d. Landscape/ Aesthetics

The Study area is located among villages with dense agricultural activities. Together with the hills up to 300 m high in the vicinity, the topography surrounded by the wavy skirts shows a rich landscape potential. Landscape characteristics in the area were assessed according to four criteria: Scenic value, land use and ownership, biological effects and kinetic environmental conditions.

d.1 Scenic Value

According to Gold (1980), the basic criteria indicating this value are; size of the space, abundance of scenic components and their diversity and integrity.

The proposed area has a great scenic potential with urbanisation at south, plain field with agricultural and industrial activities, villages at east and west, agriculture fields primarily with vineyards, rural elements at north, foothills covered by agriculture fields and mountainous areas. Landscape elements in this scenic view also have a diversity. The harmonic integrity of the cultural and natural components enhances the scenic value of the proposed site, although the natural vegetation has been replaced by actual land use activities and the original relief changed by excavations.

d.2 Land Use and Ownership

Among the factors which define the functions of the proposed area in terms of landscape unit, the current and planned type of use and ownership conditions play an important role.

The area and places nearby, remain in rural areas which are not yet affected by urbanisation, however, being in the zone influenced by close settlements and their dense agriculture fields and the industry (cement, glass, etc.) located along the E-24 highway, have different and contradictory characteristics. In the other hand, Mersin junction of TEM-90 highway which passes just at the north of the proposed site might be accepted as an element effecting land use and ownership relations in the area. Hence, private ownership of the settlements and agricultural lands, public land ownership under the control of private enterprises and fields under public control presents a complex structure.

d.3 Biological Effects

The state of biological tolerance of any landscape unit is essential in design for multiple use pattern. If an area shows a high biological tolerance to the different activity or the type of use, level of landuse ability is assessed as high.

The site and the vicinity are characterised as rural area as location, however, because of mixed occurrence of urban, agriculture and industrial land uses, have variable habitats and ruderal vegetation types in terms of vegetation coverage and fauna. Consequently, possible future uses with various types and a high density may result a pressure on the biological structure in the area. In this respect, the landuse type and density or the activities must be planned carefully by taking the conservation-consumption balance into consideration in the biological structure of the area.

d.4 Kinetic Environmental Conditions

An effective factor in assessing scenic and usage functions of landscape is to be comfortable and interesting for users. When any unit has kinetic environmental conditions as noise, bad odour, unsuitable atmospheric conditions, unsafe conditions for driving, usage functions decrease.

Besides having a positive visual panorama, the proposed area is under negative impact of industrial uses especially as a source for material provision. The nature is affected and partly destroyed by the current operation. This results in an unfavourable condition for human in terms of comfortable landscape.

14.4.3 Pollution

a. Air Pollution

Air quality survey is conducted at two stations: up hill A_1 , and down hill A_2 at the boundary of the Cimsa site.

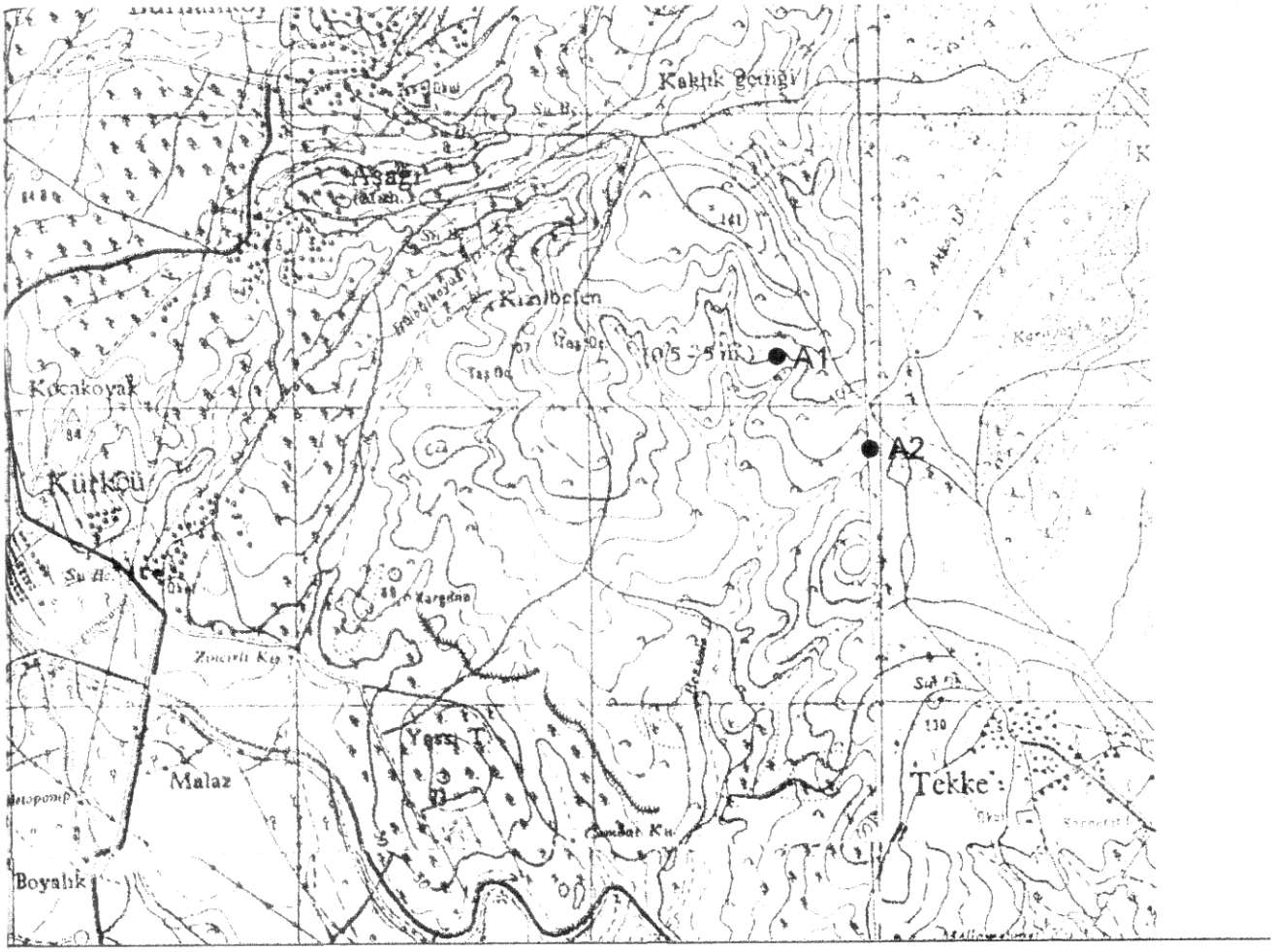
Two stations are selected according to the dominant wind direction. Their locations are shown in Figure 14-36.

The air quality survey covers the following items.

- Air temperature
- Humidity
- Wind direction
- Wind velocity
- Settled dust
- Sulphur dioxide (SO_2)
- Nitrogen oxides (No_x)
- Cl_2(chlorine)
- Particulate matter (PM)
- Pb in PM
- Cl^- as HCl

The settled dust was measured over a period of 24 hours on the same day of analysis of other parameters.

The meteorological data has been recorded by the State Meteorological Institute in Adana , and air quality parameters have been realised with a mobile gas monitor. HCl, chlorine has been determined by analytical techniques and Pb in the particulate matter has been analysed with Atomic Absorption Spectrometer.



● Air sampling Points (A1, A2)

Figure 14-36: Air Sampling Points in Cimsa

Table 14-23: Air Quality Analysis in Cimsa

16.05.1999		
Parameters	Measurement results	
	Uphill (A_1)	Downhill (A_2)
Air Temperature	22.2 ^oC	22.2 ^oC
Humidity	65 %	65 %
Wind Direction	ESE	ESE
Wind Velocity	0.4 m/sec	0.4 m/sec
Settled Dust	55.5 ug/m^2 day	250 ug/m^2 day
Sulphur dioxide (SO_2)	6.3 ug/m^3	17.9 ug/m^3
Nitrogen oxide (NO_x)	46.4 ug/m^3	103.9 ug/m^3
Hydrogenchloride (HCl)	<0.0 ug/m^3	<0.0 ug/m^3
Particulate Matter (PM)	15 ug/m^3	27 ug/m^3
Lead (Pb)	<0.0 ug/m^3	<0.0 ug/m^3
Soot	0 Bachara scale	0 Bachara scale
Chlorine (Cl_2)	-	-

Table 14-24: Air Quality Analysis in Cimsa

06.06.1999		
Parameters	Measurement results	
	Uphill (A_1)	Downhill (A_2)
Air Temperature	26.5 ^oC	26.6 ^oC
Humidity	78 %	78 %
Wind Direction	ESE	ESE
Wind Velocity	1.9 m/sec	1.8 m/sec
Settled Dust	59.6 ug/m^2 day	255.2 ug/m^2 day
Sulphur dioxide (SO_2)	5.25 ug/m^3	16.85 ug/m^3
Nitrogen oxide (NO_x)	45.3 ug/m^3	101.8 ug/m^3
Hydrogenchloride (HCl)	0 ug/m^3	0 ug/m^3
Particulate Matter (PM)	15 ug/m^3	28 ug/m^3
Lead (Pb)	0 ug/m^3	0 ug/m^3
Soot	0 Bachara scale	0 Bachara scale
Chlorine (Cl_2)	-	-

When the results are evaluated according to the air quality regulation published in the official gazette Nr 192269 on 2.11.1086, the values are found to be below the allowed limits in the regulation.

As seen in Table 14-23 and Table 14-24, SO_2 concentrations change between 5.25–17.9 $\mu g/m^3$ which is far more less than the allowed limits in the regulation.

Only nitrogen oxides are significantly high but still less than the limits in the air quality regulation. This may be because of the large trucks and heavy machines in the quarry. The air around the area can be considered as clean.

b. Water Pollution

A water quality survey has been carried out in the proposed area in conjunction with the water use survey.

The locations of the wells , boreholes and surface water are shown on Figure 14-37.

The samples are taken twice in one months after a three days of fine weather, in April , May and June. The date of the analysis are given on the appropriate tables.

19 parameters were analysed for the water samples.

- Colour
- pH
- Total Dissolved Matter
- DO
- COD
- BOD
- Fecal Coliform
- T- N
- T – P
- NH_4^+
- Na^+
- Cl^-
- SO_4^{2-}
- Cr^{6+}
- Hg
- Cd
- Pb
- As
- Total Coliform

The results for each sampling point in different sampling periods were very consistent.

The average fecal coliform (FC) count for each sampling point varied significantly.