

## **Obstacles and Opportunities for Mountain Development in Andalusia (Spain)**

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## Mountain Partnership Explores the Promise of Broadband



*This current Mountain Partnership activity looks into the potentials of broadband technology for reducing the digital divide and promoting development in mountain areas. It is related to Millennium Development Goal 8 (vi), namely: “to develop a global partnership for development... in cooperation with the private sector, make available the benefits of new technologies—especially information and communication technologies.”*

In an era of global communication and interconnectedness, many mountain regions—particularly in the developing world and in countries in transition—still have inadequate access (or no access at all) to communication infrastructures, services, and facilities. Yet modern communication technologies, when systematically applied and adapted to local conditions in mountain areas, could be catalysts for lasting development and social change. Low-cost networked information and communication technologies, such as the Internet, could promote political and community participation, increase working opportunities, disseminate information, and share knowledge and skills. Just as importantly satellite technology could provide social services, such as health care and education, on a cost-effective basis. Today, the costs of communication technologies are falling while their performance is improving at a phenomenal rate. So how do we tap the potential of these communication technologies to connect and develop the world's mountain regions?

Now, members of the Mountain Partnership—the voluntary alliance of countries, IGOs, NGOs and the private sector committed to sustain-

able mountain development—have recently joined together to start assessing the potential of broadband communication technology to provide rapid, cost-effective and efficient connectivity for the world's mountains. Broadband is the common term for a high bandwidth Internet connection—one that allows to transmit or download information up to 40 times as fast as a standard telephone and mode, and can be applied to a variety of communications including broadcast and cable television, wireless phones, Web access, instant messaging for real-time communication, information sharing (including exchanging data and files) and e-mail.

Mountain Partnership member EasyLan is a private sector satellite telecommunication company, based in Italy, which plans and develops digital integrated systems that allow communities to benefit from bandwidth telecommunications and services at reasonable prices throughout the world. In the context of the Mountain Partnership, EasyLan has teamed up with Italian academic institutions (University LUISS Guido Carli, the University of Tor Vergata), the Food and Agriculture Organization (FAO), the Interim Secretariat for the Carpathian Convention (United Nations Environmental Program, UNEP), and the Mountain Partnership Secretariat to prepare a feasibility study that will explore the potential of using broadband technologies for sustainable mountain development.

The four-month study, coordinated by the Mountain Partnership Secretariat (at FAO Headquarters in Rome), aims to understand the economic and technical prerequisites and the conditions for broad-

band application in mountains, to assess to what extent broadband technologies could support the development of mountain communities, and to assess the priorities and main needs of mountain communities, in terms of information and communications. Research is also focusing on what FAO and other UN agencies are doing to promote such communication technologies in mountain areas of the world. The study will also assess the constraints and opportunities of applying broadband communication technology in one of Europe's largest mountain regions—the Carpathians. Encompassing 7 countries (the Czech Republic, Hungary, Poland, Romania, Serbia and Montenegro, Slovakia, and Ukraine), the Carpathians are a major ecological, economic, cultural, recreational, and living environment in the heart of Europe. In recent years, mountain people in the Carpathians have experienced profound changes and challenges, given their countries' recent transition to a market economy, the increasing integration of civil society, and dynamic economic development. It is clear that access to adequate communication facilities and services is a pre-condition for the sustainable development of these mountain communities.

This current Mountain Partnership activity builds on a special roundtable discussion on the subject of broadband for mountain development at the Second Global Meeting of the Mountain Partnership, or “Cusco Conference” (Cusco, Peru, 28–29 October 2004). It is just one of the many joint activities on common areas of interest currently being undertaken by members of the Mountain Partner-

ship to improve the lives and livelihoods of mountain people and protect mountain environments around the world. Visit the Mountain Partnership Web site at: [www.mountainpartnership.org](http://www.mountainpartnership.org).

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## The Altai Assistance Project

*The Altai Republic, known as “the Switzerland of Russia” (<http://eng.altai-republic.ru/>), is located on the southwestern edge of Siberia, in the Russian portion of the Altai-Sayan range which continues into Kazakhstan, China, and Mongolia. It is a spectacularly beautiful, unspoiled, and undeveloped land of forests, open rangeland, and mountain peaks up to 4500 m. In 1998, 5 separate nature sites of the Altai Republic were inscribed by UNESCO as a World Heritage Site known as the “Golden Mountains of Altai.” About 22% of the Republic’s 92,900 km<sup>2</sup> is in Russian federally protected areas, either as zapovedniki (strict nature preserves, where no human use is ordinarily allowed) or zakazniki (less strictly protected recreational areas). The Altai’s 200,000 inhabitants have long been among the poorest in Russia. About 70% of the population is Russian, while about 30% is of Turkic and other native origins, concentrated in the mountainous areas nearest the southern borders. Agriculture, mostly in the form of livestock raising, is the primary occupation.*

With the disappearance in 1991 of Soviet-era domestic travel restrictions and the explosion in private automobile ownership, mass tourism has now come to the Altai, which is within a day’s drive of at least 5 million inhabitants of the industrial cities on the west Siberian plain just to the north. Tens of thousands of tourists arrive annually, many in cars (Figure 1). Others come on public and private buses,

some after flying into the nearest large city of Barnaul from European Russia. Outside of some establishments along the principal river, the Katun, there are as yet few facilities or designated areas for tourists, whose numbers are now sufficient to have an impact on the natural environment as well as the cultural heritage of the local people. Complicating matters are the facts that Russian citizens are entitled to roam at will because all land is state

owned; the largely open, unfenced landscape facilitates easy access; and “pack it in, pack it out” camping ethics are unknown to most people.

Dealing with the natural and social effects of the rapid growth of tourism, as well as the impending privatization of land, are the primary concerns of the Republic and local-level planning authorities. One of the strategies under development is the establishment of

**FIGURE 1** Chulyshman River Valley, showing a new road facilitating increased tourist access. (Photo by Matt Foley)





"Nature Parks" in particularly sensitive areas. Like the Adirondack Park in the United States, these are parks with people living in them which protect areas of environmental and cultural importance while allowing compatible human activities. The Altai now has 6 Nature Parks (Katun, Uch-Enmek, Chui-Oozy, Argut, Belukha, and Ukok) in the early stages of development, totaling over 553,475 ha in area. Unfortunately, the governmental, human, and technical resources available to turn these Parks into functioning entities are scant, and there is little knowledge upon which to draw.

### The Altai and Adirondacks connect

In the mid-1990s, Ecologically Sustainable Development, Inc. (ESD), a non-profit land use consulting firm based in New York's 2,700,000 ha Adirondack Park, was hired by the Altai government to prepare a sustainable land use plan for the entire Altai Republic. The plan's preparation over a two-year period included a number of field trips in the Altai by Russian and American volunteer specialists. Although the plan was never put into effect, largely because of the stagnant and confused state of governmental and economic affairs in Russia at the time, it did establish a strong connection between the Adirondacks and the Altai Republic.

At the request of Altai NGOs, local communities, and the Altai government, the Altai Assistance Project (AAP) was established in 2003 by Matt Foley, a small hydro specialist who had worked for ESD in 1995, and Chagat Almashev, Director of the NGO Foundation for Sustainable Development of Altai (FSDA). Using funding from the Weeden Foundation and Trust for Mutual Understanding, the AAP sponsored initial reciprocal visits by Altai and American teams in 2004 and 2005. The US team of 7 experts

visited the Altai in July 2004, with each member of the team having a particular field of expertise relating to parks and planning. The return visit from the Altai to the Adirondacks took place in November 2004, with the group composed of 3 park employees, an environmental scientist, a tourism entrepreneur, and the AAP's Russian Director. Over a two-week period they met professional planners and governmental officials with administrative responsibility for public and private land use and parks, as well as students, environmental group representatives, tourism professionals, and private citizens.

### Observations and impressions

It is difficult for people from a society at an earlier stage of economic development, and with a completely different form of property ownership, to comprehend the complexities of private and public ownership and regulation of environmentally sensitive areas in the United States. This includes either the formal structures or the underlying political relationships. The many meetings that were held eventually enabled the group to develop an understanding, after days of discussing the same subjects with different people who had varying viewpoints and job responsibilities. Meetings kept getting longer as the depth, complexity, and number of the Altai team's questions increased. Near the end of those meetings, when the team was concluding that the Altai should have something similar to the Adirondack Park's land use plan, we were able to show them that in fact an outline of one already existed, i.e. the Russian language copy of ESD's 1997 Altai Republic Land Use Plan, as well as the full-scale Russian resource maps used in its creation.

The Altai visitors went home with a new determination to work as a group toward putting plans for sustainable land use into effect in

the Altai Republic, both in and outside of park areas, over the next 5 years. This particular five-year schedule was determined by the fact that Russia has begun a process of land privatization that is scheduled to finish in 2010. The next 5 years will therefore represent the best opportunity to put mechanisms in place that can preserve the culture and environment of the Altai mountains.

### Next steps

In 2005, the AAP sponsored 3 inter-related activities. First, to help the Altai group to continue functioning as a group, it underwrote the modest cost of holding quarterly meetings in the Altai that were attended by Nature Park personnel and other interested parties. While the strongest supporters of protected areas work at the *raion* (county) level in widely dispersed geographical areas, and have little money for travel, 4 very successful meetings have been held as a result of AAP support. The meetings have been well publicized in the Republic, attendance has increased at each successive meeting, and the group has attracted the attention and participation of the Altai Republic's government as well as of established environmental organizations, such as World Wildlife Fund/Russia. At the third meeting, an "Association of Parks of the Altai" was formally established, ensuring that the group will continue to meet and function as a forum for park professionals, their supporters, and those with reason to deal with the parks as a body.

Secondly, an Altai group visited the US in August 2005, and an American group went to the Altai in late September. Since some members of the Altai group had visited the year before and the rest of the group had heard their report, less time was spent on familiarization and more time was spent meeting with people who might be sources

of future assistance. As a result, the return American visit was composed of university faculty members and an NGO vice president who now expect to establish continuing relationships.

Thirdly, a group of 5 professionals from the Altai and their US-based AAP hosts spent two and a half weeks in the Sagarmatha (Mt Everest) National Park of Nepal, where people have been dealing with the environmental and social effects of tourism for more than 30 years and where locally-based tourism is now a viable alternative to subsistence agriculture for many. Guided by US and Nepali staff of The Mountain Institute (TMI), the group received daily, field-based lectures on the region's settlement, land use, landscape change, introduction of mountaineering and tourism, establishment of the national park and buffer zone, and benefits as well as challenges of large annual numbers of visitors to fragile, high mountain regions. They trekked from Lukla to Kala Patar, and back into the lower Thami valley, where they were able to view a full range of activities and projects that included 2 of TMI's on-going initiatives (the Sacred Trails and Community-Based Alpine Conservation and Restoration Projects) as well as local hydroelectricity projects, nurseries, park headquarters, local monasteries, local homes, and the park museum.

### Individual impacts of the Altai group's visits

Ongudai Raion covers 11,700 km<sup>2</sup>, the size of a typical county in the US. Before becoming Chairman of the Land Use Department of the Ongudai District Administration, Danil Mamyev was a climber and citizen activist responsible for founding the "Nature and Ethno-Cultural Park Uch-Enmek" in a valley of ancient burial mounds and

small farm villages looking up at sacred Mt Sarlik (2800 m). After visits to the US in 2004 and 2005, he went away impressed by the Adirondack Park and the fact that the state owns about half of the land and regulates the use of all of it for environmental conservation and sustainable development. He is now actively working to establish a similar plan of sustainable land use for all of Ongudai.

Another visitor in 2005 was Sergey Ochurdyapov, main specialist on "indigenous small-numbered people" issues, Administration of Kosh-Agach Raion. He is a lawyer whose job is running the Ukok Quiet Zone Nature Park, a 254,000 ha park established in May 2005. The Ukok Plateau is of internationally recognized environmental significance and is one of the Altai's World Heritage Sites. There are over two dozen endemic plant species and it is also inhabited by Argali sheep and snow leopards. It was also the site of the 1993 discovery and excavation of an elaborate 2400-year-old frozen tomb containing the intact body of a woman of the Pazyryk culture. The southern border of the Ukok is the only place where Russia and China touch west of Mongolia, and there is a Chinese proposal to build a highway across it.

Additionally, real progress toward environmental protection has been made in the Republic in the last year. Indicative of a shift and coalescence of opinion, this year has seen, besides establishment of the Ukok Park, a "Committee on Natural Resources" set up within the Altai government, which has previously had no place for parks except within the Ministry of Tourism. The Committee will oversee the parks and also govern commercial resource use.

The Altai is also assuming a higher profile internationally as a result of continued exchanges and dialogue. Last summer, as mentioned previously, a number of

western environmental organizations and their foundation supporters visited the Altai for the first time. Exchange among US and Russian academics is also growing.

The Altai Republic, remote and sparsely populated, has the feel of a dispersed small town. Like the Adirondacks or Vermont, it is a place where everyone seems to know everyone. A small group of motivated people can make a difference, and consensus leading to action is possible. In the last few years, the desirability of establishing protected areas has been an open question, largely due to lack of knowledge. The goal of the AAP is to expose people from the Altai to functioning land use plans which protect the environment while allowing human existence, and to provide help in putting such plans into place. By introducing viable models for land use and environmental protection, the AAP has helped Altai people move quickly and efficiently toward their goal of protecting their culture and their land. We feel that this sharing of experience and ideas has made a significant contribution to protecting this unique and wonderful place, and we plan to continue working toward this goal.

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## MIREN: A New Research Network Concerned With Plant Invasion into Mountain Areas



*As a result of global change, mountain areas are increasingly threatened by invasive alien plants. The Mountain Invasion Research Network (MIREN) initiates and integrates surveys, monitoring, experimental research, and management of plant invasions into mountains at a global scale.*

Mountain ecosystems are increasingly threatened by alien plants, and research is urgently needed to understand this problem. Mountains are also useful model systems for ecological research; investigating alien plants along the strong environmental gradients in mountains is a promising approach to understanding the general processes driving invasions. To meet this research challenge, the Mountain Invasion Research Network (MIREN) was launched during an international workshop on plant invasions into mountain regions,

held near Vienna (Austria) from 15 to 17 July 2005. The network addresses several important questions:

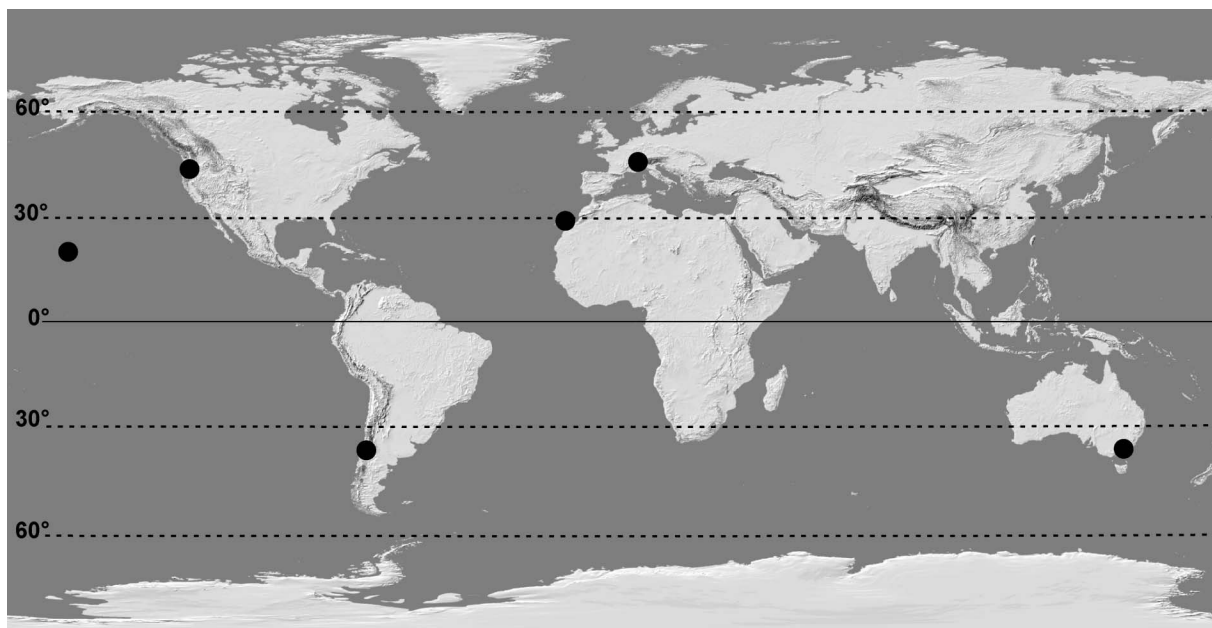
- How great is the threat to mountains from alien plants?
- Do plant invasions affect mountain ecosystem services?
- What are the main drivers of invasions into mountains?
- Are mountain invasions indicators of climate change?
- Are there efficient ways of managing mountain invasions?
- What can invasion biology learn from mountain systems?

MIREN will operate at 3 levels, including a limited set of core research regions (level 1), an extended set of mountain regions for general surveys and case-specific management projects (level 2), and general information processing that

is relevant to all mountain regions (level 3).

MIREN features 6 core high mountain regions (Pacific Northwest [USA], Swiss Alps, Chilean Andes, Australian Alps, Hawaii, and the Canary Islands [Spain]; Figure 1), covering the major climatic zones and including island and continental systems. All core areas will participate in standardized baseline screening and monitoring, and in standardized comparative experiments. The MIREN network of researchers, managers, and practitioners in an extensive set of mountain regions aims to respond to the increasing needs of managing plant invasions into mountains by (i) developing a mechanistic understanding for efficient control; (ii) providing reference databases on mountain invasions; (iii) facilitating exchange of expertise; and (iv) providing specific management guide-

**FIGURE 1** Location of the 6 core high mountain regions chosen for MIREN activities. (Map by Jürg Krauer)



lines. To achieve these goals MIREN will cooperate with Mountain Biosphere Reserves (MBRs).

MIREN is associated with the Global Mountain Biodiversity Assessment (GMBA), one of the 4 transversal networks of DIVERSITAS. In addition, MIREN cooperates closely with the Mountain Research Initiative (MRI; <http://mri.scnatweb.ch/>). It has also become part of the Global Change in Mountain Regions (GLOCHAMORE) program (see MRI Newsletter 3, MRD Vol 24 No 2, May 2004, and MRI Newsletter 5, MRD Vol 25 No 3, August 2005).

At present, MIREN is developing approaches for an inventory of plant invasions into mountains,

including retrieval of existing data and development of survey protocols and a database of non-native plant species in mountains. Initial PhD research projects comparing patterns and processes of plant invasions between the Blue Mountains (Oregon, USA) and the Swiss Alps in a reciprocal approach were begun in 2004.

There is a recent special issue of *Perspectives in Plant Ecology, Evolution and Systematics* on plant invasions into mountains (Vol 7 No 3, 2005) bringing together 6 articles that focus upon patterns and processes of plant invasions into mountain ecoregions. This special issue presents a significant portion of the knowledge available today on this topic and will help develop the

MIREN research program.

More information on MIREN, including downloadable documents and a questionnaire for anyone interested in the problem of plant invasions into mountains, is available at [www.miren.ethz.ch](http://www.miren.ethz.ch). For further questions contact the project coordinator Christoph Kueffer ([miren@env.ethz.ch](mailto:miren@env.ethz.ch)).

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## Obstacles and Opportunities for Mountain Development in Andalusia (Spain) The Experience of the European Union LEADER Initiative for Rural Development in the Sierra Nevada

The present analysis is based on a study entitled *Public Opinion and Rural Development: The Intermediate Evaluation of the European Union Initiative Leader Plus in Andalusia*. This study addresses rural development in Andalusian mountain areas, within an empirical framework focused specifically on the Sierra Nevada, Spain. It aims to show the difficulties and hindrances that slow the development process for mountain populations in the Sierra Nevada in modern times, as well as the perceived changes and opportunities for improvement detected by this population within the framework of the LEADER Initiative.

### Concern about development in European mountain regions

Mountain areas have suffered significant deterioration in the last few decades. As shown by other work and research conducted in Spain,

they have been characterized as underprivileged by comparison with other rural zones, owing to their permanent natural disadvantages and resulting socioeconomic conditions (Figure 1). This circumstance, together with the significance of these territories for the European Union (EU), soon aroused concern about underdevelopment within the civil services of many European countries, including the European Committee (EC) itself. This concern inspired the design and application of certain policies for the development of mountain zones.

The present brief analysis concentrates exclusively on rural development experience within the framework of the LEADER Initiative, in a specific area of Andalusia: the Sierra Nevada National Park. This National Park is made up of 60 municipalities with a total area of 171,829 ha.

A summary of the main results drawn from the successive evalua-

tions of these programs is presented below. These evaluations consist of analysis of public opinion about the LEADER program in different areas of implementation, within the environment of national parks. The information was obtained through in-depth interviews and focus groups from residents and interest groups in those areas.

### The Experience of the LEADER Program in the Sierra Nevada

Implementation of the LEADER Initiative in the environment of the Sierra Nevada began to take place in the first half of the 1990s. During the years of implementation of the Initiative, the villages and rural areas of the Sierra Nevada experienced great changes, characterized by a notable improvement in the living conditions of the population. However, it is necessary to emphasize that this conclusion is full of nuances, given the great degree of



**FIGURE 1** Because of the rough orography in the Sierra Nevada and the average age of the population working in the agricultural sector, innovation in the region is quite difficult. (Photo by A. Ramos-Lafuente)



heterogeneity that characterizes the different regions of the Sierra Nevada. This heterogeneity is manifested in the variety of natural resources and in the imbalance in funding for public infrastructure, as well as in the pronounced and faltering relief that characterizes this territory. It is also linked with the uneven population structure and the social, political, and economic stratification that this represents.

### **The status of development**

Different appraisals of the situation of the rural world and its difficulties can be found in different regions, explained here by the heterogeneity mentioned above. Despite this, the mountainous population of the Sierra Nevada generally perceives development in negative terms, by comparison with the conditions experienced by the inhabitants of other, non-mountainous rural areas.

Mountain dwellers in the villages of the Sierra Nevada attribute this situation to economic stagnation, social immobilization, and the lack of basic infrastructure. In the majority of the municipalities, the interviewees reported great difficulties occasioned by the predominance of a self-centered culture (independent and competitive with the rest of the municipalities), with the political representatives of the town councils doing nothing to seek a middle ground. The rough orography of this area has resulted in dispersed and differentiated zones and municipalities throughout the territory.

### **Assessment of the territorial approach**

The territorial approach is questioned in the regions of the Sierra Nevada. Articulation of interests, and the relation between existing

development needs and actions carried out, constitute a complex and difficult panorama for various reasons. In the first place, the different sub-territories which make up these regions reflect both natural and cultural diversity. Secondly, in the last few years, these municipalities and sub-territories of the Sierra Nevada have had different development experiences. Some areas have benefited from specific, resolute actions (improvement of communication channels, development of the tourist sector, support for innovation in agriculture, etc). Thirdly, the efficacy of the LEADER Initiative in the Sierra Nevada setting has also been questioned, as a result of little coherence between the true needs and interests of its population in different zones and sub-territories, and the actions developed. This aspect particularly affects communication between different social, political, and economic actors.



## Assessment of natural and cultural heritage

The natural and cultural heritage of the Sierra Nevada is appreciated mainly for its commercial value, which offers a strong comparative advantage. The population of the Sierra Nevada is aware that its heritage (protected natural areas in the countryside, gastronomy, rustic village architecture and lifestyles) constitutes an important tourist attraction. For this reason, many rural development activities initiated in this region aim at consolidation of a competitive tourist market.

Localization or concentration of this activity could be the primary disadvantage for development of the municipalities of the Sierra Nevada, and, at the same time, a threat to the diversification that the LEADER program specifically aims for. In the eastern part of the Sierra Nevada, for instance, it is believed that favorable treatment is being given to the municipalities nearest to Orgiva, situated in the lap of the Sierra Nevada, and particularly to those found in the Poqueira River depression. On the other hand, interviewees complained about the little support that sectors other than tourism—such as agribusiness and the meat-processing industry—receive in this area as well as in the western area. These areas feel

excluded from the process of rural development.

## The innovative character of rural development

Rural development projects in this area are characterized by a lack of innovation and diversification among the activities developed. The population of the area attributes this to lack of participation in the processes of rural development, as a consequence of low levels of training, an underdeveloped business culture, and limited dissemination of information concerning program opportunities. This can be directly observed in the context of the actions referred to above, but also in other sectoral strategies, such as the application of new technologies in the business, education, and domestic fields. Owing to obsolete telephone lines in the towns, there are great communication problems with the Internet. This evidently has a major impact on the capacity of companies in the area, be they in the industrial or the service sector. Information obtained also showed little support for small- and medium-sized firms in all parts of this region.

## Conclusions

*Rural development in mountain areas should be integrated.* The integrated

approach of rural development coordinates all the specificities of the LEADER Initiative. It involves the ability to reconcile the necessities of a certain territory with the conditions of the population that inhabit it and the resources available. All in all, integrated rural development involves fluid communication between all development actors, manifested in working and cooperation networks, and not just through the joint subsidiarity of some actions.

*Rural development of mountain areas should be sustainable* in a dual sense. In the first place, development activities promoted by RDAs should guarantee their subsistence, which tests the success of the program. Continuity of the initiatives acts as a stimulus to new proposals. In this way, development programs can generate the required multiplier effect. Finally, development activities carried out today should not have a negative influence on opportunities for future development.

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