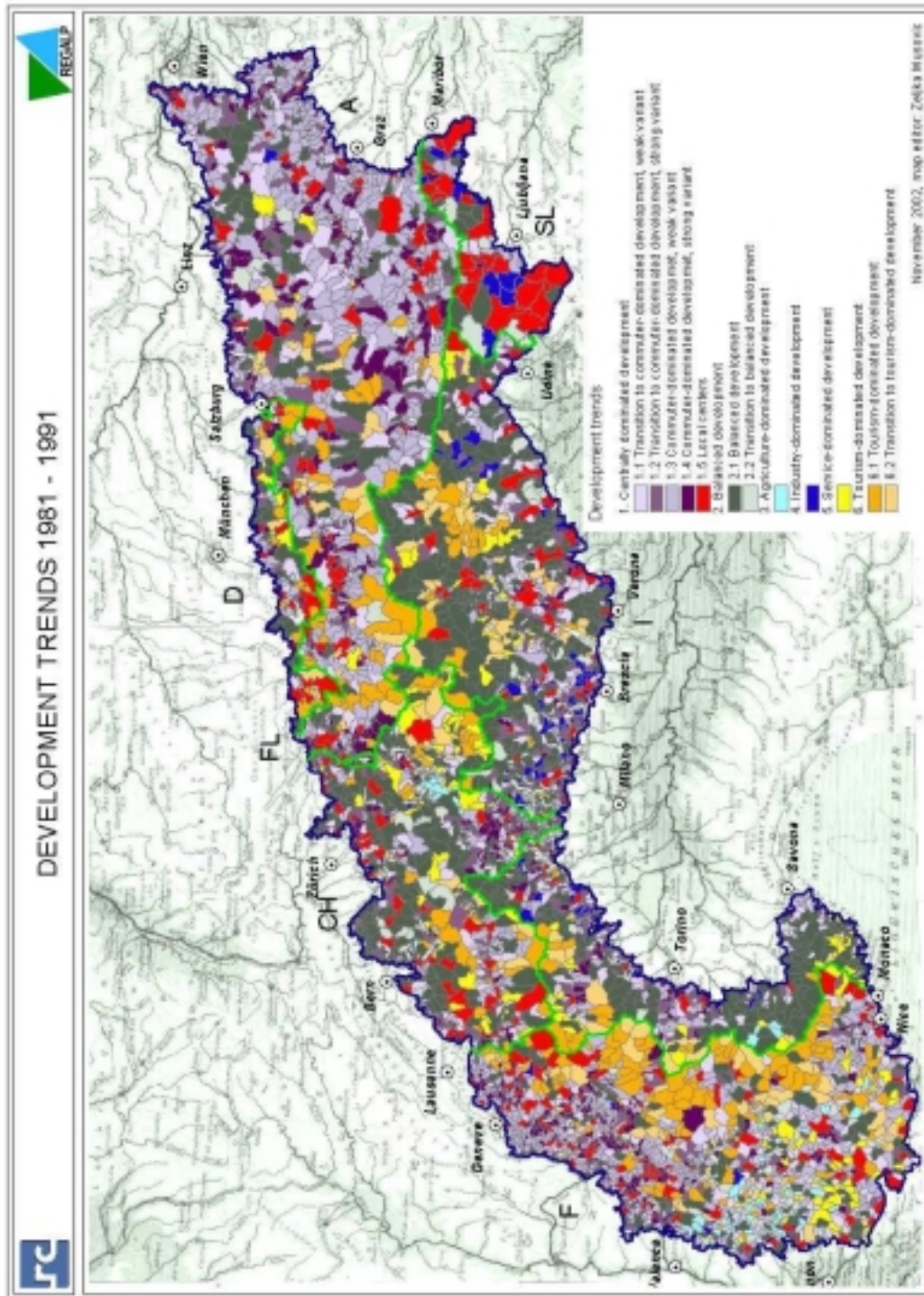
Source: own computations

Fig. 1: Project area and pilot regions



Source: own computations

Fig. 2: The main spatial development trends 1981-1991



Source: own computations

4.2 Description of development trends

Based on the analyses of the above tables, we tried to characterise the spatial development trends with regard to cultural landscape indicators.

4.2.1 The centrally influenced development trend

The centrally influenced development trend describes the areas of demographic and economic growth. Also tourism plays an important role, whereas agriculture is in a general decline. As there are 5 relevant sub-trends, the conclusions and hypotheses are drawn on the level of these sub-trends. To make the situation clearer we structured the sub-trends in groups. First:

- The transition-trend (sub-trends 1.1 and 1.2)
- The commuter-dominated trend (sub-trend 1.3 and 1.4).

Then we looked mainly on the aspects 'weak' (towards 'P') and 'strong' (towards 'PE') by grouping:

- The strong variant (sub-trends 1.1 and 1.3)
- The weak variant (sub-trend 1.2 and 1.4).

Sub-trend 1.5, the local centers, was analysed separately.

4.2.2 The transition to the commuter-dominated development trend

The transition to commuter-dominated trend contains sub-trends 1.1 and 1.2. It includes 20-41% of all communities.

Average sea level

The communities belonging to the transition to commuter-dominated trend are on an average sea level between 545 and 726 m.

Population

Inhabitants, migration and population in productive age are increasing at average between 1981 and 1991, but below the commuter-dominated trend.

Economy

Sub-trend 1.1 shows a decrease of working places in all periods analysed, whereas sub-trend 1.2 is characterised by an increase below average. The commuter balance is negative, the negative commuter ratio is increasing above average.

Settlements

In the period 1981-1991 residential buildings are increasing below average.

Tourism

Tourism is facing a decline between 1981 and 1991 and also in the period between 1971 and 1991. Between 1981 and 2001 (F, Slo) touristic beds are increasing.

Agriculture

The %age of agricultural population is above average in 1991. In all three periods also the decline of agricultural population is above average. The decrease of agricultural businesses is at average. The %age of full time farming is below average in 1991, the shift from full time to part time farming is above average in all periods. The number of cattle per farm is slightly above average 1991, there is an average growth between 1971 and 1991, slightly above average between 1981 and 2001.

Agricultural land use

The decrease of agricultural land between 1981 and 1991 is significant and above average, there is a shift from arable land to grassland, to intensive as to extensive. The trend to extensification is less significant than in other sub-trends. In the period between 1981 and 2001 the tendency to extensification is increasing.

Summary

The transition to commuter-dominated development trend can be characterised by average demographic and economic growth. The commuter ratio is negative and increasing. The growth of residential buildings is below average. Tourism plays a certain role, but the number of beds is decreasing. Agriculture is still more important than in other sub-trends, but faces a significant decline of population, businesses and agricultural land. The shift from full time to part time farming is above average, the trend to extensification is less significant than in other sub-trends.

4.2.3 The commuter-dominated development trend

The commuter-dominated trend contains sub-trends 1.3 and 1.4. It includes 23-46% of all communities.

Average sea level

The communities belonging to the commuter-dominated trend are on an average sea level between 260 and 564 m. The average altitude is below the transition trend.

Population

Between 1981 and 1991 the weak variant shows strongly increasing inhabitants, migration and population in productive age. The increase is generally above the transition trend.

Economy

In the period between 1981 and 1991 working places are increasing above average and above the transition trend. The commuter balance is negative in all periods, the negative commuter ratio is lower than in the transition trend.

Settlements

Residential buildings are increasing massively, the increase is above the transition trend.

Tourism

The number of touristic beds is high, but there is a permanent decrease in all periods. The decrease is higher than in the transition trend.

Agriculture

The %age of agricultural population is below average, the decrease between 1981 and 1991 is similar to the transition trend. The decrease of agricultural businesses is at average, again similar to the transition trend. The %age of full time farming is at average, higher than in the transition trend, the shift from full time to part time farming between 1981 and 1991 is lower than in the transition trend. The number of cattle per farm is slightly above average in 1991, increase between 1981 and 1991 is at average. There is no significant difference to the transition trend.

Agricultural land use

Between 1981 and 1991 agricultural land is decreasing stronger than in any other trend. The decline of arable land and cropland is at average, similar to the transition trend. There is a significant shift to extensive grassland in this period. This trend continues between 1981 and 2001 (F, Slo).

Summary

The commuter-dominated development trend can be characterised by increasing demographic and economic growth. Together with the local centers, the commuter-dominated trend represents the strong areas in the Alps. The commuter ratio is negative and increasing, in addition a massive growth of residential buildings can be observed. Tourism plays a certain role, but the

number of beds is decreasing. Agriculture is characterised by a strong decline of population, businesses and agricultural land. The shift from full time to part time farming is below the transition trend, in addition a significant trend to extensification can be observed.

4.2.4 The strong variant

The strong variant is the sum of sub-trends 1.2 and 1.4. It includes 22-28% of all communities.

Average sea level

The communities belonging to the strong variant are on an average sea level between 496 and 545 m. Besides the local centres these are the lowest altitudes of all sub-trends.

Population

Between 1981 and 1991 the weak variant shows strongly increasing inhabitants, migration and population in productive age. The increase is generally above the weak variant.

Economy

Between 1981 and 1991 working places are increasing massively, besides the local centers the strong variant is the focus of economic growth. The commuter balance is mostly negative, the negative commuter ratio is increasing.

Settlements

Residential buildings are increasing massively in the period 1981-1991, similar to the strong variant.

Tourism

The number of touristic beds is high, but there is a permanent decline between 1981 and 1991. In the period 1981-2001 there is an increase of touristic beds. The situation in tourism is similar to the weak variant.

Agriculture

The %age of agricultural population is below average, the decrease is average and below the weak variant. The relative decrease of agricultural businesses is higher than in the weak variant, the absolute decrease between 1981 and 1991 is higher, too.

The %age of full time farming is lower than in the weak variant, the shift from full time to part time farming is similar. The number of cattle per farm is above average in 1991, between 1981 and 1991 an average growth can be stated. The growth is above the rates of the weak variant.

Agricultural land use

The decrease of agricultural land is at average, arable land and cropland are decreasing below average, there is a decrease of intensive and an increase of extensive grassland. In the period between 1981 and 2001 (F, Slo) the decrease of agricultural land continues, in addition there is a massive shift to extensive grassland.

Comparison between the weak and strong variant: absolute decrease of agricultural land is higher in the weak variant, between 1991 and 1991 there is a certain trend to intensification in the weak variant, this could not be observed in the strong variant, where a massive trend to extensification can be stated.

Summary

The strong variant can be characterised by increasing demographic and economic growth. Together with the local centers, the strong variant stands for 'booming areas'. The commuter ratio is negative and increasing, in addition a massive growth of residential buildings can be stated. Tourism plays a certain role, but the number of beds is decreasing (except 1981-2001, F, Slo: increase). Agriculture is characterised by a strong decline of population, businesses and agricultural land. In addition there is a shift from full time to part time farming and a significant trend to extensification.

4.2.5 The weak variant

The weak variant is the sum of sub-trends 1.1 and 1.3. It includes ca. 36-46% of all communities analysed. The weak variant therefore is bigger than the strong variant.

Average sea level

The average sea level is between 657 and 726 m. The weak variant is located on higher altitude than the strong variant and the local centers.

Population

Between 1981 and 1991 the weak variant shows strongly increasing inhabitants, migration and population in productive age. The increase is generally below the strong variant.

Economy

Between 1981 and 1991 working places are decreasing, in both other periods they are decreasing only in sub-trend 1.1. Commuter balance is always negative, also commuter ratio is decreasing strongly in all periods.

Settlements

Residential buildings are increasing massively in the period 1981-1991, similar to the strong variant.

Tourism

The number of touristic beds is high, but there is a permanent decline between 1981 and 1991. In both other periods there is an increase of touristic beds in sub-trend 1.1. The situation in tourism is similar to the strong variant.

Agriculture

The %age of agricultural population is higher than in many other trends. Between 1981 and 1991 the decline of agricultural population is above average, it is also higher than in the strong variant. This tendency continues also in the 90ies (F, Slo).

The decrease of agricultural businesses is below average and also below the strong variant, in the other periods the decrease is above the strong variant.

The %tage of full time farming is higher than in the strong variant, the shift from full time to part time farming is above average, similar to the strong variant.

The number as well as the increase of cattle per farm is at average between 1981 and 1991, but below the strong variant.

Agricultural land use

Between 1981 and 1991 agricultural land is decreasing more than in any other category, cropland and intensive grassland are increasing, extensive grassland is decreasing. This tendency can be stated also for the period 1971-1991. Between 1981 and 2001 (F, Slo) there is an increase of agricultural land above average, mainly due to the massive increase of extenisve grassland.

Comparison between the weak and strong variant: absolute decrease of agricultural land is higher in the weak variant, between 1981 and 1991 there is a certain trend to intensification in the weak variant, this could not be observed in the strong variant.

Summary

The weak variant can be characterised by increasing population but a weak economic development. The decline of working places leads to a negative commuter balance and a high rate of out-commuters. Nevertheless residential buildings are increasing massively. Tourism is an important economic sector but generally in decline. The importance of the agricultural sector is still higher than in many other trends. Between 1981 and 1991 agricultural land use does not follow the general trend towards extensification, but in the 90ies (F, Slo) extensification can be observed, too.

4.2.6 The local centers

The local centers include ca. 6-8,5% of all communities analysed.

Average sea level

The average sea level is the lowest of all trends, it is 483 m.

Population

Between 1981 and 1991, inhabitants, migration and population in productive age are increasing more than in any other trend. In the period 1981 – 2001 (F, Slo) the centers are still growing, but less than the commuter-dominated development trend.

Economy

In all three periods, the working places are increasing massively, the commuter balance is positive. Between 1981 and 1991 the commuter ratio is negative, but in both other periods it remains positive.

Settlements

Residential buildings are increasing more than in any other trend.

Tourism

After the tourism-dominated development trend, the local centers have more touristic beds than any other trends. In the periods analysed there is a permanent decline of touristic beds.

Agriculture

Between 1981 and 1991 a strong decline of agricultural population and businesses can be stated. This trend continues in the 90ies (F, Slo). The %age of full time farms is average, the shift from part time to full time farming is against the general trend. The number as well as the increase of cattle per farm is below average between 1981 and 1991.

Agricultural land use

The %age of arable land is above average, there is a strong shift from arable land and intensive grassland to extensive grassland between 1981 and 1991. This tendency continues in the 90ies. So a general extensification trend can be stated.

Summary

The local centers are the centers of growth (of population, working places, settlements). Tourism is still important, agriculture is facing massive declines and a trend to extensification.

4.2.7 The balanced development trend

Besides the centrally dominated development trend the tourism-dominated trend is the most important spatial development trend in the Alps including 18-23% of all communities. In the 90ies (F, Slo) this %age decreases to 4,2%.

Average sea level

The average altitude of communities belonging to the balanced development trend is between 657 and 737 m above sea level.

Population

Between 1981 and 1991 inhabitants, migration and population in productive age are increasing at average, in general sub-trend 2.1 (balanced) is developing better than sub-trend 2.2 (transition towards balanced).

Economy

Working places show a slight growth in sub-trend 2.1, whereas sub-trend 2.2 is affected by losses. Commuter balance is positive until 1981, already negative in 1991. Commuter ratio is negative 1991, but positive in 2001 (F, Slo).

Settlements

Between 1981 and 1991 the increase of residential buildings is lower than in all other trends.

Tourism

In all three periods touristic beds are increasing. The situation is better than in other development trends. The growth continues also in the 90ies (F, Slo).

Agriculture

Between 1981 and 1991 a strong decline of agricultural population and businesses can be stated. The %age of full time farming is above average, the shift from full time to part time farming is at average. Also the number as well as the increase of cattle per farm is at average between 1981 and 1991.

Agricultural land use

Between 1981 and 1991 the decrease of agricultural land is lower than in other trends as far as sub-trend 2.1 is concerned, whereas sub-trend 2.2 shows a decline above average. The other periods show similar results. The shift from arable land to grassland is below average, also the shift towards extensive grassland is lower than in other trends.

Summary

The balanced trend is characterised by a stable but not spectacular development of population and economy, sub-trend 2.1 is generally developing better than sub-trend 2.2. Residential buildings are increasing less than in other trends, in tourism there is a slight but stable growth. Agriculture faces strong declines, the shift to part time farming is at average, whereas the tendency towards extensification of agricultural land is lower than in other development trends.

4.2.8 The agriculture-dominated development trend

The agriculture-dominated development trend includes ca. 0,6-1,3% of all communities analysed.

Average sea level

The average altitude of communities belonging to the agriculture-dominated development trend is 884 m above sea level. After the tourism-dominated trend this is the highest average sea level.

Population

Between 1981 and 1991 inhabitants, migration and population in productive age show a decline, this decline can be stated also in both other periods analysed.

Economy

In all three periods working places are decreasing, the commuter balance is negative and the commuter ratio is negative, too.

Settlements

The increase of residential buildings is below all other development trends.

Tourism

Touristic beds are increasing between 1981 and 1991, this trend continues also in the 90ies (F, Slo).

Agriculture

The decrease of agricultural population and businesses is lower than in all other trends, between 1981 and 2001 even a growth can be observed (F, Slo). The %age of full time farms is higher than in all other trends, the shift from full time to part time between 1981 and 1991 is average. In the period 1981-2001 a shift from part time to full time farming can be observed. The number of cattle per farm is far above average in 1991, the increase of cattle per farm is above average in all periods.

Agricultural land use

Between 1981 and 1991 the decrease of agricultural land is at average, there is a decrease mainly in grassland, not in arable land. In this period there is a shift from intensive grassland to the other categories, also to arable land. In the 90ies, the shift is mainly towards extensive grassland.

Summary

The agriculture-dominated development trend is characterised by a decline of population and economy. Tourism seems to be a (limited) alternative. Agriculture is more intensive than in other trends but the trend towards extensification can be observed, too.

4.2.9 The industry-dominated development trend

The industry-dominated development trend includes ca. 0,5 - 1,8% of all communities analysed.

Average sea level

The average altitude of communities belonging to the industry-dominated development trend is 560 m above sea level. Compared to the other development trends, this is quite low.

Population

Between 1981 and 1991 inhabitants, migration and population in productive age show a decline, in the 90ies there is an average increase (F, Slo).

Economy

Working places show a slight increase between 1981 and 1991. In both other periods analysed a decline of working places can be observed. The commuter balance is slightly positive in 1981 and 1991, the commuter ratio shows a strong decline.

Settlements

Between 1981 and 1991 residential buildings are increasing below average.

Tourism

Touristic beds are increasing in all periods analysed. It seems that there is a new but limited orientation from production towards touristic services.

Agriculture

Between 1981 and 1991 agricultural population and businesses are declining above average. Against the general trend there is a shift from part time to full time farming. The number of cattle per farm as well as the increase of cattle per farm is far below average in all periods analysed.

Agricultural land use

The decline of agricultural land between 1981 and 1991 and also in the other periods analysed is far above average in all categories. Against the general trend there is a shift from grassland to arable land. In the 90ies (F, Slo) a shift from arable and intensive grassland towards extensive grassland can be observed.

Summary

The industry-dominated development trend is characterised by a decline of population and economy. Tourism seems to be a (limited) alternative. Agriculture does not play an important role and shows a strong decline.

4.2.10 The service-dominated development trend

The service-dominated development trend includes ca. 3% of all communities analysed.

Average sea level

The average altitude of communities belonging to the service-dominated development trend is 781 m above sea level. After the tourism- and the agriculture-dominated trend this is the highest average sea level.

Population

All three indicators: inhabitants, migration and population in productive age show a stable average growth.

Economy

Working places show an average growth in all three periods analysed. Commuter balance was positive in 1981 and 1991, the decrease of commuter ratio in this period was on the average.

Settlements

Residential buildings were increasing at average.

Tourism

Touristic beds increased slightly between 1981 and 1991, in the other periods observed there is a decline.

Agriculture

Agricultural population and businesses are decreasing at average. The shift from full time to part time farming is below average, the number of cattle per farm is above average in 1991, the increase of cattle per farm is above average in all periods analysed.

Agricultural land use

The %age of arable land and cropland (together 33,5%) is higher than in all other development trends. The decrease of agricultural land between 1981 and 1991 is at average. There is a decline in all categories except arable land, where even an increase can be observed. Whereas there is a shift from grassland to arable land and cropland between 1981 and 1991, there is a massive shift from all categories to extensive grassland in the period 1981-2001 (F, Slo). It seems that the phenomenon of extensification comes later than in other development trends.

Summary

The service-dominated development trend is characterised by stable average demographic and economic growth. The decline of agricultural businesses is at average. There is no wide extensification trend to be stated between 1981 and 1991, whereas in the 90ies extensification becomes more important (F, Slo).

4.2.11 The tourism-dominated development trend

Besides the centrally dominated and the balanced development trend the tourism-dominated trend is the most important spatial development trend in the Alps with 6-9% of all communities.

Average sea level

The average sea level of the communities belonging to the tourism-dominated trend is between 1.000 and 1.150m. This is the highest level of all trends identified.

Population

All three indicators: inhabitants, migration and population in productive age show a stable average growth. In general sub-trend 6.1 (the older touristic communities) is developing better than sub-trend 6.2 (the communities in transition towards tourism).

Economy

The increase of working places between 1981 and 1991 is below average. Sub-trend 6.1 is developing better than sub-trend 6.2. The commuter balance is positive in 1981 and 1991, the ratio is decreasing. Also here, sub-trend 6.1 is developing better than sub-trend 6.2.

Settlements

The increase of residential buildings between 1981 and 1991 is 33%. No other sub-trend has similar growth rates. The strong increase continues also in the 90ies (F, Slo).

Tourism

As it can be expected, the increase of touristic beds between 1981 and 1991 is higher than in all other sub-trends. This trend continues also in the 90ies (F, Slo).

Agriculture

The %age of agricultural population is nearly as low as in the centrally dominated trend. The decrease of agricultural population in sub-trend 6.2 is higher than in sub-trend 6.1.

The decrease of agricultural businesses is below average. Between 1981 and 1991 there is a strong shift from full time to part time farming. The number of cattle per farm is below average in 1991, the growth rates are at average.

Agricultural land use

Because of the high altitude, agricultural land is mainly dominated by grassland (90%). Arable land is between 5-7%.

The decrease of agricultural land between 1981 and 1991 is below average, arable land and cropland is decreasing above average, whereas grassland (mainly extensive) is increasing. This indicates extensification.

In the period 1981-2001 (F, Slo) there is an increase of agricultural land due to extensive grassland, all other categories are declining: the extensification process continues and is even increasing.

Summary

The tourism-dominated development trend is characterised by stable average demographic and economic growth. Tourism development leads to a high increase of residential buildings. The decline of agricultural businesses is lower than in other development trends, it seems that there is a link between tourism and agriculture leading to a strong shift from full time to part time farming and from intensive to extensive use of grassland.

4.3 Summarizing hypotheses about the interrelation between regional development and cultural landscape change in the Alps

Tab. 6: Indicators 1981-1991, total Alps

Indicator	1981	1991	1981-1991	81-91 in %
Population				
Inhabitants	11.117.956	11.676.897	558.941	5,03
%tage of communities with decline of inhabitants between 81 and 91		32%		
Migration			408.875	3,68
Population in productive age	7.179.613	7.640.406	460.793	6,42
Population in productive age in %				
Working places				
Working places	2.733.419	2.994.049	210.630	7,71
%tage of communities with decline of working places between 81 and 91		46%		
Commuter balance (in minus out)	56.654	-415.473	-472.127	
Commuter ratio	1,23	-8,29	-9,52 ¹⁾	
Settlements				
Residential buildings	3.992.644	4.627.383	634.739	15,90
Tourism				
Touristic beds	2.869.609	2.836.102	-33.507	-1,17
Agriculture				
Agricultural businesses	586.523	502.758	-83.765	-14,28
Full time agricultural businesses	220.571	177.173	-43.398	-19,68
Part time agricultural businesses	351.989	315.339	-36.650	-10,41
%tage of full time businesses	37,61%	35,24%		-2,31
%tage of part time businesses	60,01%	62,72%		2,71
Cattle per farm	14	17	4	26,28
Agricultural land use				
Total agricultural land (ha)	3.873.435	3.701.168	-172.267	-4,45
Arable land	701.619	615.136	-86.483	-12,33
Permanent crops	167.787	162.244	-5.543	-3,30
Intensive grassland ²⁾	850.330	837.822	-12.508	-1,47
Extensive grassland ²⁾	1.687.337	1.672.671	-14.666	-0,87
%tage of arable land	18,11%	16,62%		-1,49
%tage of permanent crops	4,33%	4,38%		0,05
%tage of intensive grassland ²⁾	26,49%	26,89%		0,40
%tage of extensive grassland ²⁾	52,55%	53,68%		1,13

¹⁾ = change of ratio of commuter balance (in-commuters minus out-commuters) in % of employed persons between 1981 and 1991

²⁾ without Italy and Slovenia

Source: own computations

(1) Urban as well as the sub-and peri-urban areas are the centers of growth (sub-trends 1.2, 1.4 and 1.5)

In the last 30 years the Alps are facing a significant polarisation of spatial development: urban centers and strong sub-urban areas in the valley floors (28% of all alpine communities) are the centers of growth: in 1991 57% of the alpine population and more than 70% of all alpine working places and 29% of all touristic beds are concentrated in these booming regions, which represent only 23% of the total alpine area.

These regions still contain 33% of all agricultural businesses, 30% of all cattle and 27% of all agricultural land in the Alps. Agriculture is characterised by a strong decline of population, businesses and agricultural land. In addition there is a shift from full time to part time farming and a significant trend to extensification of agricultural land use.

The influence of spatial development on cultural landscape in strong central areas is characterised by two opposite phenomena: on one hand there is an increase of various land use interests and conflicts between housing, transport and economic development, leisure areas and agriculture. The corresponding landscape change can be observed on the one hand in larger parcel sizes in the valley floors and on the other hand in the lying fallow of unfavourable parcels. The extensification leads to natural succession towards forest. From various studies we know that intensification as well as extensification both can cause a decline of biodiversity with increasing risks for the ecosystems concerned.

(2) Tourism-dominated areas are the second pole of growth (sub-trends 6.1 and 6.2)

The tourism-dominated areas, located on an average sea level of more than 1.000 m and including ca. 7,5% of the alpine communities are the second pole of growth in the Alps. The tourism-dominated communities represent only 4,6% of the alpine population, but 6,3% of all working places and 39% of all touristic beds. These communities cover about 15% of the total Alpine area. In some aspects the tourism-dominated trend is similar to urban and sub-urban areas in the valley floors: the increase of residential buildings between 1981 and 1991 (33%) is higher than in any other development trend. This is also due to the massive increase of second homes. In the younger past, the numbers of inhabitants, migration and people in productive age are showing a stable, average growth. The commuter balance is positive. In addition, the share of agricultural population is as low as in urban areas.

The tourism-dominated trend is the only backbone of touristic growth in the Alps. Opposite to the general trend in the Alps, touristic beds are still increasing.

The tourism-dominated communities contain 10% of the alpine agricultural land, but only 5,4% of cattle and 5% of all agricultural businesses in the Alps. It seems that there are certain synergies between tourism and agriculture: the decline of agricultural businesses is lower than in other development trends, on the other hand there is a strong shift from full time to part time farming and from intensive to extensive use of grassland, so agriculture seems to be quite stable on an extensified level.

Increasing population and working places, large scale touristic and transport infrastructure as well as increasing land consumption for residential buildings cause heavy pressure on landscape and sensible mountain ecosystems. In the agricultural sector, the two opposite trends can be observed (see REGIONAL CONSULTING 2000): favoured sites are facing intensification, whereas less favoured sites

are intensified, often turn to fallow land and forests. This is often combined with a loss of biodiversity and visual quality.

(3) The stagnating balance (Sub-trends 2.1 and 2.2)

The balanced development trend represents about 23% of alpine communities, this trend covers 29% of the alpine area but only 18% of all inhabitants and 12% of all working places. In the younger past these communities can be characterised all in all by a more or less stable development of population and economy, but nearly half of the communities are facing a decline of population and working places. This is a clear indicator for structural problems. Compared to other areas tourism is developing relatively better: opposite to the general alpine trend the number of touristic beds is increasing.

The communities of the balanced development trend include 25% of agricultural land, 32% of cattle and even 43% of all agricultural businesses. This indicates that agriculture still plays a more important role than in other areas. Full time farming is more represented than in other development trends. The decline of agricultural businesses and the shift to part time farming is at average, whereas the tendency towards extensification of agricultural land is lower than in other development trends.

Compared to the strong central areas and the touristic centers, land use conflicts seem to be less intensive. Negative impacts on landscape mainly result from land consumption for housing and from intensive agriculture. Tendencies of urban sprawl are often supported by traditionally scattered settlement structures.

(4) Rural areas 'in between' without specific potentials are facing a remarkable crisis (sub-trends 1.1 and 1.3)

Weak communities in side valleys, on valley slopes and/or communities with bad accessibility and lacking touristic potential, in addition dormitory communities near urban centers are representing about 36% of all alpine communities. They cover 27% of the alpine area but include only 15% of all inhabitants, 16% of all touristic beds and 8% of all working places. These weak areas become more and more dependent on the central regions and their economic welfare. The younger past is characterised by a decline of working places leading to a negative commuter balance and a high rate of out-commuters. Residential buildings are increasing massively. Also tourism is in decline.

In these less favoured areas agriculture is playing a more important role than in other regions: these communities represent 26% of all agricultural businesses, 30% of all cattle and 34% of all agricultural land. In the younger past agricultural land use is characterised by two main aspects: on one hand agricultural land is decreasing stronger than in other areas, on the other hand, the trend towards extensification is less significant than elsewhere, on the contrary: intensive grassland is increasing in some areas. Later on in the 90ies trends towards extensification can be observed in the countries analysed (France, Slovenia).

Land use conflicts seem to be less intensive than in the strong urban and suburban areas. They arise mainly from land requirements for housing and intensive agriculture.

(5) Sector-dominated development trends (agricultural, industrial or service) do not play an important role (sub-trends 3, 4 and 5)

The communities of the agriculture-, industry- or service-dominated trends all in all do not represent more than 6% of all alpine communities. These communities include 6% of the alpine area, 4% of the alpine population and only 2% of all alpine working places. In the younger past the agriculture-, and industry-dominated communities are facing a massive demographic decline and economic crisis, whereas the service-dominated communities show an average growth. In the agriculture- and the service-dominated trends, tourism seems to be a new, but limited alternative. In these two trends – similar to the tourism-dominated areas – it seems that there is a certain synergy between tourism and agriculture leading to a reduced decline of agricultural businesses and agricultural land. Also the trend towards extensification of agricultural land use is less significant than in other regions.

4.4 Examination of the hypotheses by the example of the pilot regions

In the pilot regions the research team tried to verify and to detail the main findings of the analysis on the level of the whole Alps. The detailed results of the pilot region analyses can be found in the 'Regional Reports' (Annexes 5.1 to 5.7 to WP2 report). Table 7 shows the pilot regions' key data.

Tab. 7: Main characteristics of pilot regions

Pilot region, country	No. of communities	Surface (km ²)	Inhabitants 1991	Working places 1991	Touristic beds 1991	Agric. pop. % 1991	Agric. businesses 1991	Short characteristics	Sub-trends (% age of total communities)	
Wipptal (A)	13	501	14.803 <i>2001:</i> <i>15.444</i>	3.504	7.042	5,6	783	Commuter-dominated area influenced by the agglomeration of Innsbruck and the Brenner traffic corridor	1.1+1.3 1.2+1.4	69 31
Lower Tauern (A)	28	1.477	27.278 <i>2001:</i> <i>27.491</i>	7.226	10.416	15,8	1.918	Out-commuter dominated area with a strong influence of agriculture and mainly forestry. Also tourism plays a certain role.	1.1 1.2 2.1	77 17 6
Visp-Saastal (CH)	11	358	13.298 <i>2001:</i> <i>14.558</i>	8.767	4.137	1,4	648	One of the main touristic centers in the Alps (the Saas Valley) and a regional center (Visp)	1.1 1.2+1.5 6.1+6.2	55 18 27
Le Trièves (F)	29	641	7.209 <i>2001:</i> <i>7.954</i>	2.218	6.708	16,7	394	Main economical activities are agriculture and tourism. Agriculture is oriented to quality products and biological agriculture. An increasing part of the population finds a job in the Grenoble area but still lives in Trièves	1.1+1.3 1.2+1.4 2.1+2.2 5 6.1+6.2	45 27 7 7 14
Isarwinkel (D)	6	498	18.228 <i>2001:</i> <i>19.992</i>	5.034	1.724	10,1	776	Service dominated region (tourism!) with important agricultural sector and increasing influence of Bad Tölz and the metropolitan area of Munich (increase of out-commuting)	1.1+1.3 1.2 2.1	67 17 17

Pilot region, country	No. of commu- nities	Sur- face (km ²)	Inhabi- tants 1991	Working places 1991	Touris- tic beds 1991	Agric. pop. % 1991	Agric. busines- ses 1991	Short characteristics	Sub-trends (% age of total communities)	
Carnia (I)	28	1.222	42.709 <i>2001:</i> <i>40.392</i>	-	4.909	4,1	4.283	Peripheral alpine region with some tradition of economic welfare in the past, very strong roots, but an unavoidable demographic and economic decline. Some pieces of regional industry left, tourism development with little success so far	1.1+1.3 1.2+1.4 2.1+2.2 4	29 18 50 4
Piemonte (I)	23	784	50.994 <i>2001:</i> <i>49.574</i>	-	2.723	2,1	1.165	Peripheral alpine area facing phenomena of demographic and economic crisis and decline. Industry still plays an important role, tourism is concentrated on a few centers	1.1+1.3 1.2+1.4 2.1+2.2 4 6.1	22 35 31 9 4
Upper Sava Val- ley (Slo)	4	563	42.861 <i>2001:</i> <i>42.624</i>	-	9.591	3,7	1.362	Jesenice is an old industrial, predominantly urban area with problems of degradation, unemployment, economic restructuring, visually damaged areas etc. Kranjska gora is a service and tourism orientated area, Bled has a strong emphasis in tourism with conflicting interests: development or protection	1.3 1.2+1.5	25 75

Source: own computations

The matrices below compare the findings on the level of the total Alps (1) – (5). Under Pt. 4.5 further findings from the pilot regions (without Lower Tauern) are grouped to different topics. Based on the general and regional key findings, some hypotheses on further development are summarised under Pt. 5.

(1) Urban as well as the sub-and pe-ri-urban areas are the centers of growth (sub-trends 1.2, 1.4 and 1.5)

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Wipptal (A)	<ul style="list-style-type: none"> • Main growth in the valley floor along the Brenner traffic routes and in the surroundings of Innsbruck • Inner-regional polarisation main valley/side valleys • Land use conflicts and urban sprawl 		<ul style="list-style-type: none"> • No booming center within the region • Because of traffic noise, increase of inhabitants is stronger on the slopes and weak side valleys instead on valley floor
Visp-Saastal (CH)	<ul style="list-style-type: none"> • The strong communities are located in the valley floor • The central region of Visp represents the characteristics of urban areas: intensive economic and demographic growth • Strong decline of agriculture, but increasing share of full time farming • Intensive land use conflicts, on the other hand: extensification of less favoured sites 	<ul style="list-style-type: none"> • Increase of agricultural land 	

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Le Trièves (F)	<ul style="list-style-type: none"> Communities in sub-trend 1.2 and 1.4 show increase of population and working places 		<ul style="list-style-type: none"> There is no real 'boom region', no bigger local center
Isarwinkel (D)	<ul style="list-style-type: none"> Region getting more and more dependent on Bad Tölz and the metropolitan area of Munich Decline of touristic beds in the 80ies, increase in the 90ies Inner-regional polarisation Strong growth of residential buildings, increasing land use conflicts in the surroundings of bigger communities Strong decline of agriculture: population, businesses declining but to a minor extent, decrease of agricultural land 	<ul style="list-style-type: none"> Shift to extensive grassland lower than in other sub-trends 	<ul style="list-style-type: none"> Only 1 community belonging to the 1.2 sub-trend Lenggries is classified 'balanced' (2.1), but has to be considered as the center of the pilot region Agriculture still plays a relevant role: relatively high %age of population and full time farming
Carnia (I)	<ul style="list-style-type: none"> Inner-regional polarisation between the Tolmezzo basin and the fringe mountain valleys Demographic and economic growth only in Tolmezzo Urban sprawl and increasing land use conflicts in the surroundings of Tolmezzo Decline of tourism Strong shift to part time farming Decrease of agricultural land and shift from arable land to grassland 	<ul style="list-style-type: none"> Decline of population even in the 'strong' variant (sub-trend 1.2, 1.4) Less decline of agricultural population and businesses than in the weak sub-trend 	

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Piemonte (I)	<ul style="list-style-type: none"> • The decline in the strong variant is getting lower in the 90ies, partly positive migration • Increase of residential buildings -> land use pressure • Decline of tourism • Low rate and low decrease of agricultural population • Strong decline of agricultural businesses, shift from full time to part time is lower than average, in local centers even shift back from part time to full time 	<ul style="list-style-type: none"> • Decline of inhabitants and economy even in the 'strong variant' • Only partly shift to extensive grassland 	Commuters also to Switzerland (Frontalierato)
Upper Sava Valley (Slo)	<ul style="list-style-type: none"> • Growth of residential buildings and dwellings highly above growth of households, strong pressure on landscape • Low share of agricultural population • Strong decrease of agricultural businesses, partly shift from part time to full time 	<ul style="list-style-type: none"> • Growth of population lower than in the weak variant, negative migration • Touristic growth • Shift from arable land and extensive grassland to cropland and intensive grassland 	Bled is an important touristic center

(2) Tourism-dominated areas are the second pole of growth (sub-trends 6.1 and 6.2)

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Wipptal (A)	<ul style="list-style-type: none"> • Decrease of touristic beds 		<ul style="list-style-type: none"> • Tourism plays an important role in many communities, but there are no touristic centers
Visp-Saastal (CH)	<ul style="list-style-type: none"> • High demographic and economic growth • High increase of settlements -> increasing land use conflicts • Backbone of touristic growth 	<ul style="list-style-type: none"> • 'No more' agricultural population (below 1%) • No stabilisation of agriculture • Remaining farms are full time businesses, parallel intensification and extensification • Increasing agricultural land 	<ul style="list-style-type: none"> • The agricultural sector shows trends similar to urban areas in the valley floors: same phenomena, if the bottom is reached?
Le Trièves (F)	<ul style="list-style-type: none"> • Tourism-dominated communities are the backbone of growth • Synergies between agriculture and tourism, therefore lower decline of agricultural sector • Extensification of agricultural land use 	<ul style="list-style-type: none"> • Decrease of working places 	<ul style="list-style-type: none"> • Soft tourism is dominating • Lacking touristic infrastructure
Isarwinkel (D)			<ul style="list-style-type: none"> • Tourism plays an important - but not dominant role in many communities

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Carnia (I)			<ul style="list-style-type: none"> • There are some touristic communities, mainly in sub-trends 2.1 and 1.1
Piemonte (I)	<ul style="list-style-type: none"> • Strong increase of residential buildings -> land use pressure • Shift from arable land to grassland 	<ul style="list-style-type: none"> • Demographic decline, negative migration • Decline of touristic beds even in the touristic centers, mainly in the 90ies • Share of agricultural population above average, strong decline • Decline of agricultural businesses is not below average • Shift from part time to full time farming • Intensification! 	<ul style="list-style-type: none"> • There are only few touristic centers (only 1 community classified under trend 6), in many communities there is no tourism at all
Upper Sava Valley (Slo)			Bled (LZ) is an important touristic center

(3) The stagnating balance (sub-trends 2.1 and 2.2)

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Wipptal (A)	-	-	-
Visp-Saastal (CH)	-	-	-
Le Trièves (F)	<ul style="list-style-type: none"> • Decline of population, increase of working places • Conservation of agriculture: high %age of agricultural population, increase of agricultural land 		<ul style="list-style-type: none"> • In agriculture, cropland is dominating, not grassland
Isarwinkel (D)			<ul style="list-style-type: none"> • Lenggries is classified 'balanced (2.1), but has to be considered as the center of the pilot region -> see (1)
Carnia (I)	<ul style="list-style-type: none"> • Demographic and economic decline, negative migration • Increase of touristic beds • Agriculture still plays an important role, on the other hand strong decline of businesses • Shift to part time farming lower than in other sub-trends • Partly shift from grassland to arable land 		

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Piemonte (I)	<ul style="list-style-type: none"> • Strong demographic and economic decline • Increase of residential buildings -> land use pressure • Share of agricultural population relatively high, low decline • Strong decline of agricultural businesses • Intensification trend (cattle per farm, shift from grassland to arable land) 	<ul style="list-style-type: none"> • Positive migration • Decline of touristic beds • Low decline of agricultural population • Shift from part time to full time farming • Increase of agricultural land 	
Upper Sava Valley (Slo)	-	-	-

(4) Rural areas 'in between' without specific potentials are facing a remarkable crisis (sub-trends 1.1 and 1.3)

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Wipptal (A)	<ul style="list-style-type: none"> • The Wipptal is getting more and more dependent on the urban area of Innsbruck • Loss of working places, negative migration in the side valleys • Decline of local services in the side valleys • Lacking touristic potentials • Parallel intensification and extensification (reforestation) in side valleys 		<ul style="list-style-type: none"> • Increase of inhabitants is stronger on the slopes and in the weak side valleys instead on valley floor because of traffic noise

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Visp-Saastal (CH)	<ul style="list-style-type: none"> • Demographic and economic decline • High increase of residential buildings • High %tage of agricultural population, but strong decline, decrease of businesses lower than in other sub-trends • Strong shift from full time to part time farming 	<ul style="list-style-type: none"> • Increase of agricultural land • Strong shift to extensive grassland 	
Le Trièves (F)	<ul style="list-style-type: none"> • Decline of working places • Increase of population (migration), trend to dormitory communities • Agriculture is still a relevant economic sector 	<ul style="list-style-type: none"> • Decline of agricultural population stronger than in strong variant • Extensification is not lower than in other sub-trends 	<ul style="list-style-type: none"> • Increase of commuters and traffic -> pressure on environment and landscape (road construction project) • In agriculture, cropland is dominating, not grassland
Isarwinkel (D)	<ul style="list-style-type: none"> • Decline of working places • Increase of population (migration), trend to dormitory communities • Increase of settlements -> land use pressure • Decrease of touristic beds • High share of agricultural population, but strong decline • High %tage of full time farming, shift to part time farming 	<ul style="list-style-type: none"> • Shift to extensive grassland slightly above average 	<ul style="list-style-type: none"> • Lacking tourism infrastructure

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Carnia (I)	<ul style="list-style-type: none"> • Demographic and economic decline, negative migration • Strong decline of agricultural businesses and shift to part time farming • Shift from grassland to arable and cropland -> no extensification 	<ul style="list-style-type: none"> • Decline of inhabitants • Increase of touristic beds • Agriculture plays a less important role 	<ul style="list-style-type: none"> • Tourism is concentrated and increasing in Arta Terme, whereas in the other communities there is nearly no tourism
Piemonte (I)	<ul style="list-style-type: none"> • Demographic and economic decline, negative migration • Increase of residential buildings -> land use pressure • Share of agricultural population higher than in other sub-trends, decline of businesses below average • Shift to part time farming • Shift from arable land to grassland 		
Upper Sava Valley (Slo)	<ul style="list-style-type: none"> • Growth of population, positive migration • Growth of residential buildings and dwellings highly above growth of households • Strong decrease of agricultural businesses • Shift to part time farming • Shift from arable land and extensive grassland to cropland and intensive grassland 	<ul style="list-style-type: none"> • Touristic growth • Low share of agricultural population 	

(5) Sector-dominated development trends (agricultural, industrial or service) do not play an important role (sub-trends 3, 4 and 5)

Pilot region	Regional findings similar to total Alps	Regional findings opposite to total Alps	Additional remarks
Wipptal (A)	-	-	-
Visp-Saastal (CH)	-	-	-
Le Trièves (F)			Service-dominated sub-trend (only 1 community)
Isarwinkel (D)	-	-	-
Carnia (I)			Industry-dominated sub-trend (only 1 community)
Piemonte (I)	<ul style="list-style-type: none"> • Demographic decline • Increase of residential buildings -> land use pressure • Decline of agriculture • Shift to full time farming • Shift from arable land to grassland 	<ul style="list-style-type: none"> • Decline of tourism • Increase of agricultural land 	Industry-dominated sub-trend (2 communities)
Upper Sava Valley (Slo)	-	-	-

Source: own computations

4.5 Further key findings in pilot regions

Besides the above results following key findings have been identified in the pilot regions:

Urban sprawl

- The example of Le Trièves shows that strict regulations help to reduce the phenomenon of urban sprawl (F). Some interview partners stated the same for Isarwinkel (D).
- Population growth and migration surplus promote settlement expansion and splinter development. The favourable living conditions of the Isarwinkel predestine the region as an immigration area not only for elder people, but with regards to transport infrastructure and accessibility also attract people working in neighbouring regions. With the growing demand of extended living space, settlements grow and splinter development is provoked. This trend is encouraged by the already historical scattered settlement structure. Only the restrictive release of building land can be regarded as an inhibiting factor, (D).
- Whereas people were migrating out from fringe areas to the centers in former periods, nowadays they migrate to bigger urban or sub-urban areas. (I, Carnia). In addition, commuting is more and more taking the place of definitive migration.
- Building speculation threatens settlement quality and leads to a degradation of historical, artistic and cultural property (I, Piemonte).
- The growth of settlements and urban sprawl are among the most important negative impacts on landscape (Slo).
- Construction boom of tourist accommodation and housing lead to some uncontrolled development of cultural landscape (CH).

Relevance of public policy

- Territorial policies have a strong impact on settlement development, e.g. in Tyrol the restrictive attitude against second homes (in spatial planning and property dealing policies) has limited the number of second homes (A).
- Agricultural land use is strongly influenced by public subsidies to agricultural businesses. In the Wipptal the public subsidies have contributed to stopping the decline of agricultural land, especially extensive grassland, within the last decade (A).
- Successful attempts of maintaining landscapes are often the result of a mix of different measures: for example in the Wipptal there are more alpine pastures cultivated than some years ago. The reasons are agricultural subsidies, subsidies related to nature protection policy and touristic co-operations (guided tours and events on the alpine pastures, farmers selling their products to guests) (A).
- Financial promotion programmes (especially agriculture) stabilise agriculture and diminish the intensification/extensification trend respectively cultural landscape change. Above all, the Bavarian Cultural Landscape Programme (KULAP), the Nature Protection Contractual Programme (VNP) and compensation payments (Ausgleichszulage, Erschwernisausgleich) are an important

economic basis for local farmers and contribute effectively to the maintenance of agriculture adopted more or less to the natural conditions. Therefore major agricultural landscape changes are avoided. But even the sum of tourism profits and agricultural promotion programmes cannot prevent slight agricultural and landscape changes (D).

- On the contrary, the relevance of regional planning law and the linked instruments (regional plans) are considered as very low – regional plans are estimated as more or less without impact on regional structures and landscape (D).

Transport and accessibility

- The concentration of food trade near main roads leads to a lack of food supply in small villages. Concentration trends can also be observed in gastronomy and public services (e.g. post office) (A).
- For rural regions with a weak economical and touristic potential the high-ranking transport infrastructure may be considered as an instrument to increase dependencies: The highway allows to move out quicker (out-commuters) or to pass quicker through the region (tourists) (A).
- A good transport infrastructure and the population's motorisation have allowed to change out-migration regions into out-commuting regions, because local centers can now be reached within the daily commuting distance (A). The same can be stated for D.
- The maintenance of the network of small (agricultural) roads 'Güterwege' is very important for keeping up the cultivation of remote agricultural businesses; small roads and trails are also a precondition for leisure activities and tourism (A).
- The decline of primary and secondary sector promotes out-migration and finally the development or improvement of transportation infrastructure (mainly roads, but also rail). Such a development in the end again leads to higher accessibility and further promotion of out-migrating with the corresponding impacts on the economic structure as well as landscape and environment. But on the other hand, higher accessibility also creates more favourable conditions for tourism (D).
- In some regions, increasing land slides and other natural risks reduce accessibility (I, Pi).
- A new alpine railroad connection through the Lötschberg Tunnel (NEAT) will enhance accessibility of the region and therefore attract additional freight traffic (CH).

Commuting

- The increase of inhabitants in weak areas can be caused by different factors: in-migration, out-commuting, secondary homes transferred to permanent homes by retired persons and others. The tendency to dormitory communities is often linked with the trend to secondary housing. (F)
- Commuting can contribute to stability: commuter communities are often more stable than balanced communities, where the negative demographic trends are often more significant (I, Ca).

Tourism

- Tourism business needs attractive landscape, but just landscape is not enough: landscape must be usable for leisure activities, this requires infrastructure (A, D).
- On the other hand agriculture plays an important role for preserving landscape (CH)
- In weak peripheral areas there is often a lack of touristic knowhow (I, Pi).

Agriculture

- The economical development of Alpine agriculture depends at one hand on the market (above all demand for milk and bovine cattle), at the other hand on agricultural policies. For the Wipptal the interdependence of the structural change of agriculture with touristic development cannot be observed. The hypothesis that tourism stabilises agriculture (see results of Germany) cannot be verified. In the Wipptal the shift from full-time to part-time agriculture is very strong, but quite different in the municipalities. An evident interrelation with tourism development, commuter ratio or with agricultural land use is not noticeable (A).
- Stable development of the agricultural sector is dependent on different aspects: ecological agriculture as a market alternative, direkt marketing to near urban regions, combination with soft tourism (F).
- Tourism stabilises agriculture respectively diminishes the agricultural restructuring and therefore contributes significantly to landscape conservation. The majority of local farmers also profit from the touristic added value, so that a breakdown of agriculture is being held off. Of course, this kind of profit is not as obvious as the subsidies from agriculture promotion programmes, but the linkage is stated by local stakeholders (D, CH).
- Economic conditions becoming worse and worse may lead towards the increase of full time agricultural businesses. There are some concrete cases in the Isarwinkel in which workers who formerly were occupied in small-scale industry returned to full time agriculture after the closure of the firms (D).
- Agriculture is more stable in the balanced than in the weak communities (I, Ca).
- Entrepreneur mentality is lacking, therefore farmers are not open for agrotourism, agriculture is only for survival (I, Pi).
- Part time farming is often done by women, often it is done more by affection than for economic reasons (I, Pi).
- The decrease of agricultural population as well as the decline of agricultural businesses lead to greening of arable land nad growth of forests. This is often combined with a loss of biodiversity and visual quality (Slo).
- The production aspects of agriculture are not of great importance as it is mainly to maintain landscapes for tourism (CH).

Regional identity

- Social life is a strong factor of regional identity: In spite of the growing importance of out-commuting the Wipptal population does not consider their villages as dormitory communities, because there is a manifold social life (education, care, leisure and culture associations,..) (A). Similar results can be stated for Germany.
- Conservative values and emotional bindings to the region may contribute to landscape preservation: e.g. part time farmers continue mowing meadows even if there is no economical interest in doing so (A). The same can be stated in D (e.g. farms having only a few bovine cattle).
- The strong “homeland” attitude of locals prevents excessive agricultural restructuring and major landscape changes. The emotional binding of the Isarwinkel inhabitants is connected with strongly conservative values regarding agriculture, nature, landscape and tradition. These attitude has to be regarded as a strong factor for maintenance of agriculture and nature and landscape conservation – even if it isn’t comprehensible from the economic point of view (D).
- Co-operation between municipalities is lacking, competition and individualism are dominant (I, Pi).

4.6 Accessibility analysis of the Alps

4.6.1 Accessibility in the Alps – general situation

The analysis is based on the accessibility of inhabitants within a travel time one hour (daily commuting and shopping traffic) and three hours (representing transportation purposes like business and weekend leisure activities).

Accessibility in the Alps between 1995 and 2020 can be described as follows (see Tab. 8, 9 and Fig. 3):

- In 1995 the regions with the highest accessibility can be found in the southern Italian Alps in the area between Torino and Verona. Smaller poles of high accessibility can be found in the northern part the Swiss Alps (Bern-Luzern-Zürich) and in the Vienna region.
- There are three main areas in the Alps with low accessibility: the south western part of the Alps (Hautes Alpes, Vaucluse), the Swiss areas of Inn, Val Muestair in the central Alps and the south eastern part of the Alps including parts of Carinthia, Styria and Slovenia.
- There are areas especially along the north eastern alpine border with average 3h accessibility (Germany, Austria).
- In general, accessibility is higher in the alpine border regions than in the inner parts of the Alps.

Between 1995 and 2020, the situation will change mainly regarding 3h accessibility. Whereas there were only 5 Nuts 3 regions with 3h accessibilities above 10 mio. inhabitants in 1995, there will be 54 Nuts 3 regions in 2020. Due to the TEN high speed railway projects, accessibility will mainly increase around the nodes in the transport corridors. The regional distribution of different accessibility levels

will not change too much with regard to 1995. Compared to the western part of the Alps the accessibility levels in the eastern parts of the Alps will be much more homogenous.

Tab. 8: Number of regions in the different ranking groups (1h/3h accessibilities)

1h accessibility			3h accessibility		
Group (mio. inhabitants)	Year		Group (mio. inhabitants)	Year	
	1995	2020		1995	2020
0 - 0,2	67	56	0 - 1	10	0
0,2 - 0,4	45	50	1 - 2	35	0
0,4 - 0,6	27	24	2 - 5	91	42
0,6 - 0,8	8	11	5 - 7,5	24	48
0,8 - 1,0	8	12	7,5 - 10	6	27
1,0 - 1,5	8	10	10 - 15	5	26
1,5 - 2,0	5	5	15 - 20	0	20
2,0 - 3,0	3	3	20 - 25	0	6
>3,0	0	0	25 - 30	0	2
TOTAL	171	171	>30	0	0
			TOTAL	171	171

Source: own computations

3h Accessibility

Tab. 9: 3h accessibility 1995: the top ten and the last ten regions

Administrative Unit	Inh. accessible	Index	Ranking
I115 – Novara	11.227.652	100,0	1
I207 – Brescia	11.044.944	98,4	2
I321 – Verona	11.000.286	98,0	3
I112 – Vercelli	10.929.273	97,3	4
I201 – Varese	10.821.497	96,4	5
I111 – Torino	9.089.922	81,0	6
I206 – Bergamo	9.040.182	80,5	7
I113 – Biella	7.755.117	69,1	8
I322 – Vicenza	7.751.648	69,0	9
I202 – Como	7.734.751	68,9	10
A505 – Tamsweg	994.410	1,33	162
SLO06 – Dravograd	914.863	1,31	163
CH18B – Oberlandquart	908.726	1,19	164
I3111 – Meran-Schlanders	670.654	1,07	165
SLO20 – Slovenj Gradec	650.332	0,93	166
SLO05 – Ravne na Koroškem	553.801	0,86	167
FR826A – Vaucluse	466.900	0,66	168
CH187 – Inn	395.378	0,52	169
FR822 – Hautes Alpes	359.145	0,34	170
CH18A – Val Muestair	116.633	0,09	171

Index 100 represents the region with the highest number of inhabitants accessible within three hours travel time

Source: own computations

2020

Tab. 10: 3h accessibility 2020: the top ten and the last ten regions

Administrative Unit	Inh. accessible	Index	Ranking
I321 – Verona	25.769.410	100,0	1
CH021 – Bern	25.275.469	98,1	2
I114 – Verbano-Cusio-Ossola	23.824.051	92,5	3
CH231 – Wallis	23.618.592	91,7	4
I322 – Vicenza	22.929.675	89,0	5
I312 – Trento	22.147.481	85,9	6
I111 – Torino	21.575.655	83,7	7
I3112 – Bozen	20.379.400	79,1	8
A701 – Innsbruck Stadt	19.517.353	75,7	9
CH01 – Zürich	19.461.068	75,5	10
CH187 – Inn	3.261.390	12,7	162
CH182 – Bernina	3.140.581	12,2	163
I323 – Belluno	3.098.477	12,0	164
SLO20 – Slovenj Gradec	3.094.796	12,0	165
A707 – Lienz	2.981.664	11,6	166
I3114 – Bruneck	2.946.488	11,4	167
SLO05 – Ravne na Koroškem	2.776.133	10,8	168
A203 – Hermagor	2.688.762	10,4	169
CH18A – Val Muestair	2.286.212	8,9	170
I3111 – Meran-Schlanders	2.215.531	8,6	171

Index 100 represents the region with the highest number of inhabitants accessible within three hours travel time

Source: own computations

Between 1995 and 2020, 3h accessibility will increase significantly, especially if the TEN high speed railway projects along the Brenner, Simplon, San Bernardino and Mt. Blanc corridors are realised. The average 3h accessibility in the Alps will raise from 3,7 mio. inhabitants in 1995 to 9 mio. inhabitants in 2020. This is more than the double! The regional distribution of different accessibility levels will not change too much compared to 1995 (see Tab. 11 and Fig. 7, 8).

Compared to the western part of the Alps the accessibility levels in the south eastern parts of the Alps are much more homogenous.

Tab. 11: 3h accessibility 1995-2020: the top ten relative winners and losers

Administrative Unit	Ranking		Index		Change of ranks	Change of index
	1995	2020	1995	2020		
FR826A – Vaucluse	168	64	4,2	34,5	104	30,4
A701 – Innsbruck Stadt	100	9	27,0	75,7	91	48,7
I3112 – Bozen	89	8	29,0	79,1	81	50,1
FR714 – Isère	161	84	9,0	28,6	77	19,6
CH185 – Hinterrhein	130	57	17,4	38,5	73	21,2
I3113 – Brixen Sterzing	114	42	22,5	45,0	72	22,5
CH231 – Wallis	67	4	35,6	91,7	63	56,0
A703 – Innsbruck Land	82	26	30,2	62,1	56	32,0
CH181 – Albula	121	75	18,9	31,4	46	12,5
CH183 – Glenner	134	90	16,7	27,0	44	10,2
A319 – St. Poelten Land	50	85	40,6	28,5	-35	-12,1
A321 – Tulln	52	88	39,6	27,7	-36	-11,8
A324 – Wien Umgebung	31	67	47,3	33,7	-36	-13,6
A303 – Waidhofen Ybbs Stadt	99	136	27,1	18,9	-37	-8,2
A317 – Moedling	39	76	43,4	31,2	-37	-12,2
A409 – Kirchdorf/Krems	70	107	32,4	23,8	-37	-8,6
A314 – Lilienfeld	74	115	31,3	21,8	-41	-9,5
A320 – Scheibbs	109	152	23,5	14,8	-43	-8,7
A402 – Steyr Stadt	88	132	29,0	19,3	-44	-9,8
FR823 – Alpes-Maritimes	72	121	31,9	20,9	-49	-11,1

Index 100 represents the region with the highest number of inhabitants accessible within three hours travel time

Source: own computations

The highest improvement of ranking in 3h accessibility between 1995 and 2020 can be found in the French Alps (Vaucluse, Isère) as well as along the Brenner corridor. The highest decline in ranking can be found in Eastern Austria and in the French Alpes-Maritimes.

The situation of the pilot regions

1h accessibility

Among the REGALP pilot regions, the French region Le Trièves was the one with the highest 1h accessibility in 1995. Also Carnia and Isarwinkel belonged to the favoured areas, the Wipptal was in an average position. Piemonte, the Upper Sava Valley and Visp-Saastal were characterised by lower 1h accessibility than the other pilot regions. Between 1995 and 2001, ranking and index stayed quite stable. It can be observed that the top three regions were losing, whereas the regions with lower accessibility could improve their position.

3h accessibility

Comparing the different pilot regions, in 1995 the highest accessibilities can be observed in Piemonte and Isarwinkel. The regions with the lowest accessibilities are Le Trièves and the Upper Sava Valley. Visp-Saastal, Carnia and Wipptal are in between.

In 2020, the situation will have changed: Visp-Saastal and Piemonte are among the top 4 regions of the Alps, also the Wipptal is making a big step forward. Isarwinkel is falling behind and is close to Le Trièves. The Upper Sava Valley still remains the pilot region with the lowest accessibility.

The highest growth rates can be observed in Visp-Saastal, Piemonte and Wipptal, whereas Carnia and Isarwinkel are below the average accessibility increase.

The growth of accessibility is based on the realisation of the TEN, mainly due to the high speed railway network. Regions situated near the Brenner (D, A, I), Simplon (CH, I), San Bernardino (D, CH, I), St. Bernard (CH, I), Mont Blanc (F, CH, I) corridors show the highest increase rates.

Tab. 12: 1h accessibility of the administrative units including the pilot regions 1995 and 2020

Administrative Unit	Ranking		Index ¹⁾		Change of ranks	Change of index
	1995	2020	1995	2020		
Le Trièves	15	17	37,4	36,5	-2	-0,9
Carnia	36	43	21,2	21,0	-7	-0,2
Isarwinkel	48	52	17,6	17,3	-4	-0,3
Wipptal	85	79	9,8	12,1	+6	+2,3
Piemonte	97	94	8,5	9,7	+3	+1,2
Upper Sava Valley	121	96	6,3	9,4	+25	+3,1
Visp-Saastal	138	116	4,3	7,1	+22	+2,8

Index 100 represents the region with the highest number of inhabitants accessible within three hours travel time

Source: own computations

Tab. 13.: 3h accessibility of the administrative units including the pilot regions 1995 and 2020

Administrative Unit	Ranking		Index ¹⁾		Change In ranks	Change of Index
	1995	2020	1995	2020		
Piemonte	27	3	49,0	92,5	+24	+43,5
Isarwinkel	41	63	43,2	36,4	-22	-6,8
Visp-Saastal	67	4	35,6	91,7	+63	+56,0
Wipptal	82	26	30,2	62,1	+56	+32,0
Carnia	83	93	30,1	26,6	-10	-3,5
Upper Sava Valley	124	120	18,4	20,9	+4	+2,5
Le Trièves	161	84	9,0	28,6	+77	+19,6

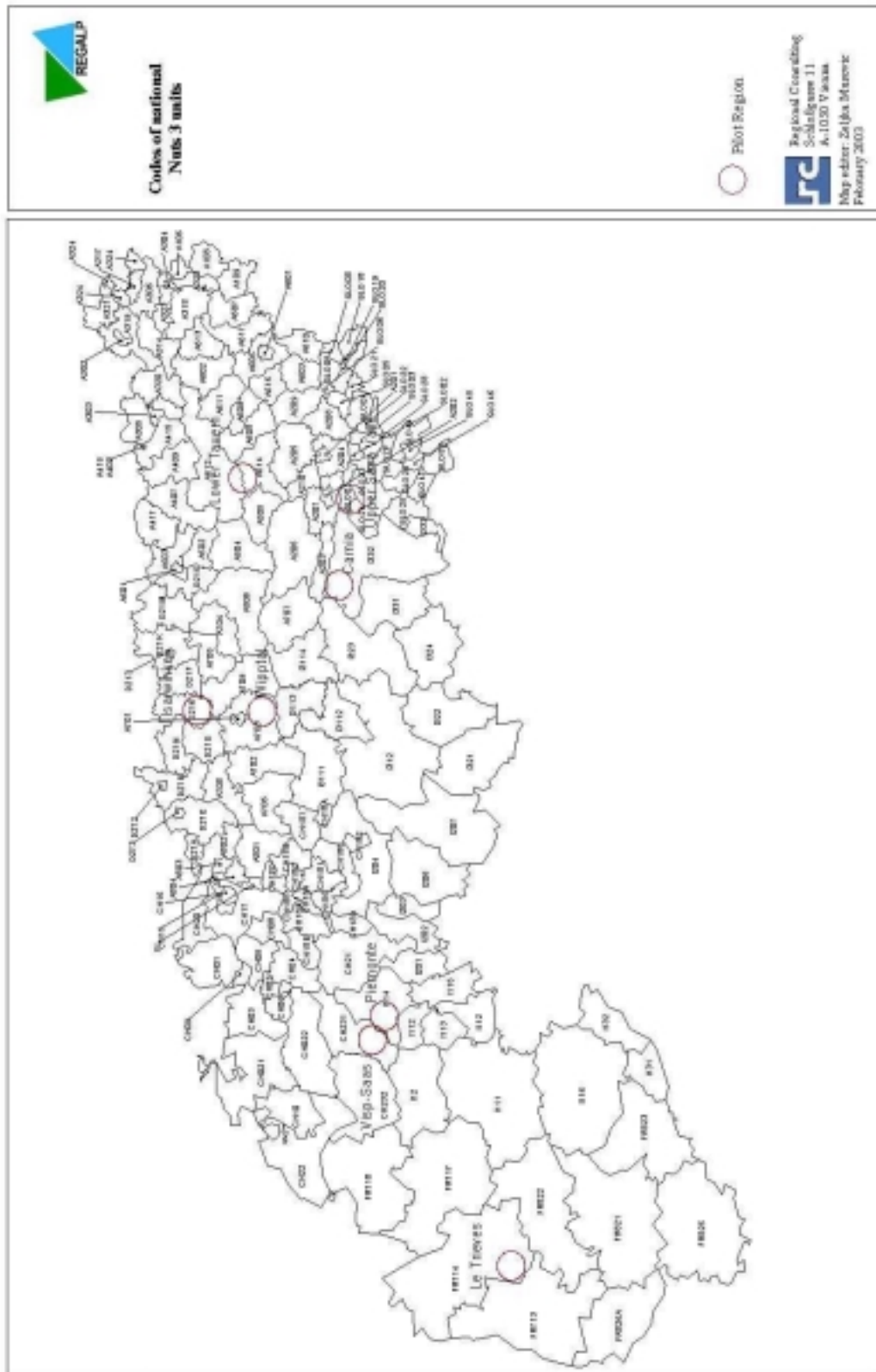
1) Index 100 represents the region with the highest number of inhabitants accessible within three hours travel time

Source: own computations

Comparing 1h and 3h accessibility, there are significant differences. Whereas Le Trièves and Carnia show higher 1h accessibilities than the other pilot regions, their 3h accessibility is lower. Piemonte and Visp-Saastal are exactly the opposite: their 1h accessibility is comparably weak, whereas their 3h accessibility is quite high compared to the other pilot regions.

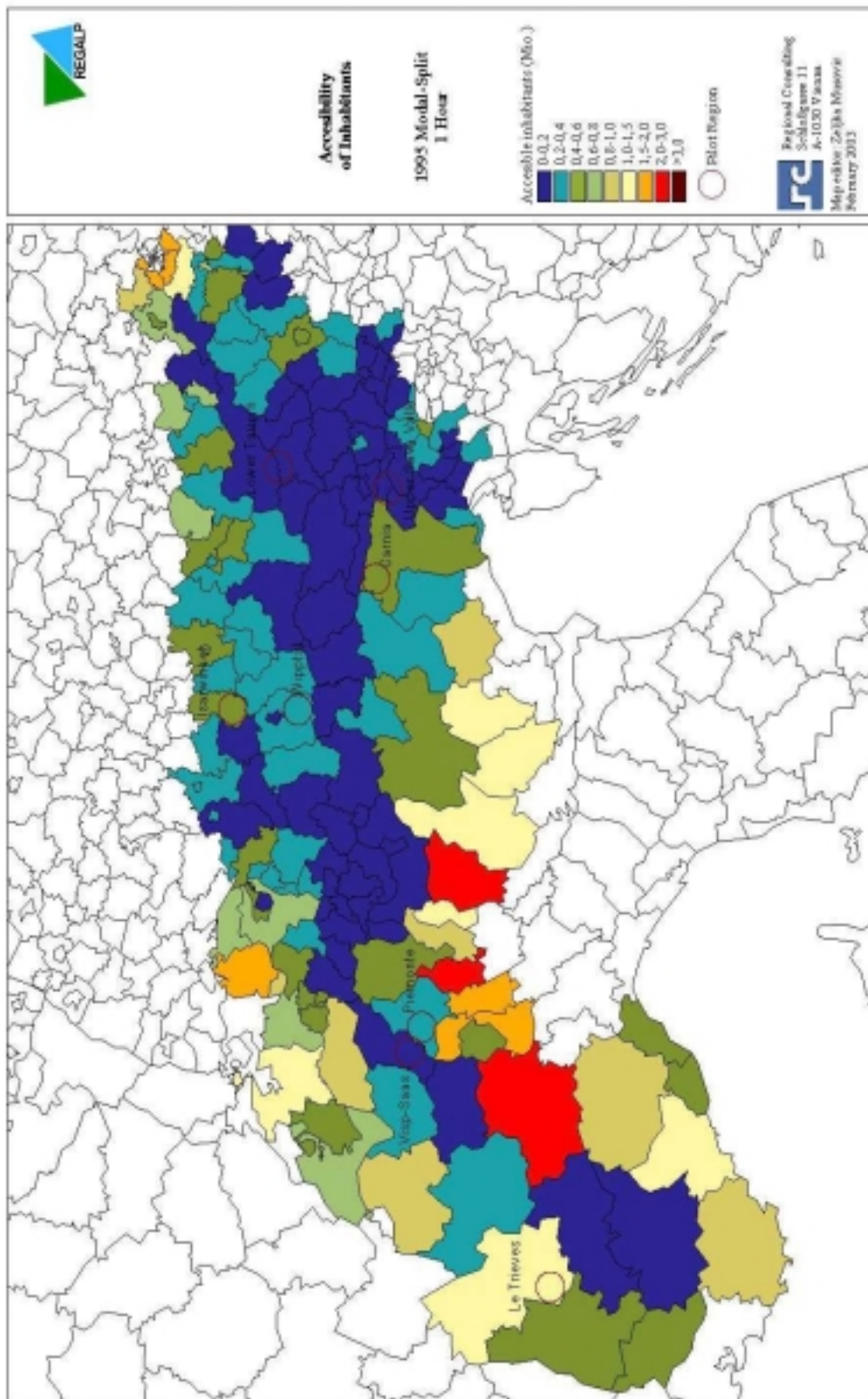
Isarwinkel ist among the areas with highest accessibilities in 1 and in 3h, the Wipptal is in a average position in both cases. Only the Upper Sava Valley shows weak accessibility in 1 as well as in 3 hours.

Fig. 3: Codes of national Nuts 3 units



Source: own computations

Fig. 4: 1h accessibility 1995



Source: own computations

4.6.2 The interrelation between accessibility and regional development trends

The interrelation between accessibility and regional development trends can be characterised as follows:

- The highest accessibility can be found in the communities belonging to the industry-dominated development trend.
- The lowest accessibilities can be observed in the tourism- and service-dominated sub-trends as well as in the agriculture-dominated trend.
- In between there are the centrally dominated sub-trends and the balanced development trend.
- The balanced development trend shows higher 3h accessibility than the communities belonging to the centrally dominated sub-trends. In the centrally dominated trend, 3h accessibility is higher in the strong variant than in the weak variant.

4.6.3 The interrelation between accessibility and cultural landscape change

The interrelation between accessibility and cultural landscape change between 1981 and 1991 can be described as follows:

- Sea level: accessibility is lowest in the regions with the highest sea level (and vice versa). There is a direct interrelation between high accessibility and low sea level.
- Population: highest population growth rates can be observed in regions with medium accessibility. The groups with highest accessibility are characterised by a population growth below average. There is no direct interrelation between high accessibility and high population growth.
- Migration: similar to population growth, there is no direct interrelation between accessibility and migration.
- Working places: the highest growth of working places between 1981 and 1991 can be observed in the groups with medium and high accessibilities whereas the increase of working places in the groups with lower accessibilities is clearly below average. This interrelation is more significant in the 3h accessibility than in the 1h accessibility.
- Commuters: the highest increase of inbound and outbound commuters can be observed in the regions with average accessibility. The regions with highest accessibilities show even a decline of inbound commuters between 1981 and 1991.
- Settlements: the lowest increase of residential buildings can be found in the areas with the highest 1h and 3h accessibility, whereas the highest increase can be observed in the areas with average (1h) or low (3h) accessibility.
- Agriculture: the highest decline of agricultural businesses can be found in the regions with the highest 1h accessibility, whereas it is lower in the regions with low accessibility. This can be observed not only for full time, but also for part time businesses. Similar to the situation in 1h accessibility, the highest decline of agricultural businesses can be observed in the regions with the high-

est 3h accessibility. Again, a lower decline of agricultural businesses can be stated for regions with low accessibility, but the picture is more disperse. There are also regions with average or even good 3h accessibility with a low decline of agricultural businesses.

4.6.4 Conclusions

The results describing the triangle accessibility – regional development – cultural landscape change seem s to be quite plausible:

- (1) Lowest accessibilities in the Alps can be found in service- and tourism- as well as in agriculture-dominated areas. These areas can be found on high sea level. The decline of agriculture is lower than in other regional development trends.
- (2) The highest accessibilities can be found in industrial areas, which can be found on low sea level.
- (3) High accessibilities can be also observed in the balanced development trend. These areas can be described by a strong decline of agriculture, nevertheless agriculture still plays an important role.
- (4) High accessibility and economic prosperity do not necessarily have to be connected. The areas with the highest accessibilities in the Alps are not those with the highest economic prosperity. More than 50% of the communities of the balanced development trend are characterised by economic stagnation or even crisis.
- (5) On the other hand, the economically strongest areas in the Alps (sub-trends 1.2, 1.4 and 1.5) only show average accessibility. These areas with average accessibility have the highest growth of population and migration, of working places and of in- and out-commuters as well as of residential buildings.
- (6) The second pole of economic strength in the Alps, the tourism-dominated development trend, is characterised by very low accessibilities.
- (7) Another interesting finding: the areas with the highest accessibilities – located in the Italian Alps between Torino and Verona – are characterised by a decline of inbound commuters between 1981 and 1991. So the hypotheses could be: if a weak region is well connected to strong neighbouring regions, the high accessibility level can lead to further losses of inner regional potentials.
- (8) It turns out, that accessibility is an important location-factor, but it is not the one and only. There are prospering areas with very low accessibility and there are very weak areas with very high accessibilities, as the example of the Italian Alps shows.

For the future development of the interrelation in the triangle accessibility – regional development – cultural landscape change following estimations can be made:

Areas with high accessibility and strong economic performance are those with the highest potentials for future development.

In the Alps these areas are:

- Austria: the Salzburg region, the Lower Inn Valley, the Innsbruck region, the Rhine Valley in Vorarlberg

- Germany: the Rosenheim region
- Switzerland: the Luzern region, the region east of Lausanne, the Rhone Valley in the Valais, the Ticino region
- France: the Chambéry-Grenoble region
- Italy: the Aosta Valley, the whole alpine border region from Como to Brescia, central parts of Alto Adige and the Trentino
- Slovenia: -.

Areas with low accessibility and weak economic performance are those where future crises seem to be very probable.

In the Alps these areas are

- Austria: the whole south eastern parts of Austria (main parts of Styria and Carinthia, the regional centers excluded), Eastern Tyrol, the Upper Inn Valley and the Lech Valley
- Germany: -
- Switzerland: the southern parts of the Engadin, Hinterrhein and Vorderrhein
- France: the rural areas of the whole Alpes Provencales and Alpes Maritimes
- Italy: the Valtellin and the Val Venosta, side valleys of the Val Pusteria
- Slovenia: the Mežiška Valley, the Soča Valley.

Areas with weak economic performance cannot be improved just by enhancing their accessibility through transport infrastructure projects.

Some typical areas with high 3h accessibility 2020 and more or less weak regional development sub-trends 1.1, 1.3, 2.1, 2.2 (1991):

- Austria: side valleys of th Wipptal
- Germany: -
- Switzerland: the Emmental-Brienz region, the Val Muestair, Goms, higher parts of th Rhone Valley in the Valais
- France: -
- Italy: the whole south western part of the Italian Alps (Cottic and Ligurian Alps) with the Valle di Lanzo, Valle del Po, Valle Varaita, Valle Maira, Valle Stura; furthermore th Valle d'Ossola and the higher parts around the Como and Garda lakes,
- Slovenia: -.

Areas with strong economic performance will not necessarily suffer because of low accessibility in the future.

Some typical areas with low 3h accessibility 2020 and more or less strong regional development sub-trends 1.2, 1.4, 1.5 (1991):

- Austria: the central Carinthian region, the Upper Inn Valley, the central Upper Austria region around Steyr
- Germany: -
- Switzerland: -
- France: the local and regional centers of the whole Alpes Provencales and Alpes Maritimes
- Italy: the example of Sondrio
- Slovenia: -

5. SYNTHESIS AND HYPOTHESES ON FURTHER DEVELOPMENT

Based on the results on the level of the Alps as a whole and of the pilot regions, following hypotheses for further development can be stated:

(1) Polarisation will continue

- Economic growth and welfare will be more and more dependent on central areas representing ca. 1/3 of all alpine communities. This polarisation is far away from being 'sustainable'.
- In tourism-dominated areas we can expect stagnation on high level or a slight increase in the highly specified and strong touristic centers representing 6-7% of all alpine communities. Instead of quantitative increase, strategies will focus on raising quality. Less favoured touristic areas on lower sea level and with less economic power will lose.
- The balanced development trend representing 23% of all communities in 1991 will decrease more and more. Some of the communities will be able to develop and improve their potentials (towards sub-trends 1.2 or 6.2), whereas at least half of these communities will face an economic and demographic decline (towards sub-trend 1.3).
- The areas 'inbetween', the rural areas with lacking own potentials risk to get deeper into crisis. Together with the former balanced communities they will represent at least 50% of all alpine communities!

(2) Increasing land use conflicts versus extensification

- Continuing urban sprawl is one of the main problems for landscape development. Demographic factors will lead to increasing number of households and to further land use requirements for housing. The central areas and the touristic centers as well as regions with attractive landscapes near urban areas are concerned most, but this phenomenon can be stated in nearly all areas.
- Especially in urban areas land use conflicts will increase. This will be the main challenge for land use planning.
- Besides intensification in specific favoured areas, agriculture will be reduced and extensified on a grand scale, in some areas agriculture will totally break down.

(3) Traffic growth

- The further improvements of accessibility because of road and rail construction will cause increasing traffic volume and commuter rates. Negative environmental impacts (noise, pollution) will increase.
- Increasing accessibility will intensify the interrelation between inner-alpine areas and metropolitan areas outside the Alps. Thus the external influence especially on alpine border regions will increase.
- Accessibility is an important location-factor, but it is not the one and only. There will be prospering areas with low accessibility and there will be weak areas with high accessibilities, too.

(4) Agriculture: concentration versus extensification

- In tourism-dominated areas synergies between agriculture and tourism will help to stabilize agricultural land use on an extensive level. As landscape is a key resource, tourism will support maintainance of landscape.
- The structural change in agriculture will continue: a general decline of agricultural population, land, and businesses as well as a shift from full time to part time farming combined with greening of arable land and a shift from intensive to extensive grassland. In the same time, the number of cattle per farm will increase. When 'the bottom' is reached (minimal rate of agricultural population, little number of businesses left), there will be a shift back from part time to full time farming and partly from extensive to intensive grassland and to arable or cropland on the favoured sites. This is true not only for agriculture in sub- and peri-urban areas, but also in high developed touristic areas, as the Swiss pilot region shows.
- There seem to be 3 alternatives in agriculture: (1) widespread giving up, (2) widespread part time farming on an extensive level as well as (3) full time farming on a limited scale. The new trend back to full time farming should not be overestimated!

6. RELEVANCE OF WP2 RESULTS FOR OTHER WORK PACKAGES

The findings of WP 2 are an important basis for the scenario building in WP4. The scenarios will be based on the different regional types and they will include the accessibility-forecasts for 2020. The regional reports elaborated in Task 2.5 are an important basis for the regional scenarios in WP4 (Task 4.4) and for the local workshops in WP5. In WP3 the research team will make use of the results for the evaluation of public actions in different regions. Finally WP6 takes into account the main findings as a starting point for proposing adjustments to present policies and instruments.

7. LITERATURE

BÄTZING, W., MESSERLI, P., PERLIK, M. (1995): Regionale Entwicklungstypen. Analyse und Gliederung des schweizerischen Berggebietes. Bern.

REGIONAL CONSULTING (2000): Kultur – Landschaft – Entwicklung im westösterreichischen Alpenraum, Teilmodul Raumstruktur und Regionalwirtschaft. (KLF MU4). Wien.

REGIONAL CONSULTING, BIOTECHNICAL FACULTY OF THE UNIVERSITY OF LJUBLJANA; URBAN PLANNING INSTITUTE OF THE REPUBLIC OF SLOVENIA, E.C.O. (2001): Sustainable development of alpine cultural landscapes in the Austria - Slovenia border region. Vienna, Klagenfurt, Ljubljana.

SUSTALP (2000): Evaluation of Instruments of the European Union regarding their Contribution to Sustainable Environment and Agriculture in the Alps. Bozen, Brussels.

8. MATERIALS (LIST OF ANNEXES TO WP-REPORT)

Annex 1 to WP2 report: Task 2.1 Testing and Adapting the Method and Task 2.2 collecting and harmonising data. Vienna, 13.2.2002.

Annex 2 to WP2 report: Task 2.3 Data processing and analyses. Vienna, 31.1.2003.

Annex 3 to WP2 report: Accessibility analysis of the Alps. Vienna, 03.03.2003.

Annex 4 to WP2 report: Task 2.4 Selection of pilot regions. Vienna, 17.7.2002.

Annex 5.1 to WP2 report: Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making, Regional Report Wipptal, Austria, Vienna, 18.2.2003.

Annex 5.2 to WP2 report: Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making, Regional Report Visp-Saastal, Switzerland. Berne, 14.1.2003.

Annex 5.3 to WP2 report: Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making, Regional Report Le Trièves, France. Grenoble, 20.1.2003.

Annex 5.4 to WP2 report: Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making, Regional Report Isarwinkel, Germany. Garmisch Partenkirchen, 6.2.2003.

Annex 5.5 to WP2 report: Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making, Regional Report Carnia, Italy. Udine, 17.2.2003.

Annex 5.6 to WP2 report: Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making, Regional Report Piemonte, Italy. Udine, 17.2.2003.

Annex 5.7 to WP2 report: Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making, Regional Report Upper Sava Valley, Slovenia. Ljubljana, February 2003.

Annex 6 to WP2 report: Task 2.7 Discussion of hypotheses, conclusions. Vienna, 11.2.2003.