Mountain regions of the European part of Russia: Status and problems of development. A national report

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Foreword

The present Report was prepared for the European Inter-Governmental Consultations on Sustainable Development of Mountain Regions of Europe held in Aviemore, Scotland (April 22-27) and Trento, Italy (October 7-12, 1996).

Preparation of the Draft Report was carried out by a group of scientists under Agreement No. 4-F of 19.02.1996 between the Ministry of Environment Protection and of the Natural Resources of the Russian Federation (Minpriroda) and the Institute of Geography of Russian Academy of Sciences, and was budgeted by the Federal Ecological Fund.

The group engaged in preparation of the Report included: Academician V.M.Kotliakov, Director of the Institute of Geography of Russian Academy of Sciences (Leader of the Expert Group), Academician V.N.Bolshakov, Director of the Institute of Plant and Animal Ecology of the Urals Branch of the Academy, Dr. Yu.P.Badenkov (Leader of the Working Group in the Institute of Geography (IGRAN), Dr. V.S.Vaguin (Minister of Environment Protection and of Natural Resources of the Republic of Northern Ossetia-Alania), Dr. S.V.Goriachkin (IG RAN), Dr. B.A.Ilyuchiov (IG RAN), Dr. K.S.Losev (VINITI), Dr.D.N.Lukhmanov (IG RAN), Dr. S.M.Miagkov (Moscow State University), I.A.Merzliakova (IG RAN), Dr. G.S.Samoilova (Moscow State University), Dr. A.L.Saravaiskiy (IG RAN), Dr. A.A.Tishkov (IG RAN).

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During their visits to regions, members of the group have received valuable information from the Senior Staff of the Environmental Ministries and Committees in Krasnodar Kray, Northern Ossetia-Alania, Archangelsk and Sverdlovsk regions. The distributed questionnaires were filled out and returned by almost all Ministries and Departments of Environment Protection in the mountain regions of the European part of Russia.

Members of the working group express their sincere appreciation of their contribution.

CONTENTS

INTRODUCTION

In its Final Declaration the UN Conference on the Environment and Development has emphasized a special position and needs of the "least developed and environmentally most vulnerable countries " (Principle 6, the Rio Declaration on the Environment and Development. In view of this Principle, Chapter 13 was included into the Agenda-2 1: "Managing Fragile Ecosystems: Sustainable Mountain Development". For the first time the problem of mountain territories was highlighted at this high level of the international meetings.

In 1993 the process of consultations was started between the governments, as well as the nongovernmental organizations aiming to develop a plan of actions to implement the recommendations of Chapter 13. The inter-governmental consultations were co-coordinated by FAO (UN Food and Agriculture Organization). In 1994 Nepal hosted the Asian Consultations, in 1995 Bolivia brought together the South American Consultations, in 1996 -countries of Europe and Africa had a meeting. In 1997 the Consultations will take place in North America. In 1998 the World Conference is planned under the UN aegis to discuss the problems of sustainable development of the mountain regions.

This Report was prepared for the European Inter-Governmental Consultations on Sustainable Development of Mountain Regions, and pursues two goals:

1. to evaluate the state of the mountain regions in the European part of the Russian Federation and to answer the question: is there a need for a national policy on sustainable development of the mountain regions of Russia including its Asian part?
2. in the perspective of Russia's entering the Council of Europe - to appraise the need for and the potential of co-operation between the mountain regions of Russia and the European countries in accordance with the spirit of the European Charter of the Mountain Regions and, finally, to join it.

40 of 89 Subjects of the Russian Federation include mountain regions. However, it is for the first time that the issues of the mountain regions are being discussed at the federal level. Even at the times of the USSR in which the Transcaucasian and the Central Asian Mountain Republics accounted for a significant section of the national population and territory, the issue of a specific "mountain development policy" was not raised at all. Probably, this is one of the reasons why many of the mountain Republics are currently the arenas of intense social, economic and environmental conflicts?

PART 1. MOUNTAIN REGIONS OF EUROPE IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

In Central and Western Europe mountains account for 650,000 sq. km. (28 % of the territory of the European Community), and are inhabited by 7,5% of its population (about 25 million pers.), at average population density of 42 pers/sq. km.

From 45 countries of Europe only 8 countries - Byelorussia, Denmark, Estonia, Lithuania, Latvia, the Netherlands, Malta and Moldavia - have no mountain massifs within their boundaries. The problems of mountain development have been known in Europe since long ago, they were getting more and more important together with growing discrepancies in the levels of life between the mountaineers and the inhabitants of lowlands. The document "EUROPE 2000" prepared by the General Directorate for the Regional Policy of the European Community (EC) summarized the common features of the mountain regions (despite the diversity of local, regional, and national situations) in the following way (Martinengo, 1994):

geographical conformation: pronounced relief, arid soil, climate characterized by great differences between the extremes, exposure to natural hazards, limited natural resources but attractive surroundings;

territorial imbalance: low level of economic integration between the mountain area and the neighbouring plain, and between the valleys within mountain areas, and the hills and mountains;

socioeconomic conditions: limited economic base (dependence on agriculture), isolation, very high cost of infrastructural investment;

rich, but vulnerable environmental heritage: many such areas have natural parks or other protected areas.

The differences between the economic development of the mountain regions of Europe (within the EC frames) are rather strong and according to the document "EUROPE 2000" the mountain territories are grouped into three categories:

Far-outlying areas - Northern Scotland, mountains of Greece and Southern Italy, Northeastern Portugal, Cantabrica mountains in Spain.

Intermediate areas are the Pyrenees, Massif Central and Vosges (France), uplands of England, Sierra Nevada.

Developed mountain areas - the Alpine countries (Austria, Italy, Switzerland,

and France etc.), their advantages connected with the central geographical location and their specific economic activities. All these countries have a developed system of legislation, the state programs and institutions supporting the mountain regions.

Mountain regions of **Eastern Europe** - Carpathians (Romania, Ukraine, Slovakia), Tatras (Hungary, Czechia), Sudets (Czechia and Poland) can be included (in accordance with the UC classification) into the underdeveloped group. The East-European countries are actively developing their national mountain policies in the recent years as a positive result of their incorporation into the Council of Europe. Bulgaria has a special Department of Mountain Policy in the Ministry of Development. Wojewodskie Mountain regions of Poland have signed a "Mountain Memorandum" establishing their development goals and the appeals to the Parliament and the Government. Romania is working on a law on sustainable development of mountain regions, and is networking the Carpathian administrative regions for more successful execution of this law.

Several countries (including Ukraine) have not even started to consider the need for the national policies of mountain development yet. This group includes Russia where the mountains and uplands account for up to 40% of the territory, and the majority of them are in the Asian part. (Fig. 1).

In the **European Russia** mountains are located in the periphery of the Russian Plane which is the historical and economic centre of the country. 17 subjects of the Russian Federation (RF) located in its European part include mountain areas (Table 1).

Table 1

No.	**Name**	**area**	**admin. regions**	**population**
		000 sq.km(%ofRF)	total/upland*	000pers. (%ofRF)
	NORTHERN CAUCASUS			
	The REPUBLICS:			
1.	Adyghe	7,6 (0,04)	7 (1)	450,4 (0,30)
2.	Daghestan	50,3 (0,29)	41 (?)	2067,1 (1,39)
3.	Ingush**	4 (3)		
4.	Kabardino-Balkaria	12,5 (0,07)	8 (6)	789,7 (0,53)
5.	Karachai-Cherkessia	14,1 (0,08)	8 (8)	435,7 (0,29)
6.	North Ossetia-Alania	8,0 (0,05)	8 (5)	658,3 (0,44)
7.	Chechen**			

KRAYS:

8.	Krasnodar	76,0 (0,45)	38 (?)	5004,2 (3,37)
9.	Stavropol	66,5 (0,39)	26 (?)	2650,3 (1,79)

URALS
The REPUBLICS:

10.	Bashkortostan	143,6 (0,84)	54 (12)	4080 (2,75)
11.	Komi	415,9 (2,44)	16 (-) ***	1201,6 (0,81)

REGIONS:

12.	Perm	160,6 (0,94)	37 (?)	3024,1 (2,04)
13.	Sverdlovsk	194,8 (1,14)	30 (?)	4702,6 (3,17)
14.	Orenburg	124 (0,73)	35 (1)	

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15.	Cheliabinsk	87,9 (0,51)	24 (?)	3699,8 (2,49)

KHIBINS

16.	Murmansk	144,9 (0,85)	5 (?)	1534,6 (1,03)

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NOVAYA ZEMLYA AND FRANZ JOSEF LAND

17. included into the Archangelsk administration, no permanent population

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* Number of the mountain regions is cited on the basis of responses from the subjects of federation;
** no data for 1995 is available;

***not defined

Mountain regions take only part of the territories included in Table 1. The majority of population lives outside the uplands. Northern mountains have no permanent population. There is no official statistics available on these issues. Moreover, the Russian Federation has no legislation or regulations which establish the criteria of the "mountain" status of a region. In several republics of the Northern Caucasus (Daghestan, North Ossetia-Alania) this term is widely used in governmental documents. However, it has no official definition, partially because of lack of elaborated basic concepts. Interpretation of this problem in the European Community is discussed in a separate chanter.

What are mountains and mountain regions? The problem of definitions. Criteria of their delineation? Who and how establishes the borders of mountains and mountain regions? These seemingly simple questions have no clear answers. Classification and contours of a mountain territory will differ depending of the criteria selected: elevation, climate, economy, human physiology etc. These issues are for from being abstract, they have significant importance for the socio economic development policy in the mountain regions.

In the EC countries the problem of definitions was known since long ago and continues to be discussed by the experts concerned. The European Mountain Charter (article 2) approved by the Council of Europe gives the following definition:

"For the purposes of this Charter, the Parties (the countries which signed the Charter) interpret the term "mountain regions " to mean areas whose altitude, sloping terrain and climate create special conditions which affect the pursuit of human activities. "

This legally established consensus requires that the mountain territories are provided this status, and establishes the basic criteria for this purpose. However, each country is free to modify these criteria in accordance with its peculiar geographical conditions and the national traditions.

PART 2. MOUNTAIN REGIONS OF THE EUROPEAN PART OF RUSSIA: THE STATE AND PROBLEMS OF DEVELOPMENT.

According to their environments, geographical situation, the history of settlement, ethnic and cultural diversity the mountain areas of European Russia situated in various natural and climatic zones demonstrate an exceptionally wide range of distinctions and contrasts. These govern the history of development and settlement in mountains, availability of the vital resources and the methods of their management and finally, the culture, traditions and mentality of the people.

2.1.MOUNTAINS OF THE FRANZ JOSEF LAND AND NOVAYA ZEMLYA ARCHIPELAGOES

The northernmost upland territories of European Russia are represented by mountains of the Novaya Zemlya and Franz Josef Land archipelagoes. These territories are part of the Archangelsk administrative region, and are located between 70 and 80° NL. Mountains of Franz Josef Land belong to the low mountain type (500-600 m and above), mountains of Novaya Zemlya are middle mountain type (highest summit is 1547 m). Mountains occupy over 90% of area of the archipelagoes. The environment is Arctic mountain deserts and a narrow belt of tundras in the southern part of Novaya Zemlya. Most of uplands are glaciated. However, thanks to the vicinity of the Barents Sea which is relatively warm due to Gulf Stream this area has high biodiversity of plants as well as of animal population (of birds in particular). One can observe over 20 species included in the Red Book. The mountains capped by snow and placed over the marine background are the most valuable aesthetic elements of the Arctic landscapes.

Traditionally, Novaya Zemlya was the source of sea animals and furs, valuable fish, birds, down and feather, and eggs. In the last half of the 1 9-th century this area was first settled by more or less permanent predominantly Nenets population. In 1954 this area was allocated for a nuclear testing ground, and all its population was moved out to the continent. Now the area has shifting population of servicemen and employees of the polar hydra meteor stations. This was the nuclear testing ground for submarine, surface, and atmospheric explosions until 1962 and for underground explosions until 1990.

Without due conservation, the housing and technical facilities rapidly deteriorate in the severe Arctic environments. The risk factor is significantly

aggravated by the specific mountain hazards - stormy orographic winds bora (over 40 m/sac) and avalanches.

There is a project to use these upland territories as storage sites for nuclear wastes. With the advanced construction and exploitation technologies, the uplands of Novaya Zemlya provide the safest location for this activity in Russia, however; in this case the alternatives for development of these territories (tourism, protected areas) will be greatly limited.

According to environmental studies, practically all territory of the archipelagos is radiation safe at radiation levels of 7-12 mrh. This level is significantly lower that in major cities of Russia.

In the recent years research became much more active in these upland areas. They were explored by several geological, glaciological, archaeological, and complex expeditions involving the Russian as well as foreign scientists. They discovered a major deposit of polymetallic ores in Novaya Zemlya, and a winter camp of V. Barents. The Marine Arctic Complex Expedition which worked in this area since 1986 under leadership of P.V. Boyarskiy produced an inventory of all natural and historical monuments of Novaya Zemlya and Franz Josef Land and developed a program of establishing a network of protected territories.

According to ecological-geographical studies carried out by the Institute of Geography of the Russian Academy of Sciences, the level of anthropogenic damage to ecological systems and landscapes of Novaya Zemlya can be generallv estimated as low and decreasing.

In 1992 a sanctuary under federal authority was established in Franz Josef Land. The main goal of the sanctuary is to supervise and co-ordinate research and tourism which are the only viable activities in these upland Arctic islands.

The public of the Archangels region initiated a public movement "To Novaya Zemlya (Towards New Land)" seeking a full ban on nuclear tests and restoration of the civil administration over the archipelago.

As future development orientations of uplands of Franz Josef Land and Novaya Zemlya one can suggest emphasis on protected territories used for the national and international tourism. In addition, these territories could become the campsite for international research expeditions investigating climate, oceans, biotic and abiotic nature in the Arctic.

2.2. KHIBIN MOUNTAINS

The Khibin Mountains and Lovozero tundras are low mountain massifs (up to 1190 and 1120 m) located on the Kola Peninsula 150 km north of the polar circle, in the Murmansk region. The leading industries are mining and non-

ferrous metallurgy (1/3 of the industrial output of the area), fishing and forestry.

Agriculture includes reindeer pasturing (central and eastern regions), potato and vegetable growing. However, its role in the region is not significant.

The overwhelming majority of the population is urban (92.4% in 1995), and almost half of it is in the regional centre of Murmansk (443,500 pers.). 32.4% of the population employed is in the industrial sector, 2.2% in agriculture. The population density is 7.4 pers./sq. km. The Russian nationality prevails. Other nationalities are Saami, Nenets, Komi, Karels.

The indigenous population is Saumi who live in the Lovozero tundra region. They number about 1600 pars. Saumi are traditionally engaged in hunting, fishing and reindeer ranging. They cannot be referred to as mountain residents, but being nomadic reindeer herders and hunters they regularly visit the upland areas.

Mountains account for only 2.ó% of the area. Almost half of this area has dissected plateau like relief. It was formed by the continental Pleistocene glaciations. Glacial forms are widespread, including kars, brogues, cirques, which give the landscapes a particular severe attractiveness.

Landscapes of the lowlands and of foothills of the Khibins are wetlands and northern taiga. Slopes are covered by pine woods (up to 300 m), and by spruce woods (up to 450 m). Higher up is the forest-tundra elfin woodland. Mountain summits have mountain arctic deserts. The Monchetundra mountain massif locates the Lapponia Reserve and the unique Polar-Alpine Botanical Garden.

The mountain massifs of Khibins, Lovozero tundras and the Mountain Ranges Chuna, Volchyi, Salnye tundras, Chiltad, are have high risk of the natural hazards, in particular, of avalanches. They produce destructive impacts on the industrial enterprises of Kirovsk, Apatit, Monchegorsk, etc. It is in Khibins that the first specialized anti-avalanche monitoring and protection service was created in Russia in 1936 under the Industrial Association "Apatit".

On average, 30 cyclones pass over the Khibins every winter, producing up to 45 mm of rainfall in a day. There are 35 days of snow and snowstorms per year. Average air temperature in mountains in January is -13 -15C°. Total precipitation is 1000-1500 mm, more than a half of it is during the cold season. Snow cover stays for 240-280 days. Average wind velocity is over 7 m/sac, number of days with snow storms is 135, with winds above 20-40 m/sac - 100 days per year, resulting is widespread snowstorm avalanches. 80% of avalanches take place during snow storm or snowing. About 20% coincide with warming and spring snow melting. The number of days with avalanches ranges from 22 to 71 in Khibins with a peak from January - beginning of February to

end of March. Khibins and Lovozero tundras are among the most avalanche-prone regions of Russia.

The most important environmental problem in the mountain regions of the Murmansk region is the problem of pollution by mining and metallurgical industries. The main sources of emissions are the copper- and nickel metallurgical combines of Monchegorsk, Nickel, Zapoliarny, and the iron ore mining and dressing plants in Kovdor and Olenegorsk. Significant pollution comes from thermal power plants. One thermal power plant located near Apatit city (foothills of Khibins) is annually emitting to atmosphere up to 30-35 thousand tons of dust and other pollutants.

Atmospheric pollution by sulphur dioxide is observed within the radius of hundreds of kilometres from its source, and produces acid rains in the vicinities of Monchegorsk and Nickel. Impact of sulphur dioxide pollution is particularly strong in the winter season when the anticyclonal regime persists.

Atmospheric pollution is extremely harmful for the forest ecosystems where it damages huge areas (tens of thousands of hectares). Violation of the cutting limitations leads to destruction of young trees. Significant damage is produced by forest fires. All the above immensely increases vulnerability of the forest and tundra ecosystems, reduces their reproductive potential.

In the landuse structure one would note a significant percentage of dumpsite areas (storage of removals, tailings, etc.) which are sources of the soil, surface and ground water pollution by heavy metals.

In the Murmansk region the problem of radiation safety is acute: the region has a nuclear power plant, the enterprise "Atomflot" which provides repair services to nuclear powered Navy vessels, and is the base for the nuclear Navy. Mountain areas register the natural level of long-life radionuclides in soils and vegetation.

In mountain massifs of Khibins and Lovozero the level of gamma-radiation is above the average due to exposure of alkaline granites and pegmatites including radioactive elements of thorium, uranium and potassium. The level of radiation in these areas is 20-40 mRh/hour, as compared to the natural radiation level of 2.5 mRh/hour in low wetlands.

The mountain regions of the Khibins and Lovozero tundras are high latitude regions with severe environments and have no permanent population. Therefore, their socio economic development is not the priority problem for the local administration. The priority problems are: the environmental protection and the natural resources. The mountain ecosystems of the Extreme North are particularly impact-sensitive and have reduced self-rehabilitation capacity.

The Regional Committee on Environment and Naturál Resources has mentioned thé following ecological factors detrimental to the conditions of life and work of the local population in its Report "The State and Protection of Environment in the Murmansk region,1994":

land disturbances by mountain mining,

pollution of land waters and marine areas; continued high emissions of gaseous and solid pollutants, increase of accidents resulting from wear and tear of the equipment;

degradation of woods due to fires, pests and diseases;

violation of the protected regime, poaching, the problem of preservation of the biological diversity.

One should also note the positive environmental trends both in the fields of technological decisions and in the social sphere. One example is the successful solution of the problem of reducing the atmospheric emissions by the Industrial Association "Apatit" (99% of dust and gases are captured). Another example is rehabilitation of the traditional economies and transfer of the pastures to administration of Saami (Fund for Renaissance of the Kola Saami).

Protection of the forest ecosystem is the goal of the "Pasvik" nature reserve. Now half of the territories' forests are under the protected regime. The Watershed Management Project involving watersheds of the transboundary river Parsoyoki and other transboundary systems is implemented under the tripartite international co-operation.

Khibins and Lovozero tundras belong to the northern rim of the Scandinavian mountains (the Stands) including Norway and Sweden. Their environments and development patterns are similar to Finmarken - low mountains with individual peaks rising above 1000 m (Chuokkarassa, 11 39m). The Government of Norway pursues the regional policy of support to the marginal and peripheral mountain regions (municipalities), create jobs both in the traditional sectors (reindeer farming, folk crafts), and in new promising activities, such as ecotourism.

Although in Sweden the upland municipalities account for only 20 of the total 286, the problem of support to their development is, nevertheless, rather acute. The problems of preservation of biodiversity in mountains, protection of the environment and the resources are given high priority. The Research Station "Abisko" of the Swedish Royal Academy of Sciences is well-known for its researches in the north. It provides a base for numerous international projects,

including scientific research and the applied projects in sustainable development of the northern mountains.

The themes proposed for the international co-operation in sustainable development of the mountain regions of the Stands and Khibins include:

conservation of biodiversity and ethnocultural diversity,

management and planning of development,

policy of economic conversion and innovation,

protection of the environment.

The mountain regions should be given the key role as the elements of spatial stability of the territory and as depositories of valuable natural resources, in particular, of waters and the biological resources.

2.3 URALS

Mountains of the Urals and the adjacent uplands stretch in the meridional direction from the Arctic coast to semideserts of Kazakstan as a narrow (100-400 km wide) band (Fig.), and represent a natural boundary between the East-European and the West-Siberian Plains. The highest ranges are in the Subpolar Urals (Mt. Narodnaya, 1875 m), Northern Urals (Telposiz, 1617 m) and Southern Urals (Yamantau, 1640 m). Low mountain massifs of the Middle Urals usually do not exceed 600-800 m.

Climatic distinctions between the northern and the southern regions of the Urals are great. The climate is generally continental and depends on the attitudinal zones, as well as on the macroslope aspect. Severe winters continue for 4.5-5 months in the middle section and up to 9 months in the north. Summers are cool in mountains. The vertical landscape zonation of the Urals depends on the latitudinal zonality of the adjacent plains. Landscapes of the Polar Urals correspond to the northern tundras, of the Subpolar Urals - to northern taiga, of the Northern Urals - to middle taiga, of the Middle Urals - to southern taiga and coniferous-broad-leaved woods in the western section, of the Southern Urals - to forest-steppe and steppe, of the UralsMugojary area - to northern semidesert.

The Urals belong to six Subjects of the Russian Federation (Table Fig.). Five of them (Bashkortostan Republic, Perm, Sverdlovsk, Orenburg and Cheliabinsk Regions) are included into the Urals economic region. The main industries are:

ferrous and non-ferrous metallurgy, engineering, chemical and petrochemical industries, forestry, timber-processing and paper-and-pulp industry, as well as mining and processing of oil and gas.

Table 2

Region	Total area ,000 sq. km	Upland area %	Area from 300 to 1000 m, %	Area above 1000m, %
Bashkortostan Republic	143.6	59.2	56.7	2.5
Komi Republic	176.7	10.1	6.0	4.1
Orenburg Region	124.0	19.4	3 *	
Perm Region	160.6	33.2	31.8	1.4
Sverdlovsk Region	194.8	29.2	27.7	1.5
Cheliabinsk Region	87.9	60.6	57.5	3.1

* 3% of area are at elevations from 450 to 660m; 16.4 % - from 300 to 450 m.

In the Subpolar Urals which is included in the Komi Republic administration, the leading industries are forestry and timber products. In absence of adequate roads, timber is mostly floated down the river streams, sometimes as unrafted logs. Agriculture is fragmented and includes reindeer ranging and hunting.

The above regions with severe environments and inadequate transportation infrastructure, belong to underdeveloped and undeveloped, and have no permanent population. The eastern mountains and the foothill regions are considered to be environmentally favourable. They constitute a significant section of the Pechora-Ilych biosphere reserve which was in 1995 entered in the World Nature Heritage List of UNESCO. This was the first object of nature in Russia included in this prestigious list. A National Park is planned there of 25 mln hectares (ó.5% of the Republic's area). These territories are considered to be an ecological reserve performing the environment forming and environment

conservation functions. In the context of sustainable development, the mountain woods are considered to be the key elements - ensuring preservation of the renewable resources (of forest resources and of waters, above all) and supporting the regional development.

The **Middle Urals** belongs to well-developed territories possessing significant resource and production potential. The leading economies of the region include mining, metallurgical and forest industrial complexes. The region's evolution as a major mining region of Russia has resulted in a high level of recession (a depressive region) due to depletion of ore deposits and non-ore raw materials, less efficient geological-engineering conditions for the industry. These regions were completely dominated by mining, and had no alternative development orientations. The majority of these regions is located in the foothill section of the Urals in Sverdlovsk and Permregions. Although there is no permanent population in mountains, these areas are under significant pressure from the adjacent industrially advanced regions.

The local experts give the following view of the environmental situation in the region:

the region is in the situation of an ecological crisis;

billions of tons of industrial wastes have been accumulated, the third of which is highly toxic;

the main ecological risk is air pollution by ferrous and non-ferrous metallurgy, mining and chemical industry;

the most acute problem is shortage of pure water. The quality of drinking water is below the sanitary standards;

the forestry resources in the region are depleted as a result of overuse and replacement of the valuable coniferous species by broad-leaved species; spruce woods are dying; large damage is produced by forest fires;

there are local foci of radioactive contamination, including those resulting from accidents on the military industry enterprises (in the Cheliabinsk region) and from underground nuclear tests (1969-1987, Perm region).

. The above environmental problems are basically observed in the lowland and foothill areas which concentrate most of the industrial enterprises and

settlements. It should be noted, that the Middle Urals is a highly urbanised region (the Sverdlovsk region, for example, has 87% of the urban population). Settlements form a narrow belt, the so-called "mining belt". This settlement pattern was historically inherited from the times when the Urals regions was first colonised through the process of development of the "cities - factories" at the sites of mining and processing of raw materials.

The **Southern Urals** (within the territory of Bashkortostan) is a system of mountain ranges divided by broad intramontagne depressions. The main orographic element is the meridional Uraltau Ride, bordered in the west by a belt of low mountains and gentle hills (uvals) ranging from 400 - 600 m. The highest massits are: Yamantau (1640 m) and Iremel (1582 m), they are located in the western section of the Southern Urals. East from Uraltau is a narrow band of low hills merging in the south into the South-Urals flatland (500-600 m a.s.l.).

Woods in the mountains cover from 21 -60% of the total area and more. The zone of the mountain dark taiga of spruce with minor participation of pine, birch, and larch raises up to 1100 meters. It is replaced further up by elfin woods and creeping woods. Above 1300 m is the zone of barren rock and mountain tundras.

Twelve of total 54 administrative regions of Bashkortostan with population of 351,500 pars. have the of ficial status of mountain regions. Population density is 3-7 pers./sq. km (as compared to average density of 28.4 pers.). The major occupation is agriculture with specialization is horse-breeding and apiculture - the traditional occupations of the Bashkir.

The main problems of socio economic mountain development are: unemployment, insufficient coverage by hard-surface roads, inadequacy of the social amenities, shortage of the electric power. Low prices of the agricultural production depress the industry. The mountain regions are characterized by soil depletion, rangeland degradation, deforestation, and risk of the natural hazards (landslides, erosion, etc.).

Agricultural lands account for 51.5% of area of Bashkortostan. The protected areas take 1.1 % - one of the lowest percentages in Russia. Most of protected territories are located in mountains: nature reserves "Bashkirskiy" (49,600 ha, was founded in 1930), "Shulgan-Tash" (22,500 ha; in 1959), "South Urals" (255,000; in 1979) and the State Nature National Park "Bashkiria" (83,300 ha; in 1986).

Mountain development in the Urals has certain specific features:

Exceptional diversity of climate, ecology and resources along the meridional transect; the aboriginal population (Khanty, Mansi in the north, Bashkirs in the

south) had no permanent habitation in the mountains due to the specific mountain environments and their traditional economic activities; the history of industrial development of resources in the Urals was rather unique. In the 20-th century its economy became very specialised in mining, metal production, forestry. In addition, it was strongly dominated by the military-industrial complex and "closed". Forestry and mining were widely using cheap labour of prisoners. All this explains for inadequate management of the natural resources; domination of small urban places in the settlement system.

In view of the numerous development problems accumulated during decades of centralised planning and management in the territories comprising the Urals region, the scientists of Urals develop the concepts and programs for introduction of the sustainable development models in these territories. The basic principles building the concept of sustainable development of the Sverdlovsk region are listed below.

Block 1. The model of manageable macroeconomic processes at the regional level. The system of the dynamic balances of the ecological-territorial and economic parameters of the region. The ecological-territorial macroeconomic indicators for evaluation of the current and future state of the system.

Block 2. The economic and environmental safety of the region on the basis of elimination of obsolete production and creation of the conditions for economic growth with modern technological and with due consideration of the environmental and social requirements of the future generations.

Block 3. The financial and investment policy. Implementation of the idea of environment support from the tax and budget policy seeking to ensure integrated stimulation of the industrial growth and the environmental sanation.

Block 4. The social policy. The methods of resolving the environmental and economic problems of the pollution-emitting enterprises in correlation with the acute social problems resulting from recession and growing unemployment.

Block 5. The institutional and legislative mechanisms of the regional regulation. Advancement of the territorial and economic structure of the area.

The above listed principles and the priorities chosen for the regional policy supporting transition to sustainable development, are extremely important for this recently "closed" area which is under high pressure of socio economic and environmental problems. Unfortunately, the Concept is missing the whole block of issues related to support of the peripheral mountain regions which can be referred to as "depressive regions" (in the Urals these regions are usually beyond the limits of mountain regions if the latter are delimited in accordance with the morphological features).

The more so, local authorities and scientists generally ignore the specific features of socioeconomic development of the mountain regions. This fact is another specific feature of the Urals region.

2.4. NORTHERN CAUCASUS.

Northern Caucasus if the only region in European Russia which fully meets the classical criteria for the mountain countries: elevations and dissection of relief, landscape, climatic, and ethnic and cultural diversity, economy and settlement system.

The region has a rectangular form stretching for more than on 1000 km in length, and for 150 km in width. According to its orographic features Northern Caucasus is divided into two zones: the mountain zone and the lowland or flatland zone. The mountain zone is formed by several ridges: Lesistyi, Pastbischnyi, Skalistyi and Bokovoy, stretching parallel to the Main Caucasian Ridge. The highest summits of the Caucasus are: Elbrus (5642 m) and Kazbek (5033 m). From south to north the above ridges transect the deeply incised river valleys fed by highland glaciers. The valleys stretch for tens of kms in the west, and for hundreds of kms and more in the central and eastern sections. Owing to favourable climatic conditions agriculture was spread in these valleys and intramontagne depressions up to of 2500 m a.s.1. since ancient times. High alpine grasslands were used as rangelands.

Foothills and lowland regions have fertile chernozems. Soft winters ensure all-year-round pasturing without significant feeding of animals in stalls.

The above combination of the environmental and climatic conditions produces the classical pattern of mountain-lowland interaction, and of economic and cultural links between the mountain people and the steppe people.

The environmental conditions of the region and its situation at the cross-roads of Europe and Asia, at the rim of steppes which for millennia were treaded by nomads moving from east to west and from north to south, have produced decisive impact on the ethnic structure of the region. The modern ethnic structure of the Northern Caucsus was formed in the end of the 1 7-th century. At present this area has more than fifty nationalities which speak three different language families: Caucasian, Indo-European, and Altai.

The Russian Federation has no other area similar to Northern Caucasus in the number of nations and ethnic groups inhabiting a rather limited territory, or the historical and cultural diversity, or a wide spectrum of environmental and climatic features, as well as in graveness and abundance of problems and conflict situations. The Caucasian influence is a persistent political, economic and cultural factor in the history of Russia. However, so far this factor has not been included into a long-term mountain development policy. The mountain

areas find themselves under increased pressure of the development problems. Their environmental, resource, and ethno-cultural potential has distinct trend towards reduction and degradation.

In the Northern Caucasus 9 Subjects of Federation (7 Republics and 2 Krays) have mountain regions within their boundaries (Fig. Table 3)

Table 3

Subject of Federation	Area, sq.km	Mountain area, %	400-1000 m, %	1000-2000 m, %	2000-4000 m, %	above 4000 m,%
1. Republic of Adyghe	7.79	38	20.5	12.5	5.0	-
2. Republic of Daghestan	50.3	48	11	17	15.9	3.6
3. Republic of Kabardino-Balkaria	12.5	71	18	21	23	9
4. Republic of Karachay-Cherkessia	14.1	98	29	34	33	2
5.Republic of North Ossetia-Alania	8.01	88	39	22	23	4
6. Chechen and Ingush Republics*	19.3	44	22.7	14.6	4.3	2.4
7. Krasnodar Kray	76.0	26.8	19.2	2.7	4.3	-
8. Stavropol Kray	66.5	1.9	0.4	1.5	-	-

* No data after demarcation of the borders between two Republics.

Northern Cancasus. Assessments were made by G.S.Samoilova.

The above territory is characterised by specific and unique environments, cultures, traditions, languages, religions and mentality of the people. This diversity is the main value of the region. However, there are certain common problems, typical for the mountain regions of all Subjects of Federation.

SOCIAL PROBLEMS. One problem typical for all mountain regions is depopulation. The process of outmigration of the mountain people to foothill and lowland regions was especially heavy in the 19-th century. The reasons for that are well known: shortage of lands, inaccessibility, severe climate and risk of natural hazards. The scales and intensity of this process varied widely, however, the trend was persistent in all regions. The process of outmigration was most active in Ossetia in the period of strengthening of domination of the Russian state. During several decades of the 19-th century up to 50% of population of the mountain communities migrated to plains. Similar trend was displayed in Ingushetia and in Chechnia, however, the process was more gradual there.

There is no official statistical data on the numbers of population in various attitudinal zones. Below, we have presented the research results for North Ossetia (Badov, 1993) which disclose the general patterns of modern settlement in the Northern Caucasus.

Altitudinal zone	area, sq. km/%	population, ,000 pers./%	density, per/sq.km
Lowlands, up to 200 m	770/9.6	74.3/11.7	96.4
Foothills, 200-500 m	1372/17.1	70.2/11.1	51.2
Low mountains, 500-1000 m	2607/32.6	476.1/75.3	182.8
Middle mountains, 1000-2000m	1473.3/18.	4 11.1/1.8	7.5
High mountains, above 2000 m	1771.1/22.3	0.7/0.1	0.4

Outmigration of the population has produced the current situation: 32% of territory concentrate three quarters of the republic's population. The high mountain zone which accounts for one fifth of territory, has only 0.1 % of population due to the population outflow.

The above tendencies of "slipping down" of the population from mountains are typical for all mountain regions of the Caucasus. They increase polarization of the conditions of life and destabilise the socio economic situation.

The problems of unemployment and poverty are the main factors accounting for depopulation of mountains. Unemployment in the mountain region is generally rather high in this region: for example in 1995 in Daghestan and North Ossetia-Alania it was 4.9% and 4.1 %, respectively, as compared to the Russia's

average of 2.4%. In the majority of mountain regions the problem of poverty is very important. Thus, the per capita income in Ingushetia is 3 times lower than the national average.

Ageing of the mountain population and outflow of the young because of limited employment opportunities and their lower attractiveness jeopardise the ethno-cultural values and traditions. This problem is more acute in the western and central sections of Northern Caucasus, as compared to more conservative Daghestan.

Inadequate communication infrastructure, health care and domestic services, insufficient network of schools - all these factors contribute to loss of the mountain population and, as a result, enhance socio-economic polarization and marginalization of the mountain communities.

The problem which is currently dominating the Northern Caucasus is the **war in Chechnia and the interethnic conflicts**. It is also the most acute political problem in Russia, deeply rooted in the national history and unresolved so far. This problem produces a corroding effect on the whole socio economic, geopolitical and ecological situation in the region. Taking into account the complexity and the magnitude of the problem the authors of this report have only briefly mentioned this factor of destabilization.

At the same time, it should be underlined that the mountain regions need a federal policy -a Rehabilitation Program - specially tailored for Chechnya and for the whole of the conflictprone area of the Northern Caucasus. In addition to reconstruction of housing and economy, this Program should include the concept of social, ethno-cultural and psychological rehabilitation of the ethnic communities, and of the system of interethnic and interregional relations.

the problem of refugees as a consequence of interethnic and social conflicts.

ENVIRONMENTAL PROBLEMS. All mountain regions of Northern Caucasus have a common spectrum of environmental and resource problems with certain regional variations. Those problems can be surnmarised as follows:

soil erosion, depletion of soil productivity, digression of upland rangelands, deterioration of the quality of haying grounds.

One problem in this sequence which is little known even to the experts is loss of the loose cover in mountain areas, leading to irreversible degradation of the landscapes. On the northern macroslope of the Caucasus the lands, and the mountain grasslands, above all, exit the regime of natural compensation of anthropogenic disturbances. At the rates of tolerant erosion accepted in agriculture aggravated by insignificant depth of the loose cover, the latter will

be lost within a few tens or hundreds of years. Over most of the rock substrata it can not be reproduced within any foreseeable future.

Large-scale degradation of the loose cover and outcropping of the rocky basements is widely observed in mountain regions of all North Caucasian Republics and administrative units. Observations of the rates of the above processes conducted in the field by researchers from the Institute of Geography of the Russian Academy of Sciences demonstrated that the mountain territories have already entered the catastrophic period. Most of the mountain rangelands may lose their fine earth over about a half of their territory within the next 100 years, and the heaviest losses will take place within the first 50 years (Table 5).

Table 5
Percentage of area under catastrophic degradation per years*:

	< 25	25-50	50-100	100-300	> 300	no data artificial aggraded landslides	no data rocks stone debris
Kabardino-Balkaria	6	31	21	22	6	1	23
North Ossetia	34	7	5	1	33	2	18
Ingushetia and Chechnia	15	21	19	1	37	1	6
Daghestan	16	59	5	1	7	4	8
Total for the region	16	38	12	3	14	3	14

*Catastrophic loss of the loose cover is interpreted as its loss over 1/4-1/2 of the territory (similar to the half-life period)

shrinking of the area of mountain woods and depletion of their species diversity; risk of the natural and technogenic hazards: landslides, mudflows, avalanches; atmospheric pollution, contamination of the surface and ground waters and of soils by the industrial enterprises, agricultural production; depletion of the unique resources of the Caucasian mineral waters in the Stavropol Kray;

The Caucasus has the most valuable resources of the 21-st century: fresh waters. It has 2047 glaciers over 1424 sq. km of area storing 102 cub km of pure water. There is risk of their pollution by the transboundary flows, and by local sources of pollution.

distorted structure of protected territories: most of them are located in high mountains; their number is not sufficient in the highly developed low and middle mountains for protection of biodiversity; some categories, like hunting sanctuaries, do not meet the criteria for protection of the species diversity their environment.

PROBLEMS OF MANAGEMENT. Many of the socio-economic and environmental problems of the mountain regions are a result of domination of the "extraction" models of developing the natural resources. Minerals and construction materials, hydropower and forest resources, lands and recreational resources - their withdrawal and/or use is being done in a non-compensated mode ignoring the interests of the mountain communities.

Several Republics of the Northern Caucasus: Daghestan, North Ossetia-Alania, Adyghe, have regional Programs for socio-economic development of the mountain regions.

The concept of the Mountain Program in Daghestan recognises the fact that the mountain zone of Daghestan possesses a significant non-utilised potential. The area of the mountain zone is 2117 thous. ha (40% of the total), the population is over 500 thous. pars., it produces 37% of meet, 80% of milk, 60% of fruit.

The Program includes a statement acknowledging that in the past the policy in relation to the mountain zone was fundamentally erroneous, and resulted in distorted investment-consuming economy, low level of the socio-cultural and domestic amenities, inadequate road network, decline of the traditional economy, folk crafts, terraced and mountain-to-valley agricultures apiculture and animal-breeding.

The main goals of the Program are: to create in the mountain section of the Republic a highquality economically viable human environment; to protect the environment; to convert this area into an economically prosperous part of the Daghestan Republic; to stop outmigration, abandonment of settlements.

The Mountain Program was approved by the Supreme Council of Daghestan in 1991 and was planned for 5 years. It included a detailed scheme of investment support, and subsidies for the agrarian sector. The financial support was expected from the Federal budget (60%), budget of the Republic (15%), resources of enterprises and farms (20%), loans from banks, taxes for road construction. In view of the fact that the budget of the Republic is for 62% supported from the Federal budget, it is clear that the financial support of the

Mountain Program was mostly expected from the Government of the Russian Federation.

The program "Mountains of Ossetia" is part of the overall socio-economic program of the Republic. It was developed in accordance with the Presidential Decree (1994) and is also financed from the Federal Budget.

The above digest of the regional programs supporting the mountain regions makes it clear that the local Governments understand the need to develop the mountain territories and to alleviate their socio economic standards of life, however, the financial resources are predominantly provided by the Federal budget. This situation is very common, and the crisis in mountains can not be resolved without state support.

However, this is another evidence of the need for a national policy in support of the socioeconomic development of the mountain areas in European Russia, as well as in its Asian sector (Altai-Sayans, Sikachi Alin, Kamchatka mountains, etc.). At the same time, the role of the local authorities in long-term development planning and in management of the resources should be legislatively reinforced.

PART 3. MOUNTAIN TERRITORIES UNDER NATURE PROTECTION REGIME IN EUROPEAN RUSSIA

The present-day system of protected mountain nature territories (PMNT) in European Russia and Urals includes 15 state reserves with total area of 2,187,266 hectares, about 80 nature federal and local sanctuaries with over 2,000,000 hectares, 4 national parks with 2,263,670 hectares, as well as numerous monuments of nature.

Areas of PMNT in three regions: Khibins, Greater Caucasus and Urals

Region	Nature reserves		National Nature Parks		Nature sanctuaries	
	number	area (ha)	number	area (ha)	number	area (ha)
Khibins	1	278,436	-	-	-	-
Greater Cancasus	5	478,668	2	289,670	60	1828,200
Urals	9	1430,162	2	1974,000	20	497,380

Despite the significant areas and a wide scope of functions performed by PMNT in the European Russia and Urals, one can identify a number of deficiencies in planning and distribution of certain types of PMNT and their regional systems which are harmful for efficient nature conservation.

At present, there are hardly any commonly accepted standards for structuring a geographical network of PMNT at the regional level. More achievements have been scored in development of the scientific grounds for networking the elements of the global biospheric monitoring and biospheric reserves (Sokolov, Puzachenko, 1986; Puzachenko e.a.,1986). In particular, the biospheric reserves are associated with the foci of biodiversity, with the areas of development of the biotic types, with border areas of the biogeographical regions. Distribution of PMNT and of other categories is strongly influenced by the "administrative" and random factors. That explains for the fact that the current PMNT network in Russia is far from the optimal. No exception is the mountain regions, including the mountains of European Russia and the Urals.

We believe that the systems of PMNT should take into account the following major factors:

1. Altitudinal zones of the particular mountain territory and the local attitudinal zones specific for the mountain "macroregion" (in our case of the Khibins, Greater Caucasus, Urals). This approach is most efficient for defining representativeness of PMNT (of nature reserves, above all) as the etalons and reservations of the mountain biota's genetic and cenotic pools, as well as of the spatial relationships of the biotic complexes.
2. Structure of a mountain region as an integrity of watersheds of different levels. This approach is most efficient for defining borders of individual PMNT, because in mountains it is the watersheds, not the attitudinal zones, that represent the functional spatial units ("cells").

Nature reserves and other categories of PMNT were traditionally grounded in mountain regions of ex-USSR on the principle of priority of the unique high-mountain ecosystems, basically alpine and subalpine. This was particularly widespread in the **Greater Caucasus** region. The above ecosystems are noted for the greatest number of the endemic flora and fauna. In addition, some of their structural and functional parameters and genetic features have no similarities with the lowland ones. For this reason most of nature reserves in the Russian section of the Greater Caucasus are located in its axial zone, i.e., in the highlands which have relatively similar environments throughout the whole Main Caucasian Ridge. It should also be noted that the principle of priority of highlands for nature conservation was not only due to the unique character of the highland ecosystems, which is indisputable, but also to the specific features and spatial organization of mountain agriculture. At the time of delineation of the nature reserves the status of "wild nature sites ", could only apply to the highland regions of the Greater Caucasus. All territories

located below were by that time heavily integrated in the economic systems and the very idea of putting these territories under the protected regime was impossible. On the other hand, the highland areas in the Russian section of Eastern Caucasus (mountains of Daghostan) are deprived of the protected status.

As a result the following pattern has developed. First, landscapes of middle mountains, low mountains and foothill attitudinal zones which are most significantly transformed by man, hardly have any PMNT ensuring an adequate level of protection. The nature sanctuaries existing there are not excluded from landuse and, in effect, are only formally referred to as protected territories. Second, significant areas within individual PMNT belong to "lifeless" territories which have practically no biota and are hardly accessible (rocks, stone debris trains, glacial and nival landscapes). The landscapes which are much more valuable from the perspective of protection (mountain forests, above all) are insufficiently represented. This situation is very vivid today in the Kabardino-Balkarian nature reserve where rock debris, subnival and glacial-nival landscapes amount to almost 55% of the territory, whereas the forest landscapes account for less than 4.5%.

Another problem is delineation of PMNTs. It is frequently done arbitrarily, without due reference to the natural borders. At the best, it follows the axial lines of valleys, but in most cases coincides with land holdings or administrative borders. The above situation is rather typical for the Russian section of the Greater Caucasus, for Northern Caucasus, in particular.

Rhe PMNT borders (in highlands, above all) should follow the contours of watersheds which are the natural spatial units in mountain territories. Each watershed includes fragments of different attitudinal zones separated from the typologically similar fragments of the same zones in the adjacent valleys. Each watershed has its own complex of exogenic processes depending on its attitudinal situation (for example, glacial-nival processes in highlands, erosional processes in middle mountains, etc.). Monitoring of the above processes with emphasis on their interaction with biota should also become part of the PMNT activities, because successions of vegetation restored after avalanches, mudflows, landslides, etc. are another natural variant of the mountain ecosystems, equally "valuable" for biodiversity, as the typical ("climax") vertical complexes.

The major orientations of the PMNT network in the Greater Caucasus (Northern and Western) in the nearest future should be reduction of its "fragmentation", and extension of the protection regime to "low" landscapes and ecosystems along the total northern macroslope. This will increase representation of all members of the vertical zonal spectrum. This goal can be achieved either by expansion of the already existing areas, or by creation of new PMNTs, of nature reserves, above all.

However, the factor of increasing political and economic independence of the regions makes it hard to expect any significant expansion of the protected areas which have no appreciable "commercial" value. In this situation the priority may be given to the national parks instead of nature reserves, because the former combine the recreational (industrial) and the nature conservation activities. There already exist the projects of the Lagonaki and Northern Caucasus Parks, the Park "Western Digoria", etc. On the other hand, even despite the increasing pressure of cultivation in the Northern Caucasus it is quite possible that new relatively small-size nature reserves be established ("microreserves"). This process does not contradict the principle of the area sufficiency: in mountains the natural abiotic and biotic processes often take place within relatively small spaces sufficient for developing integrated natural complexes which can become objects of protection.

The situation in the Urals is very different. Significantly lower than the Caucasus in the absolute heights, it has larger area, and stretch. The Urals is a rather isolated mountain region of Russia. Its clear meridional orientation provides a unique succession of the vertical zones in combination with succession of the latitudinal zones from tundras to steppes. It differs from the Greater Caucasus in the history of economic development which is clearly dominated by mining and timber industry, and still has vast territories intact by anthropogenic impacts (most of the Northern, Subpolar, and Polar Urals).

Until recently there were only six nature reserves within the vast Urals territory. In the end of 1980-es - beginning of 1990-es three more were created. However, this was not sufficient to remedy the main problem of the PMNT system in this region: inadequacy of the number of PMNTs and of their total area. There is only one large Pechora-Ilych nature reserve with over 720,000 ha. In addition, nearly all protected territories in the Urals are located on the western macroslope, while the northern section generally lacks nature reserves and large multipurpose sanctuaries

The "internal structure" of PMNT in the Urals is more balanced: due to the fact that the area has no vast high massifs with rock debris, nival and glacial landscapes, the role of the biotic complexes is much more important here. In many nature reserves woods account for 85-95% of the area.

The most promising future orientation for development of the system of PMNT in the Urals is creation of new nature reserves in the northern, eastern and southern (steppic) sections, as well as expansion of the already existing small reserves (Baseghi reserve, Visim reserve, etc.). Such actions can be supplemented by creation of new national parks and nature reserves. This can be particularly effective in more densely populated and industrially advanced regions of the Middle and Southern Urals.

The problem of optimisation of the PMNT system is the least acute in the **Khibins**. Its diverse natural landscapes and ecosystems are most comprehensively represented in the Lapponia nature reserve. In addition, significant part of the Khibin massive is inaccessible and, most likely, does not require a special protection regime. The main directions for advancement of the nature conservation activities there will, apparently, be prevention of the negative effects of large-scale open-quarry mining of raw materials for the chemical industry and of technogenic pollution.

In conclusion we would like to mention that the above measures aiming to advance the regional PMNT systems in European Russia and the Urals, should be supported by development of the federal legislation on nature conservation, which should enable us to resolve the problems of nature protection and nature use in a civilised manner.

CONCLUSION

Discussion on the status and the development problems in the mountain regions of European Russia should take into consideration the following issues:

the modern phase of development in Russia is characterised by active search for the optimal models of transition to sustainable development. Most of the Subjects of Federation and many administrative regions are developing their own concepts and models of sustainable development. These often follow the State Concept of Sustainable Development, but with certain variations.

In view of the situation of uncertainty, and of heavy criticism of the key elements of sustainable development proclaimed by the Agenda-21 (Rio, 1992) which is heard from Russia and the developed and the developing countries, it will be useful to quote here the suggestions for the development priorities in the mountain regions of Europe for 21 century, which wore proclaimed in Krakow by the Euromontana Conference (a highly respected NGO) in 1995:

the mountain regions of Europe are a heritage belonging to our continents, which cannot be discarded without harm to our society, or to Europe;the mountain regions have the ambition to become territories of high quality of life, quality of production, quality of environment.the European Union will be expanded. Co-operation must already be built up from this perspective, to create better conditions for the mountain zones to become stronger. There is no exportable model or ready-made recipe able to respond to the complexity of all these situations. It is necessary to set up real policies for the mountains on the scale of the European Union. This is a chance to be seized by the eastern regions in order to "see" better their own future path of development;nothing sustainable will be achieved without the participation of the mountain peoples;co-operation will become stronger as each country develops its own mountain policy in concert with its mountain population;

information is essential in order to work out the appropriate development strategies;
the mountain s represent a common heritage, transcending national borders. Policies for individual mountain ranges most be encouraged. The Alpine Convention shows the way for new forms of specially sophisticated co-operation.

In the Asian section of Russia 23 Subjects of Federation include mountain regions. Although they are different from the European mountains in many aspects of nature, resources, ethnicity and culture, they have common features due to the Euro-Asian location of Russia and a common history of development. The development policy for mountain regions of the Russian Federation should take this factor into consideration.

Taking into account the above, we suggest:

1. to develop a draft Federal program for sustainable development of the mountain regions of Russia. To call upon a Working group under the Minister of Environment Protection and of Natural Resources of the Russian Federation which will develop a proposal for the Program;

2. to develop a package of legislative acts supporting sustainable development of the mountain regions of the Russian Federation. To work out definition of a mountain region. For this purpose to start the process of consultations with the Committee on the Regional Policy under State Duma of the Russian Federation;

3. to develop proposals for the Regional Agreements (Conventions) for co-operation of the mountain countries in the spheres of economy, social policy and culture, protection of the environment and the natural resources, tourism, etc. To utilise the experience of 7 European countries and of the European Community which have signed the Alpine Convention;

4. to investigate the experience accumulated by the Council of Europe and the Congress of local and regional authorities of Europe in supporting development of the mountain regions of Europe. To evaluate the possible benefits and feasibility of joining the European Charter of the mountain regions;

5. to begin the process of consultations with Azerbaijan and Georgia on developing a coordinated policy for maintaining biodiversity in the Caucasian mountain regions and establishing the transboundary protected areas including nature reserves and national parks; 6. to develop a Research Program on the

fundamental and applied aspects of integrated development of mountain territories;

7. to organise a training course on sustainable development of the mountain regions designed for administration of the mountain regions, for specialists and managers inviting Russian and foreign scientists and experts;

8. to organise a European network of the demo projects in those mountain regions of Europe, where the principles of sustainable development were successfully implemented;

9. to expand regional co-operation in the sphere of the environmental protection and sustainable development of the mountain regions of the Kola peninsula.

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