



Shifting in Environmental Problems in Transition Period. I. Mountain Area

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Introduction

Mountains are very sensitive areas, characterised by a current lack of economical resources, on fragile environmental background. Under the socio-economical conditions of transition the mountain areas are subjected to changing environmental problems which overlay to the old environmental problems.

The mountain areas have always been delicate ecosystems. These ecosystems are perennially at risk of degradation, if not of total collapse. The reasons for this fragility lie in the geological, tectonic, petrographic and morphological characteristics of each mountain system, and also climatic conditions, especially the specific rainfall and hydrographic properties.

Given this ecologically delicate substrate, the changes wrought by the demands of human communities for space, which have been steadily increasing in recent centuries.

Material and method

The mountain area of Cluj County comprises a part of Apuseni Mountains including areas of Gilău Mountain, Mare Mountain, Vlădeasa Mountains and Bihorului Mountains (See Fig. 1). The territory organised in 20 administrative subdivisions (19 communes and 1 city – Huedin). This geographic position determines today's conflictual and co-operative relationships, whose balance must be evaluated on a case-by-case basis.

Environmental resources

From a material point of view, environmental resources can be divided empirically in some typical configurations:

- snow-water;
- natural and made-man landscape;
- economy-culture-historical traditions;
- each of which characterises local products

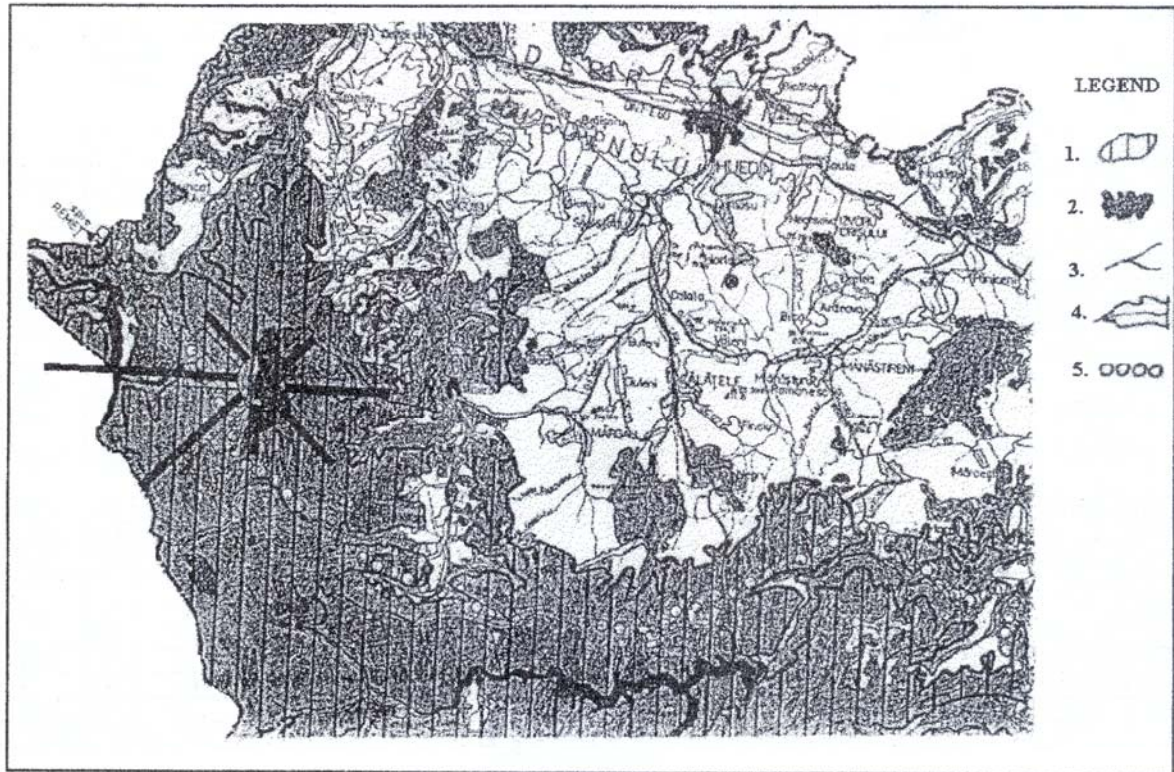
with strong competitive potentials in terms of quality.

From an economic viewpoint, the environment should be seen, as a fundamental patrimony inherited by the economic system, whose employment, in order to yield profits, must not imperil its nature and quality over the long term. In other words, the environment's capacity for renewal of its resources must be guaranteed and safeguarded.

The land use of the mountain areas are presented in Table 1, in the local economy, the forests, pastures, and hay fields being the most substantial resources.

Human resources

The variety of environmental aspects, due to multiplicity of conditions (altitudes, morphological and geolitical, pedological and phytolitical, hydrologic and climatic), gives the mountain great originality and extreme sensitivity, with considerable effects on the very presence of man and his activities. For a long time there existed – also due to the



- Legend**
1. Area affected by acid rainfalls.
 2. Forest funds with many unproductive regions.
 3. Rivers affected by floods.
 4. Basin and streams with favorable topoclimate.
 5. Rational values protected areas.

Figure 1. The mountain area of Cluj County.

sizeable flows of seasonal migrations - a "balance of necessity" between the mountain population (excessive) and local resources (insufficient). In the last years there was observed a decrease in mountain population due to the major economic growth-taking place in the lower regions, but also for political reasons. Through the loss of human resources are affected also the environmental resources, affecting the local capability in developing of the rural tourism. The trend of decreasing of the population is presented in Table 2. The number of the inhabitant decreased in the period 1989-1993 with 6.8 % and the number of

dwelling with 2.1 %. It is also ascertained the ageing of the population in this area.

Rural tourism

In the last period have been developed activities of rural tourism, some of them being coordinated by ANTREC. These activities are usually connected with ecological agriculture and can have a beneficial effect on the economy of the area and can promote a sustainable development. However if large number of tourists are attracted in the area the environmental impacts must be carefully controlled.

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Table 1. Land use of mountain area in Cluj County

No	LOCALITY	AGRICULTURAL LAND						NON AGRICULTURAL LAND					Total nonagricultural lands	Total lands
		Arable land	Pastures	Hay fields	Vineyards nurseries	Orchards	Total arable land	Forests	Water lakes	Roads railways	Buildings yards	Other unproductive lands		
		1	2	3	4	5	6	7	8	9	10	11	12	13
1	HUEDIN	2,002	1,217	1,050	98	60	4,427	1,254	41	161	191	50	1,697	6,124
2	AGHIREȘU	2,993	2,587	1,993	14	123	7,710	1,781	208	226	439	215	2,869	10,579
3	BĂIȘOARA	762	2,109	3,035	-	-	5,906	4,741	66	78	290	23	5,198	11,104
4	BELIȘ	-	9,057	1,328	-	-	10,385	9,181	882	66	135	-	10,264	20,649
5	CĂLĂȚELE	1,233	1,924	2,499	-	106	5,672	1,362	35	77	161	72	1,707	7,469
6	CĂPUȘU MARE	606	1,361	1,057	-	-	3,024	2,447	107	47	149	30	2,780	5,804
7	CIUCEA	9	2,456	4,989	-	-	7,454	3,436	59	51	36	3	3,585	11,039
8	GILĂU	1,546	1,387	1,758	-	11	4,702	6,282	259	85	264	90	6,980	11,682
9	IARA	2,766	2,708	2,887	-	80	8,441	5,139	111	161	388	147	5,946	14,387
10	IZVORU CRIȘULUI	1,435	1,143	690	9	6	3,283	602	29	67	98	58	854	4,137
11	MĂGURI-RĂCĂȚĂU	67	8,075	2,820	-	-	10,962	15,606	190	74	63	-	15,933	26,895
12	MĂNĂSTIRENI	1,751	1,504	1,779	-	91	5,125	722	33	102	167	150	1,174	6,299
13	MĂRGĂU	85	5,162	6,407	-	-	11,654	9,050	147	103	206	8	9,514	21,168
14	MĂRIȘEL	-	1,180	3,257	-	-	4,437	4,044	57	56	-	-	4,157	8,594
15	POIENI	978	3,828	7,217	2	-	12,025	6,134	377	140	254	73	6,978	19,003
16	RÎȘCA	426	1,318	2,823	-	1	4,568	1,826	68	42	42	19	1,997	6,565
17	SĂCUIEU	-	2,885	3,407	-	-	6,292	5,785	37	-	-	-	5,822	12,114
18	SĂVĂDISLA	853	420	1,458	-	7	2,738	2,202	15	55	196	5	2,473	5,211
19	SÎNCRAIU	2,231	1,385	1,025	-	25	4,666	753	37	96	89	42	1,017	5,683
20	VALEA IERII	-	4,764	865	-	-	5,629	9,006	39	40	153	-	9,238	14,867
	TOTAL	19,743	56,470	52,344	123	510	129,120	91,353	2,797	1,727	3,321	985	100,183	229,273

Specific environmental problems in remote mountain areas

Some of the greatest dangers for the ecology of the zone are:

Excessive wood collection

Chaotic exploitation and in great quantity of the woody mass from zone or merely for the expansion of the pastures area; this action establishes

a exposition of the thin layer of soil (20-40 cm) to the destructive erosion action of the natural factors inducing also changes in the composition of flora-fauna. In the case of destruction of the vegetal cover due to wood exploitation and overgrazing in the calcareous areas the thin layer of soil, which covers the rock, is rapidly removed by erosion, the area becoming a calcareous desert. The recovery of the soil cover is extremely expensive and the odds of success are almost nulls. This process was already seen in the region, being described by several specialists, which studied the zone.

Table 2. Population dynamics

No	LOCALITY	1989			1993		
		No inhabitants	Women	No dwellings	No inhabitants	Women	No dwellings
1	HUEDIN	9,620	4,676	1,607	10,378	5,236	2,013
2	AGHIREȘU	8,333	4,216	2,986	8,077	4,065	2,825
3	BĂIȘOARA	2,813	1,303	849	2,564	1,192	857
4	BELIȘ	2,124	1,047	617	1,486	704	559
5	CĂLĂȚELE	3,248	1,645	1,197	2,922	1,474	1,197
6	CĂPUȘU MARE	4,769	2,406	1,734	4,143	2,109	1,585
7	CIUCEA	5,008	2,524	1,742	4,723	2,399	1,497

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8	GILĂU	7,770	3,797	1,872	7,908	3,649	2,254
9	IARA	5,135	2,596	1,986	4,931	2,452	1,950
10	IZVORU CRIȘULUI	1,915	968	819	1,760	923	713
11	MĂGURI-RĂCĂTĂU	3,030	1,449	799	2,571	1,195	731
12	MĂNĂSTIRENI	2,358	1,261	1,016	2,134	1,133	962
13	MĂRGĂU	2,518	1,291	1,014	2,045	1,054	874
14	MĂRIȘEL	2,142	1,059	544	1,928	932	537
15	POIENI	6,876	3,531	2,370	6,432	3,291	2,155
16	RÎȘCA	2,590	1,244	839	2,159	1,080	853
17	SĂCUIEU	2,164	1,120	688	1,978	989	632
18	SĂVĂDISLA	5,244	2,629	2,034	4,671	2,350	1,880
19	SÎNCRAIU	2,143	1,106	1,029	1,987	1,045	1,119
20	VALEA IERII	1,349	660	364	1,370	662	364
	TOTAL	81,149	40,528	26,106	75,973	37,847	25,560

By the Law 18/1991 have been distributed to private persons 7 % of the total forest area in Cluj County and by the Law 169/1997 will be distributed 55 % of the total forest area in Cluj County. This measure caused uncertainty related to forest possession and stimulated a chaotic exploitation (See Table 3).

Table 3. The situation of private forests in Cluj County

Legal regulation	Area distributed to private persons (ha)	% of total forest area
Law 18/1991	8,874	7
Law 169/97	approx. 85,000 *	55
Total	approx. 95,000 *	62

* Projected

Wood processing

Primary process of woody mass, in the conditions in which the material offer is sufficiently generate a great waste of material, the resulted branches, barks and sawdust being considered practically offal and simply abandoned. Moreover, timber stations are "strategically" placed on the banks of rivers, so that the resulted sawdust is deliberate transported or with the occasion of high floods of waters, the result being an overloading with organic substances of the water courses. In the case in which in downstream are lakes or reservoirs (ex. Fântânele lake and down stream) the consequences can become catastrophically, leading to the lake eutrophisation, with negative effects in the lakes fauna and water supplies of the downstream localities.

Overgrazing

Overgrazing of the deforested areas with serious effects on the fruitfulness and the flower composition of the meadows; this intensive overgrazing induces also the drastic decreases of the vegetal cover enhancing the soil erosion.

Small industry

Some traditional activities (slaked lime or charcoal obtaining) can generate negative punctual effects by air pollution and generated wastes.

Hunting and poaching

In the last years partially due to regulatory relaxation the number and the firepower of the hunters increased substantially, sometimes hunting becoming a supplementary source of money for hunters. Much hunting is done on land associated with forests, as these provide the breeding, roosting and feeding grounds of much of the traditional game, which is hunted.

Increased hunting pressure on some wildlife populations is a significant area of concern in many regions where industrial development or transport infrastructure provides greater access to wildlife areas. This can in turn contribute to habitat fragmentation, and terrain and forest damage.

Hunting also leads to effects on "non-target" species (lead poisoning of waterfowl through ingestion of lead shot).

Poaching represents a real threat for the fauna in the region, which is also affected by the reducing of the habitats (forested areas), the local people, to whom the big predators (wolf, bear) seem to represent a threat for the human settlements. In some cases the hunting of big fauna is approved by the forest authority, providing supplementary funds (the authorization for hunting a bear costs over 10,000 German marks).

Mining

Mining, even is not performed on a large scale in the area, can generate environmental pollution through waste generation, land degradation, changing in the underground water regime, etc.

Large scale collection of mushrooms, berries and medicinal plants

In the last years the activities of collections of forest fruits, mushrooms, medical plants and berries become very intensive. The local people carry these activities, but also by teams of gypsies, usually temporary employees of firms specialized in export. The activity of collecting these resources is subjected to a legal control, but this is difficult to realize in the field, and overexploitation can endanger some of the species of plants and animals in the region.

Water resource exploitation

The regulation of rivers and the construction of reservoirs even if have positive socio-economical effects (water supply, power generation, regulation of the flow regimes, tourism, etc), induce impacts on environment through loss of terrestrial habitats, agricultural land and buildings, local climatic changes, e.g. local fog, local changes of the water table level (decreasing –downstream of the reservoir and increasing in the upstream reservoir area inducing landslide risk), diminishing of the flow in the river sector located downstream of the dam and in the adjacent catchments by water abstraction (sometimes under the minimal level required for the survival of the aquatic fauna). The existence of pollution sources upstream of the reservoir can compromise in time their socio-economic utility, by causing the siltation and eutrophication of the system.

Wild tourism

Tourism and recreation can pose also a threat on environment. Natural reserve and protected areas are already under extreme pressure from the number of visitors, demand for outdoor activities and development of tourism facilities. Overcrowding occurs at peak periods. Most visitors are day-trippers arriving by car leading to traffic congestion, congestion of car parking space and litter problems. The most controversial aspect of outdoor leisure activities is that they have become increasingly motorized, resulting in noise and increased soil erosion. Changes in habitats of native animals: wildlife attracts visitors, who disturb breeding patterns, leading to a fall in animal numbers; as

species become rarer, more people come to “see it while you still can”. Path erosion and wear and tear arise from walking. An important influence is due also to “uncontrolled tourism” because of them who visit this zone. Along all touristical routes is observed an increasing change of ecological environments in the respective ecosystems. In present a high part of the area “is protect by its self” because of the unasphalted roads. From the existent data of the tourist pressures in easy accessible zones (Someş Rece Valley, Tarnița, or Băișoara), we can predict a significantly increase of the touristic rush after the realization of the modernized access roads. However, increased tourism and recreation may also contribute to improved resource management, as a result of higher incomes for both parks and local people, and tourist interest in flora and fauna may help to safeguard biodiversity. Giving adequate levels of protection, the role of protected areas in tourism and recreation could be enhanced in the future.

Winter tourism

The winter tourism activities are not very developed in this mountain area but the development of these activities necessities a carefully approach. The cumulative environmental impacts of skiing are considerable. Construction of ski pistes and related infrastructure, including access roads and parking, have required the felling of forest, thereby removing habitats and natural protection against avalanches and degrading landscapes. Most visitors travel by car, and exhaust fumes lead to further forest damage and air pollution. There are different problems associated with different forms of skiing. The more severe environmental impacts are normally associated with downhill skiing (eg, in terms of land taken, energy use for infrastructure and vegetation effects). Cross-country skiing tends to have less severe environmental consequences, and is increasingly popular as a form of winter tourism.

Weekend houses

An element that must not be neglect in future is the “uncontrolled building of weekend homes and constructions”, often in supposedly protected areas without observing the most elementary norms of urbanism and environment protection, without respecting the local traditions and the landscape planning. The constructions of weekend homes have led to overburdening of several easily accessible natural areas (Someş Cald Valley), banks of artificial lakes.

Specific ecosystem threatening

In the end, but not on the last place as importance, is the protecting of underground biotopes, very sensible by itself nature of a distinct scientific importance. We refer to the destruction by the "tourists" of the carstic speleothemes and especially to the decreasing in the end of the speleofauna. The carstic objectives (avens, dolins) close by human settlements offering a practical boundless volume and which do not necessities any arrangements, are very exposed to the storing of the solids and liquids wastes. Frequently even local authorities, consider these points as the ideal places for storing of the wastes, the result being the serious pollution of the resurgence and of the water supply sources from zones in which the underground water re-emerged to the surface.

It is difficult to realize a classification on the basis of the impact produced by the multiple factors of ecological risk that manifest in this area. It is doubtless the fact that the destruction of ecological balance formed in the period of geological eras has manifested in the past and continues to manifest in the present with an increasing intensity.

Conclusions and recommendation

The mountain areas experienced a series of changing in environmental problems the most important being the development of tourism and overexploitation of forests.

Environmental impacts are experienced on several scales. At the local level, host communities suffer competition for scarce resources (particularly freshwater and land), air and water pollution, noise (eg, from excessive traffic). At the regional levels, impacts may include loss of habitants and biodiversity, and air and water pollution.

Tourism and recreation can threaten environment if not well managed. Thus, environmental degradation can affect holiday choice and reduce future earning arising from tourism.

The undesirable impact of tourism and recreation are largely site specific and vary according to the type of setting size of area, number of visitors, mode of transport use, waste disposal and how well the area is managed.

Nature parks and protected areas – Number of visitors to environmentally sensitive sites are increasing, due to a growing interest in nature. The main problems are caused by excessive use of passenger cars and the concentration of visitors in peak periods at popular sites. Different levels of

protection can help in reducing an overload of visitors.

Rural tourism and activities such as ecotourism, which may have lower environmental impacts, are becoming increasingly popular, contributing to the development of the area.

The main causes of environmental damage in mountain area are the concentration of tourists in both time and space and deforestation.

The impacts in mountain from tourism could be significant and need to be managed by zoning and other landuse planning measures.

For the development of the zone is necessary to respect the principles of sustainable tourism, since one of the main resource of the area is tourism.

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*** **Plan de amenajare a teritoriului județului Cluj 1996.**