



ORGANIZZAZIONE INTERNAZIONALE TRASPORTI A FUNE
INTERNATIONALE ORGANISATION FÜR DAS SEILBAHNWESEN
ORGANISATION INTERNATIONALE DES TRANSPORTS A CABLES
INTERNATIONAL ORGANIZATION FOR TRANSPORTATION BY ROPE
ORGANISACION INTERNACIONAL DES TRANSPORTES POR CABLE

Technical recommendations in effect

BOOK N. 23
(February 2008)

ENVIRONMENTAL PROTECTION RESPONSIBILITIES OF TRANSPORTATION BY ROPE

This Recommendation is not mandatory but provides guidance to the profession. Its application would be desirable in all countries, however, without prejudice to national standards as well as requirements specified by public authorities.



ROMA 1957
PARIS 1963
LUZERN 1969
WIEN 1975
MÜNCHEN 1981
GRENOBLE 1987
BARCELONA 1993
SAN FRANCISCO 1999
INNSBRUCK 2005

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Sede : I-00188 ROMA – Via Suzzara, 19

O. I. T. A. F.

O.I.T.A.F. RECOMMENDATION

ENVIRONMENTAL PROTECTION RESPONSIBILITIES OF TRANSPORTATION BY ROPE

Book n. 23

February 2008

FOREWORD

O.I.T.A.F. ENVIRONMENT FORUM (UFO)

The Environment Forum of the International Organisation for Transportation by Rope, O.I.T.A.F. UFO is a working group set up in 1992 by the O.I.T.A.F. study committee on Legal, Administrative, Economic and Statistical Matters which has come to be as time passed the European platform of ropeway operators, ropeway manufacturers and ropeway supervisory authorities for the exchange of information on environmental issues.

Objective of the recommendation

In order to make the international public aware of the wide range of environmental issues involved by the activities related to transportation by rope the members of UFO, the O.I.T.A.F. Environment Forum, have decided to draft a recommendation on environmental protection responsibilities of companies providing services of transportation by rope and have produced a document which is the result of the general consensus of all involved European countries.

Members of the Environment Forum felt that they ought to give the international public reliable information about the wide range of environmental issues of activities involved by transportation by rope and have therefore decided to write a document the tenor of which has met the general consensus of all concerned European countries, i.e. the "Recommendations relating to Environmental Protection responsibilities of Transportation by Rope".

The document is the result of in depth discussions, valuable contributions made by and of the cooperative work of the representatives of the following countries

Austria : Viktoria Bucher, Michael Manhart, Erik Wolf

France : Françoise Dinger, Noël Lebel, Serge Riveill, Jean-Charles Simiand

Germany : Augustin Kröll, Gottfried Mayrock, Birgit Priesnitz

Italy : Andreas Dorfmann, Ferruccio Fournier, Sonja Melotto, Oskar Misfatto, Werner Noggler, Paul Profanter,

Slovenia : Gorazd Bedrac

Spain : Aurell Bisbé i Lluch

Switzerland : Felix Maurhofer, Fulvio Sartori, Renate Schoch, Rita Wyder

A survey of all environmental aspects which have been dealt with is attached to the main body of the "Recommendations relating to environmental protection responsibilities of transportation by rope". Members of the O.I.T.A.F. Environment Forum will be pleased to provide additional information on any of the examined subjects.

O.I.T.A.F. and the O.I.T.A.F. Environment Forum wish to draw the national professional associations' attention to this document and urge them to spread information on the tenor of the document and the subject dealt with in the UFO members' contributions on specific issues and use the document and contributions as working documents to be referred to in discussions with responsible committees.

The enclosure attached to the "Recommendations relating to environmental protection responsibilities of transportation of rope" is a survey of all issues which have been dealt with by the Environment Forum i.e. the following ones :

1. Highland greening and ropeway installations

2. Snow-making and ski-run preparation
3. Water management of ski areas – Example South Tyrol
4. Wild life and winter sports resorts
5. Avalanche protection and its environmental effect
6. Environmental impact assessment – Guidelines for the environmental compatibility test of ski areas
7. Environmental audit
8. Alpine Convention
9. Impact of climatic changes and its repercussions on the management of ski areas
10. Tourism and leisure time traffic
11. Natura 2000 and transportation by rope
12. Scientific research

1. Introduction

Alpine winter sports resorts offer to many people a chance to find within a rather restricted area a great variety of optimal recreational facilities and possibilities, a recreational area which besides that is being cared for, organized, managed and supervised by ropeway operators.

Seen that the planning, construction and operation of ropeway installations and of their infrastructure in most instances impinge upon the valuable existing natural and cultural patrimony due consideration must be given to the existing natural and cultural environment of the planned installation.

In most regions which are being developed and made accessible thanks to the construction of new ropeway installations the environmental impact of existing natural and cultural conditions is particularly marked, for instance the fact that they are situated in a rather high altitude. In the mountains the vegetation period is relatively short. Most winter sports resorts have been or are being developed in the high alpine and other mid-high alpine regions, regions in which ambient temperatures are sometimes below zero for six months or so. Next to these low temperatures other climatic factors may have an adverse effect on the regeneration capacity of original natural resources which for this reason demand careful husbandry.

Next to the action of climatic and natural conditions the conservation of natural resources is adversely affected by human action, i.e. the intrusive effect of earth works for the construction of ski-runs, ropeway installations and their infrastructure, access roads leading into the mountains, such as for instance the intrusive effect of ground levelling, of deforestation, blasting etc.

General conditions, and in particular authorisation procedures, are laid down in national regulations of concerned countries. Besides that it should be pointed out that most concerned countries have in the meantime become more experienced and knowledgeable of ways and means and actions which need to be taken to compensate the adverse effect of human action and re-cultivate land and by so doing to guarantee the sustained development of mountain regions.

2. Potential environmental impacts of ropeway construction and operation

It is necessary to make a distinction between impacts resulting from the specific features of a project and of the construction of a ropeway installation on one side and impacts due to the operation of the ropeway on the other.

2.1 Impacts of the specific features of a project and of the construction of a ropeway installation

- 2.1.1 Seen that in most instances the infrastructure is built on an untouched natural site and in an untouched natural environment the construction of the infrastructure and of its equipment may seriously affect the natural landscape and life space, as well as sensitive plant and animal species.
- 2.1.2 The construction of the infrastructure and of its facilities (car parks, buildings, lifts, ski-runs, toboggan runs, hiking trails etc.) requires preliminary field engineering which may have an adverse effect for the natural ecosystem and the natural landscape.
- 2.1.3 People and animals who live in the neighbourhood of the building site tend to be seriously disturbed by the noise of the building site equipment and traffic and related pollution. The construction of access roads and passage ways may also require a great deal of field engineering which in turn leads to non indifferent alterations of the original situation.
- 2.1.4 The mere existence of a ropeway installation and of its facilities tends to impair the landscape and the natural biosphere of living beings.

2.2 **Impacts resulting from the operation of the ropeway installation and its equipment**

- 2.2.1 The operation of a ropeway installation and its equipment (ropeways, ski-tows, preparation and grooming of ski-runs, snow-making equipment) gives rise to noise nuisances and emissions of pollutants.
- 2.2.2 The operation of a ropeway installation leads to an increase of the circulation of vehicles to and from the ropeway installation, in particular the traffic of passenger cars.

2.2.3 ***Ropeways operated in winter***

- a. Artificial snow and ski-run grooming affect the natural plant life of ski runs.
- b. Ski-run preparation and grooming, skiing down ski-runs and other types of winter sports off the ski-run affect the animal wild life and their behaviour.
- c. Safety measures taken to protect ski-runs against avalanches (permanent avalanche barriers or avalanche blasting) may adversely affect the wild life, plant life and underlying soil.

2.2.4 ***Ropeways operated in summer***

- a. Walking off the way-marked path disturbs the wild life, may impair the natural vegetation and cause erosion damage
- b. Intensive grassland farming is likely to affect the stability of the soil.
- c. Cutting down the intensity of grassland farming or giving it up altogether automatically results in an increase of wooded areas (forests growing over unused land) thus affecting the habitat of some animal species.

3. Required action

3.1 Design and Execution of Buildings

Environmental requirements : Operators are well advised to detail precisely in their specifications the list of all environmental requirements.

3.1.1 Design of buildings

Operators should draw up a detailed global development scheme in which due consideration is given to the likely environmental impact and visions and strategies which ensure the sustainability of the development.

3.1.2 Authorization procedure for the construction of ropeway installations

Authorization procedures are subject to provisions of the national legislation of the concerned country.

3.1.3 Integration of ropeway installations and their equipment

Utility, economy and safety, and last but not least aesthetic design and perfect harmony with the surrounding landscape are the requirements to be met by all ropeway projects. In order to meet all these requirements it is necessary to adopt a global approach which considers the project and its surrounding landscape as parts of one and the same all embracing project. This does not mean that modishly styled buildings built with modern materials are automatically banned and is best shown by many a successful combination of modishly styled buildings built with modern materials in the past years.

3.1.4 Execution

As for the choice of building materials due consideration should be given to the local availability of materials, their durability, ease of care and maintenance, optical effect, combustion properties and possibilities to re-use the material in the case of a conversion or dismantlement of existing buildings.

3.1.5 Site preparation

Earth works should be restricted to the necessary minimum and made to match with the surrounding natural landscape, without disturbing, wherever possible, the natural water balance (natural water courses, sources etc.). If earthwork cannot be avoided, operators will be well advised to proceed in accordance with the following programme of successive steps so as to have a chance to restore within the shortest possible delay of time the former natural landscape.

- Remove the upper vegetation layer (sod) and top soil from the ground, store them in separate heaps and tend them (water them) if necessary
- Assemble the deep bed water drainage system, for instance one consisting of draining mats or drain pipes

- Restore manually or with the help of appropriate machinery the original order of the different layers of soil and lawn sod
- Assemble the surface water drainage system. In the case of sites subjected to heavy storm water the drainage system should consist of assembled reinforced channels
- Should the need arise stabilize slopes with an appropriate anchoring system (rock fill, concrete or timber strutting, nailed welded steel grating etc.)
- Stabilise surface layers against washout with nailed synthetic nets or rapid decomposition cotton, jute or other fibre fabric
- Use a type of seed which is known to be best suited for the concerned location and its altitude to green nude patches
- Should the need arise accelerate the greening process with organic fertilizers. The use of inorganic fertilizers, such as for instance mineral fertilizers shall be made dependent on the results of the soil analysis.
- Regular maintenance of the ski-run surface in summer and to this end have the grass regularly mowed and the hay collected or grazed.
- Predominantly rocky sites should be prepared with particular care and methods which permit to preserve unaltered the stability of the soil and the natural landscape.

3.1.6 Snow gunning

By now the snow gunning equipment is part of the standard equipment of ski resorts and an important element of the winter sports offer. The output, efficiency and capacity of snow guns ought to meet local and ecological requirements and their choice made dependent on the specific circumstances of the site.

3.1.7 Avalanche protection

An important feature to be given due consideration is the environmental impact of ski run avalanche protection. Wherever possible preference should be given to natural reforestation with appropriate thickets rather than the construction of avalanche barriers.

3.1.8 Layout of trails

Perfect integration into the landscape and due consideration of the necessary balance of materials should be the guiding principle of the layout of trails. Slope height and slope gradients should be as mild as possible. In the case of soft foundations the use of so-called geo-textiles, i.e. non woven fabri, to cover the base course has given satisfactory results. Cohesive gravel should be used for the cover layer or in the case of heavy wear, compacted asphalt granulate. Satisfactory drainage of pathways is achieved by digging trenches and channels above pathways. Trench crossings with pathways have to be laid underground and made of solid pipe material, for instance reinforced concrete or pressure proof synthetic material. Trenches and channels should be so arranged that the water they carry is directly discharged into a receiving water course.

3.1.9 Multiple use

Prior to the construction of ski-runs and pathways any additional destination of the track, for instance laying of power lines, signal lines and water conduits (fresh and waste water conduits) agreement shall sought with all concerned parties. The use of pathways and relative conditions, in particular annual and daily opening times,

shall have to be agreed with all concerned parties, for instance tourist offices, farmers and huntsmen.

3.2 Actions to be taken during operation

3.2.1 Operational environmental management

The experience has shown that environmental management systems and the environmental audit are two useful tools which ropeway operators would be well advised to use to make a structured general assessment of the state of the environment in their respective areas, compare it with the situation in other areas and thus obtain valuable information they can use to upgrade their own environment.

Specifically tailored quality and environmental management systems, for instance the ISO standards 9001-2000 and 14001 are valuable guides which permit to optimize the organization, the structure of costs and the environmental relevance of the ropeway.

In order to reduce the permanent environmental impact to the feasible minimum level efforts ought to be made to use environmentally friendly sources of heating energy which may be found on the market. In some instances it is worth while making an attempt to recover heat built up by ventilation systems or engines or reduction gearing of the ropeway installation.

Cost efficient management of fresh water supply and waste water disposal offers a chance to reduce the quantities of water to be supplied and discharged and hence to affect positively the inherent cost factors and achieve economic and ecological advantages.

The disposal of collector sludge, cleansing agents, lubricants and coolants is subject to Governmental regulations. This is also true for the disposal of filters, paint residues, batteries, synthetic waste, rubber scrap and scrap metal. As a rule demolition waste (concrete and bricks) can be recovered and re-used as frost resistant backfill of pathways. Scrap of steel structures can be used as re-usable raw material for new structures or in the company's workshop. Residual waste sorting is nowadays a common rule applied by many ski resorts.

There is a great variety of different measures which can be used to abate the noise and to reduce the nuisance of the noise of machinery and other sources of noise in buildings. Exhaust gases of internal combustion engines shall be discharged into the atmosphere whereby due consideration should be given to the prevalent direction of the wind and, if necessary, have the gases pass through an appropriate filtering system so as to achieve the best possible performance. But at any rate appropriate solutions should be taken to avoid and eliminate gas emissions .

Last but not least, it is necessary to provide efficient measures to prevent accidents resulting from the use of environmentally harmful substances. Records shall have to be kept of all harmful substances which are being used and their correct application shall be regularly tested in practical application tests carried out by competent

technicians of the local authority. The necessary first aid equipment shall be kept in perfect order and regularly brought in line with the latest state of the art.

3.2.2 Ski-run preparation and grooming in winter

The maintenance of ski-runs and tracks to be done by the operator in winter includes as a rule the preparation and the maintenance of ski-runs, cross country ski runs and hiking trails. To this end operators would be well advised to use only the most efficient, yet not soil damaging preparation and grooming equipment driven by environment friendly combustion engines and apply snow making and grooming systems compatible with the principles of sound business economy and sound protection of the environment.

3.2.3 Snow gunning

The gunned layer of artificial snow shall be sufficiently high to provide a good protection against damage due to mechanic action as well as frost and frost-thaw cycles, and hence also a good protection against erosion.

The amount of water which is drawn off to feed the snow gunning plants should never exceed the limits of an ecologically compatible draw off and should be agreed in advance with all the users of water. The suitability of the quality of the water used for gunning plants shall have to be assessed at the beginning of every winter season and the necessary provisions shall be taken to establish regular and a continuous inspection of the products which are used to produce artificial snow in the gunning plants so as to verify their biodegradability and by so doing to abate to a minimum the likely pollution hazard.

3.2.4 Avalanche blasting

Avalanche blasting is one of the most important safety measures which should be taken to protect ski areas against avalanches. The avalanche guards to be built and blasting procedures to be used have to be so chosen as to reduce to a minimum their likely impact on the environment.

Where avalanches are triggered with explosives due consideration shall be given to the likely effect of great masses of snow rushing down the slopes of hills, the resulting vibrations of the soil and appalling noise. It is hence necessary to adopt a blasting setup involving the least secondary effects of the explosion.

In principle in cases in which a choice has to be made between different possible systems of protection of a concerned area involving a like expenditure preference should be given to temporary guards (barriers, strutting) rather than permanent protections. At any rate the choice of the best suited system of protection ought to be decided by experts who know the local conditions and circumstances.

3.2.5 Maintenance of ski-runs in summer

The construction of a ski-run should be followed by regular greening and planting having the purpose to merge the ski-run with and form a single whole with the surrounding environment, but in particular the purpose to facilitate the work to be done to prepare ski-runs in winter. Indeed preparatory tamping of the snow is by far easier and the cost of it smaller if the soil is covered by a homogeneous uniform herbaceous carpet and is free from stones and grooves. The best way to preserve and maintain this herbaceous carpet is to use it in summer, when the grass has

taken roots, as grazing land or to mow the grass at the end of the summer, to fertilize it regularly for some years to come after the first construction of the ski-run and to replant grass on nude patches.

3.2.6 Behaviour of winter sports customers

Users of ski-runs shall be given proper instruction and guidance on mindful environmental friendly behaviour and respectful behaviour towards other users of ski-runs. This may be achieved by handing out to them printed instructions and illustrations, setting up barriers or gates and ski-run guidance striping.

3.3 Other additional actions

3.3.1 Waste and refuse collection

Any waste and refuse left on ski-runs and in the neighbourhood of stations ought to be collected at the end of the winter season, possibly as soon as the snow has melted away.

3.3.2 Car traffic regulation

Competent authorities and operators of the ski resort are required to seek by mutual agreement adequate solutions to regulate the public traffic of passengers, for instance by establishing a public network of different means of transportation, such as ski buses and ski trains. Efforts should be made to eliminate identified points of traffic jam and to this end efforts made to secure the collaboration of political bodies who have a say in matters related to public transport.

A possible measure which can be taken should the need arise is to limit the number of winter sports tourists, by limiting the sale of ski-passes, in particular of day tickets, i.e. by limiting the first access to installations and ski-runs. Another useful measure to be taken next to the limitation of numbers of admitted number of winter sports tourists, is the regulation of the passenger car traffic, by traffic routing systems and specific management organisation of parking areas. Radio transmitted traffic information and remote controlled information panels set up on access roads at an adequate distance from the ski resort are recommended useful complementary regulating measures of the admissible number of winter sports tourists.

As for the parking areas, adequate disposal of waste water, refuse and waste shall be provided for. Gravelled parking areas which are not used in summer ought to be vegetalized with appropriate oligotrophic grassland seed.

3.3.3 Alpine forests

The deep-rooted natural forest has several functions. The protection provided by alpine forests is their most important function.

Leisure time activities shall not be permitted to impair the protection provided by the alpine forest, and in particular, its wind breaking function. It is fundamental to develop the visitors' awareness by appropriate information and warning signs.

Additional steps shall be taken if the information which has been spread and the warnings do not prevent trespassers from damaging wooded areas. Should the need arise supervisors and rangers shall be asked to help to achieve the desired goal.

3.3.4 Protection of wildlife

Thin ropes and cables which cannot be buried in the ground shall be made visible and perceivable for birds so as to prevent them from bumping into ropes and cables.

It is fundamental to pay proper attention to the wildlife's habitat and its paths and hence, should it prove to be necessary, create and identify wildlife preserves.

3.3.5 Cooperation with farmers

Farmers are the most important helping partners of ropeway operators, partners who are no doubt willing to contribute to all efforts which are being made to preserve the natural and man-made landscape. Operators will be well advised to establish with farmers close links of direct interest for the company's business by offering them a chance to get a secondary occupation, appropriate farm tenancy conditions, to use the agricultural machinery they owe to maintain and groom ski-runs and pathways. The choice of tracts of land to be used as ski-run tracts should be made with due regard to the interests of the land-owner (very often the farmer) as well as interests of the ropeway company and by with due regard for the prevalent use that is made of the chosen tract by the land-owner or the company, as well as the possibility landowner and company have to provide adequate maintenance of the chosen tracts. Purposeful communication between all concerned parties is fundamental in that it permits to establish a harmonious cooperation and promote the economic interests of all concerned.

4. Conclusions

The above list of actions does not claim to be a complete list of all conceivable actions. Ropeway companies hold in their own hands all the necessary means to promote an environmentally friendly and sustainable development of the man-made landscape which meets the interests of the region's tourism, as well as the interests of the local population.

It is the local authorities' responsibility to adopt an ecologically conscious approach which is compatible with the local conditions and mindful of costs involved by the application of the latest state of the art of the ropeway technique and last but not least respectful of the human being. In this context ropeway companies are expected to fulfil the mission of a responsible leading character and hence also responsible, together with the other partners, the tourist industry and the farmers, for the preservation of an ecologically intact environment for the activities of human beings and their future generations.

In principle it is hence necessary to devise and implement area planning and management systems which ensure the necessary protection and care of the ecosystem of our most valuable patrimony, the mountain. Great attention has to be paid first to the construction of ski-runs and areas and then to the re-cultivation of the soil, which means also to the choice of seed and plants which is best suited for the concerned area.

Each country has passed own regulations relating to the development of ski areas and other areas of interest for the tourism. All data having an ecological relevance ought to be collected at the earliest possible stage. By so doing it is possible to gain command over the likely ecological impact and manage the company's activities in

a way as to reconcile the economic interests on one hand and the environmental protection on the other and design structures that will meet all safety requirements yet be in perfect harmony with the surrounding landscape.

It is very likely that as a consequence of climate changes and the continuous increase of temperatures the snow limit and the permafrost belt will move upward the mountains which in turn will negatively affect the stability of slopes in the permafrost area and thus also the stability of foundations of ropeway installations and their structures. This is why operators will be well advised to inspect regularly the state of structures build in this area in order to have a chance to take the necessary preventive measures in time.

On the other hand it looks as if snowfall and quantities of snow will increase in high altitude ski areas. More snow means that more attention shall have to be paid to adequately resistant and stronger avalanche protections.

Ski areas at mid height altitude will have to develop their snow gunning systems but in order to do so they have to have a sufficient supply of water having the required quality.

Ski resorts known for dependable good snowy conditions (in principle resorts at higher altitudes) will have to organize themselves for a growing number of skiers, while winter sports resorts with less dependable snow (in principle resorts at lower altitudes) will have to develop alternative leisure time activities. Seen that most probably high altitude ski resorts will benefit from a growing stream of visitors ski run owners will be well advised to adapt the ski-run network to the growing demand and to this end develop cooperation schemes with neighbouring ski-resorts.

Considering the worldwide increase of CO₂ emissions it is necessary to develop ropeway techniques which permit to achieve a threefold goal i.e to improve the energy input to energy output ratio of ropeway installation, i.e. to reduce the consumption of energy and yet improve the performance of the ropeway installation and offer the possibility to increase the use of renewable sources of energy. By so doing it should be possible to improve the CO₂ balance and reduce emissions of pollutants.

Besides that sustainable solutions will have to be sought for to develop “soft” means and systems of transportation to facilitate the arrival of the population of great urban agglomerations and reduce the circulation of individual passenger cars.

The support given by ropeway operators to the harmonious and sustainable development of mountain resorts will no doubt have an ever growing importance in the future.

5. Excerpt of papers and links providing additional information : contributions of members of the O.I.T.A.F. Environment Forum

Wirtschaftskammer Vorarlberg – Hochlagen-Umwelttagungen 1978 bis 2000

Deutscher Skiverband 1989 – 1996

O.I.T.A.F. Kongress S.F. 1999 – Manhart

Manhart : SAM 1996 ; Courchevel, April 2002

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Eidg. Department des Inneren, 1991, Wegleitung

Univ. Prof. Dr. Franz Solar, 2005, UFO, Wien „Bodenstabilität und Erosion im Alpin“

Schweizer Seilbahntagung, Martigny, Mai 2005 – Manhart

BUWAL, Natur- und Landschaft, Rita Wyden, Entwicklung in den letzten 10 Jahren in der Schweiz, Feb. 2000

Françoise Dinger – L'impact de la neige de culture sur les domaines skiables (2ème congrès international L'eau en Montagne 20 – 23 septembre 2006 MEGEVE (74) France

L'ANENA : Association nationale pour l'étude de la neige et des avalanches : <http://www.anema.org/> et les recherches Cemagref sur les plans de prévention sur les risque d'avalanches

http://www.grenoble.cemagref.fr/etna/resultats/guides_methodologiques/PPRA.htm.

F.Dinger, 1997 – Végétalisation des espaces dégradés en altitude – Edition CEMAGREF, 144 p DINGER

F., 2000 – The use of organic waste for seeding to grass and replanting disturbed land surfaces at high elevation . 1er congrès Mondial de l'Association Internationale de l'Eau (International Water Association (IWA), Paris 2000, 3-7 juillet 2000

« Indicators of Europe's changing climate » SB 20th meeting, Bonn 19/06/2004

DINGER F., AUBRY F., WIART J. 1999 – Utilisation des déchets organiques en végétalisation – Guides de bonne pratique – Edition ADEME, 112 pages.

Links of members of the O.I.T.A.F. Environment Forum

<http://www-ski-online.de/umwelt>

<http://www.sntf.org>

<http://www.seilbahnen.at>

http://bafu.admin.ch/sport_tourismus/00653/00667/index.html?llang=de

http://www.umwelt-schweiz-ch/buwal/de/fachgebiete/fg_landinfra/freizeit/konflikte/

<http://seilbahnakademie.at/willkommen>

<http://seilbahnen.org/index/php>

<http://seilbahnen.de/de/index.html>

<http://seilbahnen.de/de/82d3cc7d-4b17-8351-c288fa427160html>

<http://cable-car.de/linkverzeichnis.htm>

<http://provinz.bz.it/mobilitaet/>

Papers published by the OITAF Environment Forum on the following subjects :

Subject 01 : Greening of areas located at high altitudes and ropeway installations

Subject 02 : Snow gunning and ski-run preparation

Subject 03 : Water supply and consumption of ski areas / Example South Tyrol

Subject 04 : Wildlife and winter sports resorts

Subject 05 : Avalanche protection : Environmental impact

Subject 06 : Environmental compatibility test : guide for ski areas to be tested for their environmental compatibility

Subject 07 : Environmental audit

Subject 08 : Alpine Convention

Subject 09 : Climate and its effect upon the management of ski-areas

Subject 10 : Tourism and leisure time traffic

Subject 11 : Natura 2000 and ropeway installations

Subject 12 : Scientific research