

## Annexes

### Annex 1

#### Statistical indicators and availability for the typologies

As mentioned in Chapter 2, data were collected both from national sources with the help of the national correspondents and from other GIS databases, and were classified as either statistical and GIS indicators (see both lists of indicators below).

##### *Availability of statistical indicators*

In general, most of the statistical indicators were requested for the year 2001, but in order to have data for more countries, 2000 or 1999 were also considered when data for 2001 were not available in a country.

Data at NUTS 5 level have been collected for 25 countries. Parts of the UK were counted separately (England and Wales, Scotland, Northern Ireland) as there are differences in terms of availability. Because of the absence of mountain areas, data only at NUTS 0 level were collected for the following countries in order to be able to perform comparisons during the analysis:

- Denmark
- Estonia
- Latvia
- Lithuania
- Malta
- The Netherlands.

With regard to the received data and data assessment, a final availability of around 70% of all of the requested statistical indicators from national sources was achieved.

While some indicators have reached a considerable high availability rate close to 100% for total population figures, the availability for a few indicators remains rather limited. Agricultural gross product (A-NS\_7), commuting patterns (E-NS\_22) and retail trade turnover data was impossible to obtain for a good number of countries. Low availability rates for numbers of immigrants and emigrants (D-NS\_4x and y) was enriched through the net migration (D-NS\_4a).

In contrast to the GIS indicators, certain statistical data could not be smoothly integrated into the municipality coverage due to different problems with municipality codes (National code, Eurostat code or name), different NUTS levels or boundary changes over time. Therefore, there were problems to link the data with the GIS database; some of these were resolved through manual work.

For typology ‘Social and economic capital’, total population for the year 2001 at NUTS 5 level was available for all countries in order to calculate population density in massifs.

Due to the late release of the Irish census, NUTS 4 data had to be disaggregated and data for the UK and Slovakia had to be adjusted to the 1997 municipality boundary system. In order to calculate the demographic trend, population data for 1991 was necessary as well. Those data were not available at NUTS 5 for Czech Republic, Poland and Slovakia and could not be included for this indicator. Moreover, efforts to adjust the Scottish 1991 data to the 1997 boundary system failed.

The only other statistical indicators used for the typologies are those concerning employment by economic sector. The data were not available at NUTS 5 for 2001 for Greece and Romania and partly for Poland.

### List of statistical indicators

- *Indicators related to agriculture*
  - Number of farms (A-NS\_1)
  - Livestock population (average annual number of animals) (A-NS\_3)
  - Utilisable agricultural area (in sq. km) (A-NS\_8)
  
- *Demographic indicators*
  - Total population and by sex (i.e. total, female, male) (D-NS\_1)
    - Total population and by sex (total) (D-NS\_1a)
    - Total population and by sex (female) (D-NS\_1b)
    - Total population and by sex (male) (D-NS\_1c)
  - Number of inhabitants over 60 and number of inhabitants under 15 (D-NS\_2)
    - Number of inhabitants over 60 (D-NS\_2a)
    - Number of inhabitants under 15 (D-NS\_2b)
  - Average number of births and deaths per year (D-NS\_3)
    - number of births per year (for all years from 1981 to 2001) (D-NS\_3x)
    - number of deaths per year (for all years from 1981 to 2001) (D-NS\_3y)
  - Fertility and mortality rates (in case D-NS\_3 is not available) (D-NS\_3a)
    - Fertility rates (in case D-NS\_3 is not available) (for all years from 1981 to 2001) (D-NS\_3b)
    - Mortality rates (in case D-NS\_3 is not available) (for all years from 1981 to 2001) (D-NS\_3c)
  - Number of immigrants and emigrants (D-NS\_4)
    - Number of immigrants (for all years from 1981 to 2001) (D-NS\_4x)
    - Number of emigrants (for all years from 1981 to 2001) (D-NS\_4y)
  - Net migration (in case D\_NS\_4 is not available) (D-NS\_4a)

- net migration (for all years from 1981 to 2001) (D-NS\_4b)
- Total number of foreign people (D-NS\_5)
  
- *Economic indicators*
  - Total number of active people by sex (i.e. total, female, male) (including self-employed and job-seekers) (E-NS\_1)
    - Total number active people (total) (E-NS\_1a)
    - Total number active people (female) (E-NS\_1b)
    - Total number active people (male) (E-NS\_1c)
  - Total number of employees by sector (agriculture, industry, services) (E-NS\_2)
    - Total number of employees in the agricultural sector (E-NS\_2a)
    - Total number of employees in the industry sector (E-NS\_2b)
    - Total number of employees in the services sector (E-NS\_2c)
  - Total number of unemployed people by sex (E-NS\_4)
    - Total number of unemployed people (total) (E-NS\_4a)
    - Total number of unemployed people (female) (E-NS\_4b)
    - Total number of unemployed male people (male) (E-NS\_4c)
  - Total number of unemployed people under -25s (E-NS\_5)
  - Total number of long-term unemployed (i.e. longer than 1 year) (E-NS\_6)
  - Level of qualification: number of people with highest educational level (according to levels 5,6, and 7 of the ISCED classification) (E-NS\_11)
  - GDP per capita (in PPS) (only for: NO, CH, EE) (E-NS\_15)
  - Value added by sector (agriculture, industry, services) (E-NS\_16)
    - Value added in agricultural sector (E-NS\_16a)
    - Value added in industry sector (E-NS\_16b)
    - Value added in services sector (E-NS\_16c)
  - Disposable income per capita (E-NS\_18)
  - Characterisation of municipalities regarding commuting patterns: In-commuting (indicator value: 1) or out-commuting municipality (indicator value: 2) (qualitative assessment based on experience or other studies)) (E-NS\_22)
  
- *Indicators related to the environment*  
(removed)
  
- *Indicators related to geography*
  - Number of days with snow (G-NS\_1)

- *Infrastructure indicators*
- Total number of overnight stays of tourists (I-NS\_5)
- List of hospitals (regional hospitals, university hospitals or hospitals with over 300 beds only) (I-NS\_10)
- Number of doctors (I-NS\_12)
- List of universities (post-secondary education facilities with a non-professional profile with over 1 000 students) (I-NS\_17)
- Number of secondary (I-NS\_18)
- List of airports (with 52 regular flights per year or more) (I-NS\_26)

#### *Availability of GIS indicators*

The availability of GIS indicators is bound to the availability of layers providing basic information necessary to derive indicators.

Almost all GIS indicators are calculated (some of them presented here); the remaining ones will be available by the end of the project. However, a few are still to be calculated (e.g., mobile phone reception), and others will not be available until the end of the project due to a lack of basic data (e.g., areas eligible for national support).

In general, the availability of *GIS indicators related to the environment* is somewhat poor. Although some are already calculated (e.g. settlement area, open space, climatic contrast index), many cannot be calculated because of missing or inaccessible data sources. For example, indicators related to NATURA 2000 had to be excluded; and the calculation of those relating to air and noise pollution, inventory of living areas of predators, and potential habitat areas for different species could not be performed due to the lack of data.

In summary, data availability for the GIS indicators is somewhat better than for the statistical indicators, hence it is possible to raise the aforementioned percentage of data availability.

For the typology ‘social and economic capital’, two accessibility indicators were used (see Chapter 10). Data were available for the whole study, except for the French Overseas territories. The typology ‘infrastructure, accessibility and services’ depends exclusively on GIS indicators. Again, data were not available for the French overseas territories and additionally for the Canaries, Azores and Madeira. The same applies for most of the indicators used for the typology ‘land use and land covers’.

## List of GIS indicators

- *Indicators related to agriculture*
  - Total agricultural land by massif (in ha) (A-GIS\_1)
  - Share of agricultural land by massif (in %) (A-GIS\_2)
  - Total forest area by massif (in ha) (A-GIS\_3)
  - Share of forests by massif (in %) (A-GIS\_4)
  - Total forest area by municipality (in ha) (A-GIS\_5)
  - Share of forests by municipality (in %) (A-GIS\_6)
  - Total agricultural land by municipality (in ha) (A-GIS\_7)
  - Share of agricultural land by municipality (in %) (A-GIS\_8)
  
- *Demographic indicators*
  - Population density by municipalities (D-GIS\_1)
  - Population density by massif (D-GIS\_2)
  - Rural and urban population by massif (D-GIS\_3)
  - Share of rural and urban population by massif (D-GIS\_4)
  - Number of people in agglomerations and small villages by massif (D-GIS\_5)
  - Share of people in agglomerations and small villages by massif (D-GIS\_6)
  
- *Economic indicators*
  - Mobile phones reception (E-GIS\_3)
  - Employment rate (employers/inhabitants) (E-GIS\_5)
  
- *Indicators related to the environment*
  - Number of areas protected under different Community schemes (EN-GIS\_1)
  - Predominant type of soil by massif (EN-GIS\_2)
  - Total settlement area by massif (in ha) (including transport facilities) (EN-GIS\_5)
  - Share of total settlement area by massif (in %) (including transport facilities) (EN-GIS\_6)
  - Degree of urbanisation (EN-GIS\_7)
    - Degree of urbanisation by municipality (EN-GIS\_7a)
    - Degree of urbanisation by massif (EN-GIS\_7b)
  - Total open space by massif (in ha) (EN-GIS\_8)
  - Share of open space by massif (in %) (EN-GIS\_9)
  - Size of inaccessible areas (permanent ice and snow) by massif (in ha) (EN-GIS\_10)
  - Share of inaccessible areas (permanent ice and snow) by massif (in %) (EN-GIS\_11)
  - Climatic Contrast Index (EN-GIS\_20)
    - Climatic Contrast Index by municipality (EN-GIS\_20a)

- Climatic Contrast Index by massif	(EN-GIS_20b)
- <i>Indicators related to geography</i>	
- Longitude and latitude of municipality centres	(G-GIS_1)
- Longitude of municipality centre	(G-GIS_1a)
- Latitude of municipality centre	(G-GIS_1b)
- Minimum, mean and maximum altitude by municipality (in meters above sea level)	(G-GIS_2)
- Mean altitude by municipality (in meters above sea level)	(G-GIS_2a)
- Minimum altitude by municipality (in meters above sea level)	(G-GIS_2b)
- Maximum altitude by municipality (in meters above sea level)	(G-GIS_2c)
- Mean altitude by massif (in meters above sea level)	(G-GIS_2d)
- Minimum altitude by massif (in meters above sea level)	(G-GIS_2e)
- Maximum altitude by massif (in meters above sea level)	(G-GIS_2f)
- Ratio minimum/maximum elevation by municipality	(G-GIS_3)
- Ratio minimum/maximum elevation by massif	(G-GIS_4)
- Standard deviation of elevation by municipality	(G-GIS_5)
- Standard deviation of elevation by massif	(G-GIS_6)
- Mean and steepest slope by municipality (in %)	(G-GIS_7)
- Mean slope by municipality (in %)	(G-GIS_7a)
- Steepest slope by municipality (in %)	(G-GIS_7b)
- Mean slope by massif (in %)	(G-GIS_7c)
- Steepest slope by massif (in %)	(G-GIS_7d)
- Total area (in ha)	(G-GIS_8)
- Total municipality area (in ha)	(G-GIS_8a)
- Total massif area (in ha)	(G-GIS_8b)
- Average municipality area by massif (in ha)	(G-GIS_8c)
- Absolute and average minimum temperature, and absolute maximum temperature (in °C)	(G-GIS_10)
- Absolute minimum temperature (in °C)	(G-GIS_10a)
- Average minimum temperature (in °C)	(G-GIS_10b)
- Absolute maximum temperature (in °C)	(G-GIS_10c)
- Average maximum temperature (in °C)	(G-GIS_10d)
- Average temperature (in °C)	(G-GIS_10e)
- Land use by 14 land use types (each in ha)	(G-GIS_17)
- Land use by coniferous forest (in ha)	(G-GIS_17a)
- Land use by deciduous forest (in ha)	(G-GIS_17b)
- Land use by mixed forest (in ha)	(G-GIS_17c)
- Land use by grassland (in ha)	(G-GIS_17d)
- Land use by rainfed arable land (in ha)	(G-GIS_17e)
- Land use by irrigated arable land (in ha)	(G-GIS_17f)
- Land use by permanent crops (in ha)	(G-GIS_17g)
- Land use by scrubland (in ha)	(G-GIS_17h)
- Land use by barren land (in ha)	(G-GIS_17i)
- Land use by permanent ice and snow (in ha)	(G-GIS_17j)

- Land use by wetlands (in ha)	(G-GIS_17k)
- Land use by inland waters (in ha)	(G-GIS_17l)
- Land use by urban areas (in ha)	(G-GIS_17m)
- Land use by 14 land use types (each as proportion of massif area)	(G-GIS_18)
- Land use by coniferous forest (proportion of massif area)	(G-GIS_18a)
- Land use by deciduous forest (proportion of massif area)	(G-GIS_18b)
- Land use by mixed forest (proportion of massif area)	(G-GIS_18c)
- Land use by grassland (proportion of massif area)	(G-GIS_18d)
- Land use by rainfed arable land (proportion of massif area)	(G-GIS_18e)
- Land use by irrigated arable land (proportion of massif area)	(G-GIS_18f)
- Land use by permanent crops (proportion of massif area)	(G-GIS_18g)
- Land use by scrubland (proportion of massif area)	(G-GIS_18h)
- Land use by barren land (proportion of massif area)	(G-GIS_18i)
- Land use by permanent ice and snow (proportion of massif area)	(G-GIS_18j)
- Land use by wetlands (proportion of massif area)	(G-GIS_18k)
- Land use by inland waters (proportion of massif area)	(G-GIS_18l)
- Land use by urban areas (proportion of massif area)	(G-GIS_18m)
- Typology according to main land use type	(G-GIS_19)
- Typology of municipalities according to main land use type	(G-GIS_19a)
- Typology of massifs according to main land use type	(G-GIS_19b)
- Airline distances (in km) from municipality centres...	(G-GIS_22)
- to nearest city with > 100,000 inhabitants	(G-GIS_22a)
- average distance to next 3 cities with > 100,000 inhabitants (in km)	(G-GIS_22b)
- to nearest city with > 100,000 inhabitants by massif (in km)	(G-GIS_22c)
- average distance to next 3 cities with > 100,000 inhabitants by massif (in km)	(G-GIS_22d)
- Airline distances to capital city	(G-GIS_23)
- from municipality centres (in km)	(G-GIS_23a)
- Average airline distance from municipality centres to capital by massif (in km)	(G-GIS_23b)
- Number of municipalities belonging to a massif	(G-GIS_26)
- Public infrastructure supply: hospitals	(G-GIS_30)
- airline distance to next hospital by municipality (in km)	(G-GIS_30a)
- airline distance to second next hospital by municipality (in km)	(G-GIS_30b)
- airline distance to third next hospital by municipality (in km)	(G-GIS_30c)
- average airline distance to next 3 hospital by municipality (in km)	(G-GIS_30d)
- average airline distance to all hospital by municipality (in km)	(G-GIS_30e)
- number of hospitals by massif	(G-GIS_30f)
- number of beds in hospitals by massif	(G-GIS_30g)
- number of hospitals per 1.000 inhabitants by massif	(G-GIS_30h)
- number of beds in hospitals per 1.000 inhabitants by massif	(G-GIS_30i)
- average airline distance to next hospital by massif (in km)	(G-GIS_30j)

- Public infrastructure supply: universities (G-GIS\_32)
  - Number of universities by massif (G-GIS\_32a)
  - Distance to nearest university by municipality (in km) (G-GIS\_32b)
  - Average distance to nearest university by massif (in km) (G-GIS\_32c)
  - Level of service: potential accessibility to universities by municipality (G-GIS\_32d)
  - Travel time to nearest university by municipality (in min) (G-GIS\_32e)
  - Travel time to nearest university by massif (in min) (G-GIS\_32f)
  - Proportion of massif population with more than 1 h car driving time to nearest university (G-GIS\_32g)
  - Level of service: potential accessibility to universities by massif (G-GIS\_32h)
- Land use by 14 land use types (each in % of municipality area) (G-GIS\_36)
  - Land use by coniferous forest (in % of municipality area) (G-GIS\_36a)
  - Land use by deciduous forest (in % of municipality area) (G-GIS\_36b)
  - Land use by mixed forest (in % of municipality area) (G-GIS\_36c)
  - Land use by grassland (in % of municipality area) (G-GIS\_36d)
  - Land use by rainfed arable land (in % of municipality area) (G-GIS\_36e)
  - Land use by irrigated arable land (in % of municipality area) (G-GIS\_36f)
  - Land use by permanent crops (in % of municipality area) (G-GIS\_36g)
  - Land use by scrubland (in % of municipality area) (G-GIS\_36h)
  - Land use by barren land (in % of municipality area) (G-GIS\_36i)
  - Land use by permanent ice and snow (in % of municipality area) (G-GIS\_36j)
  - Land use by wetlands (in % of municipality area) (G-GIS\_36k)
  - Land use by inland waters (in % of municipality area) (G-GIS\_36l)
  - Land use by urban areas (in % of municipality area) (G-GIS\_36m)
- Land use by 14 land use types (each in % of massif area) (G-GIS\_37)
  - Land use by coniferous forest (in % of massif area) (G-GIS\_37a)
  - Land use by deciduous forest (in % of massif area) (G-GIS\_37b)
  - Land use by mixed forest (in % of massif area) (G-GIS\_37c)
  - Land use by grassland (in % of massif area) (G-GIS\_37d)
  - Land use by rainfed arable land (in % of massif area) (G-GIS\_37e)
  - Land use by irrigated arable land (in % of massif area) (G-GIS\_37f)
  - Land use by permanent crops (in % of massif area) (G-GIS\_37g)
  - Land use by scrubland (in % of massif area) (G-GIS\_37h)
  - Land use by barren land (in % of massif area) (G-GIS\_37i)
  - Land use by permanent ice and snow (in % of massif area) (G-GIS\_37j)
  - Land use by wetlands (in % of massif area) (G-GIS\_37k)
  - Land use by inland waters (in % of massif area) (G-GIS\_37l)
  - Land use by urban areas (in % of massif area) (G-GIS\_37m)
- *Infrastructure indicators*
  - Length of railways by type of railway by massif (in km) (I-GIS\_8)
  - Railway density by massif (in km/ha) (I-GIS\_9)
  - Length of TEN/TINA railway network by massif (in km) (I-GIS\_13)

- Share of TEN/TINA railway network on total railway network by massif (in %) (I-GIS\_14)
- Length of navigable waterways (in km) (I-GIS\_15)
  - Length of navigable waterways by municipality (in km) (I-GIS\_15a)
  - Length of navigable waterways by massif (in km) (I-GIS\_15b)
- Number of ports (I-GIS\_16)
  - Number of ports by municipality (I-GIS\_16a)
  - Number of ports by massif (I-GIS\_16b)
- Number of airports (I-GIS\_17)
  - Number of airports by municipality (I-GIS\_17a)
  - Number of airports by massif (I-GIS\_17b)
  - Car travel time to nearest airport by municipality (in min) (I-GIS\_17c)
  - Car travel time to nearest airport by massif (in min) (I-GIS\_17d)
  - Proportion of massif population with more than 1 h car driving time to nearest airport (I-GIS\_17e)
  - Level of service: potential accessibility to airports by municipality (I-GIS\_17f)
  - Level of service: potential accessibility to airports by massif (I-GIS\_17g)
- Peripherality by car to population by municipalities (European average) (I-GIS\_18)
- Peripherality by car to population by massifs (European average) (I-GIS\_19)
- Peripherality by car to population by municipalities (national average) (I-GIS\_20)
- Peripherality by car to population by massifs (national average) (I-GIS\_21)
- Density of road traffic (traffic flows) by massif (I-GIS\_22)
- Number of protected natural sites by massif (I-GIS\_23)
- Number and capacity of nuclear power stations by massif (I-GIS\_24)
- Number and capacity of other thermal, hydro-electric power stations by massif (I-GIS\_25)
- Areas dedicated to traffic by massif (in ha) (I-GIS\_26)
- Share of areas dedicated to traffic on total massif area (in %) (I-GIS\_27)
- Number of protected monuments by massif (I-GIS\_28)
- Length of ski slopes by massif (in %) (I-GIS\_29)
- Number of people living within a radius of 1 hour car driving time from the municipality centre (I-GIS\_30)
  - Number of people living within a radius of 1 hour car driving time from the municipality centre by municipality (I-GIS\_30a)
  - Average number of people living within a radius of 1 hour car driving time from the municipality centre by massif (I-GIS\_30b)
- Number of people living within a radius of 30 minutes car driving time from the municipality centre (I-GIS\_31)
  - Number of people living within a radius of 30 minutes car driving time from the municipality centre by municipality (I-GIS\_31a)
  - Average number of people living within a radius of 30 minutes car driving time from the municipality centre by massif (I-GIS\_31b)
- Length of motorways by municipality (in km) (I-GIS\_32a)

- Length of dual-carriageways by municipality (in km)	(I-GIS_32b)
- Length of other trunk roads by municipality (in km)	(I-GIS_32c)
- Length of motorways by massif (in km)	(I-GIS_32d)
- Length of dual-carriageways by massif (in km)	(I-GIS_32e)
- Length of other trunk roads by massif (in km)	(I-GIS_32f)
- Sum of the length of all trunk roads by massif (in km)	(I-GIS_32g)
- Density of motorways by municipality (in km/sqkm)	(I-GIS_33a)
- Density of dual-carriageways by municipality (in km/sqkm)	(I-GIS_33b)
- Density of other trunk roads by municipality (in km/sqkm)	(I-GIS_33c)
- Density of motorways by massif (in km/sqkm)	(I-GIS_33d)
- Density of dual-carriageways by massif (in km/sqkm)	(I-GIS_33e)
- Density of other trunk roads by massif (in km/sqkm)	(I-GIS_33f)
- Density of all trunk roads by massif (in km/sqkm)	(I-GIS_33g)
- Number of motorway exits by municipality	(I-GIS_34)
- Length of existing and planned TEN road network by municipality (in km)	(I-GIS_35)
- Length of existing TEN road network by municipality (in km)	(I-GIS_36)
- Length of planned TEN road network by municipality (in km)	(I-GIS_37)
- Density of navigable waterways by municipality (in km/sqkm)	(I-GIS_38a)
- Density of navigable waterways by massif (in km/sqkm)	(I-GIS_38b)
- Density of existing TEN road network by municipality (in km/sqkm)	(I-GIS_39a)
- Density of existing TEN road network by massif (in km/sqkm)	(I-GIS_39b)
- Density of planned TEN road network by municipality (in km/sqkm)	(I-GIS_40a)
- Density of planned TEN road network by massif (in km/sqkm)	(I-GIS_40b)
- Density of existing and planned TEN road network by municipality (in km/sqkm)	(I-GIS_41a)
- Density of existing and planned TEN road network by massif (in km/sqkm)	(I-GIS_41b)
- Number of ski slopes by massif	(I-GIS_42)
- Number of cable cars, chair lifts, ski lifts and total number of lifts by massif	(I-GIS_43)
- Number of cable cars by massif	(I-GIS_43a)
- Number of chair lifts by massif	(I-GIS_43b)
- Number of ski lifts by massif	(I-GIS_43c)
- Total number of lifts by massif	(I-GIS_43d)
- Sum of transport performance of all ski lifts per massif (pers./h)	(I-GIS_44)
- <i>Indicators related to Structural Funds and Community Initiatives</i>	
- Less favoured areas eligible for Objective 5 a by massif (in ha)	(IN-GIS_9)
- Share of less favoured areas eligible for Objective 5 by massif (in %)	(IN-GIS_10)
- Areas eligible for structural funds by massif (in ha)	(IN-GIS_11)
- areas eligible for objective 1 (in ha)	(IN-GIS_11a)

- areas eligible for objective 1 phasing out (in ha)	(IN-GIS_11b)
- areas eligible for objective 2 (in ha)	(IN-GIS_11c)
- areas eligible for objective 2 phasing out (in ha)	(IN-GIS_11d)
- areas eligible for special Sweden program (in ha)	(IN-GIS_11e)
- Share of areas eligible for structural funds on total massif area (in %)	(IN-GIS_12)
- share of area eligible for objective 1 (in %)	(IN-GIS_12a)
- share of area eligible for objective 1 phasing out (in %)	(IN-GIS_12b)
- share of area eligible for objective 2 (in %)	(IN-GIS_12c)
- share of area eligible for objective 2 phasing out (in %)	(IN-GIS_12d)
- share of area eligible for special Sweden program (in %)	(IN-GIS_12e)

## **Annex 2. List of interviewees**

### **Austria**

Dr. Martin GESER, Austrian Institute for Applied Ecology; Branch Western Austria; Bregenz, Senior Researcher  
Mag. Gudrun STREICHE, Alpine convention's office of CIPRA-Austria; Innsbruck, Manager  
Dipl. Ing. Peter FERCHER, Provincial administration Carinthia; unit of local and regional development planning; Klagenfurt, Head of unit  
Dr. Christian SALLETMAIER, Provincial administration Salzburg; unit of regional planning and EU regional policy; Salzburg, Coordinator of Interreg IIIB initiative "Alpine Space"  
Dipl. Ing. Elmar RITZINGE, Federal Ministry of Agriculture, Forestry, Environment and Water Management; department of rural development; Vienna, Deputy head of unit; coordinator  
Dipl. Ing. Wolf HUBER, Federal Chancellery, Dept. of Territorial and Regional Planning, Head of unit  
Dipl. Ing. Wolfgang PFEFFERKORN, Regional Consulting GmbH, Vienna, Senior researcher, coordinator of EU project "Regional development and Cultural landscape change: the example of the Alps"

### **Belgium**

Luc Maréchal, Spatial planning administration in charge of strategic spatial planning for Walloon region, Head of the unit  
Prof. Daniel BODSON, Catholic University of Louvain (UCL), Faculty of Economical, Social and Political Sciences, Department of Political and Social Sciences.

### **Bulgaria**

Margarita Bojkova, Ministry of Regional Development and Public Works, Directorate "Strategic Planning" at the "Regional Policy Department"  
Manoela Georgieva, Ministry of Environment and Waters, Vice Minister,  
George Tinchev, National Forestry Board (at the Ministry of Agriculture and Forests  
Dr Peter Petrov, Institute of Geography, Bulgarian Academy of Sciences, Chief of Physical Geography section  
Dr Neno Dimov, National Centre for Regional Development, Professor, Executive Director  
Arch Petko Evrev, National Centre for Regional Development  
Dr Stephan Velev, National Association for Rural and Eco Tourism (BARET), member of BARET,

### **Czech Republic**

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### **Finland**

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## Annex 3: Database structure

### 3.1 General remarks

One of the major prerequisites for the GIS database is its compatibility with existing Eurostat/GISCO GIS databases, in particular with respect to the spatial reference system and supported data formats.

The GIS database submitted to DG REGIO at the end of the study is based on mountain ranges (massifs), i.e., each massif is represented by one individual region entity, comprising one or several polygon entities (municipalities). All NUTS 5 municipality data are stored as polygon data, and also in aggregated form, representing the overall massifs.

### 3.2 Data formats

Since the GISCO reference database is set up on top of ESRI's ArcInfo GIS (Vers. 7.x, Eurostat, 2002), the study database uses data formats supported by ArcInfo:

- ArcInfo Coverages (for storing vector data such as municipality boundaries).
- ArcInfo Grids (for storing raster data such as land cover data).
- ArcInfo Info Tables (for storing additional tabular data).

These three data formats are fully compatible with each other, and can be related with each other using standard ArcInfo commands.

Although ArcInfo is able to handle (i.e., import, export) many more data formats, the final database to be submitted to DG REGIO will only comprise the three formats mentioned above, facilitating ease of use by having only a limited number of different data formats.

### 3.3 Spatial reference system

To be compatible with the Eurostat/GISCO databases, the GIS database is based on the standard GISCO spatial reference system. This standard planar projection is a Lambert Azimuthal Equal Area projection (Eurostat, 2002). It is best suited for large areas, preserving as much as possible the shape of the continent. The projection is characterised by the following parameters:

- |                                     |              |
|-------------------------------------|--------------|
| • Units                             | meters       |
| • Spheroid                          | sphere       |
| • Radius of sphere of reference     | 6378388      |
| • Longitude of centre of projection | 09° 00' 00'' |
| • Latitude of centre of projection  | 48° 00' 00'' |
| • False easting                     | 0.0          |
| • False northing                    | 0.0          |

For Overseas Territories, alternative projection systems were used, defined in collaboration with Eurostat.

### **3.4 General database structure**

The layers included in the database are arranged in a clear, intuitive and easy-to-use way, structured by theme (see Chapter 2). Accordingly, the database is sub-divided into the following seven main folders:

- Geography, comprising all data and indicators representing regional and community boundaries, topography, climatic conditions, natural phenomena, land use, and geographical location;
- Demography, including data such as total population, age structures, migration patterns, and spatial patterns of population distributions;
- Economy, including socio-economic indicators with regard to activity rates, unemployment, value added per sector, qualifications, and commuting;
- Agriculture, including data on agricultural cultivated land, livestock, and income from agriculture;
- Infrastructure, including data on tourism, transport network provision, and transport, medical, and education facilities;
- Environment, including data on settlements and protected areas;
- Initiatives, including information on regions eligible for the various EU Community support programmes for disadvantaged regions.

This structure does not seek to duplicate any existing Eurostat database (e.g. New Chronos, GISCO), but rather provides a comprehensive, GIS-based spatial database. New Chronos Excel sheets (and other data sources) have been transformed into ArcInfo Info Tables or ArcInfo coverage or Grid formats. Aggregates calculated from seamless GISCO layers are linked directly to ArcInfo municipality layers, in order to unlock and enable the full potential of GIS tools to facilitate the analysis of mountain areas.

### **3.5 Database implementation in ArcInfo**

In the technical terms of ArcInfo, the database structure has the workspace structure shown in Figure A3.1.

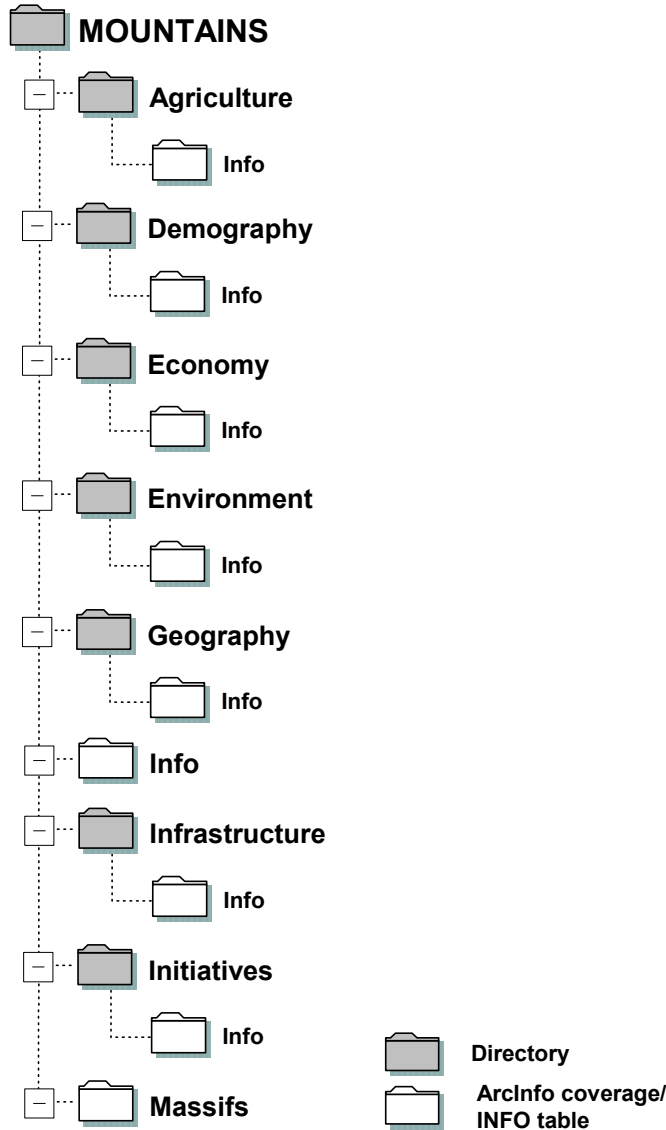


Figure A3.1. The structure of the GIS database

All spatial data sets are stored in a workspace entitled MOUNTAINS. This includes a single Arc Info coverage entitled MASSIFS, representing the boundaries of the mountain massifs. This layer includes two main feature classes: the polygon feature class represents municipalities belonging to the massifs, and the region feature class represents each massif as one individual spatial entity. The polygon feature class table (PAT) includes the names of the municipalities, their national and NUTS codes, and the proportion of area (in percent) that is considered mountainous. The region feature class table (RAT) includes the names of the massifs and unique massif codes (UMC) for identification purposes and as linkages to the other data. In order to keep the MASSIFS coverage as small as possible (i.e., to make the handling of the coverage as easy as possible), it does not contain any data as such.

Besides the MASSIFS coverage, the MOUNTAINS workspace also contains seven sub-workspaces, representing the seven themes mentioned above. Each sub-workspace includes one single INFO directory, comprising several ArcInfo INFO Tables storing the socio-economic and socio-demographic data of the mountain study databases. There are separate INFO Tables for the municipality or massif level. INFO Tables for the municipality level provide data at the municipality level, in order to reflect the internal variety of the massifs. INFO Tables at the massif level provide information aggregated to each massif (expressed as an average, or as a sum over the municipality level). Similar indicators are subsumed into one INFO Table (e.g., total population, population by sex, population under 15); consequently, different kinds of indicators are stored in different ArcInfo INFO Tables. The ArcInfo RELATES concept is used to link the MASSIFS coverage in the MOUNTAINS workspace with the INFO Tables in the various sub-workspaces using the unique massif codes.

Finally, the MOUNTAINS workspace includes technical documents such as the database reference guide.

**Annex 4. Basic description of massifs and mountain ranges**

Mountain range	CC	National massif	National massif and isolated area	E.	Massif code	Massif area (sqkm)	No muni.
Alpine range	AT	Austrian Alps	Austrian Alps	M	ALPATM01	56,348	1261
	CH	Swiss Alps	Swiss Alps	E	ALPCHE01	64	12
	CH	Swiss Alps	Swiss Alps	M	ALPCHM01	26,796	1142
	DE	Bavarian Alps	Bavarian Alps	M	ALPDEM01	6,694	145
	FR	Mediterranean Alps	Mediterranean Alps	E	ALPFRE01	72	5
	FR	Mediterranean Alps	Mediterranean Alps	M	ALPFRM01	15,157	583
	FR	Northern Alps	Northern Alps	M	ALPFRM02	29,268	1332
	HU	Koszeg	Koszeg	M	ALPHUM01	43	2
	IT	Central Alps	Central Alps	M	ALPITM01	24,113	1074
	IT	Eastern Alps	Eastern Alps	M	ALPITM02	15,711	398
	IT	Western Alps	Western Alps	M	ALPITM03	12,051	473
	SI	North Slovenia Alps	North Slovenia Alps	E	ALPSIE01	561	6
SI	North Slovenia Alps	North Slovenia Alps	M	ALPSIM01	9,515	93	
Apennines	IT	Central Apennines	Central Apennines	E	APPITE01	2,297	44
	IT	Northern Apennines	Northern Apennines	E	APPITE02	1,489	20
	IT	Southern Apennines	Southern Apennines	E	APPITE03	569	18
	IT	Central Apennines	Central Apennines	M	APPITM01	29,640	702
	IT	Northern Apennines	Northern Apennines	M	APPITM02	28,440	585
	IT	Southern Apennines	Southern Apennines	M	APPITM03	36,316	1058
Balkans	BG	Rodopi Planina	Rodopi Planina	M	BALBGM01	20,463	52
	BG	Sredna Gora	Sredna Gora	M	BALBGM02	6,998	21
	BG	Stara Planina	Stara Planina	M	BALBGM03	19,501	39
	BG	Western mountains	Western mountains	M	BALBGM04	6,586	15
	GR	Rodopi	Rodopi	E	BALGRE01	2,173	19
	GR	Isolated mountain areas	Evia - Viotia - Attiki	M	BALGRI01	6,403	96
	GR	Olympos and Central Greece	Olympos and Central Greece	M	BALGRM01	18,403	132
	GR	Pindos	Pindos	M	BALGRM02	30,029	242
	GR	Rodopi	Rodopi	M	BALGRM03	14,876	77
Basque Mountains	ES	Basque Mountains	Basque Mountains	M	BASESM01	7,202	270
Betic Systems	ES	Betic Systems	Betic Systems	E	BETESE01	878	12
	ES	Betic Systems	Betic Systems	M	BETESM01	58,192	651
Black forest – Schwabian/Frankonian Alb	CH	Schwabian Alb (Swiss)	Schwabian Alb (Swiss)	M	BLFCHM01	96	12

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	DE	Black forest – Schwabian/Frankonian Alb	Black forest – Schwabian/Frankonian Alb	M	BLFDEM01	10,659	384
Bohemian range	AT	Austrian Bohemian mountains	Austrian Bohemian mountains	E	BOHATE01	95	3
	AT	Austrian Bohemian mountains	Austrian Bohemian mountains	M	BOHATM01	5,202	183
	CZ	Sumava - Cesky Les	Sumava - Cesky Les	E	BOHCZE01	208	4
	CZ	Sumava - Cesky Les	Sumava - Cesky Les	M	BOHCZM01	5,037	234
	DE	German Bohemian mountains	German Bohemian mountains	M	BOHDEM01	4,554	148
Bothnian Arc	FI	Ostrobothnia and coastal hinterland	Ostrobothnia and coastal hinterland	M	BOTFIM01	33,341	160
	SE	Aangermanland	Aangermanland	M	BOTSEM01	28,464	62
	SE	Norrbotten	Norrbotten	M	BOTSEM02	34,850	156
	SE	Vaesterbotten	Vaesterbotten	M	BOTSEM03	4,780	2
Cantabrian Range	ES	Cantabrian Range	Cantabrian Range	M	CANESM01	20,506	206
Carpathian range	CZ	Czech Carpathian Mountains	Czech Carpathian Mountains	M	CARCZM01	3,729	231
	HU	North Hungarian mountain areas	North Hungarian mountain areas	M	CARHUM01	2,669	108
	PL	Polish Carpathian mountains	Polish Carpathian mountains	M	CARPLM01	11,997	123
	RO	Southern Romanian Carpathian mountains	Southern Romanian Carpathian mountains	E	CARROE01	1,091	20
	RO	Eastern Romanian Carpathian mountains	Eastern Romanian Carpathian mountains	M	CARROM01	35,661	325
	RO	Muntii Apuseni	Muntii Apuseni	M	CARROM02	14,653	158
	RO	Southern Romanian Carpathian mountains	Southern Romanian Carpathian mountains	M	CARROM03	39,952	417
	SK	Slovak Carpathian mountains	Slovak Carpathian mountains	E	CARSKE01	625	70
SK	Slovak Carpathian mountains	Slovak Carpathian mountains	M	CARSKM01	30,376	1956	
Catalan Range	ES	Catalan Range	Catalan Range	M	CATESM01	7,674	264
Corsica	FR	Corsica	Corsica	M	CORFRM01	7,809	340
Crete	GR	Crete	Crete	M	CREGRM01	7,699	80
Central Scandinavian mountain areas	NO	Border area - Troendelag	Border area - Troendelag	M	CSCNOM01	57,157	230
	SE	Jamtland - Harjedalen - Dalarne	Jamtland - Harjedalen - Dalarne	M	CSCSEM01	54,607	14
Central System	ES	Central System	Central System	M	CSYESM01	22,833	642
	PT	Cordilheira central	Cordilheira central	E	CSYPTE01	232	9
	PT	Cordilheira central	Cordilheira central	M	CSYPTM01	8,817	381
Dinaric Mountains	IT	Italian Dinaric mountains	Italian Dinaric mountains	M	DINITM01	168	5
	SI	Dinaric mountains	Dinaric Mountains	M	DINSIM01	6,290	37
Galician-Portuguese Massif	ES	Galician Massif	Galician Massif	E	GPMESE01	311	5
	ES	Galician Massif	Galician Massif	M	GPMESM01	23,030	262
	PT	Macico Noroeste	Macico Noroeste	E	GPMPTM01	215	38

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	PT	Macico Noroeste	Macico Noroeste	M	GPMPM01	13,437	1265
Highlands and Islands	UK	Highlands and Islands	Highlands and Islands	M	HAIUKM01	37,540	245
Iberic System	ES	Iberic System	Iberic System	E	IBSESE01	3,077	90
	ES	Iberic System	Iberic System	M	IBSESM01	63,479	1291
Jura	CH	Swiss Jura	Swiss Jura	M	JURCHM01	3,667	376
	FR	French Jura	French Jura	E	JURFRE01	688	54
	FR	French Jura	French Jura	M	JURFRM01	9,423	903
Massif Central	FR	Massif Central	Massif Central	E	MACFRE01	1,750	68
	FR	Massif Central	Massif Central	M	MACFRM01	52,103	2668
Mittelland - Upper Rhine Valley	CH	Mittelland Plateau	Mittelland Plateau	E	MITCHE01	1,274	245
	CH	Mittelland Plateau	Mittelland Plateau	M	MITCHM01	6,884	1087
	DE	Upper Rhine Valley	Upper Rhine Valley	M	MITDEM01	206	20
Mountains of Sardinia	IT	Mountains of Sardinia	Mountains of Sardinia	E	MSAITE01	851	12
Mountains of Sardinia	IT	Mountains of Sardinia	Mountains of Sardinia	M	MSAITM01	16,777	252
Mountains of Sicily	IT	Mountains of Sicily	Mountains of Sicily	M	MSIITM01	18,819	353
Northern English Mountains	UK	Northern English Mountains	Northern English Mountains	M	NEMUKM01	9,165	149
Northern Fennoscandia	FI	Forest Lapland	Forest Lapland	M	NFSFIM01	51,290	10
	FI	Kainuu and Koillisma - Hill region	Kainuu and Koillisma - Hill region	M	NFSFIM02	57,839	45
	FI	Mountain Lapland	Mountain Lapland	M	NFSFIM03	30,948	15
	NO	Finnmark and northern Troms	Finnmark and northern Troms	M	NFSNOM01	82,559	216
	NO	Nordland - Troms	Nordland - Troms	M	NFSNOM02	76,279	475
	SE	Lapland	Lapland	M	NFSSEM01	117,625	12
Ore mountains	CZ	Czech Ore mountains	Czech Ore mountains	M	ORECZM01	4,132	190
	DE	German Ore mountains	German Ore mountains	E	OREDEE01	92	5
	DE	German Ore mountains	German Ore mountains	M	OREDEM01	7,791	434
Peloponnesean mountains	GR	Peloponnesean mountains	Peloponnesean mountains	E	PELGRE01	79	1
	GR	Peloponnesean mountains	Peloponnesean mountains	M	PELGRM01	18,586	140
Pentadaktylos	CY	Pentadaktylos	Pentadaktylos	M	PENCYM01	689	46
Pyrenees	ES	Spanish Pyrenees	Spanish Pyrenees	E	PYRESE01	80	3
	ES	Spanish Pyrenees	Spanish Pyrenees	M	PYRESM01	32,762	722
	FR	French Pyrenees	French Pyrenees	M	PYRFRM01	16,517	1068
Rhenish Slate Mountains	BE	Belgian Ardennes	Belgian Ardennes	M	RSMBEM01	1,289	14
	DE	Rhenish Slate Mountains (German part)	Rhenish Slate Mountains (German part)	E	RSMDEE01	641	96

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	DE	Rhenish Slate Mountains (German part)	Rhenish Slate Mountains (German part)	M	RSMDEM01	12,408	924
	FR	French Ardennes	French Ardennes	M	RSMFRM01	337	19
	FR	Northern Vosges	Northern Vosges	M	RSMFRM02	142	8
	LU	Luxembourg Ardennes	Luxembourg Ardennes	M	RSMLUM01	115	5
Sierra Morena	ES	Sierra Morena	Sierra Morena	M	SMOESM01	15,773	90
Southern Scandinavian mountain areas	NO	Oestland mountain areas	Oestland mountain areas	E	SSCNOE01	722	1
	NO	Coastal mountain areas	Coastal mountain areas	M	SSCNOM01	51,267	569
	NO	Hardangervidda - Southern mountains	Hardangervidda - Southern mountains	M	SSCNOM02	42,793	55
	NO	Jotunheimen - Rondane - Dovre	Jotunheimen - Rondane - Dovre	M	SSCNOM03	34,893	34
	NO	Oestland mountain areas	Oestland mountain areas	M	SSCNOM04	22,036	60
	SE	Vaermland	Vaermland	M	SSCSEM01	4,367	1
Sudetes	CZ	Czech Sudetes	Czech Sudetes	M	SUDCZM01	8,883	554
	DE	German Sudetes	German Sudetes	M	SUDDEM01	209	10
	PL	Polish Sudetes	Polish Sudetes	M	SUDPLM01	4,184	47
Toledo Mountains	ES	Toledo Mountains	Toledo Mountains	E	TMOESE01	231	1
	ES	Toledo Mountains	Toledo Mountains	M	TMOESM01	20,493	154
Transmontano - Leonese Plateau	ES	Leon Mountains	Leon Mountains	M	TPAESM01	7,505	93
	PT	Planalto transmontano - Beirao	Planalto transmontano - Beirao	M	TPAPTM01	8,986	472
Troodos	CY	Troodos	Troodos	M	TROCYM01	3,706	292
Vosges	FR	Vosges	Vosges	M	VOSFRM01	5,341	405
Welsh Mountains	UK	Welsh Mountains	Welsh Mountains	E	WELUKE01	677	25
	UK	Welsh Mountains	Welsh Mountains	M	WELUKM01	10,393	291
Isolated mountain areas	CZ	Isolated mountain areas	Brdy	M	ISOCZI01	1,349	122
	CZ	Isolated mountain areas	Moravian hills	M	ISOCZI02	2,690	303
	DE	Isolated mountain areas	German low mountains (northern part)	M	ISODEI01	5,512	192
	DE	Isolated mountain areas	German low mountains (southern part)	E	ISODEI02	328	15
	DE	Isolated mountain areas	German low mountains (southern part)	M	ISODEI03	6,217	270
	ES	Isolated mountain areas	Balearic Islands	M	ISOESI01	933	17
	ES	Isolated mountain areas	Canary Islands	M	ISOESI02	5,554	79
	FR	Isolated mountain areas	Cotes bourguignonnes	M	ISOFRI01	1,016	105
	FR	Isolated mountain areas	Morvan	M	ISOFRI02	1,597	55
	GR	Isolated mountain areas	Aegian island mountains	M	ISOGRI01	7,634	162
	HU	Isolated mountain areas	Mecsek	M	ISOHUI01	288	8
	HU	Isolated mountain areas	Transdanubian Mountains	M	ISOHUI02	1,475	53
	IE	Isolated mountain areas	Connacht mountains	M	ISOIEI01	1,119	20
	IE	Isolated mountain areas	Cumbria	M	ISOIEI02	696	30

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IE	Isolated mountain areas	Donegal mountains	M	ISOIEI03	1,091	27
IE	Isolated mountain areas	Kerry mountains	M	ISOIEI04	2,954	88
IE	Isolated mountain areas	Mourne mountains (IE)	M	ISOIEI05	130	6
IE	Isolated mountain areas	Slieve Bloom Mountains	M	ISOIEI06	83	3
IE	Isolated mountain areas	Waterford Mountains	M	ISOIEI07	460	16
IE	Isolated mountain areas	Wicklow	M	ISOIEI08	929	23
PT	Isolated mountain areas	Acores - Grupo central	M	ISOPTI01	1,283	66
PT	Isolated mountain areas	Acores - Grupo ocidental	M	ISOPTI02	138	7
PT	Isolated mountain areas	Acores - Grupo oriental	M	ISOPTI03	790	49
PT	Isolated mountain areas	Complexo estremenho	M	ISOPTI04	599	27
PT	Isolated mountain areas	Ilha da Madeira	M	ISOPTI05	735	52
PT	Isolated mountain areas	Non-massif mountain areas	M	ISOPTI06	657	16
PT	Isolated mountain areas	Serra Algarvia	M	ISOPTI07	723	5
RO	Isolated mountain areas	Muntii Macinului	M	ISOROI01	131	1
UK	Isolated mountain areas	Dartmoor and Exmoor	M	ISOUKI01	954	22
UK	Isolated mountain areas	Mourne Mountains (UK)	M	ISOUKI02	236	7
UK	Isolated mountain areas	Northern Ireland Mountains	M	ISOUKI03	1,032	26
UK	Isolated mountain areas	Southern Uplands	M	ISOUKI04	4,318	33

Notes: *E = Enclave, M = Massif range*

*No muni. = Number of municipalities belonging to a massif*

**Annex 5. TEN priority projects located in mountain areas**

No.	Priority project	Massif	Length (km)	% mountain sections
1	High-speed train/combined transport north-south	Total length	1,905	100.0
		Lowland	1,202	63.1
		<i>Northern Appennines</i>	188	9.9
		<i>Central Appennines</i>	141	7.4
		<i>Eastern Alps</i>	128	6.7
		<i>Austrian Alps</i>	102	5.4
		<i>Central Alps</i>	56	2.9
		<i>German Ore mountains</i>	48	2.5
		<i>Bavarian Alps</i>	27	1.4
		<i>Southern Appennines</i>	13	0.7
2	High-speed train PBKAL (Paris-Brussels-Cologne-Amsterdam-London)	Total length	1,161	100.0
		Lowland	1,143	98.5
		<i>Rhenish Slate Mountains (German part)</i>	17	1.4
		<i>Belgian Ardennes</i>	1	0.1
3	High-speed train south	Total length	1,872	100.0
		Lowland	1,153	61.6
		<i>Iberic System</i>	226	12.1
		<i>Basque Mountains</i>	166	8.9
		<i>Spanish Pyrenees</i>	133	7.1
		<i>Catalan Range</i>	105	5.6
		<i>Central System</i>	79	4.2
		<i>French Pyrenees</i>	10	0.5
4	High-speed train east	Total length	696	100.0
		Lowland	687	98.6
		<i>Rhenish Slate Mountains (German part)</i>	10	1.4
5	Conventional rail/combined transport: Betuwe line	Total length	127	100.0
		Lowland	127	100.0
6	High-speed train/combined transport: France-Italy	Total length	789	100.0
		Lowland	538	68.2

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		<i>Northern Alps</i>	143	18.1
		<i>Western Alps</i>	82	10.4
		<i>Italian Dinaric mountains</i>	14	1.8
		<i>Eastern Alps</i>	12	1.5
7	Greek motorways, Pathe and Via Egnatia	Total length	1,632	100.0
		Lowland	604	37.0
		<i>Pindos</i>	302	18.5
		<i>Rodopi</i>	276	16.9
		<i>Olympos and Central Greece</i>	183	11.2
		<i>Evia - Viotia - Attiki</i>	146	8.9
		<i>Peloponnesean mountains</i>	122	7.5
8	Multimodal link Portugal-Spain-Central Europe (Road)	Total length	800	100.0
		Lowland	331	41.4
		<i>Macico Noroeste</i>	179	22.4
		<i>Cordilheira central</i>	121	15.1
		<i>Galician Massif</i>	71	8.9
		<i>Leon Mountains</i>	40	5.0
		<i>planalto transmontano - Beirao</i>	33	4.1
		<i>Complexo estremenho</i>	16	2.0
		<i>Serra Algarvia</i>	9	1.1
	(Train)	Total length	1,891	100.0
		Lowland	1,475	78
		<i>Cordilheira central</i>	157	8.3
		<i>Galician Massif</i>	148	7.8
		<i>planalto transmontano - Beirao</i>	47	2.5
		<i>Macico Noroeste</i>	37	2.0
		<i>Complexo estremenho</i>	26	1.4
9	Conventional rail link Cork-Dublin-Belfast-Larne-Stranraer (completed)	Total length	635	100.0
		Lowland	630	99.2
		<i>Northern Ireland Mountains</i>	5	0.8
11	Öresund fixed rail/road link between Denmark and Sweden (completed)	Total length	28	100.0
		Lowland (Road)	28	100.0
		Total length	26	100.0
		Lowland (Train)	26	100.0
12	Nordic triangle rail/road	Total length (Road)	802	100.0

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		Lowland (Road)	802	100.0
		Total length (Train)	1,828	100.0
		Lowland (Train)	1,828	100.0
13	Ireland/United Kingdom/Benelux road link	Total length	640	100.0
		Lowland	544	85.0
		<i>Northern English Mountains</i>	33	5.2
		<i>Welsh Mountains</i>	32	5.0
		<i>Southern Uplands</i>	19	2.9
		<i>Mourne mountains (IE)</i>	5	0.8
		<i>Northern Ireland Mountains</i>	3	0.5
		<i>Waterford Mountains</i>	3	0.5
14	West coast main line (rail)	Total length	859	100.0
		Lowland	761	88.7
		<i>Southern Uplands</i>	59	6.9
		<i>Northern English Mountains</i>	38	4.5
16	High-capacity rail link across the Pyrenees	Total length	136	100.0
		<i>Spanish Pyrenees</i>	62	45.6
		<i>French Pyrenees</i>	41	30.0
		Lowland	33	24.4
17	Eastern European combined transport/high-speed train	Total length	966	100.0
		Lowland	886	91.7
		<i>Austrian Alps</i>	38	3.9
		<i>Black forest - Schwabian and Frankonian Alb</i>	25	2.6
		<i>Austrian Bohemian mountains</i>	8	0.9
		<i>Bavarian Alps</i>	9	0.9
20	Fehmarn Belt: fixed link between Germany and Denmark	Total length (Road)	55	100.0
		Lowland (Road)	55	100.0
		Total length (Train)	139	100.0
		Lowland (Train)	139	100.0

**Annex 6. Airports located in mountain areas**

Massif	Airport	IATA Code	Status	Flights p.a.	Passengers p.a.
Ångermanland	Skellefteå	SFT	M	3,228	259,784
	Örnsköldsvik	OER	M	2,885	164,017
	Kramfors	KRF	M	n.a.	n.a.
Aegian island mountains	Mytilene	MJT	M	8,642	496,217
	Skiros	SKU	M	139	1,604
	Chios	JKH	M	4,098	226,231
	Samos Island	SMI	M	6,145	468,394
	Ikaria		M	n.a.	n.a.
	Kos	KGS	R	11,245	1578,156
	Astipalaia		M	n.a.	n.a.
	Milos	MLO	M	723	10,706
	Santorini	JTR	M	9,144	675,500
Austrian Alps	Salzburg	SZG	R	20,254	1280,245
	Innsbruck Kranebittn	INN	R	14,383	666,928
	Klagenfurt	KLU	M	7,133	226,701
Basque Mountains	Vitoria	VIT	R	13,489	127,003
Betic Systems	Alicante	ALC	R	50,952	6521,439
	Granada	GRX	M	6,298	503,955
	Malaga	AGP	R	88,392	9,928,341
Border area - Troendelag	Namsos	OSY	M	n.a.	n.a.
	Roros	RRS	M	684	10,431
Canary Islands	Tenerife N Losrodeo	TFN	R	36,507	2,510,195
	Tenerife Reinasofia	TFS	R	58,978	9,098,193
	Gran Canaria	LPA	R	88,395	9,330,147
Cantabrian Range	Asturias	OVD	R	10,969	809,785
Central Alps	Aosta		M	n.a.	n.a.
Coastal mountain areas	Kristiansund Kvrnberget	KSU	M	5,162	227,968
	Aalesund Vigra	AES	R	12,095	713,997
	Orsta/Volda Hovden	HOV	M	n.a.	n.a.
	Sandane	SDN	M	n.a.	n.a.
	Floro Floreland	FRO	M	5,270	87,188
	Forde Oyrane	FDE	M	n.a.	n.a.
	Sogndal Haukasen	SOG	M	n.a.	n.a.

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	Bergen Flesland	BGO	R	67,661	3,673,577
	Stord	SRP	M	n.a.	n.a.
	Farsund Lista	FAN	M	n.a.	n.a.
Corsica	Bastia Poretta	BIA	R	13,980	877,438
	Calvi Catherine	CLY	M	5,872	262,087
	Ajaccio Campo Dell	AJA	R	15,243	1,101,285
Crete	Chania Souda	CHQ	R	13,012	1,416,803
Donegal mountains	Donegal	CFN	M	n.a.	n.a.
Finnmark and northern Troms	Mehamn	MEH	M	n.a.	n.a.
	Berlevag	BVG	M	n.a.	n.a.
	Batsfjord	BJF	M	n.a.	n.a.
	Vardoe Lufthaun	VAW	M	n.a.	n.a.
	Kirkenes Hoybuktmon	KKN	M	6,386	210,588
	Lakselv Banak	LKL	M	2,653	75,821
	Alta	ALF	M	4,782	269,228
	Sorkjosen	SOJ	M	n.a.	n.a.
	Tromso Trms Langn	TOS	R	29,364	1,549,176
Forest Lapland	Kittila	KTT	M	2,086	180,941
	Rovaniemi	RVN	M	5,614	351,870
Galician Massif	Vigo	VGO	R	10,636	790,368
German Ore mountains	Karlovy Vary	KLV	M	3,398	21,146
Hardangervidda - Southern mountain areas	Geilo Dagali	DLD	M	n.a.	n.a.
	Notodden	NTB	M	n.a.	n.a.
Highlands and Islands	Inverness	INV		13,416	386,824
	Campbeltown Mcrihanish	CAL		1,404	8,356
Ilha da Madeira	Funchal	FNC	R	21,612	2,213,657
Italian Dinaric mountains	Trieste Legionari	TRS	R	10,628	631,509
Jämtland - Härjedalen - Dalarna	Östersund Froesoe	OSD	M	5,779	433,098
	Sveg	EVG	M	n.a.	n.a.
Kainuu and Koillisma - Hill region	Kuusamo	KAO	M	1,457	102,842
	Kajaani	KAJ	M	2,012	128,511
Lapland	Kiruna	KRN	M	3,468	181,356
	Gällivare	GEV	M	n.a.	n.a.
	Hemavan	HMV	M	n.a.	n.a.
	Arvidsjaur	AJR	M	n.a.	n.a.
	Lycksele Hedlunda	LYC	M	n.a.	n.a.
	Vilhelmina Sagadal	VHM	M	n.a.	n.a.

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Massif Central	St. Etienne Boutheon	EBU	M	2,845	128,690
Mediterranean Alps	Monaco	MCM	R	30,000	142,000
	Nice Cote d'Azur	NCE	C	193,120	8,997,193
	Toulon/Hyeres Hyeres	TLN	M	8,089	557,371
Mittelland plateau	Berne Belp	BRN	R	14,963	185,073
Mountain Lapland	Ivalo	IVL	M	1,757	131,564
	Enontekio	ENF	M	216	12,751
Mountains of Sardinia	Olbia C Smeralda	OLB	M	n.a.	n.a.
Mountains of Sicily	Palermo Punta Rais	PMO	M	n.a.	n.a.
	Pantelleria	PNL	M	n.a.	n.a.
Muntii Apuseni	Cluj-Napoca	CLJ	M	4,128	106,810
Nordland - Troms	Andenes	ANX	M	n.a.	n.a.
	Bardufoss	BDU	M	4,345	187,391
	Evenes	EVE	M	9,094	473,552
	Narvik Framnes	NVK	M	n.a.	n.a.
	Sandnessjoen Stokka	SSJ	M	n.a.	n.a.
	Mosjoen Kjaerstad	MJF	M	n.a.	n.a.
	Bronnoysund Bronnoy	BNN	M	n.a.	n.a.
Norrbotten	Pajala Airport	PJA	M	n.a.	n.a.
	Luleå Kallax	LLA	R	12,801	983,944
Northern Alps	ANNECY-MEYTHET		M	n.a.	n.a.
	Chambery A.L. Bains	CMF	M	3,026	121,958
	Grenoble St. Geoirs	GNB	M	3,282	224,145
Northern Apennines	Elba Island De Campo	EBA	M	n.a.	n.a.
Oestland mountain areas	Fagernes Valdres	VDB	M	n.a.	n.a.
	Skien Geiterygen	SKE	M	n.a.	n.a.
Olympos and Central Greece	Kastoria Aristotlis	KSO	M	886	8,655
	Kozani Philippos	KZI	M	885	8,025
	Volos Anchialos	VOL	M	386	45,314
	Skiathos	JSI	M	2,497	274,971
Ostrobothnia and coastal hinterland	Kemi/Tornio	KEM	M	2,623	116,192
	Oulu	OUL	R	14,330	717,085
Peloponnesean mountains	Kithira	KIT	M	636	24,455
Pindos	Ioannina	IOA	M	3,492	175,851
	Kerkyra Kapodistrs	CFU	R	16,705	2,236,878
	Kefalonia Kefallinia	EFL	M	2,897	322,013
Rodopi	Alexandroupolis Dhmokritos	AXD	M	2,180	223,809

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	Kavala Alexandros	KVA	M	5,088	402,863
Southern Apennines	Reggio Calabria T. Menniti	REG	M	n.a.	n.a.
Southern Romanian Carpathian mountains	Caransebes	CSB		n.a.	n.a.
Spanish Pyrenees	San Sebastian Fuenteraba	EAS	M	5,869	274,928
	Pamplona Noain	PNA	M	7,042	333,027
Swiss Alps	Altenrhein	ACH	M	n.a.	n.a.
	St. Moritz Samedan	SMV	M	n.a.	n.a.
	Sion	SIR	M	n.a.	n.a.
	Lugano Agno	LUG	R	10,960	273,923
Värmland	Torsby Fryklanda	TYF	M	n.a.	n.a.
Western mountains	Sofia International	SOF	R	18,878	1,107,682

*Notes: Status = C = International airports of European and/or national importance*

*R = Regional airports*

*M = Minor airports*

**Annex 7: Universities in mountain areas**

Massif name	Name	Country	Status	Number of students
Aegian island mountains	MITILINI	GR	U	1,559
Austrian Alps	SALZBURG	AT	U	12,951
	LEOBEN	AT	U	2,494
	INNSBRUCK	AT	U	29,241
	GRAZ	AT	U	42,127
	KLAGENFURT	AT	U	6,119
Basque Mountains	BILBAO	ES	U	10,000
	MONDRAGON	ES	U	10,000
Betic Systems	JAEN	ES	U	10,000
	GRANADA	ES	U	10,000
	MALAGA	ES	U	10,000
Canary Islands	San Cristobal de la Lagune	ES	U	10,000
Cantabrian Range	OVIEDO	ES	U	10,000
Catalan Range	BARCELONA	ES	U	10,000
Central Appennines	CAMERINO	IT	U	8,195
	PERUGIA	IT	U	29,953
	TERAMO	IT	U	9,454
	LAQUILA	IT	U	15,673
	CASSINO	IT	U	9,783
Central System	AVILA	ES	U	10,000
	HOYO DE	ES	U	10,000
	MANZANARES			
Coastal mountain areas	BERGEN	NO	UP	19,316
Cordilheira central	COIMBRA	PT	UP	20,846
	COVILHA	PT	U	4,699
Corsica	Corte	FR	U	3,291
Czech Ore mountains	USTI NAD LABEM	CZ	U	5,899
Czech Sudetes	LIBEREC	CZ	U	5,786
Eastern Alps	TRENTO	IT	U	14,398
Eastern Romanian Carpathian mountains	BAIA MARE	RO	U	4,122
Finnmark and northern Troms	TROMSO	NO	U	2,265
Forest Lapland	ROVANIEMI	FI	UP	3,382
French Jura	Besancon	FR	UP	15,216
Galician Massif	VIGO	ES	U	10,000
German low mountains	HARZ	DE	northern part	2,802
	HEIDELBERG	DE	southern part	3,965
German Ore mountains	SCHMALKALDEN	DE	P	0
	ILMENAU	DE	U	7,282
Iberic System	CANTOBLANCO	ES	U	10,000
Italian Dinaric mountains	FUNCHAL	PT	U	2,490
	TRIESTE	IT	U	23,472
Macico Noroeste	GUIMARAES	PT	U	4,499
	VISEU	PT	UP	1,328
Massif Central	Clermont-Ferrand	FR	U	17,314

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	AubiŠre	FR	UP	4,694
	Saint-Ètienne	FR	UP	9,812
Mecsek	PECS	HU	U	22,778
Mediterranean Alps	Nice	FR	UP	22,151
	Toulon	FR	U	1,995
Mittelland plateau	Zürich	CH	UP	33,081
	Neuchftel	CH	U	3,210
	Bern	CH	UP	10,743
	Fribourg	CH	U	9,084
	Lausanne	CH	UP	9,829
	Ecublens	CH	U	5,374
	Genève	CH	U	13,347
Mountains of Sicily	MESSINA	IT	U	43,188
	PALERMO	IT	U	56,709
Muntii Apuseni	CLUJ-NAPOCA	RO	U	53,663
Norrbotten	BODEN	SE	U	1,022
North Slovenia Alps	MARIBOR	SI	UP	24,882
	KRANJ	SI	U	6,075
	LJUBLJANA	SI	UP	56,061
	NOVO MESTO	SI	UP	56,061
Northern Alps	Annecy-le-Vieux	FR	UP	830
	Le Bourget-du-Lac	FR	U	2,699
	Jacob-Bellecombette	FR	U	5,359
	La Tronche	FR	U	3,447
	Grenoble	FR	UP	8,163
	Saint-Martin-d’Heres	FR	UP	23,553
Northern Appennines	GENOVA	IT	U	43,538
Oestland mountain areas	OSLO	NO	UP	45,413
Olympos and Central Greece	VOLOS	GR	U	1,661
Ostrobothnia and coastal hinterland	OULO	FI	UP	13,380
Pindos	IOANNINA	GR	U	5,349
Polish Carpathian mountains	BIELSKO-BIALA	PL	UP	5,505
Rodopi	KOMOTINI	GR	U	1,533
	XANTHI	GR	U	1,533
	ALEXANDROUPOLIS	GR	U	1,533
Rodopi Planina	BLAGOEVGRAD	BG	U	9,850
Slovak Carpathian mountains	ZILINA	SK	U	7,730
	PRESOV	SK	U	3,000
	MARTIN	SK	U	1,010
	TRENCIN	SK	U	2,163
	BANSKA BYSTRICA	SK	U	6,328
	ZVOLEN	SK	U	2,626
Southern Appennines	CAMPOBASSO	IT	U	5,396
	FISCIANO	IT	U	49,160
	POTENZA	IT	U	4,806
	REGGIO CALABRIA	IT	U	10,147
Southern Romanian Carpathian mountains	BRASOV	RO	U	14,835
	PETROSANI	RO	U	4,586
	RESITA	RO	U	2,326

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Spanish Pyrenees	PAMPLONA	ES	U	10,000
	VIC	ES	U	10,000
Stara Planina	VELIKO TARNOVO	BG	U	16,488
	GABROVO	BG	U	7,388
Swiss Alps	Lugano	CH	UP	289
Upper Rhine Valley	KONSTANZ	DE	UP	7,876
Welsh Mountains	PONTYPRIDD	UK	U	7,181
Western mountains	SOFIA	BG	UP	78,441

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Notes: Status = U= University; UP = University and Polytechnics

**Annex 8. Power stations located in massifs**

*Records in red and italic indicate planned power stations*

Country	Name of power station	Type of power station	Massif code
<i>Austria</i>			
Austrian Alps	SIMMERING	BIVALENT FUEL OIL/GAS	ALPATM01
<i>Austrian Alps</i>	<i>MATREI</i>	<i>WATER</i>	<i>ALPATM01</i>
Austrian Alps	SELLRAIN-SILZ	WATER	ALPATM01
Austrian Alps	ZEMMKRAFTWERKE	WATER	ALPATM01
Austrian Alps	MALTA	WATER	ALPATM01
Austrian Alps	ILLWERKE	WATER	ALPATM01
Austrian Bohemian mountains	THEISS	BIVALENT FUEL OIL/GAS	BOHATM01
Austrian Bohemian mountains	DONAUSTUFEN	WATER	BOHATM01
<i>Belgien</i>			
Belgian Ardennes	COO	WATER	R SMBEM01
<i>Bulgaria</i>			
Rodopi Planina	BOBOWDOL	BROWN COAL	BALBGM01
Sredna Gora	KOMSOMOLSKA	BROWN COAL	BALBGM02
Stara Planina	MARIZA ISTOK 2	BROWN COAL	BALBGM03
Western mountains	SOFIA	BROWN COAL	BALBGM04
<i>Switzerland</i>			
Swiss Alps	MAGGIA	WATER	ALPCHM01
Swiss Alps	GOESGEN	NUCLEAR ENERGY	ALPCHM01
<i>Swiss Jura</i>	<i>KAISERAUGST</i>	<i>NUCLEAR ENERGY</i>	<i>JURCHM01</i>
Mittelland plateau	BEZNAU	NUCLEAR ENERGY	MITCHM01
<i>Czech Republic</i>			
<i>Sumava - Cesky Les</i>	<i>TEMLIN</i>	<i>NUCLEAR ENERGY</i>	<i>BOHCZM01</i>
Czech Ore mountains	POCERADY	BROWN COAL	ORECZM01
Czech Ore mountains	PRUNEROW	BROWN COAL	ORECZM01
Czech Sudetes	LEDVICE	BROWN COAL	SUDCZM01
<i>Germany</i>			
Black forest - Schwabian and Frankonian Alb	SCHLUCHSEE	WATER	BLFDEM01
Black forest - Schwabian and Frankonian Alb	WEHR	WATER	BLFDEM01
German Bohemian mountains	PLEINTING	FUEL OIL	BOHDEM01
German Ore mountains	MARKERSBACH	WATER	OREDEM01
German Ore mountains	HOHENWARTE	WATER	OREDEM01
Rhenish Slate Mountains (German part)	BEXBACH	COAL	RSMDEM01
Rhenish Slate Mountains (German part)	ENSDORF	COAL	RSMDEM01
Rhenish Slate Mountains (German part)	WERDOHL	BIVALENT COAL/GAS	RSMDEM01
<i>Spain</i>			
Basque Mountains	SANTURCE	FUEL OIL	BASESM01
Basque Mountains	LEMONIZ	NUCLEAR ENERGY	BASESM01
Betic Systems	LOS BARRIOS	COAL	BETESM01
Betic Systems	ALGECIRAS	FUEL OIL	BETESM01
Cantabrian Range	LADA	COAL	CANESM01
Galician Massif	RODRIGUEZ	BROWN COAL	GPMESM01
Iberic System	CASTELLON	FUEL OIL	IBSESM01
Iberic System	TERUEL	BROWN COAL	IBSESM01
Iberic System	ASCO	NUCLEAR ENERGY	IBSESM01
Iberic System	TRILLO	NUCLEAR ENERGY	IBSESM01
Iberic System	CONFRENTES	NUCLEAR ENERGY	IBSESM01
Iberic System	n.a.	n.a.	IBSESM01
Iberic System	n.a.	n.a.	IBSESM01
<i>Toledo Mountains</i>	<i>VALDECABALLEROS</i>	<i>NUCLEAR ENERGY</i>	<i>TMOESM01</i>
Leon Mountains	COMPOSTILLA	COAL	TPAESM01
Leon Mountains	VILLARINO	WATER	TPAESM01

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<i>France</i>			
Northern Alps	LA BATHIE	WATER	ALPFRM02
Northern Alps	SUPER-BISSORTE	WATER	ALPFRM02
Northern Alps	GRAND MAISON	WATER	ALPFRM02
Massif Central	LOIRE-SUR-RHONE	BIVALENT COAL/FUEL OIL	MACFRM01
Massif Central	MONTESIC	WATER	MACFRM01
Massif Central	CRUAS	NUCLEAR ENERGY	MACFRM01
<i>Greece</i>			
<i>Evia - Viotia - Attiki</i>	<i>ALIVERI</i>		<i>BALGRJ01</i>
Olympos and Central Greece	AMYNTAION	BROWN COAL	BALGRM01
Olympos and Central Greece	PTOLEMAIS	BROWN COAL	BALGRM01
Olympos and Central Greece	ST. DEMITRIOS	BROWN COAL	BALGRM01
Olympos and Central Greece	KARDIA	BROWN COAL	BALGRM01
Pindos	KREMASTA	BROWN COAL	BALGRM02
Pindos	POURNARI	WATER	BALGRM02
Peloponnesean mountains	MEGALOPOLI	BROWN COAL	PELGRM01
<i>Italy</i>			
<i>Central Alps</i>	<i>PIEDILAGO</i>	<i>WATER</i>	<i>ALPITM01</i>
Central Alps	EDOLO	WATER	ALPITM01
Western Alps	GESSO	WATER	ALPITM03
Central Appennines	TORREVALDALIGA	FUEL OIL	APPITM01
<i>Central Appennines</i>	<i>PIANI DI RUSCHIO</i>	<i>WATER</i>	<i>APPITM01</i>
Northern Appennines	PIOMBINO	FUEL OIL	APPITM02
Northern Appennines	VADO LIGURE	BIVALENT COAL/FUEL OIL	APPITM02
Northern Appennines	LA SPEZIA	BIVALENT COAL/FUEL OIL	APPITM02
Northern Appennines	PIACENZA	BIVALENT FUEL OIL/GAS	APPITM02
Southern Appennines	ROSSANO	FUEL OIL	APPITM03
Southern Appennines	PRESENZANO	WATER	APPITM03
Mountains of Sardinia	SULCIS	BIVALENT COAL/FUEL OIL	MSAITM01
Mountains of Sicily	SAN FELIPE DEL MELA	FUEL OIL	MSIITM01
Mountains of Sicily	TERMINI IMERESE	BIVALENT FUEL OIL/GAS	MSIITM01
<i>Norway</i>			
Border area - Troendelag	AURLAND	WATER	CSCNOM01
Nordland - Troms	RANA	WATER	NFSNOM02
Coastal mountain areas	KVILLDAL	WATER	SSCNOM01
Coastal mountain areas	TONSTAD	WATER	SSCNOM01
Hardangervidda - Southern mountain areas	SIAM	WATER	SSCNOM02
Hardangervidda - Southern mountain areas	SAURDAL	WATER	SSCNOM02
<i>Poland</i>			
Polish Carpathian mountains	SKAWINA	COAL	CARPLM01
Polish Carpathian mountains	PORABKA	COAL	CARPLM01
Polish Carpathian mountains	RYBNIK	WATER	CARPLM01
Cordilheira central	PEGO	COAL	CSYPTM01
<i>Macico Noroeste</i>	<i>ALTO LINDOSO</i>	<i>WATER</i>	<i>GPMPMT01</i>
<i>Romania</i>			
Eastern Romanian Carpathian mountains	FINTINELE	BROWN COAL	CARROM01
Eastern Romanian Carpathian mountains	STEJARU	WATER	CARROM01
Muntii Apuseni	MINTIA	BROWN COAL	CARROM02
Muntii Apuseni	MARISELU	WATER	CARROM02
Southern Romanian Carpathian mountains	PAROSEN	BROWN COAL	CARROM03
Southern Romanian Carpathian mountains	ROVINARI	BROWN COAL	CARROM03
Southern Romanian Carpathian mountains	LOTRU	WATER	CARROM03
Southern Romanian Carpathian mountains	ARGES	WATER	CARROM03
<i>Sweden</i>			
Aangermanland	STORNORRFORS	WATER	BOTSEM01
Norrbotnen	LETSI	WATER	BOTSEM02
Lappland	PORJUS	WATER	NFSSEM01
Lappland	HARSPRANGET	WATER	NFSSEM01
<i>Slovenia</i>			

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North Slovenia Alps	SOSTANJ	BROWN COAL	ALPSIM01
<i>Slovakia</i>			
Slovak Carpathian mountains	VOJANY	BROWN COAL	CARSKM01
Slovak Carpathian mountains	JASL. BOHUNICE	NUCLEAR ENERGY	CARSKM01
<i>United Kingdom</i>			
Highlands and Islands	INVERKIP	FUEL OIL	HAIUKM01
Highlands and Islands	CRUACHAN	WATER	HAIUKM01
Northern English Mountains	n.a.	n.a.	NEMUKM01
Welsh Mountains	n.a.	n.a.	WELUKM01

**Annex 9. Availability of airports, hospitals and universities in massifs**

<b>Massif name</b>	<b>Country</b>	<b>Availability of Airports</b>	<b>Hospitals</b>	<b>Universities</b>
Austrian Alps	AT	yes	yes	yes
Swiss Alps	CH	yes	yes	yes
Bavarian Alps	DE	no	yes	no
Mediterranean Alps	FR	yes	yes	yes
Northern Alps	FR	yes	yes	yes
Koszeg	HU	no	no	no
Central Alps	IT	yes	yes	no
Eastern Alps	IT	no	yes	yes
Italian Dinaric mountains	IT	yes	yes	yes
Western Alps	IT	no	yes	yes
Dinaric Mountains	SI	no	yes	no
North Slovenia Alps	SI	no	yes	yes
Central Appennines	IT	no	yes	yes
Northern Appennines	IT	yes	yes	yes
Southern Appennines	IT	yes	yes	yes
Rodopi Planina	BG	no	yes	yes
Sredna Gora	BG	no	yes	no
Stara Planina	BG	no	yes	yes
Western mountains	BG	yes	yes	yes
Evia - Viotia – Attiki	GR	no	yes	no
Olympos and Central Greece	GR	yes	no	yes
Pindos	GR	yes	yes	yes
Rodopi	GR	yes	yes	yes
Basque Mountains	ES	yes	yes	yes
Betic Systems	ES	yes	yes	yes
Schwabian Alb (Swiss)	CH	no	no	no
Black forest: Schwabian , Frankonian Alb	DE	no	yes	yes
Austrian Bohemian mountains	AT	no	no	no
Sumava - Cesky Les	CZ	no	n.a.	no
German Bohemian mountains	DE	no	yes	yes
Ostrobothnia and coastal hinterland	FI	yes	yes	yes
Aangermanland	SE	yes	no	no
Norrbottn	SE	yes	yes	yes
Vaesterbotten	SE	no	no	no
Cantabrian Range	ES	yes	yes	yes
Czech Carpathian Mountains	CZ	no	n.a.	no
North Hungarian mountain areas	HU	no	yes	yes
Polish Carpathian mountains	PL	no	yes	yes
Eastern Romanian Carpathian mountains	RO	no	yes	yes
Muntii Apuseni	RO	yes	yes	yes
Southern Romanian Carpathian mount.	RO	yes	yes	yes
Slovak Carpathian mountains	SK	no	yes	yes
Catalan Range	ES	no	yes	yes
Corsica	FR	yes	yes	yes
Crete	GR	yes	no	yes
Border area – Troendelag	NO	yes	no	yes
Jamtland - Harjedalen – Dalarne	SE	yes	yes	yes
Central System	ES	no	yes	yes
Cordilheira central	PT	no	yes	yes

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Galician Massif	ES	yes	yes	yes
Macico Noroeste	PT	no	yes	yes
Highlands and Islands	UK	yes	n.a.	no
Iberic System	ES	no	Yes	yes
Brdy	CZ	no	n.a.	no
Moravian hills	CZ	no	n.a.	no
German low mountains (northern part)	DE	no	Yes	yes
German low mountains (southern part)	DE	no	Yes	yes
Balearic Islands	ES	no	No	no
Canary Islands	ES	yes	Yes	yes
Cotes bourguignonnes	FR	no	No	no
Morvan	FR	no	Yes	no
Aegian island mountains	GR	yes	No	yes
Mecsek	HU	no	yes	yes
Transdanubian Mountains	HU	no	yes	no
Connacht mountains	IE	no	no	no
Cumbria	IE	no	no	no
Donegal mountains	IE	yes	no	no
Kerry mountains	IE	no	no	no
Mourne mountains (IE)	IE	no	no	no
Slieve Bloom Mountains	IE	no	no	no
Waterford Mountains	IE	no	no	no
Wicklow	IE	no	no	no
Acores - Grupo central	PT	yes	no	no
Acores - grupo occidental	PT	yes	no	no
Acores - grupo oriental	PT	yes	no	no
Complexo estremenho	PT	no	no	no
Ilha da Madeira	PT	yes	yes	yes
Non-massif mountain areas	PT	no	no	yes
Serra Algarvia	PT	no	no	no
Muntii Macinului	RO	no	no	no
Dartmoor and Exmoor	UK	no	n.a.	no
Mourne Mountains (UK)	UK	no	n.a.	no
Northern Ireland Mountains	UK	no	n.a.	no
Southern Uplands	UK	no	n.a.	no
Swiss Jura	CH	no	yes	no
French Jura	FR	no	yes	yes
Massif Central	FR	yes	yes	yes
Mittelland plateau	CH	yes	yes	yes
Upper Rhine Valley	DE	no	yes	yes
Mountains of Sardinia	IT	yes	yes	no
Mountains of Sicily	IT	yes	yes	yes
Northern English Mountains	U	no	n.a.	no
Forest Lapland	FI	yes	Yes	yes
Kainuu and Koillisma - Hill region	FI	yes	Yes	no
Mountain Lapland	FI	yes	No	no
Finnmark and northern Troms	NO	yes	No	yes
Nordland – Troms	NO	yes	Yes	yes
Lappland	SE	yes	No	no
Czech Ore mountains	CZ	no	n.a.	yes
German Ore mountains	DE	yes	yes	yes
Peloponnesean mountains	GR	yes	yes	yes

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Pentadaktylos	CY	no	no	no
Spanish Pyrenees	ES	yes	yes	yes
French Pyrenees	FR	no	yes	no
Belgian Ardennes	BE	no	no	no
Rhenish Slate Mountains (Germany)	DE	no	yes	yes
French Ardennes	FR	no	no	no
Northern Vosges	FR	no	no	no
Luxembourg Ardennes	LU	no	no	no
Sierra Morena	ES	no	no	no
Coastal mountain areas	NO	yes	yes	yes
Hardangervidda - Southern mountains	NO	yes	no	yes
Jotunheimen - Rondane – Dovre	NO	no	no	yes
Oestland mountain areas	NO	yes	yes	yes
Vaermland	SE	yes	no	no
Czech Sudetes	CZ	no	n.a.	yes
German Sudetes	DE	no	no	no
Polish Sudetes	PL	no	yes	yes
Toledo Mountains	ES	no	yes	no
Leon Mountains	ES	no	yes	no
planalto transmontano – Beirao	PT	no	yes	yes
Troodos	CY	no	yes	no
Vosges	FR	no	yes	no
Welsh Mountains	UK	no	n.a.	yes

## Annex 10. Mountain research and training centres

### Austria

- Federal Institute for Less-Favoured and Mountainous Areas (Bundesanstalt für Bergbauernfragen). <http://www.babf.bmlfuw.gv.at>
- Federal Research Institute for Agriculture in Alpine Regions (Bundesanstalt für alpenländische Landwirtschaft). <http://www.bal.bmlf.gv.at/index.htm>
- Federal Office and Research Centre for Forests (Bundesamt und Forschungszentrum für Wald, BFW), hitherto Federal Forest Research Centre. <http://fbva.forvie.ac.at/index.html>.
- Austrian Institute for Applied Ecology (Österreichisches Ökologieinstitut); <http://www.ecology.at>
- Institute for Ecology (Institut für Ökologie). <http://members.aon.at/eco/>
- Regional Consulting ZT GmbH. <http://www.regcon.co.at/>
- Austrian Academy of Science, (Österreichische Akademie der Wissenschaften), Institute for Urban and Regional Research. <http://www.oeaw.ac.at/isr/raumalp/indexe.html>
- Austrian Landscap Research (Kulturlandschaftsforschung). <http://www.klf.at>
- University of Agricultural Sciences (Universität fuer Bodenkultur) <http://www.boku.ac.at/>
- University of Innsbruck (Universität Innsbruck). <http://www.uibk.ac.at>

### Bulgaria

- University of Forestry  
Website: <http://sun.ltu.acad.bg/index-eng.html>
- Agricultural University - Plovdiv  
E-mail: [info@au-plovdiv.bg](mailto:info@au-plovdiv.bg)  
Website: <http://www.au-plovdiv.bg/en/index.html>
- Faculty of Geology and Geography, Sofia University “St. Kliment Okhridski”  
Website: <http://www.uni-sofia.bg/faculties/geo/index.html>
- University of National and World Economy, Sofia  
Website: <http://opit.unwe.acad.bg/bulgarian/body2.htm>
- Faculty of Management and Marketing, Tsenov Academy of Economics, Svishtov  
<http://www.uni-svishtov.bg/intranet/en/>
- University of Economics, Varna  
[http://www.ue-varna.bg/about/index\\_bg.html](http://www.ue-varna.bg/about/index_bg.html)
- Institute of Geography, Bulgarian Academy of Sciences  
Website: <http://www.bas.bg/geogr/index.html>
- Forest Research Institute, Bulgarian Academy of Sciences  
Website: <http://www.bulnet.com/forestin/>
- National Centre for Regional Development  
Web site: <http://www.ncrdhp.bg/>
- Institutes for mountain agriculture in Asenovgrad and Troyan

## Cyprus

- The Cyprus Forestry  
Website: <http://www.pio.gov.cy/forestry/index.html>

## Finland

- University of Lapland

## Germany

- Alpenforschungsinstitut, [www.alpenforschung.de](http://www.alpenforschung.de) ,
- Institut für ländliche Strukturforchung, [www.ifls.de](http://www.ifls.de) (Karlheinz Knickel)
- Wiss. Kommission für Gebirgsforschung, <http://www.badw.de/deuweb/akad35.htm>
- Universität Erlangen, <http://www.geographie.uni-erlangen.de/forsch/hochgeb.html>
- Forschungsgesellschaft für Agrarpolitik und Agrarsoziologie e.V., Bonn (FAA), <http://www.faa-bonn.de/>,
- Universität Weihenstephan München, Lehrstuhl für wirtschaftslehre des Landbaues <http://wdl.weihenstephan.de/persons>

## Greece

- Institute for Rural Mountain Economies
- Metsovion Interdisciplinary Research Centre of the National Technical University of Athens  
Website: <http://www.ntua.gr/MIRC/>

## Ireland

- The Johnstown Castle Research Centre (Teagasc)

## Italy

- Istituto Nazionale per la Ricerca Scientifica e Tecnologica sulla Montagna (to become Istituto Nazionale della Montagna) [www.irnm.it](http://www.irnm.it).
- Istituto di Ricerca per l'Ecologia e l'Economia Applicate alle Aree Alpine. ([www.irealp.it](http://www.irealp.it)).
- Centro di Ecologia Alpina, E-mail [info@cealp.it](mailto:info@cealp.it), [www.cealp.it](http://www.cealp.it)
- Centro Studi per l'Ambiente Alpino [www.tesaf.unipd.it/Sanvito/index.htm](http://www.tesaf.unipd.it/Sanvito/index.htm)
- Fondazione Angelini – Centro Studi sulla Montagna ONLUS. Fondazione Giovanni Angelici. website [www.angelini-fondazione.it](http://www.angelini-fondazione.it)
- IRSA – Istituti di ricerca e sperimentazione agraria del MiPAF ([www.politicheagricole.it/RICERCA/IRSA/home.asp](http://www.politicheagricole.it/RICERCA/IRSA/home.asp)).
- Istituto Nazionale di Economia Agraria. website [www.inea.it](http://www.inea.it)

- Istituto di Servizi per il Mercato Agricolo Alimentare. Website [www.ismea.it](http://www.ismea.it)
- Accademia Europea di Bolzano. website [www.eurac.edu](http://www.eurac.edu)

### **Norway**

- The High Mountain School in Hemsedal
- Stryn educational center
- The Filefjell centre of competence for mountain activities
- The study centre in Lesja
- The Aurland agricultural school and center of competence
- The center for local food culture in Lom,
- Western Norway Research Institute
- Eastern Norway Research Center
- Telemark Research Center
- Nordland Research Center

### **Romania**

- CEFIDEC
- FAMD
- FAER
- Mountain Institute – Sibiu
- University of Agricultural Sciences and Veterinary Medicine – Iași;
- University of Agricultural Sciences and Veterinary Medicine - Cluj.

### **Slovakia**

- Mountain Service Tatry [www.tatry.sk](http://www.tatry.sk), [www.tanap.sk](http://www.tanap.sk), [www.horskaslužba.sk](http://www.horskaslužba.sk)
- Mountain research centre [www.vstanap.sk](http://www.vstanap.sk)
- Forestry research centre in Zvolen [www.fris.sk](http://www.fris.sk)
- Technical University in Zvolen [www.tuzvo.sk](http://www.tuzvo.sk)
- Research institute of permanent pastures and mountain agriculture Banska Bystrica [www.vutphp.sk](http://www.vutphp.sk)
- Training centres Agroinstitute ([www.agroinsitut.sk](http://www.agroinsitut.sk))
- Agency for rural development ([www.arvi.sk](http://www.arvi.sk))

### **Sweden**

- Umeå university
- Mid Sweden University (Mitthögskolan)
- Mountain Mistra Programme: <http://www-fjallmistra.slu.se>

## **United Kingdom**

- The Scottish Agricultural College: [www.sac.ac.uk](http://www.sac.ac.uk)
- The Scottish School of Forestry (Inverness College, UHI Millennium Institute): [www.school-of-forestry.org](http://www.school-of-forestry.org)
- National School of Forestry (Newton Rigg, Cumbria): [www.forestry.org.uk](http://www.forestry.org.uk)
- University of Bangor (Wales): [www.bangor.ac.uk](http://www.bangor.ac.uk)
- Centre for Mountain Studies (Perth College, UHI Millennium Institute): [www.cms.uhi.ac.uk](http://www.cms.uhi.ac.uk)
- Arkleton Institute, University of Aberdeen: <http://www.abdn.ac.uk/arkleton/>
- Centre for Ecology and Hydrology: [www.ceh.ac.uk](http://www.ceh.ac.uk)
- The Macaulay Institute, Aberdeen: [www.macaulay.ac.uk](http://www.macaulay.ac.uk)

## **Annex 11. Policies and positions of European and supra-national organisations concerned with mountain issues**

To complement the work on perceptions of current and possible future mountain policies undertaken at the national level, 16 regional and European organisations with a sole or major focus on mountain regions were contacted by e-mail. Each was requested to provide information on aims and objectives, membership, and geographical and thematic scope, and policies and positions: the latter questions were identical to those directed to national respondents.

The organisations contacted were as follows, with those that provided information indicated in bold:

- European organisations : **Association Européenne des Elus de Montagne (AEM), Euromontana, European Mountain Forum (EMF), European Observatory of Mountain Forests (EOMF), Friends of Nature International (FNI), Mountain Wilderness International**
- Regional organisations (Alps): Alliance dans les Alpes, Diamant Alpin, Espace Mont Blanc, Initiative dans les Alpes, **International Commission for the Protection of the Alps (CIPRA)**, Pro Mont-Blanc, Pro Vita Alpina, **Réseau Alpin des Espaces Protégés**
- Regional organisations (Pyrenees): **Working Community of the Pyrenees**
- Regional organisations (Carpathians): **Carpathian Ecoregion Initiative**

Only the five indicated European organisations and CIPRA provided information regarding their policies and positions. These were elaborated in some detail by AEM and Euromontana; the other organisations provided shorter responses.

### **i) Effects of the integration and expansion of the EU on mountain areas**

All organisations recognised that the integration and expansion of the EU would have effects on mountain areas. It was noted that many of the Accession States have significant areas of mountain territory, which are mainly rural. Their models of development have, for many decades, been centralised, with a strong focus on urban areas. However, the mountains of these States vary considerably in terms of their level of development; and many face significant challenges with regard to governance, loss of historical and socio-cultural links, and environmental conditions. The contrast between the mountains of present EU Member States and the Accession States will be reflected in significant effects, both positive and negative, in the mountains of both groups of countries with regard to all economic sectors; as well as changes in movement of both resident populations and tourists. These effects will have to be considered in future EU policies, particularly the Cohesion and Agricultural Policies; but also others, including environmental policies and the Forestry Strategy.

AEM notes that the greatest impacts of enlargement will be on Cohesion policy, and that the EU will have to rethink its role, functioning, and approaches to developing policy. They regard the open debates on the White Book on Governance and on Cohesion policy,

as well as the work of the Convention, as key for mountain areas, and note that these debates will be influenced by CAP reform. AEM therefore perceives an increased need for horizontal policy to coordinate actions in favour of regions with geographic and demographic constraints in general – and mountain areas in particular – leading to the adaptation of other Community policies to the specific situations of such regions. They also propose greater and better consultation of local and regional authorities, to increase efficiency and transparency in policy development.

### Regional and Cohesion policy

Euromontana notes that enlargement will increase inequalities and divisions within the EU and therefore affect Cohesion policy. The choice of scenario will greatly affect the eventual impacts. CIPRA envisages a general deterioration in the mountains of present Member States due to the reorientation of regional funds towards ‘disadvantaged’/‘least favoured’ areas’ in the Accession States. Euromontana agrees that the future Objective 1 (from 2006) will be mainly targeted towards the new Member States, resulting in positive benefits to their mountain areas. A key issue, however, will be the identification of priorities, particularly to ensure that ‘least favoured’ areas are not excluded from the process of development.

With respect to the mountain areas of current Member States, Euromontana perceives a number of scenarios. They propose the concept of a future Objective 2 of the Structural funds which would address, inter alia, the "areas with permanent geographical handicaps" including mountain areas, in a non-optional way. However, they note that this is not the only approach. If there were to be no regional policy outside Objective 1, they foresee serious negative impacts from enlargement for nearly all mountain areas of the current EU, which would lose all community support in this field. The only exceptions would be those, predominantly in Portugal and Greece, which fall within the new Objective 1 eligibility criteria – i.e., those having a GDP per capita of less than 75% of the European (25) average.

### Agriculture and the CAP

Euromontana regards compensatory payments for mountain agriculture in Accession States as fundamental to its maintenance. The progressive implementation of the CAP, together with direct payments to farms, should thus also be positive in the mountains of these states. However, the result will be far greater competition with the higher, or much higher, productivity agricultural systems of the current Member States, thus jeopardising the areas with the most fragile agriculture in the Accession States. At the same time, for those engaged in agriculture in the mountains of the current Member States, competition with agriculture with lower labour costs in the Accession States is likely, especially for labour-intensive activities (e.g., vegetables and fruits, organic farming). Euromontana perceives that such increased competition on both sides will tend to lead to the enlargement of large farms and the parallel loss of the small ones. In mountain areas especially, this would represent a serious danger for both the rural economy and the

environment. A critical question is therefore whether direct payments and compensatory allowances will be sufficient to compensate for the increased competition.

After enlargement, the CAP will apply to a greater variety of types of agricultural systems, with more unequal levels of productivity, than in the current EU. Euromontana believes that it is extremely prejudicial that the CAP should be questioned because of these disparities, and that the support organised and coordinated within the framework of the CAP, related to the will to maintain the European model of agriculture and multi-functionality, are favourable and indispensable for mountain agriculture. This model would be questioned by, for example, a nationalisation of the CAP. The 2003 reform of the CAP will also be influenced by enlargement. One key issue for mountain agriculture identified by Euromontana is whether the raising of livestock to maturity and slaughter will be discouraged by the Single Income Payment system, depriving mountain areas of opportunities for producing finished products and creating associated added value. They propose that the accompanying measure for 'meeting standards' should be flexible enough to include support to mountain farmers to adapt their structure to a wide range of standards related to EU legislation.

#### Quality products

As the internal market expands, a key means for mountain areas to maintain competitive advantage and develop new opportunities will be to develop and emphasise the quality of their products (agricultural and other). Euromontana therefore proposes that the new accompanying measure for 'quality products' should both support existing, and encourage new, quality products; and that this must be complemented by increased awareness within Member States - and among decision-makers at various levels - of the value of mountain products, and other quality niche products. This is to counter the likelihood, particularly in Accession States, of development targeting mass production and well-developed regions, which could jeopardise the existence of quality products which represent diversity and, once lost, cannot be recreated.

#### Environment

In the context of enlargement, Euromontana perceives environmental benefits as accruing to the mountain areas of both current Member States and Accession States, and emphasises the need for measures to foster coherent cross-sectoral management linking biodiversity conservation, agriculture, forestry, and tourism. They state that it is essential to facilitate/encourage environmental management in agricultural production, linked to research into quality, particularly within microenterprises. EOMF recognises the need for the EU Forestry Strategy to take the greater diversity of forests following enlargement into consideration.

#### Transport and tourism

Enlargement will result in the further development of trans-national transport infrastructures. Euromontana believes that peripheral mountain areas must not be

excluded and that new infrastructures should be better integrated in areas traversed by this infrastructure. FNI notes that enlargement will lead to greater flows of tourists to the mountains of both current Member States and Accession States.

### ***Cooperation***

Mountain regions (massifs) are often trans-national and border areas, with traditions of exchange and similar problems and potentials. Euromontana regards enlargement as an opportunity to encourage cooperation within and among mountain areas, organised at appropriate geographical levels, and considering existing partnerships and established links.

#### **ii) Should the European Commission define a mountain policy?**

AEM state that the European Commission has neither the legitimacy nor the possibility for exclusive competence in mountain issues. They suggest that enlargement will redynamise the question of a mountain policy at the European scale, noting the Charter of European Mountain Areas elaborated and approved by a number of structures within the Council of Europe during the 1990s. CIPRA states that the EU must develop a mountain policy, providing a framework for the development of regions which are environmentally-sensitive, critical with regard to water, and/or peripheral with social and economic problems. FNI proposes that any future mountain policy should be based on the current model of regional policy, applying common criteria which would lead to different measures in different regions. All organisations state that, given the diversity of situation across Europe's mountains, the principle of subsidiarity should be applied in the development and application of any mountain policy. A homogenous application would not be appropriate given the diversity of situations across Europe's mountain regions.

#### Area of application of a mountain policy

AEM states that it is not pertinent to define a zonation of mountain areas at the European scale. However, it also states that, if an integrated mountain policy were to be developed within Cohesion policy, the level of Community co-financing should derive from the accumulation of geographic or severe demographic constraints (insularity, mountain character, low population density), complemented by the criterion of GDP per person at the regional scale. Euromontana recognises the necessity for a common definition of mountain areas at the European level, as an indispensable reference for the design of community measures tailored for these areas. However, the adoption of such a definition should involve consultations at several levels, and each Member State should be able to adapt the specific area defined for the implementation of these policy instruments to coincide with a 'functional' mountain area corresponding to socio-economic, cultural, and environmental realities. In such adaptation, a maximum allowable difference (in percentage of surface or population) from the area defined according to the EU criteria would have to be agreed.

#### Scope of a mountain policy

AEM states that a European policy for mountain areas could only be a horizontal one – possibly defined in a Directive – through which the Commission could be responsible for coordinating, encouraging, and applying national and/or regional policies which address the specificities of mountain areas, defined according to clear criteria. Such a European mountain policy could provide a framework for, and clarify, other Community policies with direct or indirect territorial effects on mountain areas, taking their specificities into account. At the same time, such a policy could not exclude mountain areas from other Community policies. Similarly, CIPRA states that the success of a mountain policy would derive from the imbrication and coherence of different instruments at all levels, from the European to the regional (sub-national).

Euromontana can envisage a Community policy for mountains which would be a targeted strategy, implemented horizontally, that addresses the specific and common aspects of mountain areas, such as:

- the need for structural support for agriculture because of handicaps for mechanised agriculture;
- the importance of preventing natural hazards, the value of biodiversity, and the management of water resources;
- problems of accessibility;
- the common strategy of producing quality products and quality services.

However, in spite of these common characteristics, if such a policy were to address overall economic development for mountain areas, it would have to be differentiated according to the level of economic development, recognising that neither are all mountain areas ‘lagging behind’, nor are all such areas mountainous.

In other words, whatever European mountain policy might emerge, subsidiarity and consultative bottom-up approaches are regarded as essential by all organisations. Decisions regarding the targeting of policies should be made at national or even sub-national levels; AEM states that national and regional parliaments should be able to adapt their norms and policies to the specificities of mountain areas.

### **iii) Optimal scale for policy implementation in the mountains of Europe**

FNI states that the European scale is optimal for policy implementation with regard to financial transfers and transfer of knowledge. Euromontana also states that there should be clear orientations and provisions for mountains at the Community level, and that these should be obligatory for States, which should not use them for other purposes.

Both AEM and Euromontana cite the principle of subsidiarity, stating that the national or massif (e.g., Alps, Carpathians) scale is optimal for policy implementation. Euromontana notes that while programmes or initiatives at the massif level are very relevant, existing administrative structures do not generally correspond to this level. When such structures do exist, they may or may not be appropriate for implementing Community policies. The creation of effective massif structures at the level of the massif might be an option, and could create added value related to exchanges between the involved administrations. Any

mountain programme should have provisions for encouraging cross-border or inter-regional cooperation at the massif level. AEM also notes that massifs do not correspond to existing administrative areas and that their specificities are not addressed in policies at the European level. However, they mention the possibility of policy implementation through Working Communities (Alps, Pyrenees) or the Conventions (Alps, Carpathians), noting that a European mountain policy at the level of massifs should directly involve local and regional authorities. Similarly, Euromontana states that these authorities should be fully involved in the design and delivery of measures in order to ensure they are adapted to local needs.

AEM also mentions the possibility of implementation at the regional (NUTS II) level through tripartite contracts (EU-Member State-region), but notes that their application would depend on the national institutional context. Similarly, Euromontana also notes that mountain areas should be able to access instruments for structural support which apply to the wider areas to which they belong.

EOMF suggests an alternative scale for implementation: the watershed, despite difficulties in defining administrative, economic, and environmental limits. The advantage is that it links upstream and downstream effects. Progress is being made in the concept and practice of watershed management by States, institutions (EU, Joint Research Centre), and organisations (e.g., EOMF, FAO, International Organisation of Forest Research Organisations [IUFRO]) with regard both to integration of resources and sectors and to participation and governance. The EU Water Framework Directive is central in this context.

#### **iv) Mechanisms for applying policies for mountain areas**

Both AEM and Euromontana return to the issue that the massif may be the most appropriate scale for application of policies. Euromontana reiterates that mountain policies, starting from non-optional guidelines and targeted supports at the Community level, should be implemented by States and/or regions, but also including a bottom-up approach which allows adaptation to local needs (a point also made by EOMF). FNI suggests that the model of the CAP and the Structural Funds would be useful for setting up appropriate mechanisms.

AEM notes that, until now, the European Commission has only recognised the specific nature of mountain areas in terms of their agricultural dimensions; but many institutions, as well as participants in the conference on ‘Community policies and mountain areas’ (17-18 October 2002) have drawn attention to other characteristics. AEM believes that recognition of the political legitimacy of mountain regions at the European level is the essential prerequisite to the creation of appropriate mechanisms for applying policies in favour of mountain regions – comparable to those for peripheral, maritime, and urban regions. This would allow mountains to take their role in the good governance proposed in the White Book on Governance. The development of such policies for mountain areas would involve the participation of elected officials, authorities, representatives of local and regional administrations and of socio-economic interests, and scientists. The

application of such European mountain policies, based on tri-partite contracts recognising the principle of subsidiarity, would respect the institutional and cultural diversity of mountain regions. Finally, recognising that monitoring and evaluation are key elements of successful policy implementation, EOMF states that more precise data are needed.