

ANNEX 5.4 to Work package 2 report

Task 2.5 Analysis of pilot regions and Task 2.6 Location of economic decision making

Regional Report Isarwinkel, Germany

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Abbreviations

AfLuE	Amt für Landwirtschaft und Ernährung Miesbach-Wolfratshausen
BayLfStaD	Bayerisches Landesamt für Statistik und Datenverarbeitung
BayStMELF	Bayerisches Staatsministerium für Ernährung, Landwirtschaft und Forsten
BayStMI	Bayerisches Staatsministerium des Innern
BayStMLU	Bayerisches Staatsministerium für Landesentwicklung und Umweltfragen
IHK	Industrie- und Handelskammer für München und Oberbayern
LEP	Landesentwicklungsprogramm Bayern 1994
LF	Agricultural used area (landwirtschaftliche Nutzfläche)
RRV	RRV-Forschungsstelle für Raumanalysen, Regionalpolitik und Verwaltungspraxis an der Universität Bayreuth

1. SUMMARISING DESCRIPTION OF THE PILOT REGION ISARWINKEL

1.1 Geographic situation and administrative limits

The pilot region “Isarwinkel” comprehends the six municipalities Wackersberg, Lenggries, Gaißach, Greiling, Reichersbeuern and Jachenau, which are all located in the Landkreis (administrative district) Bad Tölz-Wolfratshausen (Federal State Bavaria). The region is located about 40 km south of Munich between the city Bad Tölz and the “Karwendel” mountains. Its southern limits border directly to the Republic of Austria.

The region can be divided into a more mountainous southern part, which is classified as “alpine area” according to the “Landesentwicklungsprogramm Bayern” (LEP, Land Development Programme Bavaria), and the more or less flat northern part with the federal road B 472 as the border line (cf. figures 1 and 2). Consequently only the complete area of the municipalities Lenggries, Gaißach and Jachenau lies to the alpine space in the strict sense, the other ones are partially located outside, whereby for Wackersberg this is the case for the main part of its area. But as the analysis of the pilot region is carried out on the level of the municipalities, the municipalities are considered with their complete area.

The pilot region with approx. 20.000 inhabitants in the year 2001 covers an area of about 500 km². Focal point of settlement is Lenggries with more than 9.000 inhabitants. The town Bad Tölz, which actually is the main centre of the so called “Isarwinkel”, has not been chosen for the pilot region because of its urban character and the resulting differences compared to the other rather rural municipalities.



Figure 1: Location of the pilot region

Source: Euro Karte Deutschland, M 1: 750 000



Figure 2: Pilot region Isarwinkel

Quelle: ADAC Karte, Oberbayern, M 1:150000

1.2 Natural conditions

According to the geographical classification of German natural landscapes by Meynen & Schmitthüsen (1953-62) the pilot region has part in the landscape types “Voralpines Hügel- und Moorland” (pre-alpine hill- and moor area), “Schwäbisch-Oberbayerische Voralpen” (Swabian and Upper Bavaria Prealps) and “Nördliche Kalkalpen” (Northern Lime Alps), which can be subdivided corresponding to table 1 and figure 3.

Table 1: Natural landscape types in the Isarwinkel

Groups of natural landscapes	Main units of natural landscape
Voralpines Hügel- und Moorland (03)	Ammer-Loisach-Hügelland (037)
Schwäbisch-Oberbayerische Voralpen (02)	Kocheler Berge (024) Mangfallgebirge (025)
Nördliche Kalkalpen (01)	Karwendelgebirge (014)

Source: BayStMLU 1997

Figure 3: Natural landscape types in the Isarwinkel

Source: BayStMLU 1997

The current vegetation of the Isarwinkel is the result of human land use, which itself depends on the geographical and natural situation of the landscape. The flat areas in the northern part of the pilot region as well as the valley floors of the Isar and the Jachen are rather completely (intensive or extensive) grassland. In some small parts of the area there are extensive “Streuwiesen” (grassland used to get bedding) and especially in the northern part also wetlands and moors. Important to mention is the high number of environmentally valuable areas and elements like different kinds of grasslands (“Magerrasen”, Festuco-Brometea, “Glatthaferwiesen”, Arrhenatheretum), the highly diversified cultural landscape and the “Buckelwiesen” (hump meadows) in the Jachen valley, typical tree hedges (“Hage”) between Lenggries and Bad Tölz and the habitats in the floodplain of Isar and Jachen. The Isar valley, including the Rissbach and Jachen valley) represent one of the most important natural river landscapes in Central Europe. Significant changes in the water household were caused by the construction of the Walchensee hydroelectric power station in 1923 (by draining water from the Walchensee to the lower situated Kochelsee) and of the “Sylvensteinspeichersee” (storage see) in 1959.

The mountainous parts of the pilot region are dominated by coniferous forests up to over 1.500 m, followed by mountain pines (*Pinus mugo*) and alpine grasslands. Highly valuable areas are thereby complexes of different alpine habitat types around the “Benediktenwand” and in the higher regions of the “Karwendel” mountains (Schafreuter, Lerchkogel, Demeljoch) (BayStLU 1997).

1.3 History and culture

First permanent settlements were established in the region by the Celts in the 5th century BC, followed by the Celts and finally by the “Bajuwaren” in the 5th century AD. Extensive human influence on the region began with the foundation of the monastery Benediktbeuren and others in the surrounding in the 8th century and their cultivation of the land formerly dominated by forests. The landscape was from then on being shaped by extensive agriculture and forestry, not only in the valley floors but also in the higher regions with mountain pastures. The upcoming settlements were the basis for the present villages and towns (ALPEN-VERLAG 1997). The economic development in sectors different from agriculture and forestry started in the 14th century benefiting from the favourable transport situation. Bad Tölz, which became early the non-clerical centre of the region, was the crossing point of two trade routes: the old salt street and the Isar as an important trade connection to Munich. Bad Tölz had extensive trade connections to Munich, Tyrol, Bad Reichenhall, Werdenfels and Bohemia, on the one hand by exporting wood, building material and beer to Munich, Tyrol and Werdenfels and on the other hand by importing cattle, fruits, wine, cloths and salt. The discovery of iodine springs near the “Blomberg” mountain in 1846 was the basis for spa-business in Bad Tölz. This new branch was then evidently promoted by the new railway from Holzkirchen to Bad Tölz established in 1874. Thus also the nearer surrounding area focused more and more on (health) tourism. As a result of the elongation of the rail link as far as Lenggries in 1927 the transportation on the Isar finally broke together. But the economic basis of the region had already shifted to tourism before, above all in Lenggries. The building of the Brauneck cable way in 1957 and the establishment of the connected skiing area set the basis for further touristic development in the region.

1.4 Population and settlements

Nearly the half of the about 20.000 inhabitants of the pilot regions are concentrated in the municipality Lenggries. Jachenau has only about 900 inhabitants, while the other municipalities feature between 1.000 and 3.500 inhabitants (cf. table 2).

Table 2: Population 1971 - 2001

<i>Municipalities</i>	<i>1971</i>	<i>1981</i>	<i>1991</i>	<i>2001</i>
<i>Gaissach</i>	2420	2539	2726	2963
<i>Greiling</i>	878	1028	1154	1313
<i>Jachenau</i>	731	756	864	904
<i>Lenggries</i>	7262	8366	8816	9268
<i>Reichersbeuern</i>	1456	1552	1748	2117
<i>Wackersberg</i>	2468	2904	2920	3427
<i>sum</i>	<i>15215</i>	<i>17145</i>	<i>18228</i>	<i>19992</i>

Source: Municipality data of BayLfStad, different years

The outstanding low population density of 40 inhabitants per km² (Bavarian average: 172 inhabitants per km²) is caused by general poor settlement and by the large area of Lenggries and Jachenau (with Lenggries as the community with the largest area in whole Germany)..

The continuous population growth can be explained by a slight birth surplus and above all by high migration rates. Regarding the ageing structure it can be stated that there are 2 % more people under 15 years compared to Bavarian average as well as a little less inhabitants over 60 years (cf. table 3).

Table 3: Aging structure Isarwinkel and Bavaria

	< 15 years	15-65 years	> 65 years
Isarwinkel	18,4 %	66,2 %	15,5 %
Bavaria	16,4 %	67,6 %	16 %

Source: Municipality data of BayStLfStaD 2000, BayLfStaD 2001

The favoured settlement areas of the pilot region are the Pre-Alps and the valleys floors of Isar and Jachen. The settlement structure is characterised by splinter settlement (“Streusiedlungen”), which is typical for the north-alpine space. An exception is Lenggries with its comparably large area of dense settlement. In the last decades the typical forms of settlement have been influenced by population growth and the connected settlement pressure and regional untypical design. The recent focal point of development (housing and industry) is mainly the municipalities of Bad Tölz and Lenggries, where a relatively strong trade function already exists (RRV 1997).

1.5 Transport

The northern part of the pilot region and the city Bad Tölz as a regional centre are well developed with roads and railway (cf. figures 1 and 2). The most important east-west connection is the federal road B 472 from Miesbach to Penzberg, via which the motorways Munich-Salzburg (A 8) and Munich-Garmisch-Partenkirchen (A95) can be reached in about 20 minutes, too. The federal road B 13 from the Austrian border in the south along the Isar river via Lenggries to Bad Tölz (and from there further on to Munich) is the north-south axis in the pilot region. From the southwest, the southern part can be reached on the toll roads south of the Walchensee and from Wallgau. The "Bayerische Oberlandbahn“ (private Bavarian railway) provides the rail connection Munich-Lenggries with stops in Reichersbeuern, Bad Tölz, Gaißach, Obergries and Lenggries. The favourable infrastructural situation and accessibility from the Munich urban area causes high traffic volumes in the pilot region. Heavy touristic and recreational traffic as well as transit traffic to Austria / Inntal intensify the situation. Favourable weather conditions regularly lead to traffic overload between Lenggries and Bad Tölz as well as on the connected federal roads.

1.6 Regional economy

The most important economic sector in the pilot region is the service sector, followed by industry and trade. Agriculture and forestry play an inferior but important role, with 10 % of the employed persons in 1987 (cf. table 4). Partly significant differences between the municipalities especially in the primary sector can thereby be observed. The comparison with the Bavarian average shows clear discrepancies in all sectors. The rate of persons employed in the fields of agriculture and forestry is twice as high as the Bavarian average, and the relevance of the secondary and tertiary sector is nearly inverted.

For the period after 1987, data are available on the level of municipalities, so that the development in this period can only be described in a qualitative way on the basis of interviews in the pilot region (cf. section 3.) According to them, the economic structural change has been continuing, which is shown in the decrease of agricultural businesses, of industry and trade on the one hand and by the increase of the service sector, especially tourism, on the other hand. In the secondary sector especially the decrease of the traditional wood, paper and machine processing had negative impacts on the employment market.

Table 4: Structure of the regional economy 1987

Municipality	Employed Persons	Primary Sector		Secondary Sector		Tertiary Sector	
		absolute	in %	absolute	in %	absolute	in %
Gaissach	1263	149	11,8	452	35,8	662	52,4
Greiling	550	39	7,1	172	31,3	339	61,6
Jachenau	358	78	21,8	107	29,9	173	48,3
Lenggries	3591	240	6,7	1242	34,6	2109	58,7
Reichersbeuern	705	54	7,7	272	38,6	379	53,8
Wackersberg	1326	225	17,0	388	29,3	713	53,8
sum	7793	785	10,1	2633	33,8	4375	56,1
Bavaria			5,1		60,4		34,5

Source: Census data of BayLfStaD, 1987

As far as the structure of economic branches is concerned, quantitative data are only available to a limited extent. As a general result of interviews it can be stated that there is a significant difference between the smaller municipalities (rather one-sided structure of branches, handicraft (above all wood-processing) and construction dominating together with retail trade, small-scaled businesses with few employed persons), in Lenggries broader mix of branches with an additional focus on accommodation businesses, some banks and insurances and with some larger businesses. The structure of branches of Lenggries reflects not only the higher number of inhabitants, but also the stronger orientation towards tourism.

Table 5: Economic strength and unemployment rate in the Landkreis (administrative district) Bad Tölz-Wolfratshausen

	1985	1990	1995	1999
Gross domestic product in market prices in /employed person			43.229	50.853
Gross value added in producer prices of all economic sectors in 1000			1.921.027	228.1291
Private income of households in /inhabitant			20.240	21.847
Unemployment rate	7,5%	4,3%	6,2%	5,5%
Unemployment rate Bavaria	7,0%	5,1%	6,0%	7,4%

Source: Data of BayLfStad, different volumes, BayLfStad 2001

Because of missing economic data on the municipal level, data of the administrative district had to be taken as a basis. This enables only limited statements concerning to the pilot region. It can be stated that in the nineties the macroeconomic indicators gross domestic product and gross value added as well as of private income developed have been constantly rising. The unemployment rate in the administrative district was always lower rate than the Bavarian average. Table 6 provides a more detailed insight in the economic situation, showing that incomes as well as gross wages in the Isarwinkel are (partly significantly) below the average of the administrative district. The incomes are also in comparison to the Bavarian mean value below average, the gross wages are nearly the same. These data can lead to the conclusion that there is a lack of higher qualified places of employment in the Isarwinkel. Comparing the municipalities shows a significant weak position of Jachenau, which is possibly caused by the high rate of rather “un-economical” small farm sizes.

Table 6: Incomes and wages in the Isarwinkel 1995

	Gross amount of incomes in DM per tax payer	Gross wages in DM per employee
Gaißbach	55161	46371
Greiling	72305	55192
Jachenau	44421	42624
Lenggries	58663	48387
Reichersbeuern	55116	47288
Wackersberg	58984	46932
Isarwinkel	57442	47799
Landkreis Bad Tölz	66890	51846
Bavaria	60924	47699

Source: BayLfStad 2001 (Municipality Data)

The commuter data (cf. table 7) characterise the Isarwinkel as a region of out-commuting, with significantly more people living than working there. The highly negative commuter balance is caused on the one hand by the proximity and good transport connections to Bad Tölz and to the urban area of Munich and on the other hand by the lacking terms of qualified places of em-

ployment. The commuter flows could have increased in the nineties because of the reduction in industry and trade as well as in agriculture.

Table 7: Commuter data 1987

Municipality	In-Commuters	Out-Commuters	Commuter account balance
Gaissach	333	778	-445
Greiling	34	420	-386
Jachenau	17	184	-167
Lenggries	674	1.329	-655
Reichersbeuern	76	489	-413
Wackersberg	113	820	-707
Isarwinkel	1.247	4.020	-2.773

Source: Census Data BayLfStaD 1987

1.7 Agriculture and forestry

1.7.1 Agricultural and forestry structure

According to the high rate of employees in the primary sector and the large parts of land use area of about 21 % resp. 59 % (cf. table 10), agriculture and forestry play an important role in the pilot region. In 1995, the Isarwinkel featured 774 agricultural and forestry businesses (cf. table 8). Their number has been permanently decreasing since the seventies (cf. section 2). Whereas full time farming slightly dominates in the pilot region average, the situation in the municipalities is different. Full time farming is significantly dominating in Jachenau and Greiling, and only in Lenggries there is more half time farming. According to the size of farms, nearly half of the agricultural businesses have more than 20 ha agricultural used land (cf. table 9). This shows that one cannot speak of a small structured agriculture in the Isarwinkel at all. Smaller farms occur in higher rate only in Lenggries, whereas in Jachenau and Greiling about $\frac{3}{4}$ of all farms manage more than 20 ha.

The northern municipalities with part in the pre-alpine space have much higher rates of agricultural used land (up to 50%) as Lenggries and Jachenau, which hold great areas in alpine space (cf. table 10). The agricultural land is nearly exclusively used as grassland with dairy cattle husbandry. Arable land and permanent crops don't play any role. Whereas in the northern municipalities intensive grassland is dominating (70 – 90 % of agricultural land), intensive and extensive land use is balanced in Lenggries and Jachenau; Gaißach lies in between.

The part of the area covered with forest is large in the whole pilot region, especially in Lenggries with its large alpine part (about 78 %) and also in Gaißach (about 49 %). The woodland rate is around 30 – 40 % in the other municipalities. The majority of forests is owned by private persons or the State, whereas municipalities possess only a very little part (RRV 1997, AfLuE 1998).

Table 8: Agricultural businesses, full and part time farming 1995

	agricultural and forestry businesses total	thereof full time farming in %	thereof full time farming in %
Gaissach	144	35,42	37,5
Greiling	38	39,47	10,5
Jachenau	57	50,88	12,3
Lenggries	284	22,54	31,7
Reichersbeuern	76	30,26	23,7
Wackersberg	175	40,00	34,9
Isarwinkel	774	32,6	30,2

Source: Data of BayLfStad

Table 9: Farm size of agricultural businesses 1999 (Percentage of all businesses)

	< 5 ha (in %)	5-10 ha (in %)	10-20 ha (in %)	>20 ha (in %)
Gaissach	15,46	30,93	27,84	25,77
Greiling	0,00	6,67	20,00	73,33
Jachenau	5,56	11,11	5,56	77,78
Lenggries	26,32	16,54	11,28	45,86
Reichersbeuern	15,38	19,23	19,23	46,15
Wackersberg	8,53	13,95	28,68	48,84
Isarwinkel	15,37	18,35	20,41	45,87

Source: Data of BayLfStad

Table 10: Land use 1999

	land in ha	agricultural used land in %	woodland in %	other land in %	part of intensive GL of LF in %	part of extensive GL of LF in %
Gaissach	3854,87	47,33	49,32	3,35	62,45	37,50
Greiling	765,08	52,66	39,07	8,27	73,52	26,48
Jachenau	12863,08	10,97	39,73	49,30	50,14	0,00
Lenggries	24287,87	14,06	78,39	7,55	51,14	48,63
Reichersbeuern	1540,64	33,87	39,56	26,57	90,08	9,92
Wackersberg	6482,93	44,38	33,58	22,04	70,91	28,62
Isarwinkel	49794,47	20,99	58,51	20,50	61,23	31,82

Source: Data of BayLfStad

Because of unfavourable agricultural production conditions, the southern part of the pilot region with the municipalities Jachenau, Lenggries and Gaißach are covered by the State's "mountain region" financial promotion programme, whereas the northern municipalities are part of the "disadvantage agricultural zone" with less support (RRV 1997). The main part of agricultural income comes from the production of milk, meat and wood. Accommodation on farms ("farm

holidays” resp. “guests on farms”) is increasing. About 350.000 of the 2 Mio. overnight stays in the whole administrative district can be counted for agrotourism. These earnings are essential extra incomes for the farmers. Direct marketing measures (farm shops, markets) are increasing (AfLuE 1998).

1.7.2 Mountain pasturing

In spite of structural change since the fifties, mountain pasturing is still an essential part of agriculture in the pilot region (whereby it has to be considered that Greiling and Reichersbeuren don't have any mountain pastures at all). In the sixties, the number of cattle on pastures decreased to a minimum point. In some cases it came even to the giving up of several uneconomic pastures. Whereas in 1980 140 persons worked on pastures, in 1996 there were only 39 left (- 72 %). The number of cows decreased from 946 in 1950 to 267 in 1996. The stock of sheep and goats dropped enormously, too. On the contrary, the stock of young cattle increased between 1950 and 1978 for 30 %, between 1978 and 1996 for another 10 %. This was caused by legal changes resp. the financial support for young cattle husbandry established in 1966 (RRV 1997). Altogether, there is the same number of cattle on pastures today as in the beginning of the 20th century (but indeed a smaller number of dairy cattle, which was displaced by young cattle (BayStMLU, 1997)).

Table 11: Mountain pastures

	Number of mountain pastures ¹⁾			Ownership 2002		Number of cattle on pastures 2002
	1950/54	1972	2002	Public ownership	Private ownership	
Gaissach	5	4	8	0	8	407
Jachenau	26	24	29	20	9	595
Lenggries	59*	50	65	14	51	1.973
Wackersberg	25	23	29	1 ²⁾	28	524
Isarwinkel	115	101	131	35	96	3.499

Source: Regional Government Oberbayern (2003)

Notes:

- 1) Between 1954 and 1972 some mountain pastures were given up, but since 30 year the number of pastures keeps constant. The actual increase number of pastures is caused by new acceptance of mountain pastures.
- 2) This mountain pasture is in common ownership of the municipality Wackersberg.

Table 12: Land use on mountain pastures

	“Light” pastures (ha)	Forest pastures (ha)	Total area (ha)	Part of forest pastures of total area (%)
Gaissach	281	110	391	28 %
Jachenau	414	740	1.154	64 %
Lenggries	1.604	1.074	2.678	40 %
Wackersberg	422	107	529	20 %
Isarwinkel	2.721	2.031	4.752	43 %

Source: Regional Government Oberbayern (2003)

The focal point of mountain pasturing is Lenggries with today 65 pastures, followed by Jachenau (29) and Wackersberg (29) as well as Gaißbach (8). Two-thirds of the pastures are of private ownership, the rest is of public ownership (“Berechtigungsalmen”, where single farmers or associations have the right of mountain pasturing) and one is of common ownership of the municipality Wackersberg. Of the total area of 4.752 ha the part of forest pastures is remarkable high (43 %). Especially high is the part of forest pastures in Jachenau with 64 % whereas in Wackersberg and Gaißbach 70 resp. 80 % of the pastures are out of the forest (so called “light” pastures). The cultivated land reaches from areas below 1.000 m up to a maximum of 2.000 m.

1.7.3 Agricultural structure comparison Isarwinkel–Alpine municipalities–Bundesland Bavaria

Table 13 gives an overview of agricultural development in the Isarwinkel compared with the average of the Bavarian municipalities within the Alpine space and the whole Bundesland Bavaria. It can be seen that agricultural restructuring took place in the pilot region to a far lower extent than on Bavarian level. Compared with the average of the Alpine communities, the Isarwinkel shows again a less negative development. This kind of development is expressed on the one hand by the lower decrease of agricultural and forestry businesses as well as by the higher percentage of full time farmers. As far as the number of cattle is concerned, it is far below Bavarian average, but within the range of the Alpine average. A characteristic of the Isarwinkel (together with the neighbouring area of the Miesbach district) is its comparatively high agricultural business size.

Table 13: Comparison of data of Bavaria, of municipalities in the Alpine region in Germany and of the pilot region

	Number of agricultural businesses and percentage change in comparison with the former date ¹⁾			
	1971/ 1974	1979/1981	1991	1995/1998
Bavaria	331.095	274.273 (- 17,2 %)	214.860 (-21,7 %)	189.942 (- 11,6 %)
Alpine municipalities	12.183	9.866 (-19,0 %)	8.807 (- 10,7%)	8.286 (- 5,9 %)
Pilot region	640	557 (- 13,0 %)	517 (- 7,2 %)	476 (- 7,6 %)
	Number of agricultural and forestry businesses and percentage change in comparison with the former date ¹⁾			
	1971/ 1974	1979/1981	1991	1995/1998
Bavaria	364.679	325.107 (- 10,9 %)	279.925 (-13,9 %)	262.195 (- 6,3 %)
Alpine municipalities	15.400	12.977 (-15,7 %)	12.177 (- 6,2 %)	11.854 (- 2,7 %)
Pilot region	840	784	776	770

		(- 6,7 %)	(- 1,0 %)	(- 0,8 %)
	Percentage of full time farming			
	1974	1983	1991	1995
Bavaria	52,7 %	50,7 %	45,0 %	42,6 %
Alpine municipalities	53,1 %	54,8 %	49,0 %	45,9 %
Pilot region	57,1 %	57,2 %	54,5 %	51,9 %
	Number of cattle per farm			
	1974	1983	1991	1995
Bavaria		28,7	35,9	40,0
Municipalities of the Alpine region in Germany		25,1	26,9	29,5
Pilot region		24,5	26,4	28,5
	Agricultural used land (LF) per farm (in ha) ²⁾			
	1974/1979	1983	1991	1995
Bavaria	12,9		15,8	17,9
Municipalities of the Alpine region in Germany	14,0	16,4	18,0	
Pilot region	18,2	20,2	21,7	

Notes:

- 1) Data of 1971, 1979, 1991, 1995 for Bavaria; years 1974, 1981, 1991, 1998 for the municipalities of the Alpine region in Germany and for the pilot region.
- 2) Data of 1979 for Bavaria; 1974 for the municipalities of the Alpine region in Germany and for the pilot region.

Sources: Data of BayLaStD, Bavarian Agricultural Report (BStMELF)

1.7.4 SUSTALP results

In the frame of the EU research project SUSTALP the Alpine municipalities were classified according to their natural, agricultural and socio-economical structure. As a result, the communities Lenggries, Jachenau and Greiling were assigned to the type characterised by tourism, grassland farming and part time agriculture as on the Alpine average. Growing specialisation towards cattle farming, connected with intensification of grassland farming, as well as integration of tourism can be observed. The municipalities Wackersberg, Gaissach and Reichersbeuern are classified as “Alpine average communities” showing average values with most of the criteria, only tourism having a major importance in this type.

The preliminary REGALP findings confirm the general SUSTALP results for the Isarwinkel but with some little differences.

1.8 Tourism

Together with Bad Tölz and the neighbour regions Tegernsee and Schliersee, the Isarwinkel is one of the most important recreational and touristic areas in Bavaria and Germany. Since the fifties tourism and recreation play an outstanding role in the pilot region (whereas spa-business is important to Bad Tölz since the end of the 19th century) and form the most important economic sector of the administrative district. Table 11 shows the touristic development in the last decade (which differs from municipality to municipality), whereby the number of beds is not included because of its insufficient availability of data (cf. section 2). In the beginning of the nineties, the German Unification caused a strong increase in overnight stays. This trend flattened till the middle of the decade. A closer look to the data reveals that the total number of overnight stays fell especially in Lenggries while it rose in Gaißach. The rise in Gaißach is reached by the duplication of duration of stay, which is in contrary to the decrease of duration of stay in all other municipalities. The reason probably is the children and youth hospital constructed in Gaißach in the last decade. The spa Bad Tölz is noticeable negatively affected by the spa-business crises of the nineties, which may have also an impact on the surrounding municipalities.

Table 14: Overnight stays, arrivals and duration of stay 1991, 1995 and 2000

	Overnight stays incl. private accommodations			Arrivals incl. private accommodations			Average duration of stay (days)		
	1991	1995	2000	1991	1995	2000	1991	1995	2000
<i>Bad Tölz</i>	810.300	794.020	570.708	57.219	55.288	69.606	14,2	14,4	8,2
Gaißach	49.155	50.783	58.774	7.509	4.312	4.554	6,6	11,8	12,9
Greiling (1)	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.
Jachenau	49.886	50.013	45.368	5.449	5.396	5.735	9,2	9,3	7,9
Lenggries	263.558	258.697	234.008	49.856	59.091	55.574	5,2	4,3	4,2
Reichersb. (1)	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.	k.A.
Wackersberg	31.817	32.154	31.174	7.058	7.868	9.235	4,5	4,1	3,4
Isarwinkel	394.416	391.647	369.324	69.872	76.667	75.098	6,4	7,4	7,1

(1): Too little number of beds for registration

Source: *Data of Tölzer Land Tourismus (2002)*

The majority of guests arrive in the summer season (but with decreasing trend), whereas an increase in winter tourism can be observed so that the figures are converging more and more. Besides the overnight guests there is a huge number of one-day holidaymakers due to the proximity of the urban area of Munich and the favourable transport connection. The following list gives an overview of the most important touristic and recreational facilities in the Isarwinkel (whereby the spa facilities and others of Bad Tölz are not mentioned, but have to be kept in mind):

- hiking and skiing region „Brauneck“ (1.553 m) with cabin cable car, 4 chair lifts and 15 drag lifts, 30 km ski runs, location of ski world cup, 9 managed cottages (partly accommodation), climbing garden and widespread net of hiking trails.
- hiking and skiing region „Blomberg“ (1.248 m) with German longest summer toboggan run, twin chair lift, 5 km ski run
- widespread net of hiking trails with numerous managed cottages in the „Kocheler Bergen“, in the mountains of “Mangfall” and “Karwendel”
- extended net of cycle paths along the Isar
- numerous mountain bike trails
- two 9-loop golf courses
- „Sylvensteinspeichersee“ (storage see)

1.9 Important regional actors

Name	Institution	Function	Street	Place
Regional planning				
Herr Graßler	Regierung von Oberbayern (Government of Oberbayern)	field of spatial planning	Maximilianstr. 39	80538 München
Local policy				
Werner Weindl	Municipality Lenggries	Mayor	Rathausplatz 1	83661 Lenggries
Kaspar Danner	Municipality Jachenau	Mayor	Dorf 51 1/2	83676 Jachenau
Nikolaus Trischberger	Municipality Gaißbach	Mayor	Bahnhofstraße 8	83674 Gaißbach
Georg Kellner	Municipality Wackersberg	Mayor	Bachstr. 8	83646 Wackersberg
Hans Ostermünchner	Municipality Greiling	Mayor	Schulweg 2	83677 Greiling
Josef Reiter	Municipality Reichersbeuern	Mayor	Tölzer Straße 12	83677 Reichersbeuern
Administration				
Klaus Held	District Office Bad Tölz	Dept. Environment, Transport, Economic development	Am Schlossplatz 1	83646 Bad Tölz
Andreas Roß	District Office Bad Tölz	Dept. Business development, Public transport, Tourism	Am Schlossplatz 1	83646 Bad Tölz
Jutta Maier	District Office Bad Tölz	Dept. Environment	Am Schlossplatz 1	83646 Bad Tölz
Agriculture and Forestry				
Dr. Martin Seitner	Agricultural Agency Miesbach-	Head officer	Bahnhofstr. 12	82515 Wolfratshausen

Wolfratshausen				
Isidor Fischhaber		“Kreisbauernobmann” Representative of national farmers’ association	Wasenstein 5	83661 Lenggries
Conservation of nature and cultural heritage				
Hermann Schinner		“Kreisheimatpfleger” officer occupied with conservation of culture and tradition	Schulweg 2	83677 Greiling
Economy				
Ernst Reitz	IHK für München und Oberbayern (Chamber of Commerce and Industry)	Business Development, urban land-use planning	Max-Joseph-Str. 2	80333 München
Tourism				
Andreas Wüstefeld	Tölzer Land Tourismus (Tourism Association district Bad Tölz-W.)	Head	Am Schlossplatz 1	83646 Bad Tölz
Associations of nature protection				
Heribert Zintl		Bund Naturschutz, Landesbund für Vogelschutz, Isartalverein (Associations of nature and birds protection)	Großherzogin Maria-Anna-Weg 16 a	83661 Lenggries

1.10 The state of territorial planning and regional development

1.10.1 Bavarian Land Development Programme

The Bavarian Land Development Programme (LEP) represents the spatial plan on Federal state (Bundesland) level according to § 7 BROG and defines the overall concept of future spatial development. The current version from 1994 is going to be updated in 2003, a preliminary draft from 2001 is already available. The LEP is subdivided in overall and sectoral objectives. The following description of general overall objectives refers to the version of 1994 which is in force at present.

The fundamental objective aims at conservation and creation of equal living conditions in all parts of the country, whereas natural basics should be protected and possibly improved. Sustainable economical, social and ecological development is aspired (even if this phrase is not mentioned as explicit as in the update draft, which also emphasises the demand of evaluating plans and measures with spatial impacts regarding their ecological relevance and formulates conservation and creation of cultural landscape as a separate objective).

According to the territorial classification of the LEP, the pilot region is part of the “rural area in the surrounding of the urban area” of Munich. The overall objective in this area is its conservation as an independent and equivalent living space by improvement of infrastructural, ecological and social circumstances connected with protection of original structures. Separate objectives

are formulated for the development of the alpine space with its numerous and conflicting claims. They especially aim at conservation of nature and landscape, the guarantee of recreational functions and at the avoidance of negative impacts of settlement and infrastructure development. In addition, update draft demands the minimization of alpine danger potentials as well as the orientation of the recreational sector towards the ecological capacity of the region.

According to the German point-axial spatial planning concept, central places (which form centres of economic, social and cultural life and supply the surroundings) and development axes (along which the development of settlement and infrastructure should be concentrated) are declared. The pilot region has Lenggries as an “Unterzentrum” (inferior centre) but Bad Tölz as a “Mittelzentrum” (medial centre)

has a strong impact on the region. As a development axe of national importance, the Federal road B 472 runs through the region.

The “sectoral objectives” set numerous specific demands to the development of alpine space. Cultural landscape should be conserved by agriculture in a general sense and especially by alpine agriculture. Mountain pastures should be developed according to ecological capacities. The chapter forestry aims to the conservation of forests and its functions, which should be reached by adequate and nature-orientated usage and management, separation of forests and pasturing as well as guarantee of natural regeneration by adapting the stock of game to the ecological capacity. The competitiveness of tourism should be

protected and extended by qualitative improvement and completion of existing facilities, whereas recreational use harmful to the environment should be avoided.

To counteract an uncoordinated recreational development of the Bavarian alpine space, yet in 1972 the so called “Alpenplan” (spatial plan concerning the Alps) was laid down as part of the LEP stating legally binding development zones. Infrastructure construction is in zone A generally possible, in zone B only to a limited extent, and in zone C it’s generally forbidden. The cut-out of the Alpenplan (figure 4) shows that the valley of the Isar between Bad Tölz and Leng-

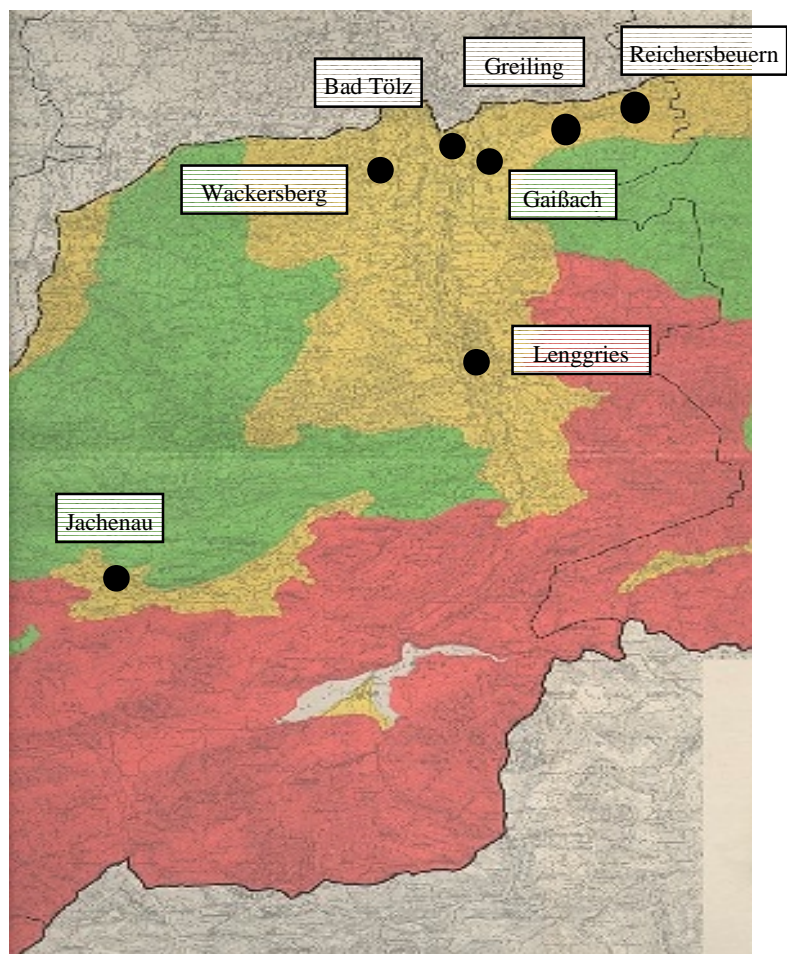


Figure 4: Cutout of the “Alpenplan“ (BayStMLU 1994)

gries, the valley of the Jachen as well as the already intensively developed alpine regions of Brauneck and Blomberg are classified as zone A,. While the northern part of the Kochel and the Mangfall mountains are part of zone B, their southern part as well as the Karwendel mountains fall into the strict protection category C.

1.10.2 Regional Plan Oberland

The LEP is spatially and sectorally concretised by regional plans which are established by regional planning associations. The pilot region is part of the planning regional “Oberland” comprehending the administrative districts (Landkreise) Bad Tölz-Wolfratshausen, Garmisch-Partenkirchen, Weilheim-Schongau and Miesbach. The version of 1988 is already partly updated (2000, 2001). Relevant objectives concern the sectors settlement, economy, agriculture, forestry and nature protection.

The development of settlement and industry should be concentrated along the development axis Holzkrichen-Bad-Tölz-Lenggries and along the Federal Road B 472, so that the identity of the rural area can be preserved. The alpine space should be spared from industrial settlement and preserved as a touristic and recreational area, the basis (“natural capital stock”) for which is the quality of its nature and landscape. The whole area is declared as a “landscape priority area”. The grown settlement structure and construction tradition should be preserved, wherefore the settlement development should be limited to the needs of the local population and their demand for residential houses and small-scale industrial buildings. Thereby, splinter development as well as construction in ecological valuable regions or in areas which threatened by natural risks should be avoided. In the northern part of the Isarwinkel, a qualitative and limited quantitative development of tourism is scheduled whereas in the southern part only a qualitative development should occur. Lenggries shows the basic qualities for being further developed to a higher level place of recreation because of its suitability to year-round-tourism. To discharge the alpine space, recreational options should be established in the pre-alpine space. In the agricultural sector, the overall objective is to strengthen small family businesses and to ensure to make aliving from half time farming, so that these farmers can preserve the traditional cultural landscape especially in the alpine area. Mountain pastures should aim at locally and environmentally adapted cultivation, whereby infrastructural development is necessary to ensure future cultivation. The conservation of mountain forests with its various protection functions is of special importance, so that nature-orientated usage and management is the objective. The impact of pasturing in endangered higher regions should be reduced by separating wood and pasture.

1.10.3 Regional Development Concept of the administrative district Bad Tölz-Wolfratshausen

In 1997 a Regional Development Concept has been worked out by the University of Bayreuth (RRV 1997), of which in the following the relevant parts for the pilot region are summarised. Table 10 shows an overview of the analysis of strengths and weaknesses.

Table 15: Strengths and weaknesses of the administrative district Bad Tölz-Wolfratshausen resp. of the Isarwinkel

Strengths	Weaknesses
Nature and Landscape	
High potentials of landscape, recreation and adventure	Ecological damages by tourists (skiing regions, volume of traffic)
Settlement, transport and infrastructure	
Grown structures in villages, neat place pictures	Dominating living function in contrast to working function, high stress of settlement and splinter development by moving in, high volume of traffic by streams of commuters to Bad Tölz and to the urban area of Munich as well as by tourists
Employment market	
Comparatively less unemployment, comparatively dynamic development of number of employments and employees (esp. in the service sector)	Pull of the urban area of Munich because of its attractive offer of employments, seasonal fluctuations (building sector, tourism)
Agriculture and Forestry	
High number of extensively use land and ecological cultivation as well as high demand for qualified products, agriculture and mountain pasturing as an ideally and economical factor, basis of tourism determining element to landscape, alternative possibilities of income to farmers: farm holidays, direct marketing measures, handy craft, timber industry	Disadvantageous agricultural conditions of production esp. in the mountain area, expendable linkages of agriculture, trade, gastronomy to use regional potentials, partly missing of economic thoughts concerning direct marketing measures
Industry	
No firms in the administrative district which cause intensive emissions and environmental damage	Economic gradient compared to the Munich area, missing land to potential expansions of firms or new settlements in suitable place, five-up of firms without succession
Handy craft	
Continued numbers of employees and firms in handy craft, appliance of the regional market, tight linkage to tourism	Problem of succession, missing cooperation between farmers, gastronomy and handy craft
Trade and Service	
In line with the regional demands	Drain of purchasing power in retail sales, undersupply with goods of daily demands in smaller settlements, partly dieing of shops
Tourism	
Most important sector of economy with varied impact of multiplication, varied leisure facilities for tourists, positive image of Lenggries because of ski word cup, pediatric clinic in Gaißach which entails family members as guests	Partly regressing duration of stay, dependence on weather, need of modernisation of lifts in Lenggries

Source: RRV (1997)

Based on the structural analysis the Regional Development Concept presents as the aspired variant of development to the administrative district in the next 20 years the vision “The administrative district as business and living location in demand”. This perspective unites the vision of “High-Tech in the administrative district” (independent, modern business location by development of facilities with “magnet function” and use of new technologies, infrastructure provision by urban railway, “push to qualifying”, professional extension of wellness trends) and the vision of “Sustainable development in the administrative district (extension of use of regenerative energies in industry and trade, production of qualified products, concept of tourism guidance, extension of group travel). To realise such a development, the overall objective is formulated as a sustainable regional development on the basis of protection and conservation of natural basics as a location factor. According to the several fields there are formulated sub-objectives. In the field of settlement and transport a sustainable and high-quality development of settlement is intended, whereas housing space to young families and natives should be created and ecological transport planning especially improvement of public transport should be realised. In the field of agriculture the cooperation with gastronomy, handy craft and culture should be extended. Industry, trade and services should be protected and strengthened by development of a advantageous economical climate, extension of future-oriented branches of industry and increase of attractiveness of local sectors. The competitiveness of tourism should be conserved and improved by qualified appreciation of existing facilities, gain of new target groups, enlargement of season and intra-regional cooperation between the suppliers.

1.10.4 Communal Land-Use Planning

Table 11 gives an overview of existing Communal Land-Use Plans (Preparatory Land-Use Plans, Landscape Plans) in the municipalities.

Table 16: Communal Land-Use Plans

Municipalities	Preparatory Land-Use Plan (FNP)		Landscape Plan (LP)	
	Year	Note	Year	Note
Lenggries	1972	<i>updating intended</i>	-	<i>installation of LP perhaps together with FNP update</i>
Gaißach	70ies/80ies		-	
Jachenau	-	<i>no FNP because of little building activity</i>	-	
Wackersberg	in process			in process, integration into FNP
Greiling	1998		1998	integrated into FNP
Reichersbeuern	n/a		n/a	

Source: Information of municipal administrations

1.10.5 Promotion programmes

1.10.5.1 Agricultural promotion programmes

Agricultural promotion in the Isarwinkel comprises the following programmes:

- Compensation Supplement (“Ausgleichszulage” for naturally disfavoured areas), all 6 municipalities classified as “mountain area” and therefore fully eligible
- Bavarian Cultural Landscape Programme (KULAP) promoting extensive farming and aiming at conservation and caring of cultural landscape
- Contractual Nature Protection Programme (VNP) promoting extensive farming and aiming at conservation and caring of agricultural areas of environmental interest
- Compensation payment for farming in wetland areas, which is included in the VNP.

The tables 17-19 provide an overview of the financial flows from these programmes into the pilot region. As far as the Compensation supplement and KULAP are concerned, the trend towards substantially increasing financial promotion over the last years is obvious. For the VNP statements are only possible for 2002.

Table 17: Agricultural promotion (Compensatory Supplement and Bavarian Cultural Landscape Programme) in the pilot region

	Amount of agricultural promotion – (Subsidies in DM)				
	1988	1993	1998	2001	sum 1988 - 2001
Gaißbach	-	-	-	-	-
Greiling	88.252	127.521	199.609	189.113	2.003.207
Jachenau	519.785	705.223	821.132	836.872	9.666.561
Lenggries	898.262	1.316.466	1.721.208	1.781.955	18.922.302
Reichersbeuern	103.307	234.631	276.706	262.114	2.876.562
Wackersberg	738.239	1.178.548	1.406.112	1.324.762	15.201.362
Isarwinkel	2.347.845	3.562.389	4.424.767	4.394.816	48.669.994

Source: Data of the Agricultural Office Miesbach/Wolfratshausen (2003)

Table 18: Agricultural subsidies on average per farm in the pilot region

	Agricultural subsidies per farm (Average in DM)		
	1991	1995	1998
Gaißbach	-	-	-
Greiling	5.135	8.760	11.089
Jachenau	16.111	19.112	22.809
Lenggries	6.282	8.808	11.475
Reichersbeuern	2.874	5.479	7.479
Wackersberg	6.213	8.296	10.652
Isarwinkel	5.263	7.249	9.296

Source: Data of the Agricultural Office Miesbach/Wolfratshausen and BayLfStaD (2003)

Table 19: Promotion of agricultural land use within the Contractual Nature Protection Program inclusively compensation in wetlands in the pilot region in 2002

	Number of Contracts	Subsidies in €
Gaißbach	53	36.626,65
Greiling	2	3.899,40
Jachenau	25	32.742,08
Lenggries	38	30.317,83
Reichersbeuern	13	6.575,12
Wackersberg	38	34.304,82
Isarwinkel	169	144.464,90

Source: Data of the Agricultural Office Miesbach/Wolfratshausen (2003)

1.10.5.2 Promotion of regional economy

Above all, tourism trade and tourism infrastructure are the aim of regional economy promotion. From 1993 to 2002 subsidies amounted to approximately 3 Mio. (including the city Bad Tölz) in the form of mostly allowances, but also credits. With this sum, investments of about 16 Mio. have been promoted. According to the District office Bad Tölz-Wolfratshausen, these promotion measures created 55 new working places and safeguarded another 198 (again including Bad Tölz). Another type of economical promotion is the Bavarian credit programme for small to medium sized economical enterprises. In the whole district, investments of almost 100 Mio. have been subsidised providing more than 700 new working places.

1.10.6 Areas of nature protection

A comparatively large part of the area of the Isarwinkel is under nature protection. Focal points are the Nature Protection Area of the Karwendel mountains and several Landscape Conservation Areas (Isar, Jachen valley, etc.). In addition, in 2002 the Bavarian government proposed five potential FFH-areas (which cover mainly the already protected areas Karwendel, Isar, Jachenau). In the annex a detailed list of the protected and proposed areas can be found.

2. REGIONAL DEVELOPMENT TRENDS AND CULTURAL LANDSCAPE CHANGE

This section features the results of the combination of Bätzing types and cultural land use indicators provided by RC regarding the Isarwinkel (T2.5, Analyses of pilot region Isarwinkel, Draft results, 31. Oct. 2002).

2.1 The main spatial development trends

Table 20: Pilot region „Isarwinkel”, Landkreis Bad Tölz – Wolfratshausen, Germany

Country, pilot region		Municipalities	Code	Bätzing Types (71-81-91)	Inhabitants 1971	Inhabitants 1991	Inhabitants 2001	Area km ²
GERMANY	ISARWINKEL	Lenggries ¹	173135	G-G-G	7.262	8.816	9.268	242,88
		Jachenau	173131	G-G-P	731	864	904	128,63
		Gaissach	173124	G-P-PE	2.420	2.726	2.963	38,55
		Greiling	173127	P-P-P	878	1.154	1.313	7,65
		Reichersbeuern	173140	G-P-P	1.456	1.748	2.117	15,41
		Wackersberg	173145	G-P-P	2.468	2.920	3.427	64,83
TOTAL		6			15.215	18.228	19.992	498

Note: ¹ Lenggries with its classification as a “minor center” (“Unterzentrum”) according to the German spatial planning system could be taken as the Bätzing-type “local center”, too, but with regards to a lack of equal classification systems in the rest of Alpine countries, the German classification has not been taken into account.

Table 21: The main development trends on local level, 1971-1981-1991

Trend	Sub-trend	Change of types 71-91	Frequency	%
1. Centrally dominated development	1.1 Transition to commuter dominated development, weak variant	G-G-P G-P-P	3	50,0
	1.2 Transition to commuter dominated development, strong variant	G-P-PE	1	16,67
	1.3 Commuter dominated development, weak variant	P-P-P	1	16,67
2. Balanced development	2.1 Balanced development	G-G-G	1	16,67
TOTAL			6	100,0

Source: own computations

- Most important development trend is the 'centrally dominated development trend', it contains the three following sub-trends:
 - 1.1 Transition to commuter dominated development, weak variant, including 50% of the communities analysed
 - 1.2 Transition to commuter dominated development, strong variant, 16,7% and
 - 1.3 Commuter dominated development, weak variant, with 16,7%
- Second trend is the 'balanced development', including 16,7%, too.

Table 22: 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 • Commuter ratio
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 / part time businesses • Cattle per farm
Land use	<ul style="list-style-type: none"> • Agricultural land use categories

Source: own computations

2.2 The analysis of the interrelation between local development trends and the change of cultural landscape

2.2.1 Natural conditions: Average sea level

Table 23: Average sea level

Trend	Sub-trend	Change of types 71-91	Frequency	Average sea level
1. Centrally dominated development	1.1	G-G/P-P	3	750
	1.2	G-P-PE	1	740
	1.3	P-P-P	1	706
2. Balanced development	2.1	G-G-G	1	679
Total			6	719

Source: own computations

- Highest average sea level is in sub-trend 1.1.
- Lowest sea level can be found in sub-trend 2.1.

2.2.2 Population

Table 24: Inhabitants 1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	1971	1981	1991	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	4.655	5.212	5.532	877	18,8
	1.2	G-P-PE	1	2.420	2.539	2.726	306	12,6
	1.3	P-P-P	1	878	1.028	1.154	276	31,4
Balanced development	2.1	G-G-G	1	7.262	8.366	8.816	1.554	21,4
Total			6	15.215	17.145	18.228	3.013	19,8

Source: own computations

- The inhabitants increase for 3.103 (ca. 20%).
- Highest relative increase is in sub-trend 1.3 and absolute highest increase is in 2.1.
- Sub-trends 1.1 and 1.2 are below average growth rate.

Table 25: Migration 1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	71-81 total	81-91 total	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	485	373	858	14,39
	1.2	G-P-PE	1	5	23	28	1,74
	1.3	P-P-P	1	130	144	274	10,71
Balanced development	2.1	G-G-G	1	1.130	631	1.761	4,74
Total			6	1.750	1.171	2.921	7,56

Source: own computations

- The region Isarwinkel has a positive migration:
- Immigration in the 70ies was higher than in the 80ies.
- Highest immigration is in sub-trend 1.1.
- Lowest immigration is in 1.2 (lowest increase of inhabitants).

Table 26: Population in productive age (15-64) 1971–1991

Trend	Sub-trend	Change of types 71-91	Frequency	1971	1981	1991	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	2.752	3.159	3.596	844	30,67
	1.2	G-P-PE	1	1.432	1.659	1.814	382	26,68
	1.3	P-P-P	1	545	687	802	257	47,16
Balanced development	2.1	G-G-G	1	4.039	4.823	5.743	1.704	42,19
Total			6	8.768	10.328	11.955	3.187	36,35

Source: own computations

- Increase of population in productive age was 3.187 (+36%), (increase of inhabitants +20%).
- Highest increase is in sub-trend 1.3 (like in development of inhabitants).
- Sub-trends 1.1 and 1.2 are below average.

2.2.3 Working places

Table 27: Working places 1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	1971	1981	1991	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	1.283	1.145	1.069	-214	-16,68
	1.2	G-P-PE	1	631	746	808	177	28,05
	1.3	P-P-P	1	140	152	158	18	12,86
Balanced development	2.1	G-G-G	1	2.450	2.805	2.999	549	22,41
Total			6	4.504	4.848	5.034	530	11,77

Source: own computations

- Number of working places increase by 530 (+12%).
- Working places are mainly concentrated in 2.1.
- Negative development can be found in sub-trend 1.1 (-214, -17%).

2.2.4 Commuter ratio

Table 28: Commuter ratio;1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	1971 in-out	1981 in-out	1991 in-out	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	-763	-1.102	-1.287	-524	-16,58
	1.2	G-P-PE	1	-483	-458	-445	38	8,12
	1.3	P-P-P	1	-214	-326	-386	-172	-9,73
Balanced development	2.1	G-G-G	1	-461	-586	-655	-194	-2,40
Total			6	-1.921	-2.472	-2.773	-852	-5,68

¹⁾ = change of ratio of commuter balance (in-commuters minus out-commuters) in % of employed persons between 1971 and 1991

Source: own computations

- The region shows a negative commuter balance and a negative commuter ratio.
- Only sub-trend 1.2 shows a positive commuter ratio.
- Highest negative commuter ratio is in sub-trend 1.1.

2.2.5 Settlements

Table 29: Residential buildings 1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	1971	1981	1991	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	903	1.032	1.140	237	26,25
	1.2	G-P-PE	1	410	475	526	116	28,29
	1.3	P-P-P	1	171	207	260	89	52,05
Balanced development	2.1	G-G-G	1	1.279	1.495	1.795	516	40,34
Total			6	2.763	3.209	3.721	958	34,67

Source: own computations

- Continuous increase for 958 (+35%).
- Highest absolute increase is in sub-trend 2.1, relative in sub-trend 1.3 (+52%).
- Sub-trends 1.1 and 1.2 are below average.

2.2.6 Touristic development

Table 30: Touristic beds 1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	1971	1981	1991	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	998	622	466	-532	-53,31
	1.2	G-P-PE	1	313	199	220	-93	-29,71
	1.3	P-P-P	1	0	0	0	0	0,00
Balanced development	2.1	G-G-G	1	1.843	1.185	1.038	-805	-43,68
Total			6	3.154	2.006	1.724	-1.430	-45,34

Source: own computations

- Number of touristic beds decrease by 1.430 (-45%).
- All sub-trends show negative development.
- Highest relative decrease is in sub-trend 1.1, absolute in 2.1

2.2.7 Agriculture

Table 31: Agricultural population 1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	%tage 1971	%tage 1981	%tage 1991	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	30,79	19,97	14,94	-273	-15,85
	1.2	G-P-PE	1	15,60	9,43	6,68	-214	-8,91
	1.3	P-P-P	1	27,11	16,78	11,80	-153	-15,31
Balanced development	2.1	G-G-G	1	15,82	9,36	7,09	-17	-8,73
Total			6	22,44	13,91	10,07	-657	-12,37

Source: own computations

- The share of agricultural population is in general decline from 22,5% to 10%.
- Deagrarization was more intensive in the period 1971-1981 than in 1981-1991
- Sub-trends 1.1 and 1.3 show the highest share of agricultural population, but the highest decline, too
- Lowest decrease is in sub-trend 2.1.

Table 32: Agricultural businesses 1971-1991

Trend	Sub-trend	Change of types 71-91	Frequency	1971	1981	1991	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	326	309	309	-17	-5,21
	1.2	G-P-PE	1	152	148	143	-9	-5,92
	1.3	P-P-P	1	43	41	39	-4	-9,30
Balanced development	2.1	G-G-G	1	319	284	285	-34	-10,66
Total			6	840	782	776	-64	-7,62

Source: own computations

- Number of agricultural businesses decreased for 64 (-7,6%).
- Highest decrease is in sub-trend 2.1.
- Sub-trend 1.3 show the lowest number of agricultural businesses and lowest absolute decrease (-4).

Table 33: Full time / part time businesses

Trend	Sub-trend	Change of types 71-91	Frequency	Full time		Part time	
				71-91 total	71-91 in %	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	-40	-23,12	-5	-6,02
	1.2	G-P-PE	1	-17	-22,08	9	20,00
	1.3	P-P-P	1	-2	-13,33	-7	-53,85
Balanced development	2.1	G-G-G	1	-12	-14,12	-27	-22,13
Total			6	-71	-20,29	-30	-11,41

Source: own computations

- Decrease of full time businesses is more intensive than of part time.
- Full time: decrease in all trends, most in 1.1.
- Part time: highest decrease in 1.3, but increase also in 1.2.

Table 34: %tage of full time and part time businesses , 1971 – 1991

Trend	Sub-trend	Change of types 71-91	Frequency	%tage of full time		%tage of part time	
				Share 91	71-91 in %	Share 91	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	43,04	-10,03	25,24	-0,22
	1.2	G-P-PE	1	41,96	-8,70	37,76	8,16
	1.3	P-P-P	1	33,33	-1,55	15,38	-14,85
Balanced development	2.1	G-G-G	1	25,61	-1,03	33,33	-4,91
Total			6	35,95	-5,71	30,03	-1,28

Source: own computations

- In centrally dominated development (1.1, 1.2, 1.3) the share of full time is higher than part time, but decreasing.
- In sub-trend 2.2 the share of full time is lower than of part time.
- Only sub-trend 1.2 shows increase of part time agricultural businesses.

2.2.8 Land use

Table 35: Agricultural land use; (in ha)

Trend	Sub-trend	Change of types 71-91	Frequency	Agricultural land		Arable land		Permanent crops		Intensive grass-land		Extensive grass-land		Forests	
				71-91 total	71-91 in %	71-91 total	71-91 in %	71-91 total	71-91 in %	71-91 total	71-91 in %	71-91 total	71-91 in %	71-91 total	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	-455	-8,44	2	14,70	-8	-100,00	-610	-18,82	189	9,07	-3.614	-31,78
	1.2	G-P-PE	1	-51	-3,27	-3	-100,00	0	0,00	-81	-7,41	18	3,76	109	6,05
	1.3	P-P-P	1	5	1,29	0	0,00	-1	-100,00	18	6,55	4	4,78	-30	-8,83
Balanced development	2.1	G-G-G	1	66	1,52	-1	-100,00	-1	-100,00	-119	-5,97	210	9,21	4.523	33,33
Total			6	-435	-3,74	-2	-10,08	-10	-100,00	-792	-12,02	421	8,55	988	3,65

Source: own computations

- Agriculturally used area decreases for 435 ha (-3.74%).
- Highest decrease is in sub-trend 1.1.
- Sub-trends 1.3 and 2.1 show less increase.
- Arable land is decreasing for 1-3 ha.
- In sub-trends 1.1 increase for 2 ha.
- Permanent crops decrease in all sub-trends.
- Decline of intensive grassland is very high (-792 ha).
- Highest decrease is in sub-trend 1.1.
- Sub-trend 1.3 shows an increase of intensive grassland.
- Extensive grassland increases for 421 ha.

- Half of the increase show the sub-trend 2.1 (210 ha).
- Lowest increase is in sub-trend 1.3.
- Region Isarwinkel shows increase of forest area (+3,6%).
- In sub-trend 2.1 increase for 33% (+4.523 ha).
- Decrease in sub-trend 1.1 (-3.614 ha).

Table 36: %tage of agricultural land use categories,

Trend	Sub-trend	Change of types 71-91	Frequency	Arable land		Permanent crops		Intensive grass-land		Extensive grass-land.	
				%tage 91	71-91 in %	%tage 91	71-91 in %	%tage 91	71-91 in %	%tage 91	71-91 in %
Centrally dominated development	1.1	G-G/P-P	3	0,37	0,07	0,00	-0,15	53,34	-6,82	46,18	7,42
	1.2	G-P-PE	1	0,00	-0,18	0,00	-0,02	66,90	-3,00	32,08	2,17
	1.3	P-P-P	1	0,00	-0,07	0,00	-0,28	74,20	3,66	25,49	0,85
Balanced development	2.1	G-G-G	1	0,00	-0,03	0,00	-0,02	42,84	-3,41	56,84	4,00
Total			6	0,16	-0,01	0,00	-0,09	51,78	-4,87	47,73	5,40

Source: own computations

- % tage of arable land is below 1%
- In 1991 %tage of permanent crops is 0
- In region Isarwinkel useable agricultural area is dominated by intensive grassland, but the %tage is decreasing in general, only in sub-trend 1.3 there is an increase.
- % tage of extensive grassland increases in all sub-trends (25,5 to 56,9%) the highest share is in sub-trend 2.1.

3. INTERVIEWS WITH LOCAL ACTORS

3.1 Interviewed persons

From November 2002 to February 2003, eleven experts of various institutions and functions relevant for the pilot region have been interviewed. By asking representatives from the district government's ressort of regional planning and from the Chamber of Industry and Commerce in Munich, a kind of "external view" could be obtained in addition to the "internal view" of locals. These views differ above all regarding the future perspectives of the Isarwinkel.

3.2 The meaning of cultural landscape and landscape change

All persons interviewed perceive the Isarwinkel landscape as a landscape completely influenced by man, e.g. as a cultural landscape. They are all concerned with landscape due to their profession. For locals and natives there is additionally the relevance of landscape as the basis for living and working, the highly appreciated beauty of the scenery connected with a strong feeling of "homeland" and a very conservative attitude. This attitude is considered as a strength of the region by the locals, but the "external view" regards this attitude more as a weakness because of its focus on conservation, which is seen as an obstacle for development and leading towards touristic mono-structure. All interviewees observe a landscape change, above all in agriculture, forestry and settlements. Altogether, these changes are evaluated as rather negative and as a latent threat of the living and economic area.

3.3 Weaknesses and strengths of the Isarwinkel

The basic strength of the Isarwinkel doubtlessly seems to be the landscape itself with its diversity and small-scale structures providing various possibilities of land use and presenting an aesthetic scenery. So landscape builds the basis for agriculture, forestry and settlement and therefore for tourism. Altogether landscape is regarded as the fundament of live and economy. In addition to these natural potentials there is the locals' attitude determined by conservative ideals and the emotional connection with their homeland contributing significantly to the conservation and character of region and landscape. Agriculture is said to be largely adopted to the natural conditions due to the extensive grassland land use. Despite of the structural change, agriculture is regarded as the main factor of conserving the landscape character. These basics and the closeness to Munich and its surrounding urban areas have developed tourism as the main economic sector fostering even all the other sectors. The possibilities for connecting agriculture, forestry, handcraft and tourism therefore seem to be given.

On the other hand, landscape is seen as a weakness. First because of the disadvantaged conditions for agriculture in the mountain region, second because of the limitation of economic development and growth caused by the peripheral geographic situation and the lack of areas suitable for development. The agricultural structural change and its negative economic, ecologic and social effects as well as the connected landscape change cannot be totally stopped by finan-

cial promotion, only slowing down is possible. The lack of local working places is emphasised as a further weakness as well as the decline of the secondary sector (industry and trade). This leads to increasing out-commuting to the city of Bad Tölz and Munich and its southern urban surroundings and therefore to traffic development and high volumes of traffic. In addition there is a high demand of settlement and expansion of settlements caused by migration to the Isarwinkel leading to uncontrolled splinter development (the extent of which is, compared to the Munich suburban areas, relatively limited). With regard to the tourism branch, an insufficiency in quality and professionalism is observed.

3.4 Regional development and landscape change

Concerning regional development in the Isarwinkel in the period from 1970 to today, above all changes in the economic structures and in the demographic development are observed. Population growth was and is mainly caused by immigration, what is leading to expansion of settlements, increase in residential buildings and holiday cottages and towards splinter development. Despite of this, the ageing structure is regarded as quite stable and well distributed although a certain movement of younger and higher qualified employees and a slight trend towards excess of age are perceived. The strong homeland feeling prohibits thereby excessive out-migration. 30 years ago, the economic structures have been well mixed but have been undergoing heavy changes due to the restrained but steady decrease of agriculture and the noticeable decline of the secondary sector (especially traditional gravel and wood processing industry). This led to the overall decline of working places despite of the positive development in (today dominating) service and tourism sector thus increasing the out-commuting trend. The local interviewees hereby state explicitly that the Isarwinkel does not show a touristic mono-structure as other Bavarian alpine regions like for example the neighbouring Tegernsee region. Out-commuting is being engaged by the increasing personal mobility and the improvement of traffic development in the region with roads and train connections. The high volume of touristic traffic contributes heavily to an excessive traffic within the whole region. Not only tourists coming to the Isarwinkel are causing problems, but also the ones travelling through the region with Austria as destination. The construction of the Brauneck cableway in the 1960s is regarded as the basis for the extensive touristic development in the Isarwinkel. Since 1970 there were no more significant touristic constructions or coverage of wider areas, only limited or linear spaces were developed (e.g. the Isar bike path). On the contrary, the accommodation capacities have steadily been enlarged, whereby especially the positive development in the wellness branch and the farm holidays is mentioned. Until the 90th, the Isarwinkel could make benefit from the spa-sector (“Kurwesen”) in Bad Tölz, but since the spa-crises the massive decline also affects the whole region.

In general, a change of the cultural landscape in the Isarwinkel in the last decades is being observed in different areas. Above all, the agricultural structural change and the increasing degree of mechanisation led on the one hand to abandonment and lying fallow of marginal profit areas (with successive change towards bush or forest vegetation), on the other hand to further intensification of the favoured areas in the valley floor, where the size of the parcels of land was growing. In this context the locals emphasise that the recent and current intensity of agricultural

land use always was and still is adopted to the natural conditions which is even encouraged by subsidies from the State. The trend towards intensification is therefore only true in an understated form in the Isarwinkel. This opinion is not being shared by the nature protection organisations, who point to the negative impacts on biodiversity. Particularly obvious is the increase of forests on slopes and mountain pastures. Different reasons are said to be responsible for this fact: on the one hand reforestation, on the other hand giving up marginal profit areas. Another significant change is being represented by the massive construction of forestry ways and ways to the mountain pastures. As far as settlements are concerned, the settled areas have expanded accompanied by a certain uncontrolled splinter development (encouraged by the historical dispersed settlement structure). The locals again are of the opinion, that this kind of development took place only to relatively limited extent in the Isarwinkel. Thereby, the main settlement development was observed in the 70th and 80th, whereas this trend diminished in the 90th due to the restrictive release and preparation of land for building. At present, the municipalities of the Isarwinkel do not release any land at all for building. In addition to the settlement pressure caused by immigration, there is the demand of constructing new residential buildings for the locals as well as the increasing trend of farmers moving (or being forced to move) from the village centres to the unsettled outer areas. The construction of the Sylvensteinspeichersee in the 1950th, which limits the flood threats significantly, thereby was a crucial basis for the possibility of settlement expansion. On the other hand however, the reservoir led to a massive change of the river Isar's water household and its floodplains. Environmental damages caused by tourism are only seen on touristic hot spots like the Brauneck skiing area. In this context, especially the locals emphasise the increase of environmental and nature awareness above all of the elder generation in the Isarwinkel, an attitude prohibiting excessive negative landscape change.

3.5 Driving forces on global, European and national level

Especially the economic general conditions on global level are considered as (at least con-) deciding to regional development and cultural landscape change. The opening of the worldwide and European market, national and international competition and the resultant economic necessities, which also are reflected in politics, are also determining to the development in the Isarwinkel – whereas the interaction between economy and politics are considered as difficult to see through. These superior and not influenceable forces have especially negative impacts on agricultural and forestry structures in the pilot region. On European level especially the European Union with its Common Agricultural, Environmental and Regional Policy and the relevant financial supports plays an important role, by supporting on the one hand the structural change because of the economic principle and by supporting on the other hand the conservation and development of the region. This last aspect is considered as more important, but also the hindrance of development by increasing bureaucracy and control is criticised. Also the national level has influence on the region in the same way through the same policy fields and financial measures, whereas the EU's influence is uprated. Altogether the worldwide economic development is regarded as more influential as the politics. But partly also the social development e.g. increasing holidays and mobility are considered as more important as the political influence,

which is especially important to tourism, employment and commuter movement in the Isarwinkel.

3.6 Driving forces on regional and local level

Besides of the strong influence of external factors also to the regional and local forces are attributing high importance, which is seen especially by the natives and less by the externals. On the level of the Bundesland Bavaria it is especially pointed at the support of conservation of nature and landscape as well as of the agricultural structures by nature protection laws and agricultural support measures such as Compensatory Supplement, KULAP (Bavarian Programme to conserve cultural landscape), Contractual Nature Protection and Landscape Conservation Programme. In contrast the instruments of planning such as the Bavarian Land Development Programme or the Regional Plan Oberland are nearly in unison characterised as less influenceable and even if than more as conserving and hindering of development than as a driving force. Before in Bavaria the KULAP was established, in the 80th the mayors of Lenggries and Sachsenkam establish the “Tölzer Kulturlandschaftsprogramm” as an innovative forerunner model, which delivered the financial support of extensive cultivation in the southern administrative district. The decisive factor to the touristic development on local level was the construction and expansion of the “Brauneck” to a skiing region, which contributed intensely to the good image of the Isarwinkel by the presentation of world cup events. In addition, the Isarwinkel benefited from the proximity to the spa Bad Tölz, but is also affected by the current crisis. Besides there are local initiatives such as the special orientation of the so called “Tafernhöfe”, which offer regional products or wellness-offerings in linkage to “farm holidays.” But in this field clear potentials of development are seen. Important positive economic impulses in the remaining sectors and in the last decades could not be stated, on the one hand because of restrictive handling of development of areas and on the other hand because of missing attractiveness of location especially in the south part of the pilot region. In a negative way the general economic basic condition to the region are noted because of the reduction in primary and secondary sector.

For the conservation of landscape not only citizens’ initiatives (especially concerning the Isar) and associations of nature protection provided a spoke but also the general “mentality of awaiting”, the sceptical attitude towards over-hasting actions and acceptance of innovations is generally regarded as the most important “force” by the natives – even in a sense of conservatism of values, which also leads to a certain arrears in development (like e.g. in agriculture, which is about five years “behind” the modernisation).

3.7 Landscape as a factor to regional development

The landscape in the Isarwinkel is the fundamental and determining factor to regional development. Landscape is the basis of land use and settlement and presents therefore living and working space. With it landscape is not only a factor of development but also of limitation, as to an enduring land use the conservation and care of landscape is necessary.

3.8 Social demands on regional development and landscape

Fundamental request is the conservation of the Isarwinkel as living space and economic area with its high quality of live and the avoidance of negative developments in the fields of nature and landscape as well as employment. Still existing places of employment should be conserved and if possible new created, of which primarily the natives should profit. Local possibilities of employment are important especially with regard to the steams of commuters, which will probably also in future increase, and the linked increase of burdens by transport and on environment. Agriculture and forestry should be conserved by all means not only in the valley floor but also in the mountain region as the basis of the most important economic sector tourism and as a factor which forms landscape and heritage. With this also the development of new roads to the mountain pastures are demanded.

The conservation of an intact landscape is generally demanded, whereas a strict “conservation” is refused but a measured development should be aspired. Interestingly there seems to be different demands on landscape between the natives and the tourists resp. the people who moved in. The latter group claims a strict conservation, which is actually refused by the natives, and is bothered by special peculiarities of rural live which are unfamiliar to urban living.

The different social needs are taken into account by politics in different ways. While the aspect of conservation is at least satisfied covered by laws and support programmes, especially the economic interests of development are under-represented. According to this even “instruments of development” like the Land Development Plan and the Regional Plan are characterised as more conservative and preventive and are simply the result of controversial interests of departments and include therefore less practicable compromises. On the other hand local acting is possible at least in a certain frame because of these less concrete guidelines. Such an attitude is supported by the local politics which is also concerned of conservation (and which often reflects only local particular interests). Especially in the agricultural sector the limitation of local development by overdrawn claims and bureaucratism is criticised esp. in the field of the European Common Agricultural Policy, but on the other side the positive impact of financial support measures is honoured.

3.9 Future perspectives

In general the “internals view” is characterised of a much more positive future perspective than the “external view”. From the point of view of the representative of IHK the economic sector will have a strong negative development, which will contain further regression in agriculture, industry and tourism, which would lead to the break-up of the economic structure in the pilot region, to an intense increase of the steams of out-commuters and to “sleeping municipalities”. To face up to these economic and social changes, one’s own initiative and creativity would be in demand which is missing so far and which is not expected to the necessary extent. In contrast the higher Land planning authority expects no great changes in the Isarwinkel. No dynamic development in a positive or negative way is expected. According to this neither an excessive reduction of places of employment nor an entirely break-up of agriculture could be expected but tourism will play an important role also in the future. Moving-out of younger people as well as

the settlement pressure because of moving-in will continue. To have a positive economic development some external impulses would be necessary.

Also the “internal view” expects no dramatic changes in the next 20 years. The problem of out-commuters will surely exist further on and will increase to a limited extent. To get control of the linked traffic burden the existing potentials of infrastructure would have to be used in a better way (e.g. the Bayerische Oberlandbahn) but a quantitative enlargement is rejected. The settlement pressure will also exist in future but can be get controlled by the restrictive way of settlement development resp. its entirely stop. The possibility of extensive positive economic development in industry is not expected because of missing potential and local economic attractiveness. Only the different usage of the “Flintkaserne” (barracks) in Bad Tölz as a service and industrial centre as well as the possibility of a similar usage of the unused barrack in Lenggries are regarded as positive options. But the touristic and recreational sector and its competitiveness could eventually be improved by a qualitative extension but for which great financial efforts would be necessary. Conservation of nature and landscape is the premise to keep the alpine space attractive. The expected climate change will cause problems to the winter tourism. In the agricultural sector the trend towards structural change will continue but in an understated degree compared with the national trend. But an extensive change can only be prevented if the public support continues and the cooperation with tourism and gastronomy will be improved in future, whereas positive options already exist. Even if there are necessities of adaptation to touristic demands one may not knuckle down to every trend that comes along.

Regarding the perspective of mountain pasturing, an agricultural expert is cited here. Thus, the future perspective is that agricultural restructuring will continue, but the extent will be less extreme than on Bundesland average. The reason is the attitude of mountain farmers which are explicitly willing to maintain agriculture in the Alps. Of course the attitude alone is not enough, but Bavarian farmers in the Alpine space have learned that they need besides agriculture a “second economic pillar”, in most cases an occupation in other branches – and this way of proceeding seems to stabilise the agricultural sector. Agricultural restructuring will mean that some farmers will give up agriculture, that some agricultural businesses will grow in size and that the trend towards part time farming will continue. But it will not mean the breakdown of agriculture in the Bavarian Alps. As far as cultural landscape change is concerned, it will mean that less favoured areas - or at least parts of them - will become fallows. Four approaches to maintain agriculture in the Alpine space could be seen – the best would be a combination of all of them:

- EU and state subsidies: without continuation of the financial promotion mountain agriculture could no longer exist. The wish is even an increase of promotion – which seems not really realistic at present.
- Communal “subsidies”: some Bavarian municipalities have introduced financial promotion for farmers continuing mowing alpine pastures (about 20 per hectare and year). The problem, however, is that multiple promotion is not allowed and that the municipalities have to be able to afford such kind of payments. Nevertheless, these municipalities acknowledge the crucial role of agriculture as the provider of landscape usable for tourism.

- Improvement of the co-operation between agriculture and tourism, above all by processing agricultural quality products and regional marketing. There are some projects aiming at this direction, but this approach should be more extended. A rather “aggressive” marketing campaign for such products could be worth thinking of (like the example of Switzerland).
- The regions have to provide the opportunities for farmers to find a “second economic pillar” in other branches. This is only possible if the region has enough working places and appropriate economic framework conditions. If the whole region gets into an economic crisis even more severe than today, then agriculture cannot be maintained – the farmers’ will to keep it up will not be enough.

The future approaches of local policy to solve current problems could be summarised the following way:

- Restrictive release of land for building by communal policy as the only way of preventing urban sprawl. Release of land only for locals as far as possible (not only regarding residential homes but also trade areas!)
- No solution is in sight for recreational pressure, positive example is the INTERREG II Karwendel-project with its aim of steering tourists – but only if the concept is really implemented.
- Agriculture: most important factor for maintenance of agriculture is – besides State subsidies – the opportunity of finding a “second economic pillar”, which is already often the case. Additionally, a third pillar would be crucial, which are appropriate apprenticeship places for agriculture on the one hand, but for other branches like computing, services, too. Such kind of education enables young farmers to bridge the time till the present farm owner retires.
- Secondary sector: Basic problem for regional handicraft and building trade is that there is no “back-country market” in the south and the Tyrolean area is somehow “protected” for German businesses – whereas Austrian businesses do work in the Isarwinkel. The approach for transnational co-operation therefore is missing.
- Tourism: There is the fundamental problem of lacking inner-regional co-operation (Bad Tölz, Tegernsee, Achensee) – every municipality does business on its own. There are some approaches to improve the situation, but that is far away from bringing the issue forward. The only “booming sector” is the “holiday on farms” branch which really works well.
- Service sector: The will of the municipality is to bring service branches into the region which are independent from high-ranking infrastructure such as computing businesses. First talks have been made, but due to the insecure situation in this particular branch, there are no concrete projects so far. A positive example is the expansion of the Bayerische Oberland Bahn which is going to provide about 20 new working places as well as apprenticeship places in the frame of its planned maintenance center in Lenggries.

As far as settlement of new businesses are concerned, the municipalities play the key role according to the point of view on economy of the District. Successful settlement can only take place if the communal policy provides favourable framework conditions, releases land for

building and guarantees a fast process and short approval procedures (as it was the case with the Flint centre). It is finally the businesses which make the decision which region or which municipality they prefer. The State itself cannot provide working places. The role of the District is only bringing together the interests of municipalities and business, disseminating offers, promoting the setting up of businesses.

4. HYPOTHESES ON THE INTERRELATION BETWEEN REGIONAL DEVELOPMENT AND CULTURAL LANDSCAPE CHANGE

4.1 The hypotheses and the pilot region Isarwinkel

In this section we try to compare the hypotheses worked out by RC („T2.3, Results, Conclusions, Hypotheses“, 31.Oct. 2002) with the situation in the Isarwinkel (see also section 4.2 with the table comparing the alpine results with the Isarwinkel). Thereby we did not take only the statistical data basis of the Bätzing types and the cultural landscape indicators into account, but also additional information which we gathered during the region's analysis (further data, plans, statements, local actor interviews).

Main development trends (hypotheses 1-7)

- (1) *increasing importance of urban and suburban areas: about 2/3 of all alpine communities can be classified as 'central' or 'centrally influenced'*
- (2) *the 'central' or 'centrally influenced' development can be divided into two main sub-trends: the 'strong' (1.2, 1.4, 1.5) and the 'weak' sub-trend (1.1, 1.3)*
- (3) *about 20% of all alpine communities follow a more or less balanced development (2.1, 2.2). None of the economic sectors is dominating, the commuter rates are comparatively low*
- (4) *increasing importance of the service sector mainly due to the increasing importance of tourism: about 10,5% of all alpine communities can be classified as service-dominated (5.0), ca. 7,5% of all alpine communities as tourism-dominated (6.1, 6.2)*
- (5) *desagrarisation: in most alpine areas agriculture has lost its role as a main economic pillar on local level: only ca. 1,3% of all alpine communities can be classified as agriculture-dominated (3.0)*
- (6) *desindustrialisation: mono-structured industry-dominated communities do not play a relevant role on alpine level: not more than 1,8% of all alpine communities can be classified as industry-dominated (4.0)*
- (7) *increasing accessibility due to the expansion of – mainly road – transport infrastructure: further material will be prepared by RC.*

Isarwinkel: All municipalities of the Isarwinkel are classified as centrally dominated except for Lenggries (balanced development), whereby the weak variant is dominating. In the beginning of the seventies, all communities except for Greiling (which was already of the out-commuting type at this point of time) were balanced ones. The development towards the commuting type was and is determined by the local centre Bad Tölz and the urban area of Munich. As can be seen from the figures of the nineties (cf. regional profile), one third of all the commuters moves to Bad Tölz (yet tending to decrease). The importance of the Munich area on the contrary is significantly rising (1995: 12% of commuters moving to Munich, 2001: 18%). The communities out of the pilot region but within the administrative district Bad Tölz (above all the cities of

Geretsried and Wolfratshausen as well as the smaller municipality Bad Heilbrunn) are frequented by 12% of the commuters in 2001, with a growing importance (1995: 9%). Additionally, the neighbour district Miesbach with touristic and small industrial centres like Holzkirchen and the places around lake Tegernsee attract a noticeable part of the pilot region's out-commuters (slightly decreasing trend from 13% in 1995 to 12% in 2001). But even within the region itself there is an exchange of commuters with a slight rise from 10,6% to 10,8%. Lenggries is thereby definitely the in-commuting centre (but with a decrease from 7,0% to 5,6%). The northern municipalities show the highest out-commuting rates (in 1987 all of them more than 60%), whereas Jachenau remains slightly above 50% and only Lenggries has a relatively low rate of a little more than 35%.

The importance of the service sector and especially the tourism branch has strongly risen (but not enough for classifying the municipalities to the touristic or service sector dominated development type – the out-commuting development is clearly dominating). Desagrarisation and desindustrialisation also took place in the Isarwinkel leading to the loss of local working places and to growing dependence from the superior centres. Favourable accessibility and improvements in infrastructure (roads, train) play an important role on the one hand for the out-commuting trend and on the other hand for growing tourism in the region. Today's personal mobility contributes to this development to a major extent.

Hypotheses on the RD-CL interrelation, centrally dominated trend (hypotheses 8-14)

- (8) *The strong central or centrally influenced trend includes ca. 28% of all alpine communities. They are mainly situated in the alpine valley floors. More than 70% of the alpine population and 70% of all alpine working places are located here. The strong central or centrally influenced trend includes the centers of economic growth: in the younger past the growth of population and working places has been concentrated here, in addition, 43% of the increase of residential buildings in the Alps has been located in these communities.*
- (9) *The strong central or centrally influenced communities in the valley floors are an important focus of land use conflicts in the Alps. The claims of urban and sub-urban settlements, of road and rail infrastructure and of leisure areas are competing with agricultural land use interests. In the central or centrally influenced communities in the valley floors we can still find ca. 158.000 agricultural businesses, which is about 31% of all agricultural businesses in the Alps. These businesses are facing extensive changes: the number of farms is decreasing stronger than at Alpine average, agricultural land is decreasing, too. Furthermore there is a significant shift from full time to part time farming.*
- (10) *In the sub-urban areas, agricultural land use can be described by two parallel and opposed phenomena: on one hand land use is very intensive: the number as well as the increase of cattle per farm is slightly higher than alpine average, the %tage of arable land, permanent crops and intensive grassland is higher than in other areas of the Alps. On the other hand agricultural land use in the valley floors is characterised by a significant shift from arable land and intensive grassland to extensive grassland, a trend towards extensification.*

- (11) *The weak central or centrally influenced trend includes ca. 36% of all communities of the Alps. These communities are located close to central areas and also in the periphery. They are characterised by lacking own economic potential. The number of working places is comparably low and faces a decline. Nevertheless, inhabitants are increasing, when central areas or touristic centers can be reached in reasonable time. The commuter balance is strongly negative and residential buildings are increasing above alpine average. These communities could be also characterized as dormitory communities. Land use conflicts seem to be less intensive than in the strong urban and suburban areas. They arise mainly from the claims for housing.*
- (12) *In the weak central or centrally influenced trend agriculture plays a more important role than in the strong areas. The %age of agricultural population (8-11%) is above average, the decrease of agricultural businesses (ca. -12,5%) is lower than in many other areas.*
- (13) *Agricultural land use is characterised by two main aspects: on one hand agricultural land is decreasing stronger than in other development types, on the other hand, the trend towards extensification is less significant than in other areas, on the contrary: intensive grassland is increasing.*
- (14) *Due to the weak economic situation of these dormitory communities agriculture plays a more important role than in stronger areas.*

Isarwinkel: All municipalities of the pilot region are situated in the valley floors with all of them except for the peripheral Jachenau in the southern side valley are located in the northern part with favourable transport connections (two Federal roads, train connection Lenggries-Munich) allowing fast and quite convenient access to Bad Tölz, Lenggries and the Munich area.

Population growth in the Isarwinkel is nearly twice as high as in the total Alps (20% compared to 10,5%). The growth in the weak variant is also even twice as high as the corresponding alpine subtrend, whereas the strong variant is almost equal to the general subtrend. Growth was highest in the seventies (+13%), fell to 6% in the eighties but recovered in the nineties again to 10%. Concerning the period 1971-2001, an increase of even 31% can be observed. The growth is mainly caused by migration surplus which was highest in the seventies (+12%) while in the following decades it was significantly less (+7% resp. +6%). In the seventies there was in addition a slight birth surplus, which in the eighties turned to be negative but became positive in the nineties again so that 3,4% of population growth were caused by positive birth rates.

The migration surplus in the Isarwinkel amounts to 7,5% which is twice as high as the alpine average (3,7%). All the centrally dominated municipalities show migration surplus, which is distinctly above the alpine subtrend average in the weak variant and only slightly above in the strong variant. Especially subtrend 1.1 differs from the corresponding alpine rates (+14% in the Isarwinkel compared to -3% alpine average), what could be explained with the favourable location and accessibility of at least Wackersberg and Reichersbeuern.

Settlements are expanding in the whole region, but with lower rates than in the whole Alps (Isarwinkel +35%, Alps +43%). The subtrends develop below average, too and only Greiling with +56% comes near to the subtrend average of +57%. The other municipalities with less than

+30% are far below the alpine growth rates. Increase of residential buildings was nearly the same in the seventies and the nineties (+16%), but fell to +13% in the nineties. Such a development corresponds with population growth and migration surplus being highest in the 70ies. The number of private households rises in all communities of the Isarwinkel (1970-1987), whereby the growth is obviously little in Jachenau. Parallely, the number of persons per household falls significantly from 3,1 to 2,6 in average, whereby in Jachenau there is almost no change at all. This leads to the assumption of growing settlement units.

Working places increase in the Isarwinkel for about 12% (Alps: 15%), differing between the municipalities. Jachenau causes with -14% the negative rate of subtrend 1.1 (-17%, Alps -20%) with the other two communities showing a less negative development. Greiling (1.3, +13%, Alps +4%) and Gaißach (1.2, +28%, Alps +14%) have on the contrary much higher growth rates than the corresponding alpine average. These development seems to be determined by agricultural structure change (especially in Jachenau) on the one hand, and the the construction of small industry and trade branches as well as especially the children and youth hospital in Gaißach. Thereby, growth was higher in the 70ies than in the 80ies and must be assumed to have kept decreasing in the 90ies.

The Isarwinkel is mainly characterised by its negative commuter ratio mainly caused by the centrally dominated municipalities. Gaißach with its hospital is the only exception from the partially heavy negative development. The majority of out-commuters is moving to Bad Tölz, in the northern communities flows towards Munich are more noticeable.

As far as touristic development is concerned, only statements regarding the period from 1981-1991 are possible due to missing comparable data from the 70ies. In this period, the touristic beds in the Isarwinkel undergo a decrease of 15%, which is much more negative than the alpine average (-1%). Only Gaißach shows a rise (+11%), probably caused by the hospital which is visited by the children's parents.

The agricultural population falls in the Isarwinkel by 12% (Alps -8%). The part of farmers in the weak variant is almost twice as high as in the strong one, but their decrease is there higher, too. The decrease of businesses in the Isarwinkel amounts to -8%, what is distinctly less than in the total Alps (-25%). The centrally dominated municipalities seem to be more stable in the Isarwinkel. A closer look to agricultural business data (without forestry businesses, cf. regional profile). The decrease of full time farming is only -2% while half time rises for 2% in the whole region, which is both significantly less than on alpine average. In the weak variant the part of full time farming is much higher than in the strong one (62%-69% compared to 52%), a fact that can be explained by the less rural character of Gaißach and its orientation towards Bad Tölz.

Agricultural used land declines in the whole Isarwinkel by 4%, what is significantly less than the alpine average (-10%). These losses comprehend only a few hectares and are probably caused by settlement expansion and reforestation. Changes in arable land and permanent crops can be neglected due to their little extension. The alpine trend of intensification cannot be observed in the Isarwinkel, on the contrary, extensive grassland is one the rise (+1% - +7%) and intensive grassland on the fall (-3% - -7%). Only in Greiling (1.3) there is a slight rise of inten-

sive grassland (+4%). Stronger changes might have been prevented from comprehensive financial promotion by the State and the conservative attitude of the local agricultural population.

Hypotheses on the RD-CL interrelation, balanced Trend (hypotheses 15-18)

- (15) *About 20% of all alpine communities follow a more or less **balanced trend**. These communities are not dominated by a specific economic sector, and in addition, the commuter rate is lower than in the centrally influenced communities. Population and economic growth are on average level, in some cases, even losses of working places can be observed. The commuter balance was positive in 1981 but turned to negative in 1991. The increase of residential buildings is below alpine average. Compared to other development trends tourism is developing better: opposite to the general trend beds are increasing.*
- (16) *Also agriculture still plays a certain role: the %tage of agricultural population (8-11%) is above average, with 158.000 agricultural businesses the balanced trend includes nearly a third of all alpine farms. In addition, full time farming is more represented than in other development trends. On the other hand, the shift from full time to part time farming is above average.*
- (17) *The intensity of agricultural land use is at average: the number and increase of cattle per farm, the decrease of agricultural land as well as the trend towards intensification.*
- (18) *Compared to other development trends, the balanced trend can be characterized by average changes, there are no extreme aspects to be observed.*

Isarwinkel: The balanced municipality of Lengries is located in the valley floor near to Bad Tölz, with favourable transport connections in all directions. Population growth (+21%) is twice as high as the total alpine average and also higher than the subtrend average (+6%). Migration surplus of +5% is slightly above the alpine rates but significantly higher than the subtrend average of +0,5%. The reasons are probably favourable accessibility and the relatively favourable working place situation. Population growth as well as migration surplus were in the 70ies higher than in the following decades.

The increase of residential buildings amounts to 40% (Alps: +43%), being considerably highest in the 80ies. This trend could be explained with the more restrictive communal release of building areas. Settlement units seem to have increased in Lengries, too.

Working place increase of +22% is much higher than the total Alps (+15%) and the subtrend average (+11%), which is only topped in the region by Gaißach. On the one hand, also Lengries is being hit by the agricultural structure change, but there is the local concentration (besides Bad Tölz) of trade, handcraft and above all tourism. This positive trend probably won't have continued in the 90ies because of the decline of producing and processing industry. A reduction of growth in working places can already be observed in the 80ies.

A basic difference of Lengries to the rest of the pilot region is the commuter ratio, which is here significantly less negative (-2,4%). Thereby, Lengries shows the highest total figures of in- and out-commuters. In the 90ies, the ratio becomes even less negative.

The decrease of touristic beds is in Lenggries (-12%) much higher than the average rates (Alps: -1%, subtrend 2.1 +4%). Thereby it has to be considered that these statistic data only cover accommodation with more than nine beds – this means that small facilities, which are numerous in Lenggries, are not registered at all. In the 90ies, an increase in guest arrivals can be observed, but the declining duration of stay leads to a decrease of overnight stays. The spa crisis, which above all has hit Bad Tölz, can be assumed to have negative impacts on Lenggries and the rest of the pilot region, too.

Agriculture still plays a role in Lenggries, but the part of agricultural population (-7%) is below the centrally dominated municipalities. Their decrease is on the other hand less negative than in the other communities and even much better than the subtrend average (-26%). The decline of agricultural and forestry businesses is the most negative in the whole pilot region (-11%), but still distinctly better than the alpine average (-25%). Taking only the agricultural businesses into account, the decrease amounts to -19%. The full time businesses grow for 2,5% while half farming falls for 2% - a development significantly different from both the alpine and the sub-trend average.

Agricultural used land increases slightly (+2%, Alps -10%, subtrend -5%). Arable land and permanent crops can be neglected again. A trend from intensive to extensive grassland can be observed (-4% resp. +4%), which is contradictory to the alpine trends. The combination of growing percentage of full time farming with increase of extensive grassland seems to be interesting.

Hypotheses 19-28 not relevant for the Isarwinkel

Central and summarising hypotheses (hypotheses 29-33)

- (29) Summarising the different economic development trends in the Alps we can state a significant polarisation: urban centers and strong sub-urban areas in the valley floors (including ca. 28% of all alpine communities) are the focus of various land use interests and conflicts between housing, transport and economic development, leisure areas and agriculture. These areas are facing increasing intensification, but in the same time the extensification of less favoured agricultural sites can be observed.
- (30) On the other hand, weak peri-urban and peripheral areas with lacking economic potential – they could also be characterised as dormitory areas including ca. 36% of all alpine communities – become more and more dependent on the economic welfare of the strong central regions. In these less favoured areas agriculture is still playing a certain role, the trend towards extensification is less significant than in the favoured central regions.
- (31) About 20% of all alpine communities are following a more or less balanced trend without any outstanding economic aspects or significant deviations from average. Demographic and economic growth are lower than in the booming central areas, land use conflicts are less intensive. Agriculture is playing a certain role, similar to the weak dormitory regions.

- (32) With an average sea level of more than 1.000 m the tourism dominated areas (including ca. 7,5-8% of the alpine communities) are another pole of growth in the Alps. Increasing population and working places, large scale touristic and transport infrastructure and housing cause heavy pressure on landscape. On the other hand, tourism and extensified agriculture seem to harmonize better than in other areas.
- (33) From various studies we know that intensification as well as extensification both can cause a decline of biodiversity with increasing risk for the ecosystems concerned.

Isarwinkel: In general, the pilot region Isarwinkel approves the hypotheses of growing polarisation between economic centres and peripheral regions. In this case, the region is depended in the first place from the local centre Bad Tölz and from the outer alpine urban area of Munich. A basic finding is that the function of living more and more dominates the function of working in the Isarwinkel. This kind of development is not only caused by the decline of working places and the out-commuting flows, but also by immigration and construction of holiday residences.

The Isarwinkel is economically depended from the Bad Tölz and Munich area, whereby this trend probably has intensified within the last 30 years. In this period of time there was a massive decrease in the secondary sector as well as the common agricultural structure change (which, however, seems to take place in the Isarwinkel to a comparatively moderate extent). The connected loss of working places could only partially be covered by the expansion of the service and tourism sector. Therefore the Isarwinkel has become an out-migrating region with only Lenggries as a inferior local centre remains balanced. The relationship between Lenggries and the other pilot region municipalities could even be regarded as an small scale approval of the polarisation hypothesis, with Lenggries representing the local touristic and economic centre of the pilot region and the other communities being at least to a noticeable extent dependent.

Agriculture still plays an important role in the region, a fact approved by the minor extent of the structural change. A trend towards extensification can be observed above all in uneconomic partial areas. Businesses are on a decline, but full time farming and intensive grassland are still dominating in the majority of communities – in some cases there is even a trend towards intensification (which is rather common in sub-urban areas).

Land use conflicts are of course existent in the Isarwinkel, above all caused by high settlement pressure and furthermore from an other perspective by areas left lying fallow leading to succession towards upcoming bushes and forests (a trend distinctly disliked by the locals).

The Isarwinkel could also be seen as a weak variant of the touristic development type, but the touristic infrastructure is relatively too “underdeveloped”. Tourism has however become the most important economic branch in the pilot region with its provision of working places and preventing the out-commuting from becoming even more intensive. A positive interrelation between tourism and the diminution of agricultural decrease is obvious.

Negative impacts on nature and landscape are caused by the high traffic volumes on the one hand, on the other hand by tourism in the hot spot areas.

4.2 Comparison Isarwinkel - Alps 1971-1991

Table 37: Comparison Alps- Isarwinkel 1971-1991

Indicator	Change of indicators	Isarwinkel		Alps	
		Sub-trend	1971-1991 in %	Sub-trend	1971-1991 in %
Average sea level	Max	1.1	750 [m]	6.1	1.150 [m]
	Min	2.1	679 [m]	1.5	483 [m]
	Total	719 [m]		675 [m]	
Inhabitants	Max	1.3	31,4	1.4	19,1
	Min	1.2	12,6	3.0	-10,3
	Total	19,8		10,5	
Migration	Max	1.1	14,4	5.0	22,4
	Min	1.2	1,8	2.2	-4,9
	Total	7,6		3,7	
Population in productive age	Max	1.3	47,2	1.3	34,4
	Min	1.2	26,7	3.0	-12,9
	Total	36,4		20,7	
Working places	Max	1.2	28,1	1.4	45,8
	Min	1.1	-16,7	3.0	-22,9
	Total	11,8		14,9	
Commuter ratio	Max	1.2	8,1	1.4	5,6
	Min	1.1	-16,6	1.1	-21,9
	Total	-5,7		-4,4	
Residential buildings	Max	1.3	52,1	4.0	71,7
	Min	1.1	26,3	6.1	35,7
	Total	34,7		43,4	
Touristic beds	Max	1.2	29,7	6.2	34,5
	Min	1.3	-	5.0	-17,7
	Total	-45,34		3,7	
Agricultural population	Max	2.1	-8,7	1.5	-3,0
	Min	1.1	15,9	1.1	-21,2
	Total	-12,4		-4,0	
Agricultural businesses	Max	1.1	-5,2	1.1	-20,8
	Min	2.1	-10,66	4.0	-41,7

Indicator	Change of indicators	Isarwinkel		Alps	
		Sub-trend	1971-1991 in %	Sub-trend	1971-1991 in %
	Total	-7,6		-25,2	
Full time farming	Max	1.3	-13,3	3.0	-25,4
	Min	1.1	-23,1	1.3	-54,2
	Total	-20,3		-43,8	
Part time farming	Max	1.2	20,0	6.2	9,6
	Min	1.3	-53,9	3.0	-49,3
	Total	-11,41		1,26	
Cattle per farm	Max	/	/	3.0	109,4
	Min	/	/	6.2	58,5
	Total	/		71,2	
Total agricultural land	Max	2.1	1,5	3.0	13,9
	Min	1.1	-8,5	6.2	-18,9
	Total	-3,8		-9,9	
Arable land	Max	1.1	14,7	5.0	2,3
	Min	1.2	-100	6.2	-72,3
	Total	-10,1		-25,3	
Permanent crops	Max	1.1	-100	5.0	10,8
	Min	1.2	-	3.0	-
	Total	-100		-28,2	
Intensive grassland	Max	1.3	6,6	4.0	90,7
	Min	1.1	-18,8	3.0	-65,4
	Total	-12,2		18,2	
Extensive grassland	Max	2.1	9,2	3.0	15,4
	Min	1.2	3,8	6.2	-24,7
	Total	8,6		-15,5	
Forests	Max	2.1	33,3	/	/
	Min	1.1	31,8	/	/
	Total	3,7		/	

/- not available

Source: *Consumptions of Regional Consulting*

4.3 Hypotheses on the Isarwinkel (independent from Bätzing types)

- 1) Agricultural restructuring promotes intensification of favourable locations as well as extensification of unfavourable locations. 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 in valleys, on slopes and alpine pastures. The extensification leads to natural succession towards forest or reforestation and therefore to the increase of forests.
- 2) Decline of primary and secondary sector promotes out-migration and finally the development or improvement of transportation infrastructure (roads, train). 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.
- 3) Tourism stabilises agriculture resp. 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.
- 4) Financial promotion programmes (esp. for agriculture) stabilise agriculture and diminish the intensification / extensification trend resp. 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.
- 5) 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.
- 6) Economic conditions becoming more and more worse may lead towards increase of full time 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.
- 7) 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.

5. LITERATURE

ALPEN-VERLAG (1997): Tölzer Land an Isar und Loisach. – München.

AMT FÜR LANDWIRTSCHAFT UND ERNÄHRUNG MIESBACH-WOLFRATSHAUSEN (1998): Die Landwirtschaft im Landkreis Bad Tölz-Wolfratshausen. – Wolfratshausen.

BÄTZING, W. ET AL. (Bern 1995): Regionale Entwicklungstypen. Analyse und Gliederung des schweizerischen Berggebiets.

BAYERISCHE LANDESANSTALT FÜR STATISTIK UND DATENVERARBEITUNG (2001): Bayerndaten 2000. <http://www.bayern.de/statistik/daten/frame.html>

BAYERISCHE LANDESANSTALT FÜR STATISTIK UND DATENVERARBEITUNG (2002): Gemeindedaten für den Lkr. Bad Tölz-Wolfratshausen. Verschiedene Merkmale und Jahreszahlen. – München.

BAYERISCHES STAATSMINISTERIUM DES INNEREN, BAYERISCHES STAATSMINISTERIUM FÜR ERNÄHRUNG, LANDWIRTSCHAFT UND FORSTEN (1972): Schutz dem Bergland. Eine landeskulturelle Pflicht. Almen/Alpen in Bayern. – München.

BAYERISCHES STAATSMINISTERIUM FÜR LANDESENTWICKLUNG UND UMWELTFRAGEN (1997): Arten- und Biotopschutzprogramm Bayern; Landkreis Bad Tölz-Wolfratshausen.

BAYERISCHES STAATSMINISTERIUM FÜR LANDESENTWICKLUNG UND UMWELTFRAGEN: Landesentwicklungsprogramm Bayern mit integrierten Alpenplan (Stand: Januar 1994); Vorentwurf zur Fortschreibung (Stand: 24.07.2001).

EUROPEAN ACADEMY BOZEN (2000): SUSTALP Final Report. – Bozen.

ONLINE MARKT OBERLAND (2002 a): <http://www.oberland.de/txt/region/tz/wacker.htm>.
[Download am 13.8.2002](#)

ONLINE MARKT OBERLAND (2002 b): <http://www.oberland.de/txt/region/tz/gaissach.htm>.
[Download am 4.2.2002](#)

ONLINE MARKT OBERLAND (2002 c): <http://www.oberland.de/txt/region/tz/greil.htm>.
[Download am 13.8.2002](#)

ONLINE MARKT OBERLAND (2002 d): <http://www.oberland.de/txt/region/tz/reich.htm>.
[Download am 13.8.2002](#)

PLANUNGSVERBAND REGION OBERLAND (17): Regionalplan (Stand: 01.09.1988); Fortschreibungen Teil A (Stand: 01.Juli 2001), Teil B II (Stand: 01.Juli 2001), Kapitel BIV 2.2 (Stand: 01. Juli 2000).

RRV-FORSCHUNGSSTELLE FÜR RAUMANALYSEN, REGIONALPOLITIK UND VERWALTUNGSPRAXIS AN DER UNIVERSITÄT BAYREUTH (1997): Erarbeitung eines regionalen Entwicklungskonzeptes für den Landkreis Bad Tölz-Wolfratshausen.

TÖLZER LAND TOURISMUS (2002): Gästeankünfte, Übernachtungszahlen und Aufenthaltsdauer in den Gemeinden des Landkreises Bad Tölz-Wolfratshausen. – Bad Tölz.

Maps

ADAC Karte Oberbayern, Deutschland Blatt 15, 1:150000,

BAYERSICHES LANDESVERMESSUNGSAMT (1999): Topographische Karte „Bad Tölz“, L8334, M 1:50.000

BAYERSICHES LANDESVERMESSUNGSAMT (1999): Topographische Karte „Garmisch-Partenkirchen“, L8532, M 1:50.000

BAYERSICHES LANDESVERMESSUNGSAMT (2000): Topographische Karte „Fall“, L8534, M 1:50.000

BAYERSICHES LANDESVERMESSUNGSAMT (2000): Topographische Karte „Miesbach“, L8336, M 1:50.000

BAYERSICHES LANDESVERMESSUNGSAMT (2000): Topographische Karte „Wolfratshausen“, L8134, M 1:50.000

MARCO POLO: Shell EuroKarte Deutschland, 1:750 000

6. ANNEX: LIST OF NATURE PROTECTION AREAS

Nr.	Name	Habitat type	Location	Hectar	Year
FFH-Schutzgebietsvorschläge (2002)					
8034-301.02 u. 301.03	Oberes Isartal	größtenteils unregulierter Alpenflusses		4.484	
8434-301	Jachenau	naturnahe und kulturbetonte Lebensräume; eine der bedeutendsten Wildflussland- schaften Bayerns		1.342	
8433-301	Karwendel mit Isar	international bedeutsamer Ausschnitt der nördlichen Kalkalpen (auch SPA-Gebiet)		19.564	
8334-302	Probstalm und Probstenwand	weitgehend aufgelassenes Almgebiet	westlich Brauneck	88	
8235-302 u. -304	Rothenrainer Moore	Moorlandschaft	nordwestlich Bad Tölz	571	
Naturschutzgebiete					
100.002	Karwendel und Karwendelvor- gebirge	alpiner Lebensraumkomplex		10.200	1983
Landschaftsschutzgebiete					
173.01	Hochmoor am Rauthof		Jachental	7	1949
173.02	Hochmoor bei Schemeralm		Jachental	17	1950
173.05	Rothenrainer Moore	Moorlandschaft	Nordwesten Modelregion	74	1955
173.09	Sylvensteinsee	Stausee		5.000	1983
173.11	Isartal und Isarauen	Wildfluß- und Auenlandschaft mit Misch- waldbeständen, Schneeheide- Kiefernwäldern	Flusslauf bis Bad-Tölz	2.925	1968-71
173.14	Hirschbachtal	naturnahe Waldbestand	südöstlich Lenggries	1.638	1971