



# MASTER PLAN

## Tourism and Winter Sports Development on the Erciyes and in the Metropolitan Municipality of Kayseri



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Contractor:

**ATC Austrian Tourism Consultants GmbH**  
Kratohwilestr. 12/2/67, A-1220 Vienna  
Tel.: +43 (0) 1 263 71 17-0, Fax.: +43 (0) 1 263 71 17-7

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- I) Financial Calculations
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- III) Area maps with ski lifts and sporting facilities
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# 1 Introduction

The municipality of Kayseri contracted ATC – Austrian Tourism Consultants to design a Master Plan for Erciyes Mountain. The objective of this master plan is to develop tourism and winter sports on the Erciyes and in the metropolitan municipality of Kayseri. The project officially started with the visit of the two experts, Christian Klenkhart and Markus Grillitsch on Thursday, 16<sup>th</sup> February 2006.

The Master Plan was developed in three main phases. The first phase included the development of the implementation plan and a thorough analysis of the situation on the ground. Four experts (Engin Cakman, Walther Czerny, Markus Grillitsch and Christian Klenkhart) of the team have undertaken several visits to Kayseri to physically examine the terrain and to discuss with local experts and decision makers the best-suited development plan. Using latest software digital models of the mountain and the village were created and analysed in detail. This phase concluded with the presentation of the Technical Evaluation Report and a first draft of the planned facilities.

In the second phase the master plan was further elaborated and a number of alternatives for the development of the resort were developed. Plans for the village, drawings and 3D computer graphics were created. The ski lifts, the artificial snow making facilities and the slopes were planned. Furthermore, the team of ATC developed an integrated concept for the development of winter sports on Mount Erciyes comprising all services and facilities linked to the winter sports such as hotels, restaurants, ski schools, ski rentals, shops, various attractions etc. At the end of the second phase, several presentations and discussions were held with decision makers and experts in Kayseri. An agreement was found on the general concept of the development of the Erciyes Mountain Resort.

In the third phase, the master plan was finalised. This included detailed financial calculations, the development of proposals for summer activities on the mountain, a revision and fine-tuning of the planned ski lifts and slopes, an improvement of the plans of Erciyes Village, the development of a proposal for an institutional framework and advise on the development approach and sequence. Furthermore, Kemalettin TEKINSOY, Mehmet TARINC, Ali HASDAL und Hayri NAZIKSOY were invited for a study tour to Austria. The team of ATC presented

a number of sporting facilities in Austrian including a renown ski resort. Meetings and discussions were organised with a ski lift operator, a destination-marketing manager, technical personnel of ski lifts, artificial snow making specialists etc. Furthermore, the final draft of the master plan was discussed.

This final Master Plan includes in Section 2 the Strategic Direction for the development of the Mountain Resort. The long-term vision is presented as well as the guiding principles for the realisation of the resort. The importance of creating a strong and marketable product is elaborated. Furthermore, the different forms of experience that can be gained in a modern Mountain Resort are described as well as the potential target groups.

Section 3 describes selected activities that will be possible with the planned infrastructure and facilities. The focus is on winter sports and especially skiing, as this will be the main driving force for the development of the resort. However, alternative kinds of summer and winter sports are described as well to ensure the attractiveness of the Mountain Resort for the whole family. Furthermore, the target groups and locations are specified.

Section 4 specifies the resort development approach, which can be subdivided in two general phases. The first phase includes the construction of the Core Ski Area and some elements of Erciyes Village. The second phase has been structured in four Key Modules allowing a flexible further development of the Mountain Resort.

Section 5 provides a detailed description of the ski area including the data collection and methodology, an analysis of the existing area on the pass, a description of the proposed ski lifts and ski runs, a capacity analysis, suggestions for environmentally friendly construction works, grooming of ski runs, artificial snow making, etc.

Section 6 comprises the suggestions for Erciyes village, various attractions and service facilities. This involves the accommodation facilities, restaurants, parking, community facilities, barbecue, fun and kids' parks, service facilities such as ski schools or ski rentals as well as floodlight facilities, a kite area, cross-country tracks, and traffic and crowd management, etc.

Section 7 provides an institutional structure for the development of the Erciyes Mountain Resort. The suggested Private Public Partnership is an innovative approach to integrate all the involved stakeholders. The proposed role and

responsibility of the involved public and private actors are described as well as the organisation of the interactions between the actors.

Section 8 includes the financial analysis comprising the required investments, the operating costs, the revenue forecasts, the indirect benefits of the ski resort, financial models with key figures such as Cash-Flow, EBIT, EBITDA, and scenario calculations.

Finally, in section 9 concluding recommendations are provided.

The team received strong support from various stakeholders in Kayseri and – although not everybody can be listed –the following are thanked for their support:

- ⇒ Mehmet ÖZHASEKİ – Mayor of the Metropolitan Municipality of Kayseri
- ⇒ Mustafa YALÇIN – General Secretary
- ⇒ Kemalettin Cengiz TEKİNSOY – Deputy Secretary
- ⇒ Arif EMECEN – Director of Transport Department, responsible for this project
- ⇒ Ahmed HERDEM – Mayor of Hacılar
- ⇒ Ali VERAL – Mayor of Hisarcık
- ⇒ Recep ÖZKAN – Mayor of Develi
- ⇒ Bekir ÖDEMİŞ – Mayor of Ürgüp
- ⇒ Mehmet TARINC
- ⇒ Ali HASDAL
- ⇒ Hayri NAZIKSOY
- ⇒ Mükremin ÇEPNİ
- ⇒ Various ski instructors and members of ski clubs

The following experts of ATC were involved in the development of the Master Plan:

- ⇒ Markus A. Grillitsch (Project Manager)
- ⇒ Mehmet Eglenceoglu
- ⇒ Christian Klenkhart
- ⇒ Engin Cakman
- ⇒ Walther Czerny
- ⇒ Peter Hartl
- ⇒ Mustafa Palancioglu
- ⇒ Banu Cotton
- ⇒ Martin Uitz



- ⇒ Martin Schuster
- ⇒ Stefan Szauter
- ⇒ Birgit Amann



## **2 The Strategic Direction**

### **2.1 A Vision for Erciyes and Kayseri**

Even though the actual contract asks primarily for a Technical Master Plan for the creation of a Winter Sports Resort at Erciyes Mountain near Kayseri, the project team had from the very beginning the larger scope in mind. The long term implications of the Master Plan in the widest possible sense were discussed with stakeholders in Erciyes at all levels.

The long term vision as stated below was greeted with enthusiasm by virtually all persons that were contacted during the missions as well as during a study tour to Austrian resorts. With politicians, leading administrators, business people, representatives of NGOs and sports people from Kayseri and other parts of Turkey the unique opportunity was discussed, which lends itself on the basis of Kayseris unique location in the centre of Turkey and in a favourable position in the Eastern Mediterranean. The general sentiment towards the future development of Kayseri can be formulated this way:

- ⇒ Winter sports and winter tourism shall become an important part of the identity of the metropolitan municipality of Kayseri;
- ⇒ Winter sports shall create a substantial source of income for the local economy and for the local population;
- ⇒ It is a goal to create an attractive recreational, leisure and social space for the inhabitants of the town as well as visitors from Turkey and from abroad;
- ⇒ Ultimately, it will be the pride of Kayseri to become the capital for winter sports and winter tourism of Turkey, also holding major national and inter-national sports events for European or World Cup competitions in various fields or – in the long run – even World Championships and Olympic Games.

### **2.2 Guiding Principles of Development**

- ⇒ To develop the sporting and accommodation capacities in a balanced and controlled manner to ensure long-term sustainability in economic, social and environmental terms;

- ⇒ To plan and steer the activities on the mountain towards an integrated tourism resort by providing clear guidelines in the fields of architecture and development of facilities;
- ⇒ To ensure that the value created remains in the region by involving local business people and committing foreign investors to engage themselves locally;
- ⇒ To build on synergies between the public and private sectors and initiate fruitful Private Public Partnerships;
- ⇒ To foster a milieu that encourages cooperation and competition. Cooperation is important in overall destination management and marketing. A very basic issue is the establishment of one lift pass for all ski lifts, which is not realised yet. Competition, on the other hand, constitutes the force that leads to innovation and quality improvement of the individual businesses.

## 2.3 Externalities

- ⇒ “Free” Public Relations for Kayseri, raising awareness about the municipality as a lively, culturally, touristically and economically interesting place as well as fostering the reputation and image of the municipality nationally and internationally;
- ⇒ Jobs and income in industries related to tourism such as construction, agriculture, crafts and artwork, local production, etc.;
- ⇒ Enhanced capacity to finance infrastructure projects through increased income from tourism;
- ⇒ An unplanned and uncontrolled development of the area would have a negative environmental impact through increased traffic, or by harming the flora of the region. The negative externalities will be minimised, if the resort is developed according to the Master Plan, which ensures that the number of ski lifts is minimised and the slopes are planned in a way that only minor changes to the natural terrain are necessary.

## 2.4 Development of a strong and marketable Product

The Master Plan aims at creating at Erciyes Mountain as well as in Kayseri and several of the neighbouring municipalities a ‘state of the art’ winter sports product at the same quality level as it can be found in towns of a similar size located in similar geographic locations. Vancouver in Canada, Salt Lake City in the USA, Grenoble in France, Innsbruck in Austria, Sapporo in Japan and Torino in Italy were cited as good examples where winter sports and winter tourism contribute in major way to the local economy.

First class technical facilities must serve as the basis for the development process. The main product will of course be winter vacations, which are becoming worldwide a vigorous, fascinating and healthy alternative to summer vacations. In short, it must be the ultimate goal to the guests of Kayseri to ....

⇒ **.....have a good time in a healthy mountain environment in summer and winter for the whole family.**

## 2.5 The “Erciyes Experience”

Today's tourists everywhere are seeking a special experience in their vacations. It is therefore important to structure the product that will be offered according to certain themes that will play a major role when a specific marketing strategy will be formulated. It should be a strategy for the whole family and for the major segments of society.

- ⇒ Well-being experience: The mountain shall offer in winter and summer the attractions and facilities to improve the well-being of the local population and tourists. This includes aspects such as breathing fresh air, spending time in a beautiful landscape, enjoying physical activity, having relaxing moments with the family, etc.
- ⇒ Nature experience: Erciyes mountain is a very distinct and unique natural site. Inhabitants and tourists alike shall be able to experience the wonderful nature in various ways, such as the view from restaurants located in scenic areas, well designed mountain paths, on ski slopes and trekking tours, etc. Obviously, the protection of the natural environment is paramount for this experience.

- ⇒ Family experience: A key priority of this Master Plan is to create attractions and facilities for the whole family, including children, parents and grandparents. Accordingly, as not all family members may be skiers, a number of activities for non-skiers and less sporty persons are planned, such as walking tracks, shopping areas, curling, ice skating rinks and other facilities to fill a day, when others are skiing. Also, the children practice area for the very young is situated close to the restaurants so that for instance grand parents may enjoy themselves watching the first steps on snow of their beloved ones ones.
- ⇒ Sports experience: Too many people spend most of their time in offices and in front of their computers. They are keen to move their bodies. Skiing and snowboarding are great sport activities for these people as they combine physical activity, outdoor experience, fun, and much more. Also, with very limited practice, say one week each year, people can become quite skilled, train their bodies and enjoy themselves. In this respect skiing is a quite unique sport. However, the Erciyes offers many more sporting possibilities, which are explained in more detail below. Each kind of sport addresses specific target groups with varying interests. Thus, sports experience in the mountains is a strong force to attract a wide range of target groups.
- ⇒ Adrenaline experience: A more specific form of sports experience is the adrenaline experience. This clearly touches niche markets of usually sportive, young and mostly masculine target groups. Erciyes offers many possibilities for activities addressing the adrenaline experience, such as helicopter skiing, ice climbing, freeride and freestyle skiing as well as snowboarding, snow kiting, mountain gliding, snow-rafting, etc. In Turkey the markets for such activities may still be rather small at the beginning. However, also the promotional impact of such activities must not be underestimated. Not much investment is required to organise events and competitions, which frequently offer opportunities for free publicity both in TV and in the print media.

- ⇒ Relax experience: Quite the opposite of the adrenaline experience is the relax experience. For some this means a nice walk in the mountains, for others it might be to sit in a restaurant and watch the spectacle on the slopes. Others again, enjoy an open-air barbecue at one of the specially created areas with all necessary facilities. All in all, the mountain brings together such contrasting aspects of leisure time as exhilarating activities or lazy relaxation.
- ⇒ Social experience: Social life and social contacts are basic human needs for the citizens of Kayseri and tourists from Turkey and abroad. Locals, especially children, already benefit from the activities of the various ski clubs. However, the mountain offers many other places for social encounters as well such as coffee shops, restaurants, places for events, cross country facilities, and even a prayer hall.

## 2.6 Target Groups

The key issue of any product is that enough people feel it attractive enough to pay a price for it that allows for an adequate profit margin. This “value” of the product can only be created when the product addresses the specific needs of potential buyers. Just building facilities without having the market in mind may lead to heavy losses. Therefore, although it is not requested in the technical contract, it is important to reflect on the main target groups for the resort.

The joys and the value of a winter vacations have long been recognized by all those segments of society that are able to afford them. Therefore, winter vacations have become very popular in practically many societies in Europe, North America and Asia. The skiing population has been growing over the last three decades from just above one hundred million Alpine skiers worldwide to now more than two hundred million and it is still growing strongly. Whereas the markets in Scandinavia and in Central Europe - particularly in Austria, Germany and Switzerland - as well as in the Alpine countries Italy and France are almost saturated, very strong growth rates can be noticed in the Eastern European countries where a broad and relatively affluent middle class is developing fast. Also North America, Japan, Korea and Australia have developed into areas where skiing and winter vacations are highly popular. More and more people are

travelling great distances in order to find good winter sports conditions or a particular experience.

Following the breakdown of communism in Eastern Europe and Central Asia, as well as the reform movement in China large middle and upper classes are developing in those countries as well. Skiing and winter sports are becoming extremely popular with them. The same can be said for parts of the Arabian and Iranian markets as well as for Egypt and Israel. A recently built indoor ski resort in Dubai is very successful and attracts many visitors who have never tried skiing before, and who would like to try their newly acquired skills at higher and longer slopes in a natural environment. In Dubai and in other Emirates new and bigger indoor slopes will be built within the next one or two years. Therefore, it is expected that many people in these countries and also in Israel will be looking with great interest at a winter sport resort of a high quality level within just a few hours travel time of flying time of their capital destinations.

It is suggested to penetrate new markets in concentric circles with Kayseri and other surrounding towns as a prime target areas, followed by Ankara, Istanbul, Adana and the rest of Turkey. Subsequently the above-mentioned surrounding countries in Europe and Asia must be targeted.

The national market can be broken down in the local or regional market and the national market, particularly from Istanbul, Ankara, Adana and other urban centres. The regional and national markets are characterised by a low density of skiers or snowboarders. Therefore, beside the skiing facilities other activities should be planned for people that don't ski. Also, an emphasis needs to be on increasing the popularity of skiing. In order to achieve this, the Winter Sport Centre should be an attractive place, where various snow activities can be watched and tried out. Also, it is suggested to address different target groups than the other skiing resorts in Turkey.

Furthermore, it is suggested to target the skiing and snowboarding population of Middle East countries including Israel. A major advantage of Kayseri would be the cultural affinity with such target groups, including food, drinks, habits and attitudes. Also, Kayseri is geographically close to these markets and the travelling times relatively short. Other potential target groups in Europe can be addressed. It is expected that a product, which offers a good value for money, will also attract European skiers and snowboarders. However, decisions have to be made concerning the target groups and the product offered since some target groups might clash with others.



At this stage, an overview of key markets and the travel duration from these markets to Kayseri is provided. When this Master Plan will be implemented, it is strongly suggest to develop an elaborated Marketing Strategy and Implementation Plan. While the focus of this Master Plan is on the general Planning of the resort, marketing will be the key to increase the awareness about this highly attractive resort and create enough demand (also by increasing the popularity of winter sports in Turkey) to ensure financial success.

The following table shows flight connections from Turkish cities to Kayseri as well as flight connections from potential markets to Kayseri:



Departure	Stop	Flight time	Departure	Arrival	Flight time	Actual flight time	Flight time (incl. stop)
Istanbul				Kayseri			1h 25min
Ankara	Istanbul	1h	Istanbul	Kayseri	1h 25min	2h 25min	3 bis 5h
Dalaman	Istanbul	1h 20min	Istanbul	Kayseri	1h 25min	2h 45min	3,5 bis 6h
İzmir	Istanbul	1h	Istanbul	Kayseri	1h 25min	2h 25min	4 bis 6h
Antalya	Istanbul	1h 15min	Istanbul	Kayseri	1h 25min	2h 40min	3 bis 6h
Adana	Istanbul	1h 30min	Istanbul	Kayseri	1h 25min	2h 55min	3 bis 5,5h
Trabzon	Istanbul	1h 45min	Istanbul	Kayseri	1h 25min	3h 10min	5h
Athens (Greece)	Istanbul	1h 15min	Istanbul	Kayseri	1h 25min	2h 40min	4 - 9h
Sofia (Bulgaria)	Istanbul	1h 10min	Istanbul	Kayseri	1h 25min	2h 35min	6 - 9h
Tbilisi (Georgia)	Istanbul	2h 30min	Istanbul	Kayseri	1h 25min	3h 55min	5 - 6h
Baku (Azerbaijan)	Istanbul	1h 15min	Istanbul	Kayseri	1h 25min	2h 40min	6 - 14,5h
Teheran (Iran)	Istanbul	2h 55min	Istanbul	Kayseri	1h 25min	4h 20min	6,5 - 15h
Damascus (Syria)	Istanbul	3h	Istanbul	Kayseri	1h 25min	4h 25min	6 - 7h
Moscow (Russia)	Istanbul	2h 05min	Istanbul	Kayseri	1h 25min	3h 30min	5 - 6,5h
Cairo (Egypt)	Istanbul	3h 15min	Istanbul	Kayseri	1h 25min	4h 40min	5 - 16h
Amman (Jordan)	Istanbul	2h 10min	Istanbul	Kayseri	1h 25min	3h 35min	8 - 20,5h
Beirut (Lebanon)	Istanbul	1h 45min	Istanbul	Kayseri	1h 25min	3h 10min	9 - 15,5h
Lavocsa (Cyprus)	Istanbul	1h 20min	Istanbul	Kayseri	1h 30min	2h 50min	7h 55min
Tel Aviv (Israel)	Istanbul	2h	Istanbul	Kayseri	1h 25min	3h 25min	4 - 5h
Dubai (UAE)	Istanbul	4h 50min	Istanbul	Kayseri	1h 25min	6h 15min	5 - 6h
Abu Dhabi (UAE)	Istanbul	6h	Istanbul	Kayseri	1h 25min	7h 25min	6 - 15h

### 3 The Activities suggested for Erciyes

Even though alpine skiing is by far the best known and also the most popular winter sport worldwide, there is a whole range of other activities, which are highly popular and are attractive to different age groups and even different income groups. Whereas alpine skiing is not an inexpensive activity because it requires sophisticated equipment, good clothing and an excellent infrastructure (ski lifts, snowmaking, ski slopes, etc.), there are other activities such as sleigh rides, tobogganing, cross country skiing or just walking in the fresh and crisp



winter air, which are less expensive and therefore more easily affordable for target groups with lower income.

In societies with a high intensity of winter sports, such as Central and Western Europe, North America and Northeast Asia, it has been an experience that people go through several phases of sports activities in their live span, starting in childhood with the simple joys of tobogganing, ice skating, various fun activities or just playing in the snow, progressing to alpine skiing for young people and young adults, to cross country skiing at a later stage of life. All activities are considered to be particularly healthy and therefore recommended from a medical point of view for all age groups.

Thus it is a strong recommendation of this Master Plan, that Erciyes Mountain should be created as a truly universal winter sports resort for the whole family and with many activities for all age groups.

The Erciyes resort is particularly attractive because the local people can enjoy themselves or experience something original and exhilarating on the mountain. Therefore, the main aim of the facilities to be developed is to make possible a whole range of experiences. Hence, before describing the various facilities to be constructed in two main phases, the range of activities that can be enjoyed, will be explained below.

### **3.1 Winter Sports Activities:**

#### **3.1.1 Alpine Skiing**

Alpine Skiing or downhill skiing is a recreational activity and a sport, which evolved from cross-country skiing when ski lift infrastructure was developed at mountain resorts. This type of winter sport is still the most popular among fans of mountain and snow. It is popular wherever the combination of snow, mountain slopes



and a sufficient tourist infrastructure can be found. Furthermore, Alpine Skiing is a major Olympic discipline. All the different elements like the thrill of the downhill, the technique of the slalom, the style of the giant slalom, the speed of the super-G and the versatility of the combined have turned Alpine Skiing and its various disciplines into the most fascinating and practiced of winter sports. Alpine

Skiing comprises also a number of game forms such as snowblading, big foot, freeriding, firm gliders, etc.

Target Groups: All

Location: All ski lifts, off-piste terrain

### 3.1.2 Snowboarding

Snowboarding is a board sport, which is similar to skiing but was inspired by surfing and skateboarding. By now it is a very common winter sport throughout the world. Snowboarding became an Olympic discipline in 1998 and is one of the most spectacular kinds of sports. It is a symbol of freedom and fashion, fascinating especially to the young.



Target Groups: Teenagers, students and people up to 30 years of age

Location: All ski lifts, off-piste terrain

### 3.1.3 Telemark Skiing

Telemark skiing is also known as 'free heel skiing'. Unlike in Alpine skiing, the skis used for telemarking have a binding that only connects the boot to the ski at the toes, just as in cross-country skiing. Telemark turns are led with the heel flat on the outside ski, while the inside ski is pulled beneath the skier's body with a flexed knee and raised heel. Telemark-ski-fans appreciate in particular the intense perception of the body, the harmony of the movements and the feeling to be one with the mountains.



Target Groups: Those who seek sporty alternatives, with a strong appreciation for nature experience

Location: All ski lifts, off-piste terrain

### 3.1.4 Freestyle Skiing

Freestyle Skiing describes a number of disciplines that require high acrobatic skills. The more traditional forms are mogul skiing and ski acrobatic in the air and on snow. Recently, freestyle skiing was relabelled as “new school” and comprises events such as half-pipe, big air, slope style and skier-cross.



Target Groups: Sporty, young, adrenaline seeking

Location: At Kabak Tepe Develi II, a snow fun park is planned with half pipes, jumps, rails etc.

### 3.1.5 Ski Touring

Ski touring offers many aspects. Some enjoy walking and trekking in untouched nature. For others, the emphasis is on training their bodies by walking up a mountain as quickly as possible with skis that stick due to the attachment of climbing skins. Those who seek untouched powder snow for unrivalled skiing experience, appreciate ski touring.



Target Groups: All age groups, those who especially value nature experience, physical demanding.

Location: Areas to the north and west of the mountain are well suited

### 3.1.6 Helicopter Skiing

Mountains and glaciers, deep-snow and powder-snow tracks, untouched nature and an unforgettable experience, is what heli-skiing offers. The helicopter takes ski enthusiasts high up to remote mountain peaks, from where they ski / snowboard down in untouched snow. Heli-skiing is a unique experience that evokes fascination and gives skiers and snowboarders the feeling of adventure and freedom. There is a certain conflict with those, who prefer ski touring. On the other hand, with helicopter skiing a high value added and an excellent additional income can be achieved.



Target Groups: Experienced skiers

Location: Areas to the north and west of the mountain are well suited

### 3.1.7 Cross Country Skiing

Cross-Country Skiing is a popular winter sport in almost every famous ski region. It has long been a discipline of the Olympic Winter Games. Cross-Country Skiing has two techniques: classic and freestyle. Its origins lie in the Scandinavian territories as a means of transport across the snowbound scenery. Cross Country Skiing is attractive to top athletes and the occasional sportsmen alike. The basic technique can be learned quickly. The sport is ideal for cardiovascular training and very gentle on the joints.



Target Groups: All age groups, fitness seeking people, getting away from the crowds

Location: Track from the winter sports centre, Track from the Üsfistosyon downhill station

### 3.1.8 Biathlon

Biathlon is a term used to describe any sporting event made up of two disciplines. Biathlon, however, usually refers specifically to the winter sport that combines cross-country skiing and rifle shooting. The sport has its origins in an exercise for Norwegian soldiers and became popular as an alternative training for the military throughout Scandinavia. It was first included in the Olympic Games in 1960. A Biathlon competition consists of a race in which contestants ski around a cross-country track, and where the total distance is broken up by either two or four rounds of shooting, half in the prone position, the other half standing.



Target Groups: Inhabitants and sport clubs

Location: Track from the winter sports centre

### 3.1.9 Snow Kiting

It is a fairly new type of winter sport that can be practiced on snow-covered meadows, wide-open fields or even on frozen lakes. The snow sailor stands on any type of sled, skis, snowblades, free skates or a snowboard to control a kite. Winds up to 2 to 3 Beaufort fly a kite and give the rider a high-speed sensation.



Target Groups: Sporty and young

Location: The lake and the flat area around the lake are ideal. Also the wind and weather conditions should be very suitable on the Erciyes



### 3.1.10 Tobogganing

Sledge riding is fun and a social experience for adults and children. Often children simply walk up the mountain and go down with their sledges. However, sledge riding is also possible using ski lifts. In this case it is highly recommended to prepare a tobogganing track and separate it from the skiing area. Sledge riding is a lot of fun also at night with flood lights, including a stop in a restaurant or an alpine hut.



Target Groups: All

Location: Kabak Tepe Develi I and II  
Zümrüt I and II

### 3.1.11 Snow Tubing

Tubing is the activity of riding an inner tube on snow but also on water or most recently through the air. Due to their shape the tubes themselves are also known as "donuts" or "biscuits". They can be used in flat terrain for small children (see Kids Park below), in especially (snow) built tubing runs, on the slopes, pulled below a snowmobile, etc.



Target Groups: Children and families

Location: Kabak Tepe Develi I and II  
Zümrüt I and II

### 3.1.12 Air Board

The Air Board is a synthetic high-tech material filled with air. Air boarders lie on their belly on the board, their head first, looking down the slopes. The feeling of the speed is extraordinary. The board can be steered by shifting the weight of the body. As the body is only close above the ground, injuries are rare.



Target Groups: Young and sporty, adrenaline seeking

Location: Kabak Tepe Develi I and II  
Zümrüt I and II

### 3.1.13 Snow Rafting

For Snow Rafting special half pipes can be built. Alternatively, they can be pulled along by a high-powered snowmobile. The raft reaches high speed very quickly and is therefore a thrilling and a bit dangerous adventure.



Target Groups: Young and sporty, adrenaline seeking

Location: Kabak Tepe Develi I

### 3.1.14 Snowmobile

It is a real delight: gliding through a beautiful landscape, swirling up fresh snow and letting pursuers disappear in a big cloud of snow. However, snowmobiles are not only used to sweep around alone. It is also very common to use them as machines to pull rafting boats.



Target Groups: Young and sporty, adrenaline seeking  
Location: Either side on the way to Hacilar or Develi

### 3.1.15 Ice-Skating

Ice-skating can be practiced at indoor and outdoor skating rinks and areas with artificial cooling as well as on frozen lakes and canals. It is a popular winter sport and can be practiced both by adults and children. At night it is often combined with social activities, going to the restaurant or having some drinks together.



Target Groups: All  
Location: Ice-skating rink in winter sport centre  
The lake

### 3.1.16 Walking and Snowshoe Hiking

Walking in the glimmering winter landscape can be fascinating. A special form is snowshoe hiking, which makes people mobile also in powder snow. With snowshoes it is possible to experience places, where the only footprints found are those of animals and winter birds. Furthermore, with torches at night it is a unique experience.



Target Groups: All  
Location: Round the lake and other tracks around the mountain

### 3.1.17 Others

The activities presented above are currently very popular and practiced by many in the Alpine countries. There are also other snow activities as well such as



Snowfox, Snowscooter, Snowbike, Snow Zorbing, etc. However, the activities described above include the most relevant and popular activities as well as some fun sports.

### 3.2 Summer Sports Activities

Because of the fact that for economic reasons hotels and lift facilities should be utilised as much as possible, it will be an essential issue on how tourists can visit Erciyes Mountain outside of the winter season, in the spring, summer and autumn as well. Best practise examples from successful tourist resorts in Europe and the US show that the economic performance of good winter sports resorts can be dramatically improved by an intelligent use of hotels and sports infrastructure throughout the year.

Target groups for summer vacations during the other seasons may be found among the same segments of the population as for winter vacations but also among those target groups for which the summer vacations at the beach may be to hot. Other opportunities can be found in business travels. More and more companies choose vacation resorts for staging seminars, small conferences, sales meetings etc. because of their attractive and original location, because of the fact that they have the undivided attention of the attendees and because a healthy sports environment lends the host companies a positive and dynamic image.

#### 3.2.1 Golf

Golf is an increasingly popular sport. In many alpine regions, golf courses have been constructed to foster the summer season. Especially for Erciyes/Kayseri, it is recommended to construct a golf course together with the skiing resort. The skiing resort will require a significant number of accommodation facilities, which should also be used in summer. Similarly to skiing, golf tourists are usually relatively wealthy, able and willing to spend a relatively high amount of money for their holidays. Erciyes/Kayseri might have an advantage in the hot summer months due to colder temperatures and fresh air. At the same time, it is suggested that the golf course is also open for the local population.



Target Groups: Golfers from Turkey, the surrounding regions and Europe

Location: Mid way from Hacilar to the mountain.

### 3.2.2 Hiking/ Trekking

This activity stimulates all senses and gives the hiker or trekker an insight into the flora and fauna of the area. But also the geological aspect should not be disregarded. Hiking is an interesting activity for the locals but could also attract tourist from other regions. A number of scenic hiking tracks can and should be created such as from the top station of Oksüzler Yurdu Ski Lift to the pass. This would be an easy path without long ascending or descending slopes. In summer tourists and locals can use the Oksüzler Yurdu Lift to reach this path. Furthermore, there are a number of attractive valleys for hiking. Hiking is seen as a valuable additional offer for the whole family to foster the summer season.



Target Groups: National market and surrounding countries

Location: Various paths should be constructed around the mountain with differing degrees of difficulty

### 3.2.3 Climbing

This type of sport covers a range of recreational, adventurous or sporting activities. Evolving from the pursuit of mountaineering, rock climbing is the scaling of steep rocky surfaces, usually using ropes and other climbing equipment for protection. This is then categorised as either free climbing, i.e., bouldering, free soloing, or rock climbing, (where ropes are used strictly for safety), and aid climbing, where you climb the equipment instead of the rock.

### Climbing garden (natural)

A natural climbing garden is an area in the mountains where all the routes are already equipped with bolts to allow rock climbing and sport climbing. Usually the routes in a climbing garden are about 20-30 metres high. Depending on the structure and formation of the rock different degrees of difficulty can be offered.



### Climbing garden (artificial)

An artificial climbing garden can also be a construction of wood, ropes, tyres and metal. It is a certain order of a group of masts that are connected with steel ropes and wooden parts. Together those ropes and wooden parts form artificial obstacles in a height of about 10 to 12 metres. Hurdles which have to be overcome are for example wooden ladders, ladders with movable steps, bridges, swinging wooden beams, footbridges made of ropes, suspension bridges, hanging tyres, balance beams and many more. The climber is secured with ropes, climbing harness and a helmet. There are no rules guiding the climber. Everyone is free to give it a try. Climbing gardens are a great attraction and can be built almost everywhere.



Target Groups: Mainly regional market but also interesting for events and seminar tourism

Location: Close to the city

### 3.2.4 Mountain biking

Mountain bike courses are often offered in mountainous regions where both beginners and advanced bikers are able to find ideal conditions. The Erciyes offers ideal conditions for mountain bike courses for different abilities. In summer, the Oksüzler Yurdu ski lift can be used to transport bikers to the top station, from where stunning downhill track could be constructed. A number of mountain bike courses on the mountain as well as in the valleys could be developed.



Target Groups: Regional markets, additional offer for summer tourists, mountain bike enthusiasts (e.g. downhill)

Location: Several courses in the area

### 3.2.5 Nordic walking

**Nordic walking** or ski walking is basically walking with modified ski poles. Nordic walking combines the positive training effects of running or walking combined with the total body exercise advantages of cross-country skiing. Compared to regular walking **Nordic walking** is a very healthy sport because it creates less pressure on the back and lower joints and is often practiced by people suffering from a damaged knee, hip or back. It is also less tiring than running and done in pairs or in small groups Nordic walking is great fun.



Target Groups: Regional markets, additional offer for summer tourists

Location: On walking tracks and on the mountain

### 3.2.6 Horseback riding

For a long time horses have been used to carry heavy loads or to take people from one place to the other. Used as draught animals harnessed to carriages and carts, they've performed good services. However, **horse riding** has always been a sport and many other types of sports are practiced on horses (e.g. Polo, etc.). **Horseback riding** is also a recreational activity offered in many holiday destinations. For many people this type of sport is a special pleasure because they are able to enjoy nature on the back of a horse



Target Groups: Regional markets, additional offer for summer tourists  
Location: Various tracks in the area

### 3.2.7 Summer toboggan run

The **summer toboggan run** can only be used with a special toboggan. This toboggan has 4 small hard rubber wheels and is equipped with a special type of joystick. The tobogganer uses the joystick to control the speed by pulling the lever towards his body which slows the toboggan down. Summer tobogganing is an adventure for the whole family. Children are “addicted” to racing down the run but adults seem to enjoy this pleasure even more. Furthermore, the ski lifts can be used in summer to transport the people up to the mountain.



Target Groups: Regional markets, additional offer for summer tourists  
Location: Oksüzler Yurdu, Kabak Tepe II



### 3.2.8 Mountain glider

A **Mountain Glider** is a fairly new and very special construction. The Glider hangs on a rope, which is fixed to a rail. For a ride on a Mountain Glider no additional energy is required but gravity. The **Mountain Glider** floats close to the ground over meadows or snow-covered slopes, over rocks, cliffs and edges or through forests from the mountain down into the valley. This new idea is especially appealing for skiers in spring, when the slopes have little snow. However, also for hikers and other guests the **Mountain Glider** appears to be a special attraction all year round. Guests are taking part in an exciting event while experiencing the force of gravitation.



Target Groups: Regional markets, additional offer for summer tourists

Location: Oksüzler Yurdu, Kabak Tepe II

### 3.2.9 Paragliding

Due to the mountains and wind conditions, the Erciyes and surrounding hills and mountains are very well suited for Paragliding. The use of Oksüzler Yurdu is again interesting as the Paraglider can get to the top station and start from there.



Target Groups: Regional markets, additional offer for summer tourists

Location: Oksüzler Yurdu and other spots

## 4 Resort Development Approach

This Master Plan foresees two main development phases. The first development phase aims at creating the very central elements of the resort. This includes a ski circuit from Hacilar to Develi, the development of Erciyes Village, the installation

of the key services and facilities as well as the realisation of a versatile and attractive offer of sporting and leisure activities. The first development phase can be implemented within three to four years.

In the second development phase, a modular expansion of the central resort is suggested. The Master Plan includes four expansion modules, which can be implemented independently of each other. The great benefit of this approach is that the development of the resort can be adapted to the actual needs and resources in a very flexible manner while having the benefit of a comprehensive and integrated development plan.

#### **4.1 Objectives for the First Development Phase**

- ⇒ Significant boost to the attractiveness of the skiing area ensuring national and international competitiveness
- ⇒ Significant increase of the capacities of the ski lifts and alpine ski slopes
- ⇒ Creation of an adequate quantity and quality of accommodation facilities
- ⇒ Adjust the skiing capacity to hotel and transport capacities
- ⇒ Enhancement of the entertainment and leisure facilities in the winter sport centre
- ⇒ Build capacity of the service providers
- ⇒ Improve the popularity of skiing among the local population and in Turkey
- ⇒ Commence with some of the non-skiing activities described above and make them popular in Turkey
- ⇒ Create a link with ski lifts from the Develi to the Hacilar side of the mountain

#### **4.2 Objectives for the Modular Expansion**

- ⇒ Ensure an intelligent expansion of the mountain resort that is based on an evaluation of market demand, needs and the available resources while following a strategic development plan creating an integrated sports and leisure area
- ⇒ Raise the awareness about Erciyes/Kayseri internationally and attract more international clients

- ⇒ Initiate international sport events and continuously realise more complex competitions
- ⇒ Improve the penetration of skiers and snowboarders in the region and Turkey
- ⇒ Increase the capacities and attractiveness of the skiing resort for more advanced skiers
- ⇒ Augment the capacities of the accommodation and skiing facilities
- ⇒ Improve the summer facilities to foster an “all seasons” tourism
- ⇒ Further upgrade the resort to create high value tourism

### 4.3 Identification of Major Tasks

It is suggested that the visionary project of creating a leading mountain resort in Turkey and the neighbouring countries is divided into subcomponents according to the specific competences required to realise this undertaking. While the subcomponents can be implemented by different contractors, an overall management needs to coordinate the subprojects to ensure that they fit together and create an integrated whole. The main subcomponents are:

#### Development of Infrastructure and Hardware:

- ⇒ Ski Area implementation: This task includes tendering, contracting, detailed planning and constructing of ski lifts, slopes and artificial snow making facilities as well as purchasing required equipment (e.g.: grooming machines) (see section 5 of this report).
- ⇒ Other resort infrastructure: In order to serve as an integrated mountain resort to be used during all four seasons a number of winter sports and summer activities need to be designed and the respective facilities implemented. Among those would be a golf course near the access road from Hacilar as well as a resort hotel next to the golf course which is to serve as a all year round resort hotel.
- ⇒ Erciyes Village Development: This task includes the tendering, contracting, detailed planning and constructing of the required infrastructure. Architectural guidelines for investors need to be specified (see section 6 of this report).



### Institution Building:

- ⇒ The creation of a management structure for the entire resort:  
Following the successful examples of resort development in North America and Europe, an integrated “mountain management” should oversee and monitor all activities and services within the resort, also those that are within the responsibility of private businesses. Most importantly will they make sure that the quality and efficiency of the entire operation can be guaranteed in the interest of all the guests visiting Erciyes. It is an obvious fact that a bad experience with only one of the services can spoil the entire vacation experience.

It needs to be understood that only a persistent high level of quality for all the services rendered in the resort area, that is in hotels, restaurants, at ski lifts, sport facilities etc., will ensure a sustainable long range economic success. Not even the best marketing and promotion strategy can replace the “word of mouth” promotion that is done by satisfied and happy guests who tell their families, friends, colleagues, etc. and will themselves become return customers.

Destination management needs to ensure that the ‘value for money’ ratio is always perceived as a good one by the majority of clients.

- ⇒ Creation of Private Public Partnership: Some elements of the planned mountain resort should be implemented by the municipality, while for others such as hotels, restaurants, shops, ski school etc. private investors should be identified. Working mechanisms should be installed to create a valuable synergy between private and public actors for the benefit of the whole region (see section 7 of this report).
- ⇒ Capacity Building: Ensure that the personnel for ski lifts, hotels, service facilities, ski schools, rental shops, mountain guards, avalanche security, etc. are adequately trained able to deliver service standards equal to international best practices. Furthermore, adequate people or organisations should be identified who offer and implement the various activities mentioned in this Master Plan.

- ⇒ Marketing Activities: A destination marketing strategy for Erciyes/Kaysery should be developed. Procedures and mechanisms need to be developed to clarify the contributions of the various actors to the destination marketing activities. An organisation responsible for the destination marketing should be created and its responsibilities defined. (see section 7 of this report)

#### 4.4 Risks and Assumptions

This Master Plan describes an ambitious and complex project. The project is embedded in global, national and regional technological, political, security, environmental, social and economic developments.

- ⇒ Technological Risks and Assumptions: The technological risks are presumed to be rather low. The team of ATC has an excellent knowledge of the current developments in the sector and strongly assumes that the suggested technical solutions will be highly adequate the next 10 – 15 years
- ⇒ Political Risks and Assumptions: The political risks are assumed to be moderate. In general the team assumes that Turkey will in the medium-run integrate more with the European Union, which should be an economic advantage for the mountain resort as also European markets can be targeted. On the other hand, a more traditional (religious) approach to politics and lifestyle in Turkey could lead to cultural frictions with Europeans tourists, while the attractiveness for tourists from the Arabic neighbouring countries could increase.
- ⇒ Security Risks and Assumptions: It is assumed that the region and Turkey as a whole will be a safe place to travel. While, in the long run, one or two relatively insecure years can be overcome, continuous security problems would jeopardise the development of the mountain resort as any other touristic development in Turkey.
- ⇒ Environmental Risks and Assumptions: It is assumed that the climate will become warmer, which implies for skiing resorts that they have to be located at higher altitudes and that sufficient artificial snow making facilities are planned. Even if

higher average temperatures are assumed, Erciyes/Kayseri should be a “snow-safe” resort in the medium and long run. For the summer activities, warmer temperatures might even be an advantage for a mountain resort.

- ⇒ Social Risks and Assumptions: The social environment determines, which type of tourism can be developed and which markets can be targeted without creating social problems in the region. The Master Plan assumes that a family and sports centred form of tourism is socially accepted in the region. Also, it is assumed that snow sports such as skiing will increase in popularity in Turkey, while the number of skiers and snowboarders in Western Europe stagnates.
- ⇒ Economic Risks and Assumptions: Turkey is currently experiencing strong economic growth and Kayseri has a favourable economic position in Turkey. The team expects a relatively high growth rate also within the next 10 to 15 years. Furthermore, it is expected that the proportion of the Turkish population that can afford skiing will increase. Economic risks are mainly seen in a more global context such as a significant raise in energy prices or economic problems related to political developments. The later risks are considered to be moderate.

The risks and assumptions described above relate to the environment of the project and can – if at all – only be controlled to a limited extend. However, thanks to the modular development approach, the Master Plan enables the municipality to react quickly and flexibly to eventual changes in the environment. However, it needs to be noted that risks exist not only in relation to the project environment. The implementation of the mountain resort is a complex task and requires professional management. Only if the various abovementioned project components are implemented successfully, Erciyes/Kayseri will utilise its full potential. Political support and a functioning Private Public Partnership are considered paramount for the realisation of this project. Section 7 of the Master Plan proposes a management structure for this project.

## 5 Ski Area

### 5.1 Principal Aim for the Expansion of the Ski Area

The existing Erciyes ski area situated on the mountain pass is approximately 42 km from Kayseri with the base station located roughly 2200 metres above sea level. The parking facilities on the pass are currently rather limited and poor road conditions mean many people prefer not to travel to the ski area by car.

The three communes found at the foot of Mount Erciyes, **Hisarcic**, located on the road leading to the pass, **Hacilar**, in the north of Kayseri and **Develi**, in the south, have a vested interest in the expansion of the existing ski area and its connection to their local ski areas. From a technical point of view, the commune of Hacilar possesses the best topographical conditions for the creation of ski slopes and a new, direct connection to the Erciyes ski area. The wide north-west facing slopes found at *Oksüzter-Tepe* offer excellent conditions for the construction of ski runs. Furthermore, it is from Hacilar that day guests arriving from Kayseri have the most comfortable and rapid access to the ski area.

**The principal aim, is to create an integrated ski area therefore, is the expansion of the existing ski area on the pass towards Develi in the area around the planned new hotel facilities there and the connection of the area to the beautiful ski runs in Hacilar.**

The morphology of the volcanic mountains in this region means that, at a lower altitude, the slopes are flat or very flat and become increasingly steep as the altitude increases, reaching a gradient of between 80% and 100% near the summit. **This morphological phenomenon, combined with the fact that there are a large number of beginners and weaker intermediate skiers in Turkey, served as the inspiration for the concept of a ‘ski safari’, which is a net of ski lifts and gentle slopes linking the ski area on Hacilar’s side with the pass in both directions. The ski safari allows inexperienced skiers to move around the whole ski area helping them to discover the joys of snowsports. Becoming**

**more experienced, skiers and snowboarders have the opportunity to use the more challenging ski lifts and slopes.** A major challenge in the realisation of this concept was that a large number of deep trenches run at right angles to the gentle slopes found in the lower part of the Erciyes mountain and that these must be crossed. It was, therefore, a case of finding the most appropriate crossing points. Measuring a total of approximately 6 km, this long and gentle ‘ski safari’ also represents the basis for further lift facilities which connect the higher-altitude regions and offer both advanced and expert skiers and snowboarders the chance to explore a huge range of steeper slopes. By negotiating slopes with a medium to steep gradient, winter sports enthusiasts always end up back on the gentle ‘ski trail’ of the ski connection, which they can then use to travel in the direction of Hacilar or the pass.

## 5.2 Basic Data Collection and Methodology

When it comes to judging the potential for expansion of an existing ski or mountain area, the primary sources of information are **topographical maps**. These allow the creation of further maps, which offer the first indications of the development potential of a ski area as a whole or in specific regions. A digital elevation model and orthophotos (rectified aerial photographs generated from digitally processed satellite images) are absolutely essential in order to be able to create detailed plans and visualisations of the potential ski area and its surrounding region. This data allows the creation of numerous maps which play an important role in the planning process:

**Gradient maps** indicate not only areas of terrain well adapted to the construction of ski slopes, but also flat areas of limited skiable potential and the degree of avalanche danger on steeper slopes. **Sun and exposure maps** give indications of the areas in which skiers and snowboarders will spend the majority of their time. For example, in December and January guests tend to seek the sunnier slopes, whereas in March and April sun can still be found in the morning but later in the day most slopes are in the shade (slopes in the shade all day offer long powder snow descents etc.).

However, all these maps and data are no substitute for **detailed terrain inspections** of the area on which the construction of ski runs, lifts and all other winter sports facilities is planned. These inspections are used to evaluate the feasibility of initial plans and ideas drawn up on the basis of topographical maps,

as well as to create new variants and ideas on the basis of the information collected. During this inspection process it is quite possible that some ideas drawn up on the basis of purely cartographic data prove to be completely unrealisable on the ground. A concrete example in this project would be that some of the planned ski crossing points leading over the deep trenches at right angles to the ski run proved, upon inspection, impossible to realise due to geological conditions such as steep trench walls containing loose volcanic rocks and larger stone blocks.

The results of these inspection visits are then added to the orthophoto mapping data along with important individual GPS data collected during the inspection (for example, to identify optimal points for the installation of lift stations). Furthermore, alongside cartographic data and the results of the inspection visits, climatic information (snowfall, wind, temperature etc.), as well as data concerning the geology and vegetation in the region play a key role in the decision making process regarding the selection of the terrain and slopes on which the construction of ski runs, lifts and all other winter sport facilities is planned.

### 5.3 The Existing Ski Area on the Pass

The ski area located on the mountain pass currently has 3 T-bar lifts and 2 fixed chairlifts serving ski slopes of roughly 15 hectares. The lower three lifts offer access to gentle ski runs with a maximum gradient of 25%. The capacities of these lifts are the following:

⇒ 4 CLF Zümrüt 1:	1570 m length	230 m altitude diff.	1250 p/hr.
⇒ Beden TBar 2:	1400 m length	300 m altitude diff.	750 p/hr.
⇒ Hirsacik Bld.L.	1400 m length	200 m altitude diff.	650 p/hr.

The higher ski runs in the existing ski area have a gradient of 30% and almost 45% and are to be classified as ‘red’ (intermediate) ski runs. The lifts serving these ski runs have the following capacities:

⇒ 4 CLF Zümrüt 2	1530 m length	320 m altitude diff.	1200 p/hr.
⇒ Beden TBar 1	1.500 m length	230 m altitude diff.	800 p/hr.



There are currently neither technical snow making facilities nor a ticket system in the existing ski area. The existing fixed chair lifts were installed by Doppelmayr (electronics by Siemens).

## 5.4 Total Planned Ski Area

The total planned ski area is based on the total ski run surface area in the region after both the first development phase and the realisation of the further expansion modules in the second development phase. The calculations were based on the number-of-skiers-per-area ratio generally found in central Europe (on average around one skier for every 150 m<sup>2</sup> of ski run). The master plan foresees an expansion of the current total of approximately 20 hectares of ski runs to almost **500 hectares of ski runs**.

This planned ski run expansion means that the area could accommodate over 30,000 winter sports guests on the busiest days. However, due to the fact that the final expansion plan envisages a ski region spread over a large area, there will be, on the one hand, ‘intensive central ski areas’ directly above Hacilar and at the lifts located on the pass, where the maximum number of skiers per ski run area will probably even be exceeded. On the other hand, several ski runs and facilities located further away from the central areas will probably never reach this maximum number of skiers.

It can therefore be assumed that **on the busiest days between 25 000 and 30 000 guests will use the area after the completion of the development work.**

A more detailed analysis of the planned lift and ski run usage is provided in the **ski area capacity analysis** (chapter 4.6).

Decisive is also **the degree of comfort offered by the lift facilities**. For very long lifts the use of fixed-grip facilities was not envisaged since this would lead to an excessively long journey time. A rapid transfer of skiers is also important for the access lifts to the ski area such as the *8 MGD Oksüzler Yurdu* lift. Due to the cold and windy conditions often found in the region in winter, the installation of weather protection covers (bubbles) is recommended, particularly on longer lifts



serving higher altitudes. Today, bubbles are standard in most Austrian ski areas as well as throughout the rest of the Alps.

Fixed-grip lift facilities were recommended for lifts where the total travelling time remains justifiable considering the length of the facility as well as for lifts, which, according to our previous experience in other ski areas, will be less frequently used.

The development approach foresees two phases: i) The development of the Core Ski Area and ii) The modular expansion of the resort.

The **Core Ski Area** focuses on the creation of a ski circuit between Hacilar and the pass ('ski safari'), which should be accessible for skiers of almost all abilities. The construction of the Core Ski Area includes the most important cable car and chairlift facilities and well as the necessary ski slopes. Also, it is recommended that the construction work be started from Hacilar, becoming one main access points to the ski area.

The second development phase foresees four '**modules**', each of which creates additional capacity and develops new ski areas offering an increased versatility of slopes and skiing possibilities. To order in which the modules are implemented will depend on the actual development of the resort. Therefore, the Master Plan provides the Municipality with a flexible development framework, enabling it to react flexibly to the actual situation in a couple of years.

It is, however, certain that the creation of parking facilities at several different locations offering access to the ski area is essential for the expansion of this large, far-reaching ski area.

It is therefore recommended that large car parking facilities and/or connections from existing or planned hotels be created at the following locations:

- ⇒ **Access from Hacilar:** parking spaces at the base station of the *8 MGD Oksüzler Yurdu* lift for day guests and those staying in hotels in Hacilar (shuttle bus service to the base station necessary).
- ⇒ **Access from Halılinalininyurt:** new access road from the road leading over the pass, parking spaces at the base stations of the planned lifts (*basic expansion phase: 4CLF Sirt, 4CLF Üstistasyon*, further development to also include *6 CLD DüNDAR Tepe*) for day guests.



- ⇒ **Access from the pass using the existing lifts** for day guests and those staying in hotels on the pass, direct access to the existing base stations from the hotels, expansion of the current parking facilities.
- ⇒ **Access from the mountain pass / new hotel village** (*heading towards Develi*), principally for guests staying in the new hotel village on the pass, direct access to the lift stations (*6LD Kabak Tepe Develi I, 6LD Kabak Tepe Develi II*) from the hotels.

Both the access roads to the parking facilities as well as the parking facilities themselves should be asphalted to meet central-European standards, if this is not already the case. At the base stations it will also be necessary to install the standard ski resort infrastructure found in most ski areas, such as toilet facilities, ticket sales points, kiosks or small restaurants, shops offering equipment rental etc.

## 5.5 Proposed Lifts of the Core Ski Area

### **8 MGD Oksüzler Yurdu**

Technical data: 77 (final capacity 108) gondolas:

Horizontal length	approx. 2.523 m
Altitude base/top station	2.100 m / 2.623 m
Difference in altitude	approx. 537 m
Transport capacity/initial	1.600 P/hr
Transport capacity/final	2.400 P/hrr
Gondolas initial/final	55/83.
Velocity	6,0 m/s
Ride time	approx. 7,5 min
Persons per gondola	8 persons

The base station is located at an altitude of approximately 2130 m above sea level at the end of a well-developed asphalted dual carriageway, which branches off from the road connecting Hacilar to the pass. The lift station is approximately 30 km from Kayseri. The base station is located on a 300 metre-wide ridge bordered both to the west and the east by deep ravines. The slope crosses a ditch at an



altitude of approximately 2200 m, above which it continues on wide north-westerly facing slopes with a constant gradient of approximately 30-40%.

A transformer station already exists near to the area in which the construction of the base station is planned. The supply of electricity necessary for the technical expansion of the area would, therefore, already be guaranteed. The construction of parking spaces close to the base station would be required.

Right from the start of the initial planning stage the transport capacity of the lift was selected in such a way as to ensure that, even on the busiest of days, winter sports guests can be transported into the ski area by approximately 11 a.m.

It is planned that the intermediate drive operation station be installed in the area around the base station.

### **6 CLD Sag Sakallik**

Technical data:

Horizontal length	approx. 1.771 m
Altitude base/top station	2.430 m / 2.872 m
Difference in altitude	approx. 442 m
Transport capacity/initial	2.000 p/hr
Transport capacity/final	2.800 p/hr
Chairs initial/final	72 /101
Velocity	5,0 m/s
Ride time	approx. 6,0 min
Persons per chair	6 Persons

The function of this lift is not that of a ski connection but a lift only for descents on one slope in the Hacilar ski area. However, due to its exceptionally attractive ski slopes, this lift should be constructed at the start of the technical construction phase. A high transport capacity was also chosen for this lift; firstly, because guests transported by the access lifts ski in this area and, secondly, because the slopes are extremely attractive.

Owing to the high transport capacity of the lift and the large number of chairs, it was also decided to install a chair garage building near to the base station. On the bottom floor of this chair garage building there should also be a grooming machine garage with refuelling facilities.

To enable the construction of these facilities and the grooming machine garage, it will be necessary to build a private access road leading to the base station of the lift and then continuing on to the *Oksüzter – Tepe*. This road should be equipped with a gravel base layer and have a width of approximately 4.0 m. The maximum gradient of the slope is 15%. Between 2200 m and 2350 m the road should be constructed in such a way that it can be used as a ski path by low intermediate skiers. This would provide the *8 MGD Oksüzler Yurdu* with its own gentle descent, since the entire upper (along the wide, west-facing ridge) and lower section is classified as easy ('blue'). Along the stretch, which is to double up as a ski path the private access road should be both flatter (max. 10%) and wider (approx. 7 m).

#### **4 CLD Karakulak Tepe**

Technical data:

Horizontal length	approx. 1.022 m
Altitude base/top station	2.513 m / 2.623 m
Difference in altitude	approx. 110 m
Transport capacity/initial	2.000 P/hr
Transport capacity/final	2.800 P/hr
Chairs initial/final	63 / 88
Velocity	5,0 m/s
Ride time	approx. 3,5 min
Persons per chair	4 Persons

This lift connects Hacilar to the pass, whereby guests using the new 'ski safari' will only take the lift to return from the pass to Hacilar.

Due to the gentle topography of the area served by this lift it can be assumed that the lift will serve as an excellent beginner lift since the ski run it accesses has a gentle gradient of between 10% and 20%.

#### **4CLF Yalçın**

Technical data: 75 Chairs

Horizontal length	approx. 586 m
Altitude base/top station	2.440 m / 2.592 m
Difference in altitude	approx. 152 m
Transport capacity	2.000 P/hr
Velocity	2,3 m/s
Ride time	approx. 4,5 min
Persons per chair	4 Persons

This short fix-gripped facility only serves as a connecting lift for skiers who reach the first peak using the 8 EUB Oksüzler Yurdu lift and then continue along the long, flat ski runs and ski trails in the direction of the pass. The construction of a short lift heading back up the mountain will be necessary at the lowest point in the Terrain valley to enable guests to reach the base stations located at Hahlalalinyurt.

#### **4 CLF Sirt**

Technical data: 158 Chairs

Horizontal length	approx. 1.245 m
Altitude base/top station	2.270 m / 2.584 m
Difference in altitude	approx. 314 m
Transport capacity	2.000 P/hr
Velocity	2,3 m/s
Ride time	approx. 9,5 min
Persons per chair	4 Persons

This facility is a short lift for weak and intermediate skiers and also serves as a connecting lift for skiers heading from Hacilar towards the pass.

Owing to the short length of the lift a fix-gripped four-man chairlift was chosen.

#### **4 CLD Üstistosyon**

Technical data: 103 Chairs

Horizontal length	approx. 1.721 m
Altitude base/top station	2.270 m / 2.555 m
Difference in altitude	approx. 285 m
Transport capacity	2.000 P/hr
Velocity	5,0 m/s
Ride time	approx. 6,0 min
Persons per chair	4 Persons

This lift represents the main connection to the existing ski runs on the pass. The base station of the lift is located close to the base station of the 4 CLF Sirt lift at the upper end of the wide and very gentle ski runs in the Hahlinalininyurt area, 2270 m above sea level. The construction of an access route from the mountain pass road, as well as parking facilities, is also planned in the area around the base stations.

Furthermore, during a further development phase this base station should also serve as the departure point for another direct lift (**6 CLD Dündar Tepe**) serving ski runs reaching up to 3000 m above sea level and suited to upper advanced and expert skiers.

In the case of the 4 CLD Üstistosyon lift it will be possible to park the chairs in the base station itself, thus doing without a separate chair garage building.

The completion of the basic expansion phase will allow also very inexperienced skiers (3-4 days of practice) to reach the ski area on the mountain pass using a combination of gentle ‘blue’ ski runs and the following three lifts:

- ⇒ 8 EUB Oksüzler Yurdu
- ⇒ 4 CLF Yalçın
- ⇒ 4 CLD Üstistosyon

For the return journey from the pass three lifts are also required:

- ⇒ 4 SB Zümrüt 1 (Bestand)
- ⇒ 4 CLF Sirt
- ⇒ 4 CLD Korakulate Tepe.

Beginners and weak skiers can then either use the *8 MGD Oksüzler Yurdu* lift to travel back into the valley or take the gentle slope leading to the base station via the connecting slope in the final section of the ski run.

This gentle connecting slope is particularly useful because, despite the fact that the vast majority of the ski runs heading towards Hacilar are very gentle, the last stretch contains a section of 100 vertical metres with a gradient of 35-40%. According to the international ski run classification system, this section is equivalent to a ‘red’ ski run. It is for this reason that the connecting track in this area is to be expanded to create a more easily negotiable ‘blue’ ski run.

## **5.6 Proposed Lifts for the Continued ‘Modular’ Expansion of the Area**

The following lifts are proposed for a further expansion phase:

### **6 CLD Kircilli Seki Tepe**

Technical data: 87 Chairs

⇒ Horizontal length	approx. 2.585 m
⇒ Altitude base/top station	2.430 m / 3.046 m
⇒ Difference in altitude	approx. 616 m
⇒ Transport capacity	2.800 P/hr
⇒ Velocity	5,0 m/s
⇒ Ride time	approx. 9,0 min
⇒ Persons per chair	6 Persons

This lift is a very long and particularly attractive lift facility for upper intermediate and expert skiers. The departure point of this lift is the base station of the connecting *4 CLD Korakulate Tepe* lift, whereby a slight descent is necessary from here to reach the base station of the 6 CLD Kircilli Seki lift. The slopes accessed by the lift all have a gradient of between 40% and 60%, with the terrain flattering only in the top section.



Considering both the length of the lift and the altitude it reaches (3050 m), it is recommended that this facility be equipped with weather protection covers.

Furthermore, the large number of chairs required, owing to the length of the facility, means that the construction of an intermediate drive operation station in the area around the base station will be necessary.

### **6 CLD Kabak Tepe Develi I**

Technical data: 89 Chairs

⇒ Horizontal length	approx. 2.231 m
⇒ Altitude base/top station	2.221 m / 2.570 m
⇒ Difference in altitude	approx. 349 m
⇒ Transport capacity	2.400 P/hr
⇒ Velocity	5,0 m/s
⇒ Ride time	approx. 7,5 min
⇒ Persons per chair	6 Persons

This lift represents an extension of the facilities located on the pass heading in the direction of Develi and also offers access to the extensive skiable terrain south of the existing ski area on the pass. It, therefore, represents a perfect lift for beginners and intermediate skiers from the planned hotel village.

Due to it's length, a detachable lift is recommended. The transport capacity of the lift, however, does not have to be particularly large since there are other lift facilities available on the pass. The length of the lift means that the construction of an intermediate drive operation station near to the base station will be necessary.

### **4 CLD Kabak Tepe Develi II**

Technical data: 74 Chairs

⇒ Horizontal length	approx. 1.205 m
⇒ Altitude base/top station	2.220 m / 2.432 m
⇒ Difference in altitude	approx. 212 m
⇒ Transport capacity	2.000 P/hr
⇒ Velocity	5,0 m/s



⇒ Ride time	approx. 4,0 min
⇒ Persons per chair	4 Persons

This short lift serves an area of relatively steep terrain and departs directly from the site of the planned hotel village. It should, on the one hand, serve as a lift for good skiers in the case of bad weather conditions on the pass and, on the other hand, offer access to a terrain park for snowboarders and freestyle skiers. The area is also perfect for other events, such as ski instructor demonstration shows, since the lift departs directly from the hotel village and the final slope of the area is planned to be constructed in an arena-type layout.

Due to the short length of the lift, it was decided to install a fix-gripped lift.

#### **4 CLD Gunev Sirt Develi**

Technical data: 80 Chairs

⇒ Horizontal length	approx. 1.618 m
⇒ Altitude base/top station	2.495 m / 3.013 m
⇒ Difference in altitude	approx. 518 m
⇒ Transport capacity	1.600 P/hr
⇒ Velocity	5,0 m/s
⇒ Ride time	approx. 6,0 min
⇒ Persons per chair	4 Persons

This lift serves the beautiful east-facing slopes relatively close to the existing ski area with a consistent gradient of 40-45% throughout.

The lift was especially designed with upper intermediate and advanced skiers in mind and, alongside the planned ski run facilities, also offers a whole host of beautiful powder descents on slopes with a consistent gradient heading towards the pass.

#### **6 CLD Karakaya**

Technical data: 76 Chairs

⇒ Horizontal length	approx. 1.880 m
⇒ Altitude base/top station	2.270 m / 2.705 m
⇒ Difference in altitude	approx. 435 m
⇒ Transport capacity	2.000 P/hr



⇒ Velocity	5,0 m/s
⇒ Ride time	approx. 6,5 min
⇒ Persons per chair	6 Persons

This lift is an extension of the facilities in the Hacilar ski area heading west. Furthermore, the extremely attractive and wide south-westerly slopes of Perikartini are also to be developed with the construction of blue, red and black ski runs.

### **6 CLD Dünder Tepe**

Technical data: 105 Chairs

⇒ Horizontal length	approx. 2.614 m
⇒ Altitude base/top station	2.272 m / 2.980 m
⇒ Difference in altitude	approx. 708 m
⇒ Transport capacity	1.600 P/hr
⇒ Velocity	5,0 m/s
⇒ Ride time	approx. 9,0 min
⇒ Persons per chair	6 Persons

The base station of this lift is located between the base stations of the 4 CLF Sirt and 4 CLD Üstistasyon lifts. The lift offers access to red and black ski runs created on the beautiful steep slopes between the two lifts mentioned above and is only suited to advanced skiers and snowboarders.

### **4 CLD Uzun Aga**

Technical data: 70 Chairs

⇒ Horizontal length	approx. 1.905 m
⇒ Altitude base/top station	2.865 m / 3.360 m
⇒ Difference in altitude	approx. 495 m
⇒ Transport capacity	1.600 P/hr
⇒ Velocity	5,0 m/s
⇒ Ride time	approx. 6,5 min
⇒ Persons per chair	4 Persons

**This lift reaches an altitude of 3360 m and thereby represents the highest planned lift facility in the area.** The lift is accessible via either the *6 CLD Dünder Tepe* or the *6 CLD Kircilli Seki Tepe* lifts. The base station is planned to be constructed slightly further down the mountain from the top lift station of the *6 CLD Dünder Tepe* lift. The lift offers advanced skiers and snowboarders access to the beautiful slopes covered with red and black ski runs located between the two lift facilities mentioned above.

**Due to the high altitude of the area the ski runs can be used both in early autumn and late spring for training purposes.**

### **6 CLD Koc Dagı**

Technical data: 133 Chairs

⇒ Horizontal length	approx. 2.246 m
⇒ Altitude base/top station	2.193 m / 2.628 m
⇒ Difference in altitude	approx. 435 m
⇒ Transport capacity	2.000 P/hr
⇒ Velocity	5,0 m/s
⇒ Ride time	approx. 8,0 min
⇒ Persons per chair	6 Persons

The ski area located on the east side of the mountain pass is also very well suited to the construction of ski runs. This lift offers good and advanced skiers access to the beautiful west-facing slopes of Koc Dagı.

### **4 CLF Öküz Cukuru**

Technical data: 149 Chairs

⇒ Horizontal length	approx. 1.490 m
⇒ Altitude base/top station	2.248 m / 2.628 m
⇒ Difference in altitude	approx. 380 m
⇒ Transport capacity	1.600 P/hr
⇒ Velocity	2,3 m/s
⇒ Ride time	approx. 11 min
⇒ Persons per chair	4 Persons

This lift is an extension of the facilities located north-west of Koc Dagı which are also suited to good and advanced skiers.

## 5.7 Proposed Ski run Construction Work for the Core Ski Area

The classification of the ski runs as ‘easy’ (blue), ‘intermediate’ (red) and ‘difficult’ (black) was conducted according to the in IAKS classification system widely used in central European ski areas:

**‘Easy (blue) ski runs’:** a longitudinal gradient of less than 25% with only a few short, steeper sections.

**‘Intermediate (red) ski runs’:** a longitudinal gradient of between 25% and 40% with only a few short, steeper sections.

**‘Difficult (black) ski runs’:** a longitudinal gradient superior to 40% in longer sections.

There are beautiful north-west facing ski runs in the area around the 8 MGD *Oksüzler Yurdu* lift. Furthermore, due to the terrain form and morphology of the area, very little ski run construction work is necessary here. The terrain is covered with a fine-grained mesh meaning that even small amounts of snow are sufficient to enable skiing on the slope. The gradient (under 25%) is predominantly suited for weak and intermediate skiers; however, the direct slopes beneath the lift become increasingly steep and have a gradient of up to 40% in their final sections. The ski runs on the east side of the ditch are, therefore, to be classified as intermediate ‘red’ ski runs.

The situation is similar on the beautiful ridge dividing the ski area from the ditch in the terrain of the craggy Perikartını Tepe. Along the entire length of this ridge, located at 2350 m above sea level, there is an optimal gradient of 25%, thus allowing weak and intermediate skiers to descent on the ridge without a problem. Only the last slope heading towards the base station is steeper. There, it will be necessary to construct a separate, less steep path, which can also be used as a ski trail. For the same reason there will also be an ‘easy’ blue ski run allowing a less difficult descent into the valley from the 8 MGD *Oksüzler Yurdu*.

Of the three ski runs served by the 6 CLD *Sag Sakallık* lift, two are to be classified as easy, the third as intermediate. This lift also offers access to beautiful terrain, requiring very little construction work for the creation of ski runs, and on

which optimal skiing is possible with just small amounts of snow. Thanks to the fact that the grooming can be carried out on a large scale in this area, it will certainly be possible to offer a larger total ski run surface. However, one should not forget those skiers who wish to ski in deep powder snow and thereby profit from the natural terrain. This area offers the perfect conditions for such powder descents.

The *4 CLD Karakulak Tepe* lift serves just one ski run which is, in places, no more than 20-30 m wide. This ski run has a double function: on the one hand, it serves as a connecting ski run for the 'ski safari' from Hacilar to the pass; on the other hand, its consistently gentle gradient of 15-20% without any steeper sections makes it an optimal location to teach beginners skiing in a safe and reassuring environment. Furthermore, the surrounding terrain boasts a similar morphology without any potential sources of danger, meaning that beginner skiers and snowboarders can learn the joys of snow sport without fear of injury.

The two ski runs accessed by the *4 CLF Sirt* lift (one 'easy' and one 'intermediate'), as well as an 'easy' descent from the *4 CLF Yalçin*, serve primarily as part of the ski connection between Hacilar and the pass, but can also be skied on several times by guests as ski runs in its own right. Both the connecting trails between the base stations of the *4 CLD Karakulak Tepe* and the *4 CLF Yalçin* lifts (offering access to the pass) and between the top station of the *4 CLF Yalçin* lift and the base station of the *4 CLD Karakulak Tepe* lift (offering access from the pass to Hacilar) are similarly gentle and easily negotiable. It will, however, be necessary to install crossing points leading over the deep ditches (ideally made out of corrugated iron). Temporary avalanche protection measures are envisaged on the steep slopes in the south-west of the area to combat the avalanche danger that arises there caused by extreme snowfalls or wind conditions. The 8 Gazex avalanche protection cylinders to be detonated in critical situations before the lifts are opened to the public will enable an exact, safe release of larger snow masses.

The main ski run served by the *4 CLD Üstistosyon* lift is to be classified as 'easy' (blue). The construction of this ski run will be possible with a certain amount of technical work; extensive ski run construction work will, however, not be necessary.



## 5.8 Proposed Ski Run Construction Work for the Continued ‘Modular’ Expansion

The 6 CLD *Kircilli Seki Tepe* offers access to between three and four ski runs classified as ‘intermediate’ (red) to ‘difficult (black)’. These ski runs run directly beneath the lift and in the surrounding area over the wide east-facing slopes towards the base station. The most north-westerly ski run runs over the ridge and, although it represents the easiest of the three ski runs, is nonetheless to be classified as an intermediate (red) slope. The direct ski runs under the cable car and further south-east are to be classified as difficult (black) ski runs.

Furthermore, a ski run should be constructed through the wide, boulder-strewn cirque at *Öksüz Dagi*. This would, however, require a large amount of technical ski run construction work as some of the boulders are very large and the terrain profile is by no means uniform. The particular attraction of a ski run leading through this valley is the extremely varied terrain that would be encountered during the descent.

A comprehensive ski run marking is imperative on this ski run since in the case of mist or fog it is easy to quickly lose one's orientation. The same applies for the other three ski runs served by this lift.

The ski run construction work here must be carried out using excavators. Assuming the necessary driving ability of the operator, mid-weight excavators weighing approx. 20t - 25t equipped with chains, such as the CAT320, are highly manoeuvrable on steep slopes and perfect for the removal of large stone blocks. Bulldozers are not suitable for this type of work.

The 6 CLD *Dündar Tepe I* and 4 CLD *Uzun Aga* lifts offer access to the beautiful ski area stretching from the top station of the 6 CLD *Kircilli Seki Tepe* lift to the **Kircilli Seki Tepe at an altitude of 3357 m**. Furthermore, these lifts also create a high-altitude ski connection to the pass via beautiful ski runs. The valley descents to be developed here are also classified as intermediate to difficult. The skiable terrain accessed by these three lifts is classified as intermediate to difficult throughout and only suited to advanced and expert skiers. The high-altitude ski runs are well-suited for training purposes.

The ski runs accessed by the 6 CLD *Kabak Tepe Develi I* lift are all gentle and have a gradient of less than 25%. As with the ski area on the mountain pass

served by the existing 4 CLF *Zümrüt* lift, the ski runs here are ideal for beginners and should also serve as a practice area for guests staying in the hotels on the pass itself. The alignment of the lower half of the ski run must be designed in such a way as to ensure that the ski run does not flatten out too much at the end. Additionally, easily negotiable ski trails and connecting ski runs must be constructed to enable skiers and snowboarders to change easily onto the ski runs served by the two *Zümrüt* lifts or to ski back to Hacilar via the ‘ski safari’.

One of the two ski runs served by the 4 CLF *Kabak Tepe Develi II* lift is classified as ‘intermediate’ (red), the other as ‘easy’ (blue). As well as the previously mentioned construction of a terrain park for snowboarders and freestyle skiers, a toboggan run and snowtubing facility are also planned. These ski runs should give guests the opportunity to be instructed in the use of alternative winter sport equipment, such as snowbikes and snowfoxes, which can be hired from a rental shop in the hotel village.

The direct east-facing ski runs served by the 4 CLD *Guney Sirt Develi* lift are to be classified as intermediate, whereby the constant gradient of approximately 40% means that the ski run is only really suited to advanced and expert skiers. From the top station of this lift an ‘easy’ (blue) ski run also offers a gentle descent to the top station of the existing 4 CLF *Zümrüt II* lift.

## 5.9 Conformity of the Ski runs with International Competition Standards

The confirmation of the conformity of ski runs with the international standards for Alpine sporting events (FIS races) is carried out by a FIS expert on the demand of the ski area. The following criteria are decisive:

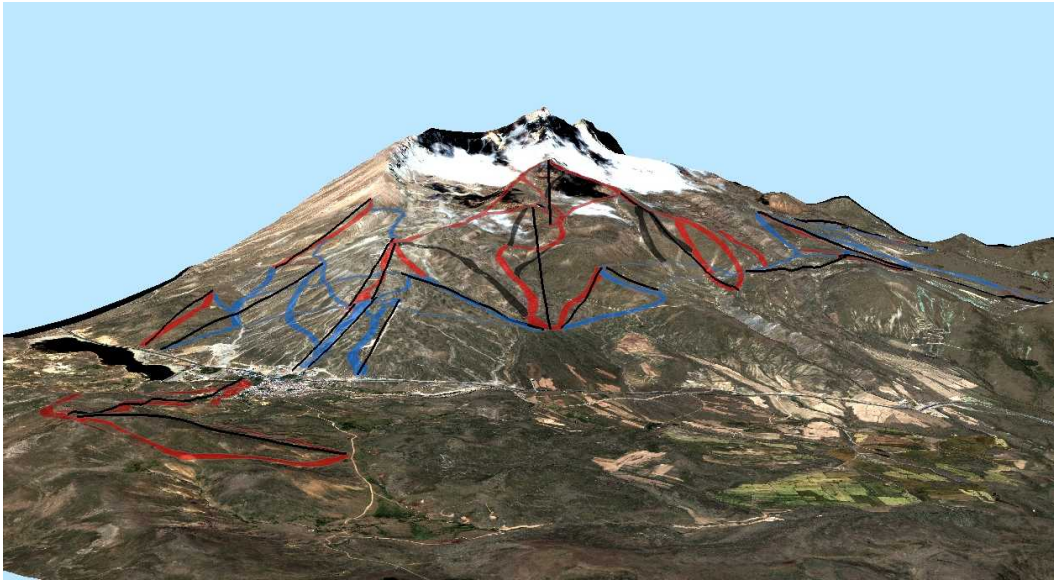
Discipline	Min. Altitude Diff.	Max. Altitude Diff.
Slalom Men	120 m	220 m
Slalom Women	120 m	180 m
Giant Slalom Men	200 m	400 m
Giant Slalom Women	200 m	400 m
Super G Men	225 m	500 m
Super G Women	225 m	500 m
Downhill Men	400 m	1.000 m
Downhill Women	400 m	700 m

As well as the above-mentioned criteria, technical factors, such as the width of the ski run and changes in the morphology of the slope, also play an important role. Furthermore, the choice and layout of the finishing area are decisive, should the ski area wish to host international race competitions at a later date. The main priority here should be to ensure that as many spectators as possible have the opportunity to experience a spectacular competition atmosphere.

A finishing area of this nature could be developed at the end of the valley behind Hahlinalininyurt in the space planned to accommodate the base station of the three lifts *4 CLF Sirt*, *6 CLD Dünder Tepe I* and *4 CLD Üstistasyon*. This potential finishing area would also be easily reached by car. All slopes accessible from this point have the potential to be expanded to create ski runs that conform to Alpine race competition standards.

## 5.10 Ski Area Capacity Analysis

The aim of the ski area capacity analysis is the modelling of the flow of skiers on ski runs and ski lifts in the future development level from the beginning to the final stage.



### Planned lifts

Alltogether the final expansion level requires the construction of 20 lifts. The 5 already existing lifts should be supplemented with 6 additional lifts in the first development phase (Core Ski Area). After the final expansion according to the suggestions in this Masterplan another 9 lifts should follow in the following 10-15 years.

A further development is not discussed as this is dependent on the needs for further expansions after the lifts discussed here are operational. On principal further ski run construction east of Koc Dagi are possible on a larger scale due to the favourable physiography. The same applies for Hacilar.

No.	Lift name	Type	Phase	Approx. True length (m)	Length horizontal (m)	Diff. In altitude (m)	Initial Capacity (P/hr)	Final Capacity (P/hr)	Access Function
1	Beden T. II ( <i>TBar, Bestand</i> )	SL	B	1.432	1.400	300	n/a	750	yes
2	Zümrüt I ( <i>Bestand</i> )	CLF	B	1.587	1.570	230	n/a	1.250	yes
3	Zümrüt II ( <i>Bestand</i> )	CLF	B	1.563	1.530	320	n/a	1.200	no
4	Beden T. I ( <i>TBar, Bestand</i> )	SL	B	1.518	1.500	230	n/a	800	no
5	Hisarcik Bld. ( <i>TBar, Bestand</i> )	SL	B	1.414	1.400	200	n/a	650	yes
6	8EUB Oksüzler Yurdu	EUB	G	2.580	2.523	537	1.600	2.400	yes
7	6CLD Sag Sakallik	CLD	G	1.825	1.771	442	2.000	2.800	no
8	4CLD Karakulak Tepe	CLD	G	1.028	1.022	110	2.000	2.800	no
9	4CLF Yalçin	CLF	G	605	586	152	n/a	2.000	no
10	4CLF Sirt	CLF	G	1.284	1.245	314	n/a	2.000	yes
11	4CLD Üstistasyon	CLD	G	1.744	1.721	285	n/a	2.000	yes
12	6CLD Kircilli Seki	CLD	M	2.657	2.585	616	n/a	2.000	no
13	6CLD Kabak Tepe Develi I	CLD	M	2.258	2.231	349	n/a	2.400	yes
14	4CLF Kabak Tepe Develi II	CLF	M	1.224	1.205	212	n/a	2.000	no
15	4CLD Guney Sirt Develi	CLD	M	1.699	1.618	518	n/a	1.600	no
16	6 CLD Dünder Tepe I	CLD	M	2.708	2.614	708	n/a	1.600	yes
17	4 CLD Uzun Aga	CLD	M	1.968	1.905	495	n/a	1.600	no
18	6CLD Karakaya	CLD	M	1.930	1.880	435	n/a	2.000	no
19	6CLD Koc Dagi	CLD	M	2.287	2.246	430	n/a	2.000	Yes
20	4CLF Öküz Cukuru	CLF	M	1.538	1.490	380	n/a	1.600	No
<b>Summe:</b>				<b>34.848</b>	<b>34.042</b>	<b>7.263</b>	<b>33.050</b>	<b>35.450</b>	

### Planned Ski Runs

The planned ski runs surface area amounts to **145 hectares** after the basic expansions. The degree of difficulty is as follows: **90 hectares easy** and **55 hectares** intermediate.

After the final expansions the ski runs will amount to **474 hectares**, **184 hectares** of which will be **easy (blue)**, **240 hectares intermediate (red)** and **50 hectares of difficult (black)**.

### **Methodology / Model Description**

Using the planned transport capacity of the lifts and considering a certain amount of people cueing at the lift (experienced numbers) and the physiography of the terrain along the ski runs and lifts a model for the flow of skiers within the model system is developed

The following estimates have to be made:

- ⇒ The ski runs and lifts form a closed network in which the skiers move
- ⇒ The basis for the model are the planned transport capacity on the lifts and the physiography of the ski runs (ski runs are divided into sectors with constant inclination and width) and the location of the lifts
- ⇒ The smallest section of a ski run is a slope with constant inclination and a medium width and surface area.
- ⇒ The lifts are modelled with their horizontal length, their full length (following the surface) and the difference in altitude between top and base station.
- ⇒ The number of skiers along the ski runs is calculated due to the speed of an average skier.
- ⇒ Altitude figures correspond with the contour map.
- ⇒ The ski runs and the lift tracks are on the basis of the rectified satellite image.
- ⇒ Number of skiers who are not currently (time period of model) on the ski runs but in the ski area (in a restaurant, sunbathing, hiking, etc...)

### **Transport capacity and effective calculated frequency on ski runs and lifts:**

Resulting from the estimates and parameters described above the number of passengers on each lift per hour is computed. The maximum transport capacity of



each lift is compared to the effective frequency on the lift. The efficiency in percent is thus computed.

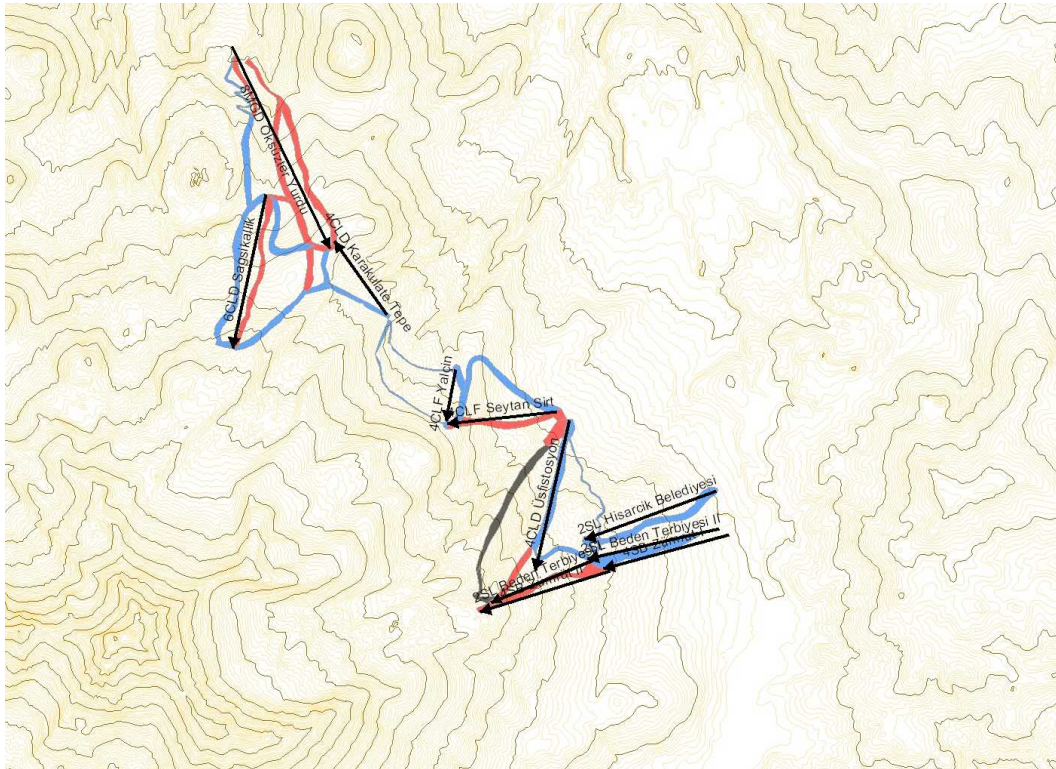
Using the initial parameters such as inclination, medium width and surface area the frequency of skiers for each slope section dependent on the space each skier needs and the average skiing skills is computed and compared with the maximum slope capacity.

#### Number of skiers on lifts and ski runs:

- ⇒ For the modelled expansion level the optimal and maximum number of skiers on each ski run is calculated based on the space need of each skier and the estimated average speed.
- ⇒ With the travelling speed of the lift the number of skiers on a lift at a certain time is calculated.

### **Results:**

#### **A. Core Ski Area**





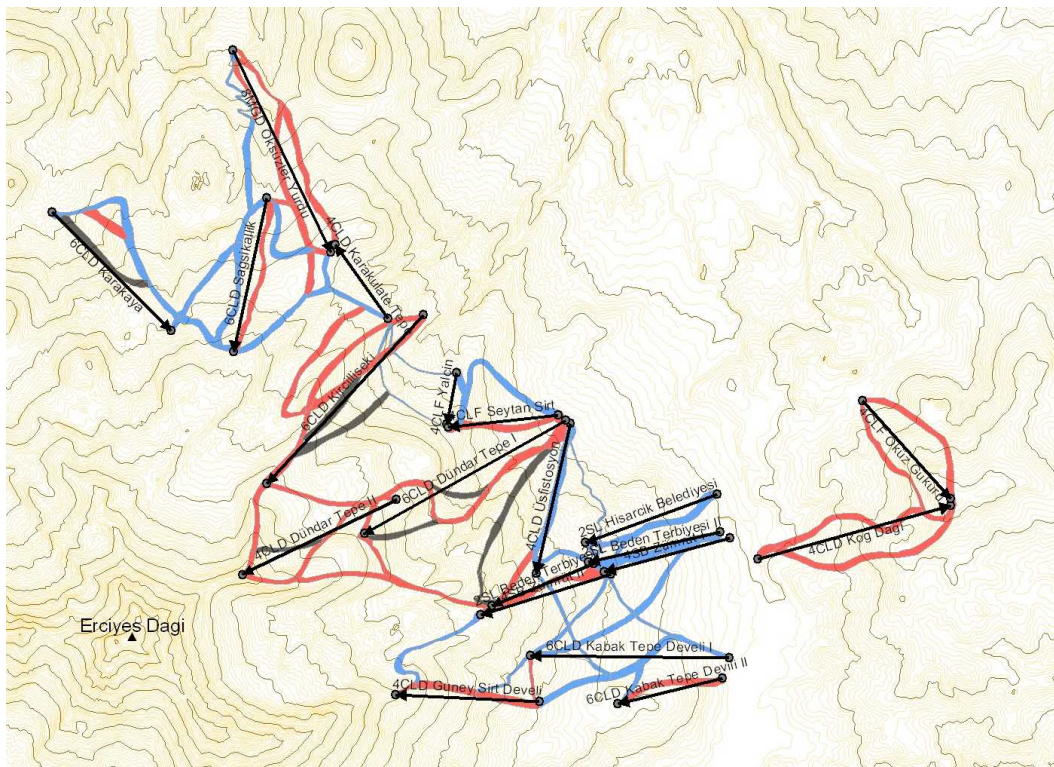
With an efficiency of 95% on the lifts the resulting transport capacity of the Core Ski Area is 18.650 p/hr. An efficiency like that can only be achieved by having a large amount of people cueing at the lift. In the first development phase this would be 2000 skiers cueing at 6 lifts. The cueing time for example at a lift transport capacity of 2000 p/hr (6CLD Sag Sakallik Tepe) and 200 people cueing would be 6 minutes.

Due to the planned transport capacity of the lifts there will be about 2200 skiers sitting altogether on the lifts. The calculated model leads us to an average rate of skier capacity of 48% on the ski runs. This means that around 6.900 people will be skiing at one point in time. As there is sufficient ski space best skiing pleasure is guaranteed.

900 persons will at the same time be doing other things than skiing such as having a meal in a restaurant or mountain hut, sunbathing, hiking, etc...

**The expected total amount of winter guests will be around 10.000 persons after the first development phase has been carried out.**

## B. Further Expansions, Modules, Final Development Stage



The modules described will increase the number of skiers all through to the final expansion.

After the final expansion a maximum number of 32.150 P/hr can be transported on the lifts with an estimated efficiency of 95%. An efficiency like that can again only be achieved by having a large amount of people cueing at the lift. After the final expansion phase this would be additional 3.300 skiers cueing at 9 new lifts. Therefore the number of people cueing at all the lifts together is assumed to be 3.200.

Due to the planned transport capacity of the lifts there will be about 4.000 skiers sitting on all the lifts together. The calculated model leads us to an average rate of skier capacity of 42% on the ski runs. This means that around 19.700 people will be skiing at one time. It is shown that the ski runs are sufficient also after the final expansions.

3.000 persons will at the same time be doing other things than skiing such as having a meal in a restaurant or mountain hut, sunbathing, hiking, etc...

**The expected total amount of winter guests is expected be around 30.000 persons after the final expansion has been carried out.**

### **5.11 Ski run Construction in Harmony with the Surrounding Nature**

Due to its extreme environmental conditions, the Alpine habitat (areas at an altitude in excess of approximately 2500 m) is highly sensitive to any interference or changes in its ecosystem. Both the process of self-regeneration and the re-establishment of a stable environmental balance take several decades.

The precise project planning, therefore, must be conducted in such a way as to ensure that the negative effects on the surrounding landscape caused by the technical construction work remain as minimal as possible. Consequentially, all excavation work, as well as the width of all ski runs and the height of all embankments, should be kept to the absolute minimum necessary.

#### Completion of excavation work

The excavation work will involve both the recovery of grass surfaces and the lifting and relocation of humus using excavation machines.

The completion of the above mentioned work (lifting of grass surfaces and humus) will allow for the necessary large-scale earth-moving, such as the flattening of knolls and the filling in of ditches, to be carried out using bulldozers. Excavators should then be used to spread the temporarily stored humus and re-lay the temporarily stored grass surfaces. A construction worker will also be needed to support and compliment the machines during particularly sensitive work, such as the removal and re-laying of grass surfaces.

Should a long-distance movement of earth be necessary, this should be completed using a lorry (assuming that the gradient of the slopes allows this) or an articulated tractor.

Before the completion of any terrain correction work it is important that measures are taken to ensure that no damage is caused by loose earth or rocks. These protection measures can take the form of either secured wood walls or flexible plastic protection nets. Individual trees or groups of trees must be subject to additional protection measures.

In all excavation work the grass and dwarf-shrub heath mats must be removed from the entire area concerned. The same goes for all surrounding embankments and slopes. Due to the high root-density in the area these mats can simply be lifted up and laid on the ground directly next to the ski run. Following the movement of the mats, all stages of the planned terrain correction work can be completed with the removal and replacement of earth using a rise in the terrain in the nearby basin. According to the planned gradient and ski run width, the amount of earth removed should equal the amount of earth required for filling in, thus rendering superfluous the use of external earth material.

#### Planned bio-engineering work on slopes

During the design process of each slope, the terrain profile of the surrounding area was always taken into account. The creation of a gradual and continual transfer from the man-made ski run into the natural terrain was a main priority in order to avoid straight, unnatural slope forms. In addition, this individual adaptation allows for local differences in terrain and climate to be exploited fully. The priority here will be the creation of slopes adapted to suit the natural form of the terrain, whereby the construction of longer, flatter embankments will be preferred to short, steep slopes. The planned gradients of the loose material embankments

do not exceed the maximum gradient of 2:3 which is only present in small, clearly defined areas.

#### Maintenance of the humus layer

The bare terrain should be rendered more natural and attractive through the re-laying of the previously removed grass and dwarf-shrub mats and the sowing of grass mixtures.

As many roots and other elements found in the earth are very tightly interwoven with one another, it is particularly important that the grass and dwarf-shrub mats are removed with caution. The mats, measuring approximately 0.4 m<sup>2</sup>, should be lifted up and laid laterally next to the section of ski run from which they were removed. The mats can also be piled on top of each other up to a height of approximately one metre.

Humus topsoil and sods should be stored apart from one another. In the case of an extended storage period the sods should If possible be stored with the grass surfaces facing one another.

Immediately after the completion of the excavation work, the grass mats should be re-laid as exactly as possible with the grass side up.

This terrain correction work is best completed in sections with the sods being immediately replaced after the completion of each section to avoid an unnecessarily long storage of the grass mats.

Should there be an insufficient amount of turf to cover a larger area of terrain completely, the sods should be placed in a chequerboard fashion on the area concerned and the remaining holes sowed with a seeds of a suitable grass type compatible with the local substrate.

The use of grass seed to stabilise and secure bare earth terrain is, despite the high-Alpine location, generally an effective method. Key here is the selection of a seed type suited to the specific conditions found in the area. For example, a special high-altitude mixture adapted to the local conditions should be used for all seeding work carried out above an altitude of 1200 m.

It is recommended that manual seeding be used in combination with a straw-based seeding process.

After the completion of the preparation work (placing of the available sods in a chequerboard pattern) and the laying of a covering of humus at least 5 cm in

depth, the remaining holes between the sods are seeded and then covered with straw. This layer of straw provides an improved microclimate and protects against any possible erosion of the seed sown. This straw layer is not necessary if a dormant seed is used.

Where possible the seed should ideally be sown directly after the completion of the excavation work and during damp weather. It is inadvisable to complete the sowing process in late summer since there is a risk that the sprouted plants could be damaged by freezing conditions.

Previous experience has shown that the sowing of seed or laying of turf on ski runs is only successful when completed in conjunction with appropriate fertilisation work and careful nurturing.

Surfaces cleared using a bulldozer usually have a lower concentration of the nutrients needed for future vegetation growth.

After bulldozer work, therefore, it is necessary to fertilise hand-sown seed until a sufficient covering of grass has grown. These fertilisation measures may have to be continued over a period of several years.

Slow-working, sustainable fertilisers should be used and it is important that a good nutrient balance is maintained.

Organic fertiliser, easily-decomposable dung or certified bio-compost should be used wherever possible. Liquid manure and slurry should be avoided.

Mineral fertilisers can also be used, especially during the early cultivation phases.

Areas being re-cultivated should not be grazed during at least the first two vegetation periods and should be fenced off.

## **5.12 Ski run Preparation, Grooming**

In small ski areas it can be assumed that one grooming machine will be required for every 15 hectares of ski run. Based on this calculation two grooming machines would be necessary for the development work currently planned. In larger ski areas a ratio of one grooming machine for every 25– 30 hectares of ski run is often sufficient. According to the master plan, a successive expansion of the fleet of grooming machines dependent on the actual development of the area will be



required, with a total of **15 grooming machines** being used at completion of the project.

Grooming machines operating on steep terrain and technical snow should, in principle, have an engine capacity of 300 horse power. The companies, Leitner and Kässbohrer, which manufacture the models 'Leitwolf', 'Pistenbully 200' and 'Pistenbully 300' respectively, offer grooming machines which fit these specifications. Due to the steepness of several ski runs two or three of the machines should be equipped with a winch.

In order to carry out the development work envisaged in the master plan, it would be advisable to acquire two 200 HP grooming machines for the lower areas and five 300 HP grooming machines for steeper slopes during the basic expansion phase. Two of these machines should be equipped with a winch. To minimise investment costs during the early development phase, the cost estimate is based on the purchase of two second-hand machines.

A **garage for the grooming machines** should be constructed near to the centre of the ski area. Assuming that a flat piece of land can be found, the cheapest option would be the construction of a steel hangar, which could then be expanded according to the further development of the resort.

It is recommended to locate the garages for the grooming machines near the base stations of the *6 CLD Sag Sakallik* and *4 CLF Sirt* lifts.

### **5.13 Technical Snow-Making on the Ski runs**

#### Specific water requirements and duration of snow cover:

The following basic approach is used to measure large technical snow making facilities:

Due to the altitude of the ski area and the fact that it is, in part, south-facing, each hectare of ski run requiring snow-making will necessitate approximately 1500 m<sup>3</sup> of water during the initial snow-making phase. This amount was calculated by analysing the water requirement of comparable technical snow making facilities at a similar altitude and operating under similar climatic conditions.

Assuming a snow loss of around 15% due to evaporation and wind-drift etc. it can be calculated that a snow layer with an average depth of 35 cm could be created using this amount of water.



A further 1000 m<sup>3</sup> of water per hectare should also be envisaged for additional snow making activities to reinforce the existing cover or patch up bare areas. This means that a specific water requirement of **2500 m<sup>3</sup> per hectare of ski run surface area** would be necessary during an extremely poor winter (which served as the basis for the calculation of the water requirement).

Modern technical snow making facilities are constructed in such a way as to enable **the main ski runs requiring snow-making to be covered with a basic layer of technical snow within 100 – 120 snow-making hours.**

This calculation, however, does assume that these snow-making hours can be completed without any interruption of the snow-making process.

Such an extensive technical snow production in such a short period of time does of course require large-scale pump and water storage facilities as well as a corresponding pipe infrastructure and a sufficient number of snow generators .

During both the initial snow-making used to create an underlying snow base, as well as intensive snow-making activity to reinforce and repair the existing snow cover, the technical snow should be left to settle for at least a day before being groomed.

#### Choice of system, surface requiring snow-making, total water requirement

In large ski areas, the water requirements of modern snow-making facilities during the initial snow-making phase can rarely be met by taking water directly from existing watercourses. Small reservoirs, therefore, are often constructed with capacity similar to the amount of water required for the creation of a basic snow base in the ski area. Fortunately, in this case, a large reservoir with a capacity of approximately 3.000.000 m<sup>3</sup> already exists on the mountain pass from which water can be drawn for technical snow-making purposes.

The water used for the production of technical snow is taken directly from the outlet pipe of the reservoir's intake structure located roughly 2200 m above sea level. Furthermore, the construction of a separate **central pump station** is planned. This pump station, if possible, should be located 30 m lower than the minimum water level of the reservoir and be equipped with identical high-pressure pumps with a capacity of 70 - 80 l/s and a pressure head of approximately 60 bar. Due to the location of the pump station, low-pressure pumps are normally employed to increase the water pressure since the pressure necessary for the operation of the filter and high-pressure pumps is naturally present. It is important that identical pumps be installed parallel to one another to

ensure that snow-making can be continued (albeit with a reduced capacity) should one pump fail.

Depending on the development of more areas requiring technical snow-making (additional lifts and ski runs as part of the ‘modular’ development plan), additional high-pressure pumps can be installed parallel to the existing ones.

The total of **150 – 170 ha of ski runs requiring technical snow-making upon completion of the development work** assumes a water requirement of approximately 400 000 m<sup>3</sup> per season (around 13% of the total reservoir capacity). Due to the fact that a large amount of the water needed for the creation of a basic snow base (approximately 240 000 m<sup>3</sup> upon completion of the development work) must be made available in a very short time period, a total pump capacity of 650 l/s will be necessary upon completion of the project.

As almost all ski runs (with the exception of Koc Dagı) are to be served by a central feeder line, two DN 400 pressure pipes will be required before this central feeder line divides into smaller individual pipes in order that such large quantities of water can be transported.

All pipes serving surfaces located at an altitude superior to 2600 -2650 m requiring technical snow-making must be equipped with **additional pump stations to increase the water pressure** (ideally located near to the lift stations).

Along the length of the mobile pipelines, hydrants and electricity connection units are to be installed every 60 - 80 m for the snow generators . For the ‘**basic expansion phase**’, between 30 and 35 propeller snow generators will be required for approximately **50 ha of technical snow-making**. Compared to snow-guns, such snow generators have the advantage of being far less susceptible to windy conditions.

The snow-making pipe infrastructure can be expanded successively to adapt to further development work in the area. Upon completion of the planned development work, approximately 120 – 130 snow generators will be required.

Cast iron pipes are recommended for the construction of the pipelines. Around 90% of all ski areas in Austria use pipes constructed by the firm TRM (Tiroler Röhrenwerke) based in the Tyrol. Among the advantages of these pipes are that they are strong, easy to install, extremely resistant to the wear and tear of being pulled apart and pushed together frequently and offer a host of different

construction possibilities. Thanks to the strength and robust construction of the pipes they are, on the one hand, highly flexible and, on the other hand, very hard-wearing when being laid out on rough ground.

## **5.14 Development of the Infrastructure**

### Development of the access roads

The access road to the planned new ski area access zone at Hahlnaliniyurt should be developed so as to enable normal cars to travel on two lanes in each direction. The standard section of the road should have a crest width of approximately 7.0 m with wider sections at access points, corners and hairpin bends as well as in other key places. The road should be tarmacked and equipped with a base tarmac layer weighing 180 kg/m<sup>2</sup>. It is imperative that a gravel frost-resistant base-layer measuring at least 60 cm in depth be put under the tarmac.

### Parking spaces

There are currently between 300 and 400 parking spaces in the area around the mountain pass itself and on the access road leading to the pass. The predicted number of around 10 000 guests per day means that it is essential for a total of between 3000 and 3500 parking spaces to be provided. These parking spaces should be located at the various different access points to the ski area; no parking spaces, however, should be created for day guests in the area around the planned new hotel village.

### Sewerage and Water supply

In future DN150 sewerage pipes should also be laid whenever power and control cables are installed at high altitude points where the construction of restaurants is planned. Furthermore, all base station areas of lifts with planned toilet facilities should also be connected to this sewerage infrastructure. These individual pipes should be connected to the existing sewage pipe laid under the access road leading to the pass.

Gravity tanks and water storage tanks will be required to ensure the *supply of drinking water*. Such gravity tanks can take the form of concrete basins; however, large plastic tanks are also available today which can be laid directly into the ground and are therefore more quickly and easily installable. Ultra-violet

installations are recommended, should water near to the surface be used, since the intensive grazing activity in the area leads to the risk of microbial contamination.

### Electricity supply

To ensure an adequate electricity supply, it will be necessary to install a high-voltage power line along the ski runs as well as in the cable ditches of the lifts leading from the *Hacilar* area via *Oksüzler Yurdu* and *Sirt* up to the mountain pass. This network can then be used, on the one hand, to connect power substations for the lift facilities planned in the ‘initial development phase’ and, on the other hand, to create a separate high-voltage power line leading off from these power substations and up to lifts located at a higher altitude planned for construction in the future. In addition, this line represents a second high-voltage electricity network connected to the mountain, thereby guaranteeing operational security should another network fail.

The snow generators can also be connected directly to these transformer stations by way of low-voltage cables. For the main part low-voltage cables will be used to supply electricity to the outstations located in the planned lift facilities.

### Fibre-optic cables

Fibre-optic cables will be laid together with the other necessary cables and pipes to enable communication both between lift facilities and the main snow-making facilities. These cables can also be used in the future to transmit television pictures straight from the mountain either to the base station or directly onto the Internet or television. This function is extremely attractive in the Alps as it enables ski areas to attract guests even in the case of so-called ‘weather inversion’ (poor weather conditions in Kayseri with extensive mist and fog yet glorious sunshine on the pass).

## **6 Erciyes Village and Service Facilities**

### **6.1 Accommodation Facilities**

Presently there are a few hotels near the bottom station of the few existing ski lifts. Most have been privatized only recently and most are in a rather poor state of repair. It will be very important for a good start of an expanded winter sports operation at Erciyes to offer good hotels at an internationally acceptable standard.

The master Plan shows the existing hotels as well as the development of an “Alpine Ski Village”, which will blend Turkish style with the popular and very successful atmosphere of Alpine villages (often copied at winter sports resorts in North America, Asia and Australia !). It will be important to have rather small units in order to create this unique village atmosphere. From an organisational point of view, though, it is recommended to have not too small operational units. Very important in any case is a well-coordinated Public Private Partnership management system.

A key issue for the development of the accommodation facilities is that they grow with the demand and together with the capacities of the Ski Area. The capacity calculations that are provided together with the financial analysis in section 8, show that about 2000 beds are required for the Basic Ski Area (First Development Phase). For guests, it is most convenient and most attractive to stay close to the ski lifts. Therefore, the Master Plan focuses on the development of accommodation facilities on the pass. In the first phase, we have planned for 1.960 beds in the Winter Sport Centre.

In addition to these facilities, the existing capacities in Kayseri, Hacilar, Hisarcik and Develi shall be used efficiently, including hotels, apartments and private accommodations. An efficient online booking system is suggested, which can be used by private persons as well as businesses to sell their accommodation facilities. This will very soon lead to a large variety of accommodation possibilities at different price levels addressing many different target groups.

Furthermore, many winter resorts are developing attractions for the summer season to increase the number of overnight stays. We strongly suggest building a Golf Course mid way from the downhill station of Oksüzler Yurdu to Hacilar. This is a very scenic area and the construction of a 4 star sporting, wellness and

seminar hotel serving both winter and summer guest with about 500 beds is recommended.

As already elaborated, the second development phase is structured in four modules that will be implemented depending on the future developments. If all four modules are implemented, up to 5000 beds are required. In addition to the first development phase, we have foreseen additional 2.290 beds in the totalling 4.750 beds there. If the demand for more accommodation facilities exist, private investors will be very glad to invest in additional facilities either in Erciyes Village or alternatively and very attractive near the Golf Course in Hacilar.

The technical data in relation to the development of the accommodation facilities are presented below. All maps, drawings, CAD and 3D pictures are enclosed.

First Development Phase:

Existing Accommodations	800 beds
Alpin village I	600 beds
Spa hotel	140 beds
Sport hotel dependance	140 beds
Appartements I	280 beds
Ski & Golf Hotel	500 beds
<b>Total Phase 1</b>	<b>2.460 beds</b>

Second Development Phase:

Alpina village I	600 beds
Sport hotel	140 beds
Alpin village II	760 beds
Appatements II	400 beds
3 Hotels/near lift I+II	390 beds
<b>Total Phase 2</b>	<b>2.290 beds</b>
<b>Grant Total</b>	<b>4.750 beds</b>

## 6.2 Restaurants and Coffee Shops

Furthermore, in Erciyes Village as well as in the Skiing Resort several restaurants and coffee shops are planned. A number of restaurants and mountain huts at central points are foreseen. In the future, as demand increases, the Municipality of Kayseri can give additional licences for coffee shops and restaurants. Based on experience of ski resorts in the Alps, private businesses are eager to develop





restaurant and coffee shop facilities if the demand exists. The planned restaurants, mountain huts and coffee shops are:

**Core Ski Area and Erciyes Village:**

Alpin village I 650 m2	400 pers.	
Spa hotel 200 m2	125 pers.	
Sport hotel 200 m2	125 pers.	
Top station Oksüzler Yurdu	100 pers.	(Proposal Mountain Station)

**Modules:**

Top station Kabak Tepe I	100 pers.	(Proposal Mountain Station)
Top station Kabak Tepe II	130 pers.	(Proposal Middle Station)
Top Station Guney Sirt	100 pers.	(Proposal Mountain Station)
Top Station Koc Dagi	100 pers.	(Proposal Mountain Station)

Furthermore, large picnic and barbecue areas are planned for the locals being a very popular activity. Also, the more people visit the Erciyes the more will finally try skiing or another kind of winter sport. Enclosed are detailed plans of the picnic areas. In total three picnic areas are planned. It is suggested to implement the Picnic Area I during the first development phase. The Picnic Areas II and III can be developed as demand increases. The Picnic Areas II and III have similar capacities as the Picnic Area I:

Picnic I	32.000 m <sup>2</sup>
VIP-picnic	13.500 m <sup>2</sup>
VIP-picnic for	110 families
Public parking	235 cars
<b>Picnic sum</b>	<b>345 families</b>
Children park	400m <sup>2</sup>
Cafe-Restaurant	45 pers.

Picnic II	30.000 m <sup>2</sup>
Picnic III	35.000 m <sup>2</sup>

### **6.3 Parking Facilities in the Village**

The public parking facilities in Erciyes Village are as follows:

Park north	27.000 m2 / 1.000 cars
Park middle	35.000 m2 / 1.200 cars



Park south	35.000 m <sup>2</sup> / 1.200 cars
Parking Alpin village	560 cars
Parking lakeside	1.500 cars

## 6.4 Community Buildings

The main building of Erciyes Village has a gross area of 900 m<sup>2</sup> including a tourist information centre, a conference room, office facilities for the destination management, etc. Furthermore, this complex provides a gross area for shops of 1.300 m<sup>2</sup> and parking facilities for 34 cars. In addition, the Master Plan foresees a Community house, a Mosque, an Ice-skating rink and Curling facilities in the Erciyes Village.

## 6.5 Technical Infrastructure of Erciyes Village

Below the required technical infrastructure of Erciyes Village is defined:

### WATER

Phase I	300 m <sup>3</sup> /day
Phase II	240 m <sup>3</sup> /day
Cafe/Rest	70 m <sup>3</sup> /day
Picnic area I	14 m <sup>3</sup> /day
Picnic area II	14 m <sup>3</sup> /day
Picnic area III	18 m <sup>3</sup> /day
Main building and shops	8 m <sup>3</sup> /day

### WASTE WATER TREATMENT

Phase I	240 m <sup>3</sup> /day
Phase II	160 m <sup>3</sup> /day
Cafe/Rest.	70 m <sup>3</sup> /day
Picnic areas I+II+III	35 m <sup>3</sup> /day

### ELECTRICAL ENERGY

Phase I	7.500 Kwh/day
Phase II	4.600 Kwh/day
General supply outside	550 Kwh/day
Main building and shops	130 Kwh
Cafe/Rest.	50Kwh/day

### HEATING + VENTILATION



Phase I	8.000 Kwh/day or 5.000 lt diesel/day
Phase II	6.400 Kwh/day or 4.000 lt diesel/day
Cafe/Rest.	400 Kwh/day
Main building and shops	140 Kwh/day

## 6.6 Service Centres

These are located at all major entrance points. They include

- ⇒ Toilet and sanitary facilities
- ⇒ An information point (about the ski area, the weather and snow conditions, avalanche warnings, bus connections, events, fun parks, restaurants, etc.)
- ⇒ Ticket sales (tickets for the whole resort!)
- ⇒ Sports and ski rental shop
- ⇒ Ski school office / information centre
- ⇒ Catering facilities
- ⇒ It is suggested that at least one of the One Stop Service Stations will also include a kindergarten, where parents can leave their children while skiing. This should be located at the winter sports centre.

Ski Centres are planned at:

- ⇒ Oksüzter Yurdu
- ⇒ Üsfistosyon
- ⇒ Zümrüt I
- ⇒ Kabak Tepe Develi I

## 6.7 Mountain Restaurants

- ⇒ Oksüzter Yurdu – top station
- ⇒ Kabak Tepe Develi I – Middle station
- ⇒ Kabak Tepe Develi II – top station
- ⇒ Top Station of Güney Sirt Develi
- ⇒ Top Station of Koc Dagı

## 6.8 One resort – one ticket

At the moment different ski passes have to be purchased for the Zümrüt, Beden and Hisarcik ski lifts. This segmentation is contrary to contemporary ski resort management. Nowadays, rather big ski resorts are increasingly cooperating; creating huge connected ski areas. An example is the cooperation of eight tourism resorts in the region of Salzburg, Austria, resulting in a ski area with 276 ski lifts and one ski pass for all lifts!!! Competition moves more and more to a destination and regional level. Erciyes/Kayseri has to compete with other destinations.

Therefore, it is of the utmost importance that all the ski lifts can be used with one ticket. It is suggested that Erciyes/Kayseri uses modern access control and ticket systems (Skidata, Axxess). Such systems have many advantages:

- ⇒ Tickets of customers are automatically controlled each time they use a ski lift. Such a system is absolutely necessary to cope efficiently and effectively with the expected large number of skiers on the Erciyes (up to 25 000).
- ⇒ Modern access control systems are quicker than manual controls, since the tickets are scanned through the jacket, i.e. the skiers don't need to take the ticket out of the pocket.
- ⇒ Exact records of the actual transportation for each ski lift. This allows for exact accounting and profitability calculations for each ski lift. Also, in case is not only one organisation owning all ski lifts, it will be possible to exactly calculate the share of the turnover for each owner in a transparent manner.

## 6.9 Ski School

Ski schools provide very important services in a winter sports resort. They target locals as well as tourists. The services they offer include:

- ⇒ Children ski courses (from beginners to experienced skiers)
- ⇒ Ski courses for adults (from beginners to experienced skiers)
- ⇒ Private courses for all levels of experience
- ⇒ Ski guiding, ski touring and helicopter skiing
- ⇒ Ski events and demonstrations
- ⇒ Assist ski clubs
- ⇒ Assist in service activities such as mountain ambulance and rescue operations if needed

The Master Plan aims at developing an internationally competitive resort. Therefore, the ski school services need to be at an international level. The training

of the skiing instructors is paramount. In this respect, a cooperation with ski federations from Austria or France is proposed. Why not trying to build up a Ski Academy at Erciyes/Kayseri that pursues the latest trends in skiing technology and technique in cooperation with a European country? This would be a strong force to establish the resort as “home of skiing” in Turkey and boost its reputation (also internationally).

In order to attract international tourists like school groups, it is important that a certain quality standard of the skiing instructors can be guaranteed. Safety is especially important for groups but also for families, who want their children to learn to ski. Another crucial aspect concerns the knowledge of foreign languages. Especially in ski groups, the instructor needs to be able to communicate well with their students, may they be children or adults. A few sentences about skiing will not be enough.

## **6.10 Sports and Rental Shops**

Obviously, customers need to have the possibility to purchase all necessary equipment for skiing or other snow sports in the winter sport resort. Again, safety is a very important issue. In Austria and other European countries, the legal requirements are very strict with regard to installing or adjusting the bindings of skis. Exact measurements have to be taken and the adjustment needs to follow international ISO guidelines. Failing to comply with the guidelines can lead to heavy compensation claims. It was recognised, that most ski rental shops in Turkey don't follow the international guidelines.

To compete internationally, this drawback has to be overcome. According to international trends, people are increasingly renting their skiing and snowboarding equipment. One of the main reasons is that they get the latest and best-serviced material, i.e. the quality standards are very high. This includes also regular maintenance and tuning of the equipment, which needs to be done by qualified staff. Thus, training courses and maybe a cooperation with international bodies may be advisable also in this area.

## **6.11 Kids Park**

The main objective of this park is to create an ideal environment for children to learn and practice skiing. Basically, it's a playground where children have fun and

enjoy themselves. For children, to learn skiing should be a game, always interesting never an obligation. A drawing of such a park is presented below.

The location should be close to sanitary facilities. Ideally, a One Stop Service Station with a kindergarten is nearby. This would allow children to be supervised in the kindergarten, when they become too tired to continue skiing or when it gets too cold or when they just don't like it for the moment. A restaurant close to the Kids Park allows parents or grandparents to have a coffee or tea, while the children are skiing. Also, especially for the small ones (children can start skiing at an age of three), the walking distances need to be as short as possible since it is very hard for children to walk with the heavy ski boots. Furthermore, the sports shop should be close, in case the equipment does not work, the sun cream is missing or sunglasses need to be bought.

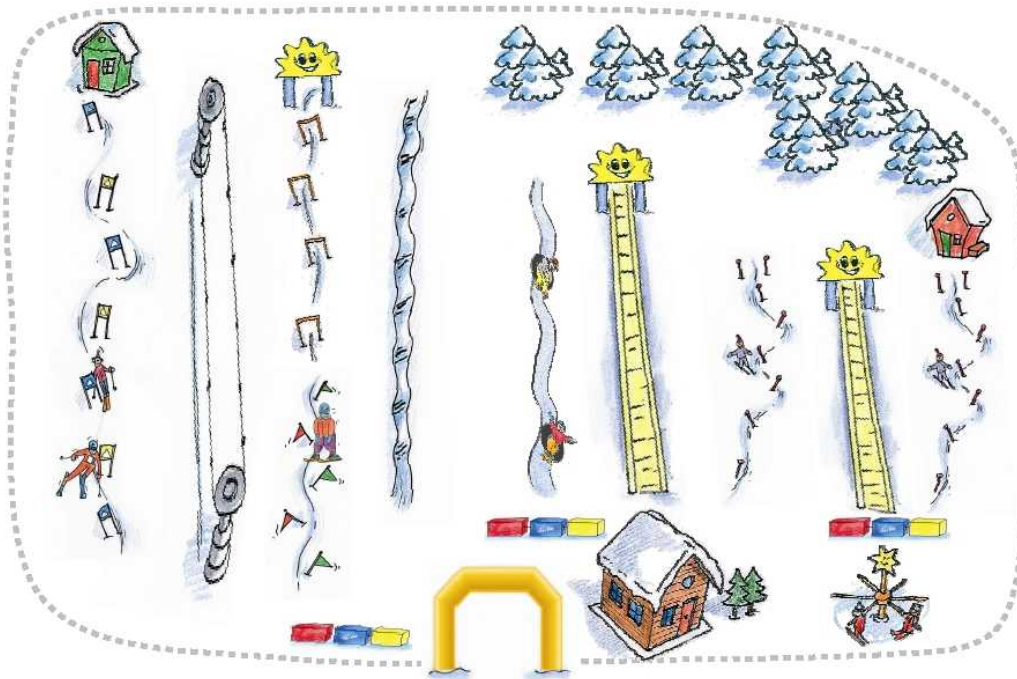
The Ski School should operate the Kids Park. Next to the Kids Park the (children) ski school meeting place will be planned, where the children meet every morning for their skiing courses. Erciyes mountain offers wide terrains ideally suited for beginner classes. It is suggest that initially a Kids Park is created offering the following facilities:

- ⇒ A Carousel: Can be used with skis and tubes. It allows children to improve their balance and prepare them to use ski lifts.
- ⇒ A Magic carpet: Can be used with skis and tubes. Children simply step on the carpet and safe their energy for skiing down. Especially for small children this is ideal as they have difficulties using regular ski lifts at the beginning. The carpet can be used for two ski groups (one on the left and one on the right side of the carpet). Some equipment is necessary to support the courses. With some imagination, a different task can be given each time a child skis down. The picture includes two magic carpets. The Kids Park can be enlarged as the demand increases.
- ⇒ A rope tow lift: The more advanced children can move on to this ski lift. Again, more than one station can be built up there. This lift should also be used to examine the skiing ability of the advanced kids at the beginning of the course (to build groups with the same level of ability). As soon as the children can manage this lift, they should move on to one of the “big” ski lifts.



- ⇒ A shelter: Children want to take their skis off, hide somewhere, rest and warm up, etc. For this a little hut or some igloos built with snow are recommended. Also, if the wind is too strong, some wind protections should be built.

Graphic 2: Kids' Park



## 6.12 Freestyle Fun Park

The Fun Park addresses freestyle skiers and snowboarders. Additionally, it is not only fun doing it but a popular spectator attraction. A lot of people are interested in watching sporty, athletic skiers doing all kinds of acrobatic stunts (including the crashes,...). Such a Fun Park includes rails to glide over, various jumps, a half-pipe, various barriers and obstacles to overcome (such as an old bus, signposts, a tree, etc.). The fun park should be situated at Kabak Tepe Develi II, where it can be seen from the Winter Sports Centre, the ski lifts and restaurants. A coffee shop close by and some music will help to create the right atmosphere...



### 6.13 Flood Light Activities

At Zümürüt I, Kabak Tepe Develi I and II it is proposed to install floodlights to enable night skiing and snowboarding. Furthermore, skiing in the Fun Park, tobogganing, tubing, air boarding and other fun activities should be possible at night. The coffee shops and restaurants need to be open and music played. Occasionally, events can be organised such as freestyle demonstrations, a night race, a concert, a downhill race with normal bikes, etc.

It is proposed that in the long-run Flood Light Night Skiing is also offered at Guney Sirt Develi. Then, a number of ski lifts with various slopes and other facilities (fun park, tubing, tobogganing, etc.) create a great experience also at night. Guney Sirt Develi would be highly suited for night races (e.g. FIS competitions), large-scale presentations of winter sports or other events.

In the past it was thought that an lighting capacity of 20 lux was sufficient for night-skiing sessions open to the general public. Today, however, it is generally accepted that an illumination capacity of at least 50 lux is required for safe night-skiing conditions. According to the FIS directive released in 1997, the areas at the start and the finish of the ski run should have an illumination capacity of between 150 and 200 lux. Today the norm for illuminated ski runs used for training purposes is at least 300 lux.

Assuming the use of mercury vapour lamps, a 40 metre-wide ski run would require masts of 14 – 16 metres in height every 40 metres. Either ready-made aluminium masts or cheaper wooden masts, such as second-hand wooden masts used by the postal service, can be employed for this purpose. On each mast are then mounted four 2-kW floodlights (asymmetrically to avoid guests being dazzled by the glare) to achieve an illumination capacity of around 250 – 300 lux.

It is also important that the lift facilities are illuminated during all night-skiing activities with an illumination capacity of at least 3 lux.

For large competition events an illumination capacity of at least 1200 lux - ideally 1500 lux - is necessary. This illumination capacity is necessary to enable television broadcasts to use super-slow-motion images. Such an installation is not recommended as part of the current development work but could be installed at a later date in the case of a successful growth of the resort and, in particular, the successful hosting of large events.

## **6.14 Racing zone**

It is proposed that a training area should be reserved for ski clubs at Oksüzter Yurdu. At Zümrüt II we propose a permanent giant slalom course with timing facilities is suggested. Also, a speed-measuring track can be planned at Seytan Sirt.

## **6.15 Walking tracks**

Walking trails are an important element of the resort as they address a number of target groups such as families with small children (for instance on sledges) and persons that don't ski and simply enjoy their time in the mountains etc. The walking tracks are not expensive to build, as they can be easily prepared with a grooming machine. A nice walk should leave from the Winter Sport Centre around the lake. Another walking trail could be built at the top of Oksüzter Yurdu.

## **6.16 Cross country tracks**

There are a number of areas that are highly suited for cross-country skiing tracks such as the terrain around the lake or the area at the downhill station of Üsfistosyon. As a road to this station has to be built in order to construct the ski lifts, a parking area and good entry point for cross-country tracks would be guaranteed. Generally, cross-country tracks can also be used for walking. However, as footprints are hampering the cross-country experience, it is advised to have separate tracks for cross-country skiers and walkers.

## **6.17 Kite area**

Especially the area around the lake and the lake itself provide an ideal terrain for kiting. Although kiting is also possible in powder snow, it is recommended to groom at least a small area, which would be declared as kiting area. The kite area shall be located close to the Winter Sport Centre, the walking and cross-country tracks to allow other people to watch the spectacle.

## **6.18 Snowmobile area**

Snowmobiles are relatively noisy and can jeopardise the experience of those who don't use snowmobiles and want to enjoy the quiet winter landscape. Therefore, it is suggested that the use of snowmobiles is restricted to an area, which is located at an adequate distance to the Winter Sports Village either on the way to Develi or Hacilar.

### **6.19 Ski Routes and off-piste skiing**

In this stage, the attractiveness of the resort for good skiers should be increased. To achieve this, it is recommended, that a number of signposted off-piste ski routes are developed. In line with this development, also various service facilities such as avalanche warning systems need to be improved.

### **6.20 Mogul Pistes**

It is suggested that a few runs will not be groomed so that natural moguls can develop. This is an additional challenge for good skiers.

### **6.21 Helicopter Skiing**

Helicopter skiing is a highlight for every experienced skier. A precondition for this product is the availability of highly qualified ski guides and an excellent knowledge of the terrain. With this product, experienced skiers can be addressed who are willing to spend quite a lot of money. Also, by offering helicopter skiing the resort can foster its reputation of being an attractive resort not only for beginners but also for good skiers. There is sufficient terrain around the peak of Erciyes mountain suitable for helicopter skiing.

### **6.22 International Competitions**

In the long-run, it is envisaged to host large international competitions in downhill-skiing, snowboarding, freestyle skiing and snowboarding, kiting, cross-country skiing, biathlon, combined, and who knows one day even World Championships or Olympic Games.

### **6.23 Traffic and Crowd Management**

One major concern in most skiing resorts constitute the transportation to and from the ski lifts especially in the mornings and evenings. Crowds and long waiting times are jeopardising the holiday or weekend experience.

In order to avoid these problems, numerous entry points to the skiing resort at Kabak Tepe Develi I and II, Zümrüt, I and II, Üsfistosyon, Seytan Sirt and Oksüzter Yurdu are planned. Thus, no long waiting times at the downhill stations in the mornings are to be expected. Furthermore, ticket sales at each entry point are planned, which should also reduce waiting times.

As far as traffic is concerned, it can be distinguished in:

- ⇒ Regular traffic from Develi to Kayseri and back
- ⇒ Traffic of residents to and from the Winter Sports Centre
- ⇒ Traffic of tourists to and from hotels to entry points
- ⇒ Traffic of tourists to and from the airport to the hotels

The more traffic the public transport system can absorb the better. It is suggested that regular busses will collect locals from the surrounding villages and the Metropolitan Municipality of Kayseri as well as tourists from the hotels to bring them to the Service Centres. For people with a valid ski pass the bus should be free.

However, cars should not be banned and sufficient parking facilities must be created. In the first development phase, xxxx parking spaces are planned. The main entry points are the Service Centres at Oksüzter Yurdu, Kabak Tepe I/II, Zümrüt I as well as Seytan Sirt and Üsfistosyon.

With raising capacities, traffic will also increase. The atmosphere of the Erciyes Village might be jeopardised by heavy congestions and crowded parking areas. This will be even more problematic if the driving conditions are bad due to snowfalls or ice. Additionally, the parents have to worry for their children not to be knocked down by a car.

Therefore, a long-term visionary solution is proposed. The construction of Erciyes Village should envisage that the road is moved underground with underground parking facilities. This would lead to several benefits:

- ⇒ The planned accommodation facilities to the right and left of the street will grow together constituting one village.
- ⇒ The current conditions would make a connection of the ski area on the side of Erciyes Mountain and the ski area of Koc Dagı

relatively complicated, as the walking distance is very long. If the road would be moved underground, people could simply ski down to the downhill station of Koc Dagı. A short ski lift from the downhill station of Koc Dagı to the downhill station of Zümrüt I would connect the mountains in the other direction.

- ⇒ The whole atmosphere would improve significantly, as the traffic, noise and rush would be underground.
- ⇒ There would be no problems with cleaning the roads from snow.

Furthermore, to reduce waiting time and allocate the visitors to the parking spaces, it is suggested that signposts will inform the visitors about the available parking spaces and waiting times at the various Service Centres already on the way to Erciyes. Thus, guests can choose the best-suited entry point to the skiing area. The number of parking spaces should be increased according to the demand. Especially at the downhill station of the Üsfistosyon and Seytan Sirt, as well as Oksüzter Yurdu cheap parking spaces can be created.

Also, on the slopes itself, crowd management systems are recommended, especially when the number of skiers and snowboarders increases. Signposts, intelligent queuing systems, attractions, entertainment and information shall improve both the capacity of the ski lifts and the satisfaction of the skiers and snowboarders.

## 7 Institutional Structure

This section discusses the roles and responsibilities of the various concerned actors. Especially in tourism related issues, a well functioning Private Public Partnership is always of great importance. The public bodies are responsible for providing public goods, correct market failures and create a favourable framework for businesses to prosper. The activities of the public bodies should meet the demand of the market and businesses. In addition, tourists are usually choosing the resort or destination first, then the hotel and after that all other related services. Thus, cooperation on the destination level is required. Below, the main actors of such a Private Public Partnership are described.



## **7.1 Metropolitan Municipality of Kayseri**

Role and Responsibility:

- ⇒ Develop infrastructure and provide public goods
- ⇒ Calculate and define carrying capacities
- ⇒ Define and enforce a development framework for the resort
- ⇒ Allocate licences for the major elements of the Mountain Resorts such as ski lift operations
- ⇒ Create the necessary institutional set-up including vocational education and training for people working in the newly created sector
- ⇒ Inform Advisory Body on key issues related to the mountain resort
- ⇒ Discuss suggestions of Advisory Body

The Metropolitan Municipality should nominate a project manager for the mountain resort. The project manager controls that all construction and development activities are within the agreed and defined development framework.

## **7.2 Municipalities Hacilar, Hisarcik and Develi**

Role and Responsibility:

- ⇒ Develop infrastructure within their area of responsibility
- ⇒ Promote Businesses related to the Mountain Resort
- ⇒ Promote Civil Society related to the Mountain Resort
- ⇒ Communicate the concerns of their citizens to the Advisory Body and the Metropolitan Municipality of Kayseri

The Municipalities should also nominate a project manager for the Mountain Resort who participates in the Advisory Body and the Destination Management Council.

## **7.3 Advisory Board:**

Role and Responsibility:

- ⇒ Discuss key issues in relation to the Mountain Resort
- ⇒ Develop proposals to the municipality about the development framework
- ⇒ Develop proposals about destination management and marketing
- ⇒ Spread information about the Mountain Resort

The Advisory Board should be a platform, where key issues are discussed among key stakeholders on a quarterly basis. It is suggested that representatives of the following organisations and areas should be included:

- ⇒ Project Manager for the resort of the Metropolitan Municipality of Kayseri
- ⇒ Representative of Hacilar
- ⇒ Representative of Hisarcik
- ⇒ Representative of Develi
- ⇒ Representative of ski lift operator
- ⇒ Representative of ski school and other sporting facilities
- ⇒ Representative of sport clubs
- ⇒ Representative of shops and other related facilities
- ⇒ Representative of accommodation facilities and restaurants

#### **7.4 Destination Management Office:**

Role and Responsibility:

- ⇒ Prepare strategic marketing plans for Erciyes/Kayseri
- ⇒ Prepare operational marketing plans
- ⇒ Implement marketing activities
- ⇒ Manage marketing budget
- ⇒ Manage information points
- ⇒ Prepare and manage events

The Chairman of the Destination Management Office should be elected by all relevant stakeholders (assembled in the Destination Management Council) for a period of four to five years. The Destination Management Office has sufficient human and financial resources to fulfil the abovementioned responsibilities. All stakeholders should contribute to the funding of the Destination Management Office according to a formula to be agreed upon.

## **7.5 Destination Management Council:**

Role and Responsibility:

- ⇒ Appoint the Chairman of the Destination Management Office
- ⇒ Approve destination marketing strategy
- ⇒ Approve operational marketing plans
- ⇒ Approve budgets of Destination Management Office
- ⇒ Discharge Destination Management

The Destination Management Council should be an assembly of all stakeholders of the Mountain Resort. The decision should be made based on a qualified majority. The weighting of the votes has to be agreed upon. The Council should meet once a year.

## **7.6 Business Sector**

Businesses are involved in the decision making of the Public Private Partnership as members of the Destination Management Council, the Advisory Board or even in functions of the Destination Management Office. Furthermore, a key objective of the Mountain Resort is to create income and job opportunities. Therefore, various services and facilities such as accommodations, shops, restaurants, sport facilities, etc. shall be operated by private businesses. Entrepreneurs are paramount to develop the resort. Through competition, the wish to succeed and to gain recognition and appreciation in the local community, the quality levels will be increased. Regional competition will lead to innovative products for the locals as well as for tourists creating a versatile offer for a large variety of target groups.

At the same time, it should be noted that latest Cluster research has shown that regions prosper most if they achieve to create a fertile mixture of competition and cooperation. Cooperation is important in the field of destination management and marketing (starting from the very basic requirement of one ski ticket for the whole resort), while competition on the business level such as among hotels or shops raises the innovativeness and the quality levels.

## **7.7 Civil Society**

It has been recognised that the civil society plays an important role in social-economic development processes. For instance, associations and clubs related to snow and mountain sports, environmental protection, sustainable tourism, promotion of the rich flora and fauna of the region, regional culture and folklore, will both protect and foster the development of a successful and socially integrated Mountain Resort. Even on the Advisory Board, one representative of the civil society sector could be present.

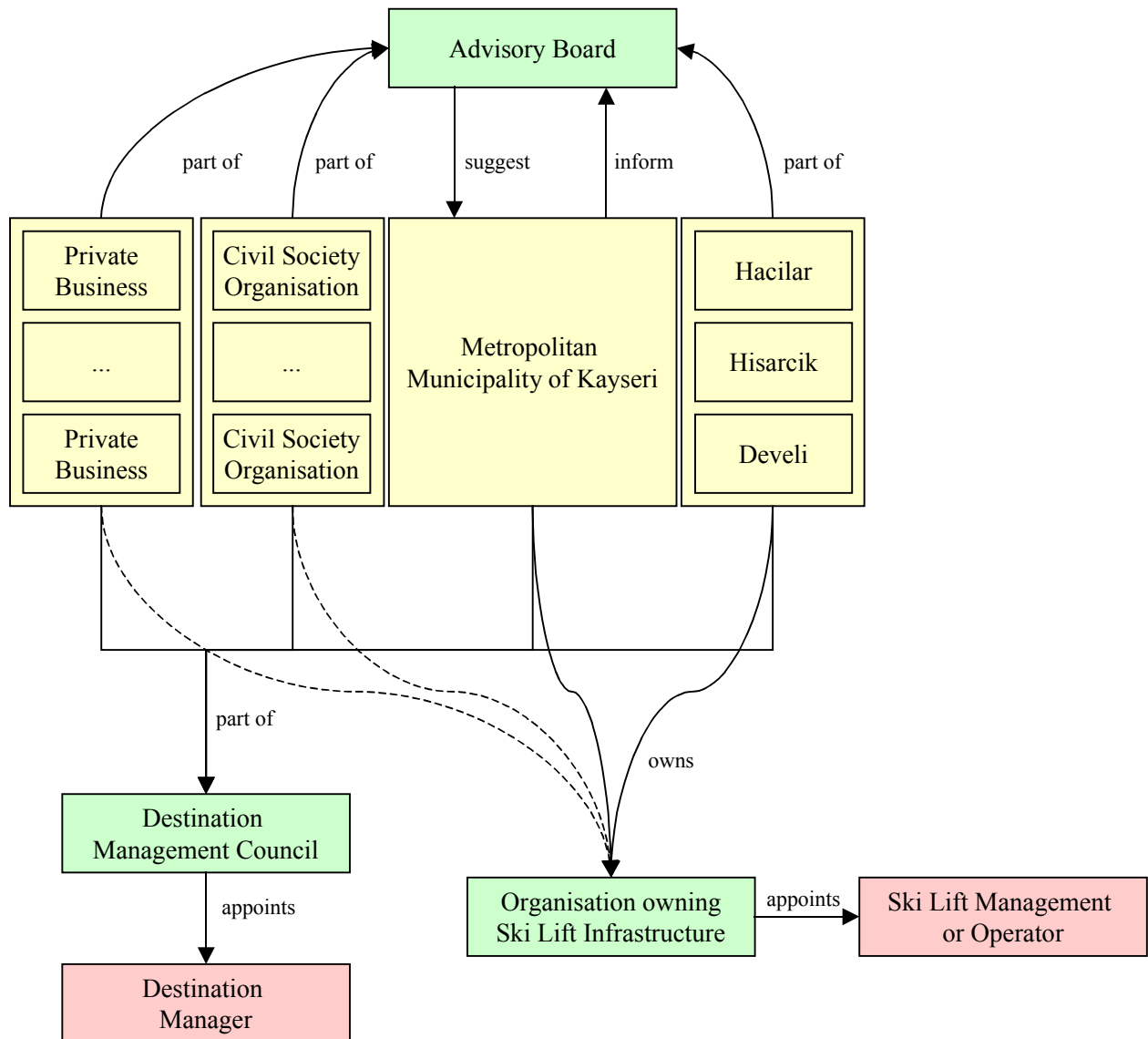
## **7.8 Ski Lifts Management or Operator**

It is forecasted (see financial analysis) that the ski lifts will generate profits in the medium- and long-run. However, in the short-run very high investments are required and there is some uncertainty about the development of the resort related to market demand or other issues such as property rights. Furthermore, the skiing infrastructure will lead to significant positive externalities in terms of developing an increased demand for accommodations, restaurants, various products and tourism related businesses leading to more jobs and income opportunities. Positive externalities imply that private businesses will only create skiing infrastructure below the optimal level. Therefore, it is suggested that the Municipality should play a significant role in building ski lifts, artificial snow making facilities, ski slopes etc. These activities can be seen as infrastructure investments, which, however, in the medium- and long-run should amortise themselves directly.

While it is suggested that the Municipality of Kayseri is the main owner of the skiing infrastructure, also private investors and businesses that benefit from the resort can be invited to contribute to the financing and receive some shares of the skiing infrastructure in return. However, the management of the skiing infrastructure should be licensed out to a private operator who can demonstrate considerable experience in managing modern skiing resorts. The operator should work on his own account and have to pay a certain yearly rent for the licence.

## **7.9 The Public Private Partnership Architecture**

The picture below demonstrates the architecture and links between the different actors described above.



## 8 Financial Analysis

### 8.1 Investments Core Ski Area:

In 2007 the main preparatory works such as parking facilities at the base station of the *8 MGD Oksüzler Yurdu*, expansion of the parking facilities at the Pass and the access road to the top station of the *8 MGD Oksüzler Yurdu* could be established. Also building work for the feeder line (also equipped with snow generators) from the water reservoir to Hacilar including the snow making facilities for the ski runs at the Pass could be started. In 2008 both the central lifts at Hacilar, the *8 MGD Oksüzler Yurdu* and the *6 CLD Sag Sakallik* (only for uphill transport of skiers) as



well as the adjacent ski runs could be established. Also a full-fledged service centre including ticket sales, an information desk, toilets, a ski-school office, a sports shop, a kindergarten, etc. at the bottom station of Oksüzler Yurdu shall be constructed

**Thus operation of the ski area at Hacilar could begin in the winter season 2008/2009**

	<b>total cost estimate</b>
<b>"Basic Expansion" / 2007 - 2008 (2 lifts at Hacilar)</b>	
<b>Infrastructure:</b> access road (= ski trail) to the top station of 8MGD Oksüzler Yurdu, extension of the parking at the Pass	240.000 €
<b>Parking</b> facilities at the New Base Station	150.000 €
Extension of the Parking at the Pass	150.000 €
<b>8 MGD Oksüzler Yurdu</b> , delivery and assembly	5.020.000 €
<b>Power supply</b> (medium voltage system, transformer stations) for the 8 MGD Oksüzler Yurdu, the 6 CLD Kabak Tepe Develi I and Sag Sakallik	350.000 €
8 MGD Oksüzler Yurdu: planning and implementation (poles, foundations, cable track, etc...)	1.250.000 €
8 MGD Oksüzler Yurdu, chair garage and operator's building at base and top	245.000 €
8 MGD Oksüzler Yurdu, Infrastructure building, toilets	300.000 €
<b>6 CLD Sag Sakallik</b> , delivery and assembly	3.950.000 €
6 CLD Sag Sakallik, operator's building at the bottom and top	85.000 €
6 CLD Sag Sakallik, planning and implementation (poles, foundations, cable track, garage for grooming machines, etc...)	790.000 €
<b>Ski run and ski trail</b> construction in the area of the 8 MGD Oksüzler Yurdu und 6 CLD Sag Sakallik	100.000 €
<b>Skidoo, Safety equipment (safety fences)</b> , rescue equipment	300.000 €
<b>Service Centre Hacilar</b>	1.000.000 €
<b>sub-total</b>	<b>13.930.000 €</b>



	total cost estimate
<b>"Basic Expansion" / 2007 - 2008 (2 lifts in Hacilar)</b>	
<i>carry-over</i>	13.930.000 €
<b>Artificial Snow Making Facilities:</b> Construction of a big pump station at the Pass	500.000 €
Technical snow facilities: pump station, hydraulics, electrical engineering, control system, implementation for this area	660.000 €
Technical snow facilities: about 11.000m feeder pipe with snow generators from the reservoir at Hacilar), electricity cables, shafts, etc...	2.310.000 €
Technical snow facilities: Aquisition of 25 snow generators	875.000 €
<b>Ticketsystem</b> (e.g. Skidata) including first investment on tickets	250.000 €
<b>Beginner-Area</b> , ski-kindergarten, first extension at Hacilar	190.000 €
<b>Aquisition of 4 grooming machines</b>	1.000.000 €
about 5% unforeseen	985.000 €
<b>Total Cost 2007/2008</b>	<b>20.700.000 €</b>

**In the years 2009 and 2010 the connection between the ski area Hacilar and the Pass should be established. To achieve this, the construction of the 4 CLD Karakulak Tepe, 4CLF Yalçın, 4 CLF Sirt as well as the 4 CLD Üstistasyon is necessary.**

In 2009 the access road branching off the Pass road at Hahlinalininyurt to the base stations of the 4 CLF Sirt and 4 CLD Üstistasyon including parking facilities at the base stations and the power supply of the lifts should be established. Additionally either the 4 CLD Karakulak Tepe or the 4 CLD Üstistasyon lifts can already be built.

In 2010 the missing 3 lifts 4 CLF Sirt, 4CLF Yalçın, 4 CLD Karakulak Tepe or 4 CLD Üstistasyon should follow. The realisation of this ambitious project – 3 lifts in one year – seems feasible. This is especially true as two lifts are fixed chair lifts, which are technically less sophisticated. In addition ticket sales facilities and toilets should be constructed at the bottom station of the Üstistasyon Ski Lift.

The artificial snow making facilities should be extended to the new ski runs.

Because of the avalanche hazard along the ski trail crossing between the base stations of the 4 CLD Karakulak Tepe and the 4CLF Yalçın it seems necessary to install temporary avalanche protection measures in this area.

	total cost estimate
<b>"Basic Expansion" / 2009 - 2010 (connecting ski areas, 4 lifts)</b>	
<b>1.300m access road</b> from Hahlinalininyurt to the base stations of the 4CLF Sirt and the 4 CLD Üstistosyon	500.000 €
<b>Power supply</b> (medium voltage system, transformer stations)	350.000 €
<b>4 CLD Karakulak Tepe</b> , delivery and assembly	3.150.000 €
4 CLD Karakulak Tepe, operator's building base and top	85.000 €
4 CLD Karakulak Tepe, planning and implementation (poles, foundations, cable track, etc...)	700.000 €
<b>4CLF Yalçin</b> , delivery and assembly	1.400.000 €
4CLF Yalçin, operator's building base and top	60.000 €
4CLF Yalçin, planning and implementation (poles, foundations, cable track, etc...)	280.000 €
<b>4 CLF Sirt</b> , delivery and assembly	1.950.000 €
4 CLF Sirt, operator's building base and top	60.000 €
4 CLF Sirt, planning and implementation (poles, foundations, cable track, etc...)	390.000 €
4 CLF Sirt, infrastructure building, toilets in the base area	200.000 €
<b>4 CLD Üstistosyon</b> , delivery and assembly	3.200.000 €
4 CLD Üstistosyon, operator's building base and top	85.000 €
4 CLD Üstistosyon, planning and implementation (poles, foundations, cable track, etc...)	800.000 €
<b>Ski run and ski trail construction</b> in the area of the 4 new lifts	300.000 €
<b>Ski run safety equipment (fences etc.) and rescue equipment</b>	200.000 €
<b>Artificial Snow Making Facilities:</b> pump station, hydraulics, electrical engineering, control system, implementation in this area	300.000 €
Artificial Snow Making Facilities: about 5.000m pipes, electricity cables, shafts, etc...	1.050.000 €
Artificial Snow Making: Aquisition of 25 snow generators	875.000 €
<b>Ticketsystem</b> (e.g. Skidata) including further cash desks	200.000 €
<b>Ticket Sales Office &amp; Toilets</b>	300.000 €
<b>GAS-EX</b> , Avalanche explosive control system	800.000 €
<b>Aquisition of 2 grooming machines</b>	500.000 €
around 5% unforeseen	880.000 €
<b>Toatal Cost 2009 / 2010</b>	<b>18.615.000 €</b>

In order to achieve a quick economic success it is recommended to implement the basic expansion **within a 3-year period**.

## 8.2 Investment Moduls Ski area expansion:

After completion of the Core Ski Area as described above, further steps should be taken in the following year .

### Module A: Construction of additional ski lifts at the Pass

If the hotel development at the Pass goes on quickly the next step (module) should be to extend the ski area at the Pass connecting the new hotel resort. Then the 4 CLD Kabak Tepe Devili I and 4 CLD Kabak Tepe Devili II with ski runs, artificial snow making facilities, lighting etc should be established. These should especially attract snowboarders and guests wishing to do new alternative winter sports. The construction of a fun park as well as a toboggan run is planned in this area. One ski run should be adapted in order to be suitable for night skiing. For the sportier skier the 4 CLD Guney Sirt Develi lift should be constructed. Also a Service Centre should be constructed hosting all required services for skiers and snowboarders

	total cost estimate
<b>Module A: New lifts at the Pass</b>	
<b>Infrastructure</b> , local acces roads, further extension of the parking areas at the Pass, laying sewerage pipes in the trenches of the snow water pipe system	240.000 €
<b>Power supply</b> (medium voltage system, transormer stations)	450.000 €
<b>6 CLD Kabak Tepe Devili I</b> , delivery and assembly	4.300.000 €
6 CLD Kabak Tepe Devili I, chair garage and operator's building top ans base	245.000 €
6 CLD Kabak Tepe Devili I, planning and implementation (poles, foundations, cable track, garage for grooming	1.200.000 €
<b>4 CLD Kabak Tepe Devili II</b> , delivery and assembly	2.900.000 €
4 CLD Kabak Tepe Devili II, operator's building top and base	85.000 €
4 CLD Kabak Tepe Devili II, planning and implementation (poles, foundations, cable track, etc...)	580.000 €
<b>subtotal</b>	<b>10.000.000 €</b>

	<b>total cost estimate</b>
<b>Module A: New lifts at the Pass</b>	
<i>carry-over</i>	10.000.000 €
<b>4 CLD Guney Sirt Develi</b> , delivery and assembly	3.150.000 €
4 CLD Guney Sirt Develi, operator's building top and base	85.000 €
4 CLD Guney Sirt Develi, planning and implementation (poles, foundations, cable track, etc...)	860.000 €
<b>Ski run and ski trail construction</b> including access roads and slope stabilisation measures	600.000 €
<b>Ski run safety equipment (fences etc.) and rescue equipment</b>	250.000 €
<b>Construction funpark, toboggan run, ski beginners area, etc.</b>	450.000 €
<b>Artificial Snow Making:</b> pump station, hydraulics, electrical engineering, implementation in this area	600.000 €
Artificial Snow Making Facilities: about 5.000m pipes, electricity cables, shafts, etc...	1.050.000 €
Artificial Snow Making: Aquisition of 30 snow generators	1.050.000 €
<b>Service Centre</b> (info-desk, ticket sales, ski-school office, sport shop, kindergarten, toilets, etc.	1.000.000 €
<b>Ticketsystem</b> (e.g. Skidata) including further cash desks	150.000 €
	800.000 €
<b>Aquisition of 3 grooming machines, 1 of which with winch</b> about 5% unforeseen	1.005.000 €
<b>Total</b>	<b>21.050.000 €</b>

### **Module B: Construction of ski lifts up to the 3.357m-peak Kircilli Seki Tepe**

If it is an aim to reach the highest point suitable for skiing on the Erciyes rather soon and to have ski runs available in the early autumn and late spring for ski training purposes, it will be necessary to establish the *6 CLD Kircilli Seki Tepe*, *6 CLD DüNDAR Tepe I* and the *4 CLD Uzun Aga* with adjoining ski runs and artificial snow making facilities.

**total cost  
estimate**

**Module B: Construction of lifts to the 3.357 m peak of Kircilli Seki Tepe**

<b>Infrastructure</b> , local acces roads, laying sewerage pipes in the trenches of the snow water pipe system	150.000 €
<b>Power supply</b> (medium voltage system, transormer stations)	450.000 €
<b>6 CLD DüNDAR Tepe I</b> , delivery and assembly	3.900.000 €
6 CLD DüNDAR Tepe I, chair garage and operator's building top and base	245.000 €
6 CLD DüNDAR Tepe I, planning and implementation (poles, foundations, cable track, etc...)	850.000 €
<b>4 CLD Uzun Aga</b> , delivery and assembly	2.900.000 €
4 CLD Uzun Aga, operator's building top and base	85.000 €
4 CLD Uzun Aga, planning and implementation (poles, foundations, cable track, etc...)	580.000 €
<b>6 CLD Kircilli Seki Tepe</b> , delivery and assembly	4.400.000 €
6 CLD Kircilli Seki Tepe, operator's building top and base	85.000 €
6 CLD Kircilli Seki Tepe, planning and implementation (poles, foundations, cable track, toilets, etc...)	1.012.000 €
<b>Ski run and ski trail construction</b> including access roads and slope stabilisation measures	1.000.000 €
<b>Ski run safety equipment (fences etc.) and rescue equipment</b>	250.000 €
<b>Artificial Snow Making Facilities:</b> pump station, hydraulics, electrical engineering, implementation in this area	570.000 €
Artificial Snow Making: about 5.000m pipes, electricity cables, shafts, etc...	1.150.000 €
Artificial Snow Making: Aquisition of 30 snow generators	1.050.000 €
<b>Ticketsystem</b> (e.g. Skidata) including further cash desks	200.000 €
	850.000 €
<b>Aquisition of 3 grooming machines, 1 of which with winch</b> about 5% unforeseen	973.000 €
<b>Total</b>	<b>20.700.000 €</b>

**Module C: Construction of new ski lifts in the Hacilar Ski Area**

If the number of skiers entering the ski resort from Hacilar increases rapidly, it seems necessary to improve this part of the ski area. By establishing the *6 CLD Karakaya* the beautifully extending slopes southwest of Perikartini could be opened up with easy, intermediate and difficult (blue, red, black) ski runs.

**total cost  
estimate**

**Module C: Construction of new lifts at Hacilar**

<b>Infrastructure</b> , local access roads	30.000 €
<b>Power supply</b> (medium voltage system, transormer stations)	100.000 €
<b>6 CLD Karakaya</b> , delivery and assembly	4.000.000 €
chair garage, operator's building top ans base	245.000 €
6 CLD Karakaya, planning and implementation (poles, foundations, cable track, etc...)	850.000 €
<b>Ski run and ski trail construction</b> including access roads and slope stabilisation measures	150.000 €
<b>Ski run safety equipment (fences etc.) and rescue equipment</b>	50.000 €
<b>Artificial Snow Making Facilities:</b> pump station, hydraulics, electrical engineering, implementation in this area	570.000 €
Artificial Snow Making: about 2.000m pipes, electricity cables, shafts, etc...	460.000 €
Artificial Snow Making: Aquisition of 15 snow generators	525.000 €
<b>Ticketsystem</b> (e.g. Skidata) including further cash desks	50.000 €
<b>Aquisition of 2 grooming machines</b>	500.000 €
about 5% unforeseen	370.000 €
<b>Total</b>	<b>7.900.000 €</b>

**Module D: Construction of new ski lifts on Koc Dagi**

In case that the accommodation facilities at the Pass increase rapidly and especially if the Municipality decides to move the main street underground, Module D that extends the ski area to Koc Dagi would be suitable. This would also benefit the development of the Alpine Village II and the Apartment Area II. Module D would also require a Service Centre that hosts ticket sales, an information point, a restaurant, toilets, and a sport shop possibly combined with a ski-school office.

## total cost estimate

### Module D: Construction of new lifts at Koc Dagı

<b>Infrastructure, local access roads</b>	120.000 €
<b>Power supply</b> (medium voltage system, transormer stations)	350.000 €
<b>4 CLD Koc Dagı</b> , delivery and assembly	4.050.000 €
4 CLD Koc Dagı, chair garage, operator's building top and base	245.000 €
4 CLD Koc Dagı, planning and implementation (poles, foundations, cable track, etc...)	900.000 €
<b>4 CLF Öküz Cukuru</b> , delivery and assembly	2.050.000 €
4 CLF Öküz Cukuru, operator's building top and base	60.000 €
4 CLF Öküz Cukuru, planning and implementation (poles, foundations, cable track, etc...)	410.000 €
<b>Ski run and ski trail construction</b> including access roads and slope stabilisation measures	150.000 €
<b>Ski run safety equipment (fences etc.) and rescue equipment</b>	50.000 €
<b>Artificial Snow Making Facilities:</b> pump station, hydraulics, electrical engineering, implementation in this area	770.000 €
Artificial Snow Making Facilities: about 5.000m pipes, electricity cables, shafts, etc...	1.150.000 €
Artificial Snow Making: Aquisition of 15 snow generators	525.000 €
<b>Ticketsystem</b> (e.g. Skidata) including further cash desks	100.000 €
<b>Service Centre</b> (ticket sales, restaurant, toilets, information point, rental facilities)	700.000 €
<b>Aquisition of 2 grooming machines</b>	500.000 €
about 5% unforeseen	605.000 €
<b>Total</b>	<b>12.735.000 €</b>

After finishing the Development Phase I the Core Ski Area will comprise about **145 hectares** (1 hectare equivalent to 10.000 square meters) of ski runs and **11 lifts (5 already existing, 6 new lifts)**. The artificial snow making facilities will cover about **50 hectares**. After implementing all described modules, there would be additional **329 hectares of ski runs**. All together, including all the measures suggested in the study (could be realised in about **10 to 12 years**) and considering the existing infrastructure there would be about **474 hectares** of ski runs, **150-170 hectares of which would be equipped with artificial snow making facilities**. The total transport capacity of the Core Ski Area would amount to **18.700 persons/hr**. After establishing all modules the transport capacity in the area will increase to **35.500 persons/hr** on **20 lifts**.



### **8.3 Investment Cost Accommodation & Other Facilities**

In order to arrive at a total number of the estimated investment needed over a period of approximately 10 to 15 years, an estimate has been made of all the necessary investments to make Erciyes Mountain a full all year round resort.

Even though this was not a part of the contract, it seemed worthwhile to give a vision of the full development stage of all sports and leisure facilities including alpine skiing and all the other sports and leisure activities both for the summer and winter tourism as well as an overview of the long range accommodation facilities in the resorts.

Creating sufficient accommodation facilities:

Presently, there are about 800 tourist beds of very diverse quality in various hotels available at Erciyes Mountain. It has been estimated, that the resort itself should have approximately 5000 beds at the resort proper and a few thousand more in Kayseri and the other municipalities, mainly in Hacilar.

It has been proposed by the town of Hacilar that use could be made of the many apartments and summer houses which are owned by private people from Kayseri and other Turkish towns and which are mostly underused during the winter time period. A rental pool was suggested which would offer the owners to rent their apartments or houses at good rates during the winter and whenever they don't need it for themselves.

In Europe and the US one has made excellent experience with this system, from which both the resort and the private owners will be benefiting, since it will bring additional income into the region without the need of large public investments for accommodations.

With a good transfer system between Kayseri and Erciyes Mountain as well as the surrounding municipalities a good utilisation of all the hotel and accommodation facilities in the area can be expected. However, a good management structure with an excellent web-portal and with good rental software will have to be acquired. In addition Know-how needs to be transferred from resort areas where such experience exists.

The other winter- and summer sports facilities are not as expensive as those for alpine skiing. Nevertheless, a budget needs to be established for other activities,

such as equipment for cross-country skiing, tracks for sleigh rides, paths for walking and for horse drawn sleighs and carriages etc.

For summer tourism, the golf course project in Hacilar has been discussed and is being added in this overall master plan. In addition, other sports facilities for summer tourism are to be planned and budgeted.

	<b>total cost estimate</b>
<b>Construction of accommodation &amp; other sports facilities</b>	
Infrastructure, local access roads etc.	5'000'000 €
Upgrade existing 770 hotel beds in Erciyes	15'000'000 €
1880 Hotel & Apartment beds Erciyes as per attachment	58'000'000 €
500 Hotel beds 4-Star Golf & Conference Hotel Hacilar	24'000'000 €
1620 Hotel & Apartment beds Erciyes as per attachment	50'000'000 €
Golf Course	5'000'000 €
Other Winter Sports Facilities (Ice Rink, tracks, etc)	4'000'000 €
Other Summer Sports Facilities	2'000'000 €
Crowd Management, Signage etc.	1'000'000 €
about 5% unforeseen	8'200'000 €
<b>Total</b>	<b>172'200'000 €</b>

As shown in the attached ERCIYES ACCOMMODATIONS, it is suggested to build the hotels and apartments in three different stages, which have been assumed as being implemented in year 1, year 4 and year 8, but can be kept flexible and can be implemented according to need.

In the first phase the owners of the existing hotels are to be invited to renovate and modernize their hotels in Erciyes – approximately 770 – 800 beds in total – and bring them to an internationally acceptable 3-star standard.

As a second phase, presumably after 3 to 4 years it is suggested to build a 4-star hotel with a total of 240rooms/480 beds next to a golf course near the access road from Hacilar to the Hacilar ski lift station. This should be a typical all year round resort hotel, which would cater to skiers in the winter, to golfers during the other season and – most important, offer meeting and seminar facilities during the entire year. This seems particularly fitting for this small town, which enjoys a reputation of one of the most dynamic and successful business areas in Turkey.

At the same time, some smaller 3- and 4-star hotels and apartment houses are suggested at the main resort of Erciyes according to the master plan. In this phase a total of 2.460 additional beds are envisaged. Ownership of the apartments could very well be in private hands, however, it is suggested, that at such prime location the apartment owners must agree to rent their apartments to tourists during the times when they don't use them themselves.

In the third phase of the current master plan an additional 2.290 beds would be recommended to be built. The exact mix of hotels and apartments as well as there size, number of beds and category should not be decided before one has had an experience with the acceptance of the previously built accommodations by tourists.

Quality of accommodation and quality of service will be the most important issues in this first phase when visitors will be attracted to come to Erciyes from allparts of Turkey and neighbouring countries. It should be noted, that the prices for building these hotels and apartments seem high. However, the prices are calculated on a "turn key" basis, that means including all planning cost, construction and furnishings at the international categorization level as indicated.

It is however not recommended for the city to invest, but rather invite private investors to invest on their own in the immediate vicinity of the most modern winter sport development in Turkey. Obviously, the investors should be allowed to apply for any financial incentives, which may be provided by the government for other tourism investments in Turkey.

The entire investment into accommodations at Erciyes is shown in one sum, even though it will be realised by a number of different investors and/or hotel operators. However, it must be made clear that ALL hotel and apartment owners on Erciyes must from the very beginning become members in a joint tourism association, which, together with the city of Kayseri will coordinate all marketing activities, will set quality standard, will have say in all important matters regarding sports operations (they must be able to speak for their clients) and will coordinate all matters which guarantee a sustainable growth of tourism at Erciyes.

## **8.4 Operational Cost Assumptions**

The following costs assumptions were made after discussions with several Turkish experts:

- ⇒ Electricity: the price per kWh is assumed to be € 0,08, the electricity stand-by fee € 2,40 per kWh of the starting power of the ski lifts. The energy prices are assumed to rise by 7% each year. The required kWh for each ski lift is based on data from ski lift manufacturers. A table with the exact data is enclosed.
- ⇒ Wages: For the calculations, it was differentiated in three qualifications categories. Labour category I are highly qualified employees such as the head engineer or marketing officer. For Labour category I € 3.500 are foreseen as total monthly costs. Labour category II relates to skilled personnel, for which € 800 are budgeted. Labour category III is used for tasks that need low qualifications. The total monthly labour costs for category are forecasted at € 500. It is assumed that the labour costs will increase by 5% each year. The calculations are based on the assumption that each employee works 160 hours. For each Module and each ski lift, the required human resources are specified based on experience in Austria, information from ski lift operators and ski lift manufacturers. The required number of personnel (total working days / hours) was slightly increased compared to Austrian standards because it might take some time to achieve the same efficiency. The requirements are distinguished in management staff (CAT I and II), Operational Personnel (Cat II), Maintenance Personnel (Cat II), Ticket Sales (Cat II) and Cleaning (Cat III). A detailed table is enclosed and a more detailed description of the required human resources is enclosed.
- ⇒ Maintenance: For each ski lift, € 25.000 have to be budgeted for yearly maintenance by the manufacturer of the ski lifts. These maintenance costs are assumed to augment by 2% each year.
- ⇒ Grooming Machines: For each grooming machine 1000 working hours per year are budgeted. It is expected that for each grooming machine € 18.000 are required for fuel (yearly increase of 7%) and € 6.000 for maintenance (yearly increase of 4%) per season. For each Module the number of required grooming machines is indicated: 6 for the Core Ski Area, 3 for

Module A, 4 for Module B, 2 for Module C and 2 for Module D.

- ⇒ Artificial Snow Making: About 2500 m<sup>3</sup> of water per season are required for each hectare. Additionally, 44 working hours are budgeted (34 for operations and 10 for maintenance) for each hectare to be covered by artificial snow-making. For each hectare, it is expected that about € 550 are required for electricity and € 230 for maintenance other than maintenance wage costs. The electricity costs are expected to rise by 7% and the maintenance costs by 4%. For each ski lift a certain number of hectares to be covered by artificial snow making is planned: 50 hectares for the Core Ski Area, 35 hectares for Module A, 40 hectares for Module B, 15 hectares for Module C and 30 hectares for Module D.
- ⇒ Sport Centres: For a full-fledged sport centre such as planned in Hacilar or at the downhill station of Kabak Tepe, it is assumed that € 20.000 are required for maintenance and € 20.000 for energy costs. The maintenance costs are expected to increase by 4% and the energy costs by 7%. As described in the above sections, a number of ski centres are foreseen. In the Core Ski Area, a Sport Centre with all facilities such as ticket sales, toilets, kindergarten, sport shop, restaurant, etc. is planned at the downhill station of Oksüzter Yurdu. For a smaller entry point at the downhill station of Üsfistosyon, is planned with ticket sales, information point and toilets, for which half of the costs of a full-fledged centre are budgeted. Two more Sport Centres are planned, one in Module A and one in Module D.
- ⇒ Insurance: The cost for insurance are forecasted at € 10.000 per ski lift. This amount is assumed to augment by 3% each year.
- ⇒ Other Cost: A category for other costs was introduced, which is expected to be 5% of the total operating costs.
- ⇒ Marketing Cost: For each module, a certain budget has been included for marketing. For Core Ski Area € 500.000 are foreseen, for Module A additional € 200.000, for Module B

additional € 200.000, for Module C additional € 150.000 and for Module D additional € 200.000. It is suggested to budget for marketing cost depending on the size of the resort. The more ski lifts are constructed, the higher is the required number of skiers. The marketing costs are assumed to increase by 5% each year.

## 8.5 Human Resources Ski Lifts

The human resources are planned for each module and each ski lift separately. Furthermore, the required working hours for snow making and grooming are considered. It is distinguished in Management Personnel (Cat I and II), Operations Personnel (Cat II), Maintenance Personnel (Cat II), Ticket Sales (Cat II) and Cleaning (Cat III). The required number of staff is assumed to be slightly higher than in established international ski resorts as efficiency increases over time, which is known from studies about for instance the learning curve. The needed staff for each module is described below:

- ⇒ Core Ski Area: 3 Management Cat I are required fulltime (12 months) in the fields of overall management and marketing (Chief Executive Officer), engineering (Chief Technical Officer) and finance (Chief Financial Officer). They are support by three Management staff of Cat II. For the ski lift operations, 6 technical staff (Cat II) are required for Oksüzter Yurdu for 12 months (operates also in summer), and 5 technical staff (Cat II) for each of the other 5 ski lifts of the Core Ski Area for 6 months (only winter). For each of the 6 ski lifts, 4 technical staff (Cat II) are need for 1,5 months for maintenance. Furthermore, it is assumed that 3 persons are required for ticket sales (Cat II) at the Sport Centre Hacilar for 12 months and 2 more for 6 months at the entry sport at the downhill station of Üsfistosyon. For Oksüzter Yurdu, Sagsikallik and Karakulate Tepe, 3 cleaning personnel (Cat III) are needed for 12 months and after the construction of the three ski lifts one more for 6 months.
- ⇒ Module A: It is assumed that one additional Management staff in Cat I and one in Cat II are needed to manage the Sport Centre Develi and planned events. For Kabak Tepe I and II, 7

operational personnel (Cat II) are required each for 6 months and for Güney Sirt Develi 5 for 6 months. For Kabak Tepe I and II, 2 more staff are planned due to the night skiing activities. For maintenance activities, 4 technical staff (Cat II) are needed for each ski lift. Concerning ticket sales, 4 persons (Cat II) for 6 months are forecasted due to the expected high demand generated through the village on the mountain. 3 cleaning personnel (Cat III) are foreseen for 6 months.

- ⇒ Module B: For each of the three ski lifts it is required to provide 5 operational personnel (Cat II) for 6 months and 4 technical staff (Cat II) to undertake the maintenance work for 1,5 months. One additional staff for ticket sales for 6 months due to an increased demand is needed.
- ⇒ Module C: For Karakaya ski lift 5 personnel for 6 months are required to operate the ski lift and 4 personnel for 1,5 months to maintain it.
- ⇒ Module D: It is assumed that 1 extra management staff of Cat I and 1 additional for Cat II (12 months) are required for Module D, which is concerned with extending the Ski Area to Koc Dagı. As described in the above sections, also a Sport Centre is foreseen in Module D. 5 operational staff (6 months) and 4 maintenance staff (1,5 months) are needed for each ski lift. In addition, 3 personnel for ticket sales (Cat II) for 6 months and 2 cleaning personnel (Cat III) for 6 months are required.

## 8.6 Operating Cost

The calculations of the operating costs were made for each module. The Subcategories are Personnel Cost, Maintenance Cost, Energy Cost and Other Cost. The following items are covered under the mentioned subcategories for each module:

- ⇒ Personnel
  - Management
  - Ski Lifts
  - Grooming



- Snow Making
- Ticket Sales
- Cleaning
- Total Personnel
- ⇒ Maintenance (Other than personnel related maintenance costs)
  - Ski Lifts
  - Grooming
  - Snow Making
  - Ski Centers
  - Total Maintenance
- ⇒ Energy
  - Ski Lifts
  - Grooming
  - Snow Making
  - Ski Centers
  - Total Energy
- ⇒ Other Cost
  - Insurance
  - Marketing
  - Other
  - Total Other Cost
- ⇒ Total Operating Cost

Based on the cost assumptions, the operating costs for the Core Ski Area and each module were calculated for the next 15 years. The corresponding spreadsheet is enclosed. These forecasts are included in the financial model for the years in which the modules are actually in place and operating.

## 8.7 Revenue Assumptions

In order to calculate the revenues directly attributed to the ski lift operations the following assumptions were made:

- ⇒ The average daily ticket price is assumed to be € 12 in the first year and is forecasted to increase by 5% every year. The current daily ticket price to use the two Zümrüt ski lifts is about € 15. Considering reduced prices for children and groups, a starting average daily ticket price of € 12 seems to be realistic. The yearly increase of 5% takes into account the price rises due

to inflation and raising quality standards allowing targeting people who are ready to pay a higher price for the ski passes. From Year 11 onwards, however, the yearly increase is only projected with 2,5%.

- ⇒ The population in Turkey is assumed to augment by 1% every year.
- ⇒ It is estimated that currently about 12% of the Turkish population can afford to go skiing. The percentage of Turks with sufficient income to afford skiing is forecasted to increase by about 5% every year.
- ⇒ It is assumed that about 1,5% of the Turkish population that can afford skiing actually ski regularly, with an estimated yearly increase of this percentage of 5% (from Year 11 onward only 2,5%). On average each person of the actual skiing population skis 5 days each year.
- ⇒ It is assumed that the market share of Erciyes/Kayseri among Turkish skiers will augment from one fifth at the beginning to about one third in 15 years time.
- ⇒ Based on these assumptions, the ski resort would count about 140 000 skier days during the first year of operation of the Core ski area. This would lead to revenues of about € 1.8 mio in the first year of operation.
- ⇒ In addition it is assumed that the resort will be able to attract a number of international customers equal to 35% of the Turkish amount generating additional revenues of about € 625 000 in the first year of operation.
- ⇒ Furthermore, we expect that the restaurants and shops in the Sport Centres can be rented out for € 20 000 per unit and year. The rent is expected to increase by 5% each year.
- ⇒ The revenues will depend on the number and timetable of the implementation of the various modules as well as on the marketing activities. While the aforementioned factors can be

influenced by the Municipality, the operators of the ski lifts and other stakeholders, other factors such as the general economic development or the security situation in the country are exogenous.

- ⇒ Based on the assumption that the core ski resort and the modules will be implemented over a period of 11 years, this would lead to a total turnover of the ski resort of almost € 22 mio. A number of scenarios will elaborate on the revenue later on.

## 8.8 Forecasting Indirect Benefits of Key Services

The construction of ski lift facilities will trigger additional investments in hotels and other infrastructure. Furthermore, indirect benefits will be created in various related sectors. Most closely related are accommodation facilities, sport shops, ski schools and restaurants. These indirect benefits have been estimated as well using the following assumptions:

- ⇒ The calculations are based on the assumptions about the number of ski days of national and international clients.
- ⇒ It is assumed that all of the aforementioned key services have an average profit margin of 5% of total revenues.
- ⇒ In relation to accommodation, it is assumed that each international ski day counts for one overnight stay. In contrast, the number of ski days of Turkish guests is multiplied by a factor of 0,7 to receive the appropriate number of overnight stays for Turkish clients. The required number of beds (accommodation facilities) is calculated using the total figure of overnight stays assuming that the accommodation facilities will achieve on average 100 fully booked days in the winter season. It is assumed that national customers spend on average EUR 40 per night and international customers EUR 65 with a yearly increase of 3%.
- ⇒ The sport shop estimate is also based on the total number of ski days. It is assumed that national customers spend on average

EUR 2 per ski day and international customers EUR 4. A yearly increase of this figure of 3% is assumed.

- ⇒ Concerning the ski schools it is forecasted that on average Turks will spend EUR 1 per ski day and Internationals EUR 2, also with a yearly increase of 3%
- ⇒ In relation to restaurants average spendings of EUR 3,50 for Turks and EUR 7 for Internationals are foreseen, taking into account a yearly rise of 3%.
- ⇒ Not included in the financial model are indirect effects on less directly related sectors. However, there are input-output models in European countries that indicate these effects. For instance in Austria, the tourism and leisure industry contributes directly about 8% to the GDP. Using input-output models calculating the effects on all other sectors (advertising agencies, farming, construction, etc.), it is assumed that the total contribution of the tourism and leisure industry to the GDP is 16%, i.e. about twice as high as the direct impact.

## 8.9 Financial Model Assumptions

In addition to the cost and revenue assumptions the following assumptions are necessary for the Financial Model:

- ⇒ It is assumed that 50% of the initial investment costs are financed by equity or subsidies and that the other 50% are financed by credits. Concerning the credits, we assume the capital expenditure cost to be 5% of the amount of the credits.
- ⇒ Taxes are calculated at a flat rate of 35% allowing to deduct past losses from the profits in the coming years.
- ⇒ The depreciation of the investments is calculated on the basis of an expected lifetime of 5 years for 20% of the investments, an expected lifetime of 10 years for 50% of the investments and an expected life time of 30 years for 30% of the investments. Reinvestments are not taken into account as the

operation of the ski lifts can be guaranteed over the planning period of 15 years with the yearly maintenance costs, which are covered within the operational costs.

- ⇒ The Financial Models have been prepared for 15 years considering a Terminal Value. The Terminal Value is calculated using the Gordon Brown Model as a basis. However, instead of simply taking the Free-Cash-Flow of the last year, an amount for average reinvestments was taken into account and deducted from the Free-Cash-Flow of the last year. The amount corresponds to the total investments within the period of calculation divided by the average economic lifetime of the investments. The Long-Term Cash-Flow growth rate is needed for the Gordon Brown Model and was estimated with 2%.
- ⇒ As discount rate a figure of 8% was used including both the risk free rate of return and a risk premium. The effects of increasing the discount rate to 9 and 10% are also shown.
- ⇒ The basic financial model assumes that all modules will be implemented within a time frame of 11 years.

The financial Model includes the calculation of the forecasted Free-Cash-Flows, the EBITDA (Earnings before Interest, Tax, Depreciation and Amortisation) and the EBIT (Earnings before Interest and Tax).

The Discounted Cash Flow Model comprises the following main sections:

Revenues Turkey
+ Revenues International
+ Revenues from Rents
= Total Revenues
- Total Operating Cost
= Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA)
- Investments
- Capital Expenditures
- Tax
= Free Cash Flow

## 8.10 Scenarios

### Base Scenario:

The summary table for the base scenario is enclosed. The base scenario is built on the assumptions described above forecasting the implementation of the Core Ski Area and all Modules within 11 years. Based on the calculations a Net Present Value of EUR 9.908.262 would be generated by the ski lifts. Taking into account the closely related services (accommodation, restaurants, sport shops and ski schools) the total Net Present Value would be EUR 38.478.617. The Base Scenario therefore clearly suggests that the Resort should be implemented.

### Sensitivity Analysis:

The Sensitivity Analysis focuses on the parameters characterised by a relatively high uncertainty. Most parameters in relation to investments and operating costs are well predictable, as a relatively stable market exists. However, on the revenue side, high uncertainties prevail. At this stage, it is very hard to predict whether skiing and other winter sports will become a trend in Turkey. This is the key question and the Sensitivity Analysis has shown that small changes in parameters related to the skiing population in Turkey lead to massive changes in the model. Furthermore, the success in attracting international tourists has a strong impact. The base scenario starts with the assumption that 12% of the Turkish Population can afford skiing and of this population 1,5% actually skis (and a yearly increase of 5% of this figure) resulting in a current Skiing Population in Turkey of about 130.000. In the base scenario the Turkish Skiing Population would increase to about 450.000 in 15 Years. In case skiing and winter sports become a trend this figure will most probably be achieved or surpassed. However, if – due to whatever reasons – the total number of skiers will remain below expectations, this will have significant effects. For instance, if the proportion of Turks that can afford skiing will not increase by 5% but only by 2% the Net Present Value becomes negative for the implementation of all modules. Similar effects can be shown if the number of international guests is different to the base model.

However, while the Net Present Value is negative for the implementation of the whole resort, it is still positive for the Core Ski Area (Development Phase I) or for the implementation of selected Modules demonstrating the beauty of the development approach in Modules.

Taking the above example that the Destination Manager and designated Project Manager of the Municipality realise in Year 4 that the increase of the skiing population in Turkey is slower than expected (e.g. increase of the skiing population among the Turks that can afford skiing is only 2% instead of 5% and from year 8 onwards only 1%). Furthermore, due to the weaker demand, the price increase might not be 5% but also only 2% and from year 8 onwards 1%. Given this situation, the Municipality might decide not to invest in additional Modules. In this case, the Net Present Value of implementing the Core Ski Area would still be positive with EUR 2.114.649. Taking into account the indirect effects the Net Present Value would be EUR 20.179.111, which strongly suggest that the Core Ski Area should be constructed anyway.

Another parameter, which always is highly significant in long-term projects is the discount rate. If the discount rate of the base model would be increased to 9% the Net Present Value of the Ski Lift Operations would be EUR –1.239.016, considering the indirect effects EUR 21.890.660. In case of an increase of the discount rate to 10% the Net Present Value of the Ski Lift Operations would decrease further to EUR –8.842.510, however, considering the closely linked indirect effects the Net Present Value would still be positive with EUR 10.322.235. Therefore, from the perspective of a public actor, the project should also be implemented if the discount rate is increased.

Best-case scenarios with for instance a higher penetration of international markets would make the operation of the ski lifts a highly profitable business. For instance, starting from the base scenario, the international ski days are estimated with a factor of 0,35 of the ski days generated with Turkish guests. If this figure would increase to 0,40 the Net Present Value of the Ski Lift Operations would be EUR 16.990.447 and the one considering the closely linked direct effects EUR 47.363.786.

Thus, in summary, it can be strongly suggested to realise the Core Ski Area (Development Phase I). Depending on the actual demand in Year 3 and 4, it should be decided if and when the additional Modules should be implemented. If the demand conditions turn out to be positive, a rapid expansion (Development Phase II) is recommended. Furthermore, the Sensitivity Analysis has demonstrated the paramount importance of marketing the resort nationally and internationally as well as developing the skiing population in Turkey. Also, to be competitive it will not suffice to simply construct ski lifts. As argued throughout the Master Plan, a touristic product selling various forms of experience need to be created, which comprises many elements such as accommodation, service quality



at sport shops, qualifications of skiing instructors, good quality restaurants and coffee shops, various leisure facilities etc.

## 9 Concluding Recommendations

- ⇒ The Mount Erciyes offers an excellent terrain and topography to build an internationally competitive skiing resort.
- ⇒ The altitude of the mountain and the climatic conditions guarantee a winter season of at least 5 months given that artificial snow making facilities are realised. There are sufficient water resources to produce an adequate cover of artificial snow for the resort. To guarantee a long winter season is paramount for skiing resorts and ensured on Mount Erciyes.
- ⇒ Due to its good location, approximately 30km from the Metropolitan Municipality of Kayseri, and due to the good flight and bus connections to other important national and international cities from the airport and bus stations in Kayseri, the Erciyes Mountain resort can serve a large potential market.
- ⇒ Skiing and other kinds of winter sports are not very popular in Turkey yet. However, many transformation countries with high economic growth rates such as in Eastern Europe or in the Arabic World (e.g. Dubai) show an increasing popularity of skiing and winter sports. Therefore, it is expected that also in Turkey the pleasures of skiing will appeal to an increasing number of people. The main focus for the development of the resort should be the growing middle class.
- ⇒ In addition, growing international markets in the Middle East or Eastern Europe can be accessed with a HIGH-QUALITY integrated product comprising ski lift facilities, hotels, various services, transportation, etc.
- ⇒ Both to increase the popularity of skiing among the Turkish population as well as to access international markets require strong and very professional marketing activities. Therefore, it is suggested to install a Destination Management and Marketing Office being mainly responsible for this task.
- ⇒ Furthermore, in order to work international markets, it is crucial to offer an excellent quality in relation to all elements impacting the experience of the guests. This includes the

perfect grooming of slopes, well organised cuing systems, well trained skiing instructors with foreign language skills, ski rental services adhering to international safety regulations, accommodation facilities in different categories meeting the expectations of the customers, restaurants, mountain huts, various alternative activities and attractions, etc. Skiing holidays are in general more expensive than summer holidays and thus the guest are more demanding! Therefore, it is suggested to firstly nominate a project manager at the Municipality of Kayseri for the Erciyes Mountain Resort and secondly to assign experienced mountain managers to guide and assist the local decision makers during the first years of implementation. Furthermore, the operation of the ski lifts, the artificial snow making facilities and all other facilities and services related to winter sports need to be in the responsibility of experts with a successful track record in this field.

- ⇒ The touristic offer should not only concentrate on skiing but also on other activities, which are described in the Master Plan offering a wide spectrum of possible experiences and making the resort attractive for the whole family.
- ⇒ The development approach foresees two main phases, firstly, the development of the Core Ski Area and of the Erciyes Village; and secondly, a modular extension phase.
- ⇒ The Core Ski Area connects the wonderful slopes on Hacilar's side with the current ski lifts on the pass. A "Ski Safari" is suggested that can be used by inexperienced skiers to get from Hacilar to the pass and back. However, this basic connection is enriched with more challenging slopes and ski lifts making the resort also attractive for good skiers.
- ⇒ The Master Plan provides four Modules that can be implemented independently. Clearly, the vision would be to construct and realise all Modules and to even host major international events. However, the financial risks for the investor can be significantly reduced by this modular and flexible approach allowing to take the actual demand after a couple of years into account.
- ⇒ The final development plan envisages the creation of 20 ski lifts offering access to approximately 500 hectares of ski runs. The total guest capacity of the resort upon completion of the development work will be approximately 30.000 persons per

day. The highest ski lift will reach an altitude of 3357 meters enabling skiing already very early in the winter and until late in spring.

- ⇒ The Erciyes Village is planned as a charming alpine village hosting also various community facilities such as a community house with lockers for ski clubs, a mosque, picnic and barbeque areas, etc. Furthermore, the general architectural style and plan of the village is provided so that the responsible project manager at the Municipality of Kayseri can give clear guidelines and instructions to private investors building hotels, restaurants and other facilities.
- ⇒ Complementing the winter season, various attractions for the summer should be developed such as mountain biking tracks, walking tracks, climbing facilities, horse riding, tennis, etc. In addition, we would suggest the construction of a golf course for the increasingly wealthier local population and for tourists from Turkey and abroad. Especially in summer, the fresh air and more moderate temperatures at the foot of the Mount Erciyes constitute an advantage. Close to the golf course, which should be located on the way from the downhill station of Öksüzler Yurdu to Hacilar, it would be attractive to build a sport, wellness and conference hotel.
- ⇒ The required investments for the ski lifts, slopes, artificial snow making facilities and service centres for the Core Ski Area amount to about EUR 40 millions. The total required investment for the Core Ski Area and all additional Modules would be about EUR 100 millions. Additionally, it is assumed that about EUR 135 millions would be invested in accommodation facilities, mainly from private investors.
- ⇒ The Net Present Value for the implementation of the Core Ski Area and all Modules is positive in the base financial model. If expectations are lowered – providing a worse case scenario, the Net Present Value would still be positive if not all of the Modules but only the Core Ski Area is implemented. Therefore, the financial analysis suggests that the resort should be implemented. This is even more true, if the indirect effects generated through closely related sectors such as hotels, restaurants, shops, ski schools, etc. are considered.
- ⇒ Therefore, it is suggested that the Core Ski Area should be realised as soon as possible. This initial investment would be



about EUR 40 millions in the skiing facilities. In addition, the aim should be to trigger at least another EUR 40 millions from private investors for hotels, apartment houses, restaurants etc.

