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Utilization and management of resources in mountain
regions of the (former) Federal Republic of Germany

UTILIZATION AND MANAGEMENT OF RESOURCES IN MOUNTAIN REGIONS OF THE (FORMER) FEDERAL REPUBLIC OF GERMANY¹

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ABSTRACT In mountain regions the development of natural resources depends predominantly on factors of social and economic values. Most government funding for mountain areas is allocated to the development of transportation and agriculture. Geographical differences within the Federal Republic of Germany have led to a great number of regional programs that depend on directives determined by the European Community but are integrated into federal programs. These are described; they take into consideration the different local conditions and foster development at the regional level.

RÉSUMÉ *Utilisation et gestion des ressources naturelles dans les régions montagneuses de la République Fédérale d'Allemagne.* Le développement des ressources naturelles dans les régions montagneuses dépend principalement de facteurs sociaux et économiques. Les fonds publics sont en grande partie alloués au développement du transport et de l'agriculture. Les différences géographiques au sein de la République Fédérale d'Allemagne ont donné naissance à de nombreux programmes régionaux soumis aux directives de la Communauté Européenne, mais intégrés dans des programmes fédéraux. Ces programmes tiennent compte des différences de conditions locales et encouragent le développement à l'échelle régionale.

Remarque: Cet article a été préparé pour la Conférence TOME de 1989. Il fait référence à la République Fédérale d'Allemagne telle qu'elle existait avant le 3 octobre 1990, et n'inclut pas les régions montagneuses de l'ancienne République Démocratique d'Allemagne.

ZUSAMMENFASSUNG *Nutzung und Management von Ressourcen in Gebirgsregionen der Bundesrepublik Deutschland.* Die Bewertung natürlicher Ressourcen der Gebirgsregionen hat sich von produktionswirtschaftlichen Zielen zu sozialen und ökologischen Überlegungen verschoben. Öffentliche Subventionen unterstützen noch immer in erster Linie Verkehrserschließung und Landwirtschaft. Die durch die föderative Struktur der Bundesrepublik Deutschland bedingte räumliche Differenzierung zeigt sich in einer Vielzahl einzelner Förderprogramme, die insgesamt den EG-Richtlinien unterliegen, in Bundesprogramme (Gemeinschaftsaufgaben, Bundesraumordnungsprogramm) eingebunden sind, aber dennoch den Ländern genügend Spielraum für eigenständige Entscheidungen und für regionale Entwicklungen lassen.

Diese Veröffentlichung war für die TOME Konferenz 1989 vorbereitet. Sie bezieht sich auf die BRD in ihren Grenzen vor dem 3. Okt. 1990 und schließt die Berggebiete der ehemaligen DDR nicht ein.

Highly developed countries may be characterized by increasing internal regional disparities despite the fact that government policies attempt to overcome the negative consequences of peripheral location. Mountain regions are almost always among these naturally less favored and therefore backward areas. This paper evaluates the natural potential of resources and the different systems of regional

policy making in the Federal Republic of Germany. It complements another recently published article which intends to show how differentiated evaluation has developed and how help from the central government is given to backward areas (Stadelbauer, 1990). Figure 1 shows the present state boundaries and major mountain areas of Germany.

MOUNTAIN REGIONS OF THE (FORMER) FEDERAL REPUBLIC OF GERMANY

According to morphological and geological criteria, four types of mountain regions can be distinguished in Germany:

(1 and 2) *Mountainous regions in the German Upland between 400 and 900–1,000 m above sea level*

These originate (1) in the Variscan folding and Postvariscan uplift and in the weaker Tertiary uplift of Paleozoic

sediments, or (2) in the sedimentation and partly postsedimentary diastrophism of Mesozoic and Cenozoic sediments. The mountain regions of Paleozoic age (the Rhenish Hercynian uplands) show a striking contrast between high plateaus characterized by open fields and wooded slopes and, in climatically favored regions, vineyards up to altitudes of 350 m. Moreover, sedimentary iron-ore deposits

¹This paper was prepared for the TOME Conference in 1989; it, therefore, refers to the Federal Republic of Germany within the boundaries before 3 October 1990 and does not include the mountain regions of the former German Democratic Republic. It will be worthwhile to undertake a similar problem evaluation and comparison of the mountainous areas of the "old" and "new" states of the Federal Republic of Germany after 3 October 1990.

FIGURE 1. Germany showing state boundaries and population densities, and mountain areas. Modified from *Options*, June 1990.

1. Schleswig-Holstein	5. Lower Saxony	9. North Rhine-Westphalia	13. Rhineland-Palatinate
2. Mecklenburg-Vorpommern	6. Saxony-Anhalt	10. Hesse	14. Saarland
3. Bremen	7. Berlin	11. Thuringia	15. Baden-Württemberg
4. Hamburg	8. Brandenburg	12. Saxony	16. Bavaria

are the most important resource. The landscape of the hill regions underlain by Mesozoic and Cenozoic sediments reflects the underlying bedrock: the extensive distribution of Triassic sandstone is the basis for extensive forest, as in the Weser-Leine uplands, Hesse, the Palatinate, and Swabian Forest uplands, whereas the landscape underlain by Triassic and Jurassic limestones is one of open farmlands, as in parts of the Swabian-Franconian Alb and the hilly country of the Gäu.

(3) *Middle mountains with altitudes between 900 and 1,500 m*

These are mostly underlain by old folded gneissic rocks penetrated by granitic intrusions. These massifs were folded again during the Variscan Era and were extensively worn down in the synorogenic or postorogenic period. They are forested mountains that were colonized during the Middle Ages, primarily as mining activities developed to extract ores of silver, ferrous, and non-ferrous metals; for the most part agriculture played a minor role. Industries, based on the resources of timber and quartz sands, also expanded during and after the fifteenth and sixteenth centuries, but this development was an indicator of eco-

nomic weakness rather than of prosperity and innovation. Examples are the Harz in northern Germany, the Black Forest, the Bohemian Forest, and the Bavarian Forest in southern Germany.

(4) *The German part of the young folded European Alps with altitudes over 1,500 m and with the Zugspitze (2,963 m) as its highest elevation*

The land here extends above the regional forest and timberline belts into the alpine belt of meadows, rock outcrops, and permanent ice and snow. The most important natural resources of the high region are the forests (as far as they still exist), meadows, and pastures which serve the vertically organized alpine animal husbandry (alpwirtschaft); there are also quarries to supply building materials.

Thus, although the Federal Republic of Germany contains extensive mountain regions, it cannot be characterized as a mountain country. High mountain regions with their special problems play a subordinate role in the economic life of the nation.

POTENTIALS: POSITIVE AND NEGATIVE DETERMINANTS

Mountains are not necessarily a deterrent to colonization but there are economic and social considerations that determine the processes of colonization and abandonment of land in mountain areas. The most significant physiographic factors are:

- the vertical distribution of rainfall which, outside the tropics, shows a regular increase in annual mean totals (and in potential for surface runoff) with increase in altitude;
- the vertical distribution of temperature with a regular decrease in the average available energy, and therefore a decrease in biomass productivity, with increasing height;
- the proportion of silicate and carbonate in the underlying substratum which will influence the formation of different soil types;
- the slope gradient which may restrict agricultural use but may also increase the receipts of incoming solar radiation on the southern exposures and reduce them on northern exposures;
- the natural or artificial vegetation based on location; closed forest formations are characteristic in the Central European uplands where they function as a buffer (with water retention and air purification properties) within the ecosystem of the mountain region;
- the change of slope (ranging up to very steep slopes), while an obstacle for agriculture, also becomes a “scenic resource” for recreation and tourism.

THE EVALUATION OF MOUNTAIN SPACE

From the perspective of regional policy and economy, most of the mountain regions lack infrastructure and are marginal areas. They have lost large numbers of people during a long-lasting rural exodus to the more attractive cities and agglomerations of population. The inhabitants who remain engage in extensive forms of agriculture, except where the relatively short distance to neighboring urban areas has intensified the development of dormitory housing and commuting activities. Tourism is purported to be the main impulse for the recent improvements in the mountain economy. Thus, a change occurs if the resource evaluation of the mountain land is considered in terms of scenic attraction (Figure 2).

This development is reflected by the recent evaluation in the context of the assignment of characteristic functions to different parts of the Federal Republic of Germany.

Agriculture no longer takes precedence over other possible types of land use. A statistical analysis of 46 variables for agricultural systems (Thieme and Laux, 1982) illustrates clearly that the mountain regions of the Federal Republic of Germany do not project a uniform agricultural structure, although some small agricultural units dominate in the mountain regions of southwest Germany (with the exception of some parts of the Black Forest). Therefore, different types of subsidies are necessary for the maintenance of a minimum agriculture under marginal conditions.

The utilization of the mountain forests dominates all other production considerations since the ore deposits have largely lost their importance. The forests of the Federal Republic of Germany cover an area of nearly 7.4 million hectares: 30% are state forests, 24% are public forests (belonging to communities or other public organizations), and 46% are private forests. In addition to 104,745 forestry enterprises, 238,142 farms manage 1.55 million ha of woodland. A decisive change in terms of forest product utilization is responsible for changes in tree species com-

position: the number of fast growing conifers has increased during the last two hundred years whereas slow growing deciduous trees have been superseded. More recently, forestry policies are seeking to restore mixed forests that are compatible with the original natural environment. The forest resources and timber supplies may be further endangered if the “modern damage to forests” (the so-called dying of the forests, *Waldsterben*) continues to expand; it will also affect the quality of wood products.

Most of the mountain regions do not guarantee good storage of ground water (with the exception of the mountain regions underlain by Mesozoic sediments), but the higher rainfall totals there allow storage of water in reservoirs which can supply distant urban agglomerations.

Hydro-energy plays a minor role in the Federal Republic of Germany, compared with Switzerland or Austria. Large amounts of electricity are produced by power stations located along upper courses of the great rivers. In 1978, 78 percent of the gross production of power plants was located within a maximum distance of 30 km from urban agglomerations (Figure 3); hydroelectric power plants contributed only 0.76 percent of the total energy production.

Mineral resources were an important stimulus to prehistoric and medieval settlement and economic development, but the present impact of regional ores is of little significance. Even the important deposits of lead and zinc in the Harz, the Sauerland, and the Bergischesland are not sufficient to satisfy national demand.

Some mountain regions have become important recreational areas as a consequence of their attractive scenery. Eight out of the ten most important recreational regions in the Federal Republic of Germany are mountainous. The total contribution of the tourist sector to the gross productivity of the mountain regions clearly exceeds the proportionate impact of tourism in all other areas.

FIGURE 2. Development of the functions of mountain regions.

As far as environmental planning is concerned, mountain areas that are relatively rich in forests play a significant role in regional air exchange and water retention (drinking water reservoirs) and also serve as conservation and recreational areas (*Bundesnaturschutzgesetz*, § 16). In 1982, nature parks in mountain areas occupied an area of more than 4 million ha. There are great differences in total park area between the different federal States: in Bavaria, the East Bavarian mountains (Bavarian Forest and Bohemian Forest) are included, but not the Bavarian Alps.

Baden-Württemberg did not include the Black Forest and the Swabian Alb, but North Rhine-Westphalia seeks to protect the mountain regions situated next to the urban agglomerations of the Rhine and Ruhr.

It can thus be seen that the emphasis of resource evaluation has moved from factors of productivity and economics to the ecological and social functions of the mountains and to the environmental balance they guarantee in a densely populated country.

RESOURCE MANAGEMENT: GOVERNMENT ASSISTANCE TO MOUNTAIN REGIONS

As the general framework of government assistance is discussed elsewhere (Stadelbauer, 1990), only the sectoral aspect of transportation and some regional examples of resource management are discussed below.

An attempt has been made to establish equivalent standards of living in both urban agglomerations and remote rural areas through the planning of transportation and traffic systems. The objective has been to improve the con-

FIGURE 3. The development of hydroelectric power contributes to infrastructural growth that may conflict with the ecological, social, and recreational functions of mountain areas, as shown here near Breitenau in the Black Forest.

nections between the urban centers and the rural periphery, and since the 1960s many projects for motorway and highway construction have been carried out. The construction program has not yet been completed, but a certain saturation effect can be observed. The danger now is the environmental stress caused by improved transportation and, therefore, increased accessibility. Conflicts have arisen between project planning and the demands for the conservation of nature. As an outcome, several projects have been delayed or are postponed indefinitely. However, the example of Rhineland-Palatinate shows that there is a need for further road expansion and improvement in some remote rural and mountain regions. Federal subsidies are paid mainly from taxes levied on gasoline; the subsidies are divided among the Federal states as financial compensation for rural development. If efforts are evaluated, the pre-existing density of highways and roads must be taken into account as, for example, in Rhineland-Palatinate where the network of roads and highways was 93.3 km per 100 km².

Railway and road construction has been the most important infrastructural prerequisite for further industrialization during the postwar period. This industrialization has been

based only partly on natural resources (as in wood processing, paper making, furniture, porcelain, and earthenware in the Fichtelgebirge, and the glass industry). Socio-economic variables have been more important than local natural resources in the location of new industries, especially in the mountain regions; these include the relatively cheap labor force following reduction in agricultural activity.

In some states there are programs especially devoted to the mountain regions, or programs that — due to the main issues — predominantly affect the mountains:

1. NORTH RHINE-WESTPHALIA

North Rhine-Westphalia (*Nordrhein-Westfalen*) has the special problem of the contrast between the largest agglomeration in the Federal Republic of Germany (the Lower Rhine Valley and the Ruhr) and sparsely settled regions where outmigration and loss of population are still occurring. Among such mountain areas, the Upper Sauerland is the most important.

In 1986, the State initiated a program for the middle mountains (*Mittelsgebirgsprogramm*) which emphasizes maintenance of family holdings (farmstead development aid) and environmental protection, and also includes measures for village renewal. The concept of nature conservation has been the focal point of the program: as wildlife and plant species have become endangered, regionally important types of biotopes have been classified and mapped in preparation for a policy of comprehensive protection. This protection should take precedence over the practice of afforestation that is not compatible with local ecological needs.

Predominant among all other efforts is the protection of meadows in small valleys under a special program of support (*Feuchtwiesenprogramm*). In the framework of support for individual farms, landholders may acquire maintenance contracts that aim to protect the environment: farmers maintain fallow for several years in the context of landscape protection; they are not allowed to change pasture and grassland to cultivated land or to forest; moist areas must not be drained; and farmers must adhere to additional regulations for the extensive use of the moist meadows (*Landtag Nordrhein-Westfalen, Drucksache 10/2281, 1987; Mittelsgebirgsprogramm . . . , 1988*). The maintenance contracts have a normal duration of five years and may be renewed for a further five-year period. Under the subsidies for single farmsteads, amounts of 300 DM/ha may be received annually as development support; amounts of up to 1,600 DM/ha are possible for areas that are particularly important for nature conservation. In accordance with the quota regulations of the European Economic Community (EEC), additional quotas for milk production are allowed in mountain regions in order to support dairying which is the most effective type of farming there. This is a response to the damage the farmers incurred after the introduction (1984) and enlargement (1987) of the EEC quota regulations. Village renewal activities are being undertaken to improve the quality of life in rural areas. Under these premises maintenance contracts for more than 1,700 ha had been negotiated by August 1988. Nearly half

(810 ha) involve lower grade meadows and poor pasture land which is of limited suitability for intensive animal husbandry. The program is mainly applied in the counties of Hochsauerland and Euskirchen (Eifel region), and also in large parts of the Weser-Leine uplands; in all, 8,556 ha are classified as worthy of nature protection. Between 1986 and 1988, farmers in North Rhine-Westphalia received 2.5 million DM for fulfilling such contracts; this is only a small part of the total of 106 million DM granted as equalization payment for agriculture in North-Rhine-Westphalia.

An additional stimulus may be derived from another program which could be extended to include up to 25,000 ha. This is for the re-establishment and conservation of historical types of land use (*Programm zur Wiedereinführung . . .*, 1988); within this program are irrigated meadows and areas where mixed woodland and agriculture remain (*Reutbergwirtschaft*) in the Siegerland.

These examples demonstrate that, while nature conservation plays the predominant role, other aspects of agrarian policy are not neglected. Indirectly these programs help to diminish surplus production through support of extensive farming. Also, this rural social policy encourages people to remain in their old villages. The fundamental component of the agrarian policy is aimed at limiting short-term, and often speculative, innovations. The additional program is to encourage conservation and the re-introduction of traditional types of land use that attempt to combine landscape protection and preservation of the cultural heritage.

2. HESSE

In Hesse (*Hessen*) the regulations for farmsteads in backward or disadvantaged areas (mountain farmer regulations) include regional development within the framework of the "Common Task: improvement of the agrarian structure and of coastal protection". The mountain areas of the State are not mentioned specifically, although the backward areas are virtually identical to mountain and upland regions. The aid comprises financial support for preliminary development projects, for investment in agricultural farms and forestry enterprises, and for equalization payments which should serve to guarantee the farming activities. The investment program concerns the improvement of pastures of at least 10 ha that are actually in use and where cooperation can be realized. The insistence on a minimum size of 10 ha is to reduce administrative expenses of program operation. For the individual farm, the equalization payments range between 55 and 286 DM per livestock unit. Payment is made for a maximum of 20 milk cows and is only applicable to farms where the combined income of the farmer and his wife does not exceed 65,000 DM (*Richtlinien . . .*, 1988).

3. RHINELAND-PALATINATE

The State of Rhineland-Palatinate (*Rheinland-Pfalz*) has no special development program for mountain areas. Within the rural area, regional planning differentiates between areas weak in infrastructure and the so-called areas of development (*Gestaltungsräume*) where there are only

minimal disadvantages. According to instructions of the "Common Task: improvement of the regional economic structure", large areas of the western flank of the Rhenish Hercynian uplands (Hunsrück, Eifel) and the region of Pirmasens near the German-French border are regarded as deserving support. But the program also supports regions outside the mountains, such as the district of the Nahe River and parts of the county of Alzey-Worms. The eastern flank of the Rhenish Hercynian uplands (Westerwald) is not eligible for any support under the federal regulations. Therefore, some small districts of the Westerwald have been included in the regional program of the State that was inaugurated on 1 January 1988: the level of support in this instance was less than that of the "Common Task" program.

The main aims of the "Common Tasks" and of the State program are to establish industrial enterprises, to construct, extend, and modernize tourist services, and to improve the infrastructure for further development by establishing industrial estates. In total, the budget for 1988/89 will supply 190 million DM for this type of development aid, paid jointly by the Federation and the State (see *Regionale Strukturpolitik im ländlichen Raum*, 1988).

Some mountain areas of the State of Rhineland-Palatinate have been developed because of their natural resources. The production of iron (for example, at the Donnersberg) between the seventeenth and nineteenth centuries required access to charcoal. Thus, resources of iron ore and fuelwood made an important contribution to mountain development. But the ruthless exploitation carried out according to traditional rights (for rough pasture, oak timber, fodder, and by uncontrolled felling) could not be mitigated before the late eighteenth century. Today, the forests combine economic production with ecological protection and sociological benefits such as recreational areas.

4. BADEN-WÜRTTEMBERG

Baden-Württemberg initiated two regional programs within the general framework set out by the "Common Task: improvement of the agrarian structure and of the coastal protection"; they are the Program for the Swabian Alb (*Albprogramm*, 1972) and the Black Forest Program (*Schwarzwaldprogramm*, 1973). The Program for the Swabian Alb was a reaction to the agrarian policy aimed at eliminating areas of marginal productivity in order to avoid further production surpluses, a political objective which has been pursued since the late 1960s. The program was intended to limit deterioration of economic activity in the disadvantaged areas. Initially, the main thrusts of the program were directed towards agricultural improvement, but shortly thereafter nature protection, landscape conservation, tourist and recreational development, and village renewal were added. Finally, development of industry was included and a complex program was introduced which combined various special planning efforts.

The Black Forest Program of 1973 encompassed a total area of 555,000 ha. The main characteristics of the area are low settlement density and sparse population, unfavorable conditions for agriculture, the need for other economic

activities, a relative deterioration in social conditions in the 1960s, outmigration to neighboring urban agglomerations, inadequate development of transport and communication systems, and inadequate educational and other public institutions. The program, however, stresses the significance of the region for tourism and leisure activities, the protection of nature and environment, and also the cultural heritage. These are the main goals of the State Development Plan for Baden-Württemberg (Homburger, 1980: 523).

The program has been designed to maintain minimum agricultural activity in a limited area and to develop more recreational activities. It includes the improvement of country roads, afforestation of uncultivated areas, landscape maintenance, nature conservation, water protection, tourism, and the development of non-agrarian employment. Differing from those in other mountain regions, this program calls for the "improvement of the agrarian structure and coastal protection" to facilitate development of specialized farming with animal husbandry in the Black Forest (*Deutscher Bundestag* . . . , 1987, instruction 68).

Twenty-five guiding principles for further development have significantly influenced land-use planning since the 1970s. Thus, the program tried to prevent large-scale afforestation on worthless agricultural land, which would have been a retrogressive move towards a pure wooded mountain area with no recreational value. The former commissioner of the European Economic Community, Mansholt, who stressed a strict policy of intensification for agriculture, assumed that such a policy would be suitable for the Black Forest (Homburger, 1980:501). So far, because of the continuous level of support under the Black Forest Program, a high degree of success has been attained, although the long-term efficiency of the farms that have been retained is in doubt.

It is not easy to evaluate the actual achievements of the Black Forest Program because the financial support paid to the individual farmsteads may come from different development sources. Thus, the Program gives a general framework for regional development rather than concrete objectives. A systematic evaluation of all plans which have been prepared for agrarian and landscape development since 1973 (*Schwarzwaldprogramm*, 1973:71ff.) has not yet been carried out.

The attempt to eliminate marginal agriculture has been less successful insofar as can be determined to date. This aim would not be compatible with the demand for maintenance of a minimum area under agriculture. Therefore, it is of secondary importance in the recreational landscape of the Black Forest whereas measures of extension, such as the extension of sheep pasturing, have been significantly developed.

The example of the mountain regions in Baden-Württemberg illustrates how different concepts of regional planning may be combined. Thus, the Program for the Swabian Alb includes development of regional centers and provides financial support for improvement of the agrarian structure (land consolidation). Some measures of village renewal have been carried out, even in regions of dispersed

settlements, in accordance with the Black Forest Program but supported financially by funds from a special mid-term program of urban and village renewal. This is demonstrated by the example of Baiersbronn on the central sandstone plateau of the Black Forest woodland (*Dorfentwicklung* . . . , 1987).

5. BAVARIA

Bavaria (*Bayern*) also provides support for the payment of equalization for individual farms situated in isolated regions. The State manages a Program for the Alps and Middle Mountains emphasizing preservation of the traditional cultural landscapes. The Bavarian section of the Alps is classified separately as a mountain region. The regional policy works with a special spatial category designated as "borderland and predominantly less developed region." This covers all planning regions on the borders with the former German Democratic Republic and Czechoslovakia and also the planning region of Western Central Franconia (*Westmittelfranken*). This program embraces extensive cattle farming. In some ways it conflicts with the goals of the agrarian policy of the European Economic Community which has successfully reduced the production of surplus milk and milk products by setting quotas regulating milk deliveries.

As far as nature conservation is concerned, the Bavarian National Park (131 km²), which was inaugurated in 1970 and completed with an information center in 1982, has about 1.5 million visitors each year; it receives financial assistance from the State. Recent measures include the opening of a Museum of Forest History in Saint Oswald which indicates the close connection between nature conservation and the maintenance and presentation of the historical heritage. Since 1970, 130 million DM has been appropriated by the State, of which 9 million DM were spent for nature and landscape preservation in 1986 alone (Kürten, 1980).

The regions supported within the framework of the "Common Task: improvement of the regional economic structure" are not identical to the "borderland and predominantly less developed regions" program. Nor do they include all the mountain regions. The "borderland zone" (*Zonenrandgebiet*), however, has been included while the development regions of eastern and northern Bavaria are supported by federal funding through that program. The mountain region of southern Bavaria is supported by a regional development program which covers large parts of the counties of Bad Tölz-Wolfratshausen and Miesbach. This region, however, is only a part of a mountain region designated as disadvantaged and underdeveloped. The Bavarian program for the cultural landscape has provided assistance for the development of alpine pastures within the context of support for traditional high-mountain land use, although there are some restrictions on the number of cattle (not more than 1.5 livestock units/ha alpine pasture) and on the area under pasture (maximum 100 DM/ha; 3,000 DM/herdsman). An additional program provides for the development of new alpine buildings and the repair of old ones; there is also provision for the care and improve-

ment of alpine pastureland. Damage to forest resources has reached an alarming level throughout the alpine region. Tourism threatens protected forests that are intended to reduce erosion on steep slopes and to limit the incidence of avalanches and landslides.

6. LOWER SAXONY

Lower Saxony (*Niedersachsen*) also contains mountain

regions and the Harz reaches an altitude of 971 m in the west. Nevertheless, there is no special program apart from general aid to agriculture or economic activities. Among the towns given priority, Osterode and Goslar receive the highest possible amount of 23 percent of total costs for the establishment of new enterprises; the neighboring towns of Seesen and Herzberg, which are also oriented to the Harz, receive a 15 percent subsidy.

CONCLUSIONS AND PROSPECTS FOR THE FUTURE

All types of regional planning within the Federal Republic of Germany are based on the requirements of the Federal Regional Planning Act and Program that it is necessary to develop an equal standard of living throughout the nation in rural and urban areas alike. Nevertheless, the economic situation of some peripheral mountain regions will remain problematic unless tourism can be accelerated to use the regional potential for further development. Certainly, tourism cannot be the only function of the mountain regions, but it is difficult to evaluate other ecological and environmental potentials.

Major new responsibilities will arise with the unification of Germany. The eastern Harz, the Erzgebirge of Upper Saxony, and the mountains of Thuringia will provide new

problems and demand other solutions. There can be no doubt that similar programs will be developed for regions within the new states of Saxony-Anhalt, Thuringia, and Saxony in the near future, while some regional constraints relating to the borderland zone will be eliminated. The opportunity for comprehensive nature protection may arise in the case of the Rhine mountain region (Hesse and Thuringia) and the Harz. The Thuringian mountains have a large potential for recreational use that will need to be re-evaluated by the enlarged unified German population. In the Erzgebirge, the damage to the forests can only be reduced through collaboration with the Czechoslovakian authorities. It will take some years to restore agriculture and recreation.

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