3 Field Investigations

3.1 Mobile Pollution Source Survey

3.1.1 Objectives and Definitions

In Azerbaijan the volume of traffic as mobile pollution source had never been surveyed previously. In order to grasp the volume of pollutants from mobile sources, traffic volume and the percentage of large vehicles in traffic volume should be known. The ratio of large petrol and diesel vehicles should also be surveyed, because the quantity and quality of gas emitted from large vehicles largely depend on the types of fuel, i.e. petrol or diesel.

As the study team could not get information on vehicle exhaust from the BCE or any other environment-related agencies, vehicle exhausts were measured in the street to develop the policy of vehicle emission control.

In this study, traffic volume, the type of fuel used by large vehicles and vehicle emission were surveyed.

3.1.2 Study Method

a. Traffic Volume Survey

The traffic volume survey was carried out as follows:

1. The target area was the city centre.

2. The traffic volume was surveyed simultaneously at all survey points.

3. The survey period was 24 hours, which corresponds to the period of the air quality survey.

4. Large vehicles were counted separately, since they emit more gas than small vehicles. Although the definition of large vehicles generally follows the FSU regulations, microbuses are categorized as large vehicles because they are mostly fitted with diesel engines.

5. There were a total of 27 survey points. Ten of them were sections of roads in an east-west direction and another ten were in a north-south direction. In case of one-way roads, another survey point was set on the corresponding road in the opposite direction in order to know the traffic volume of both ways. In doing so, the team considered that the survey could cover the half of total traffic volume in the city, recognising the city road network and the visual observation of road traffic.

6. Traffic volume to and from the suburbs was surveyed at the other seven survey points. Since those are along the major roads connecting the city centre and the suburbs, the team considered that the survey covered most of the traffic flow between the city and the suburbs.

7. Two persons were required on each side of the road in case of a two-way road to count vehicles in both directions.

The survey was conducted on 23 (Tuesday) May 2000, starting at 7:00 am and finishing at 7:00 am on the next day.
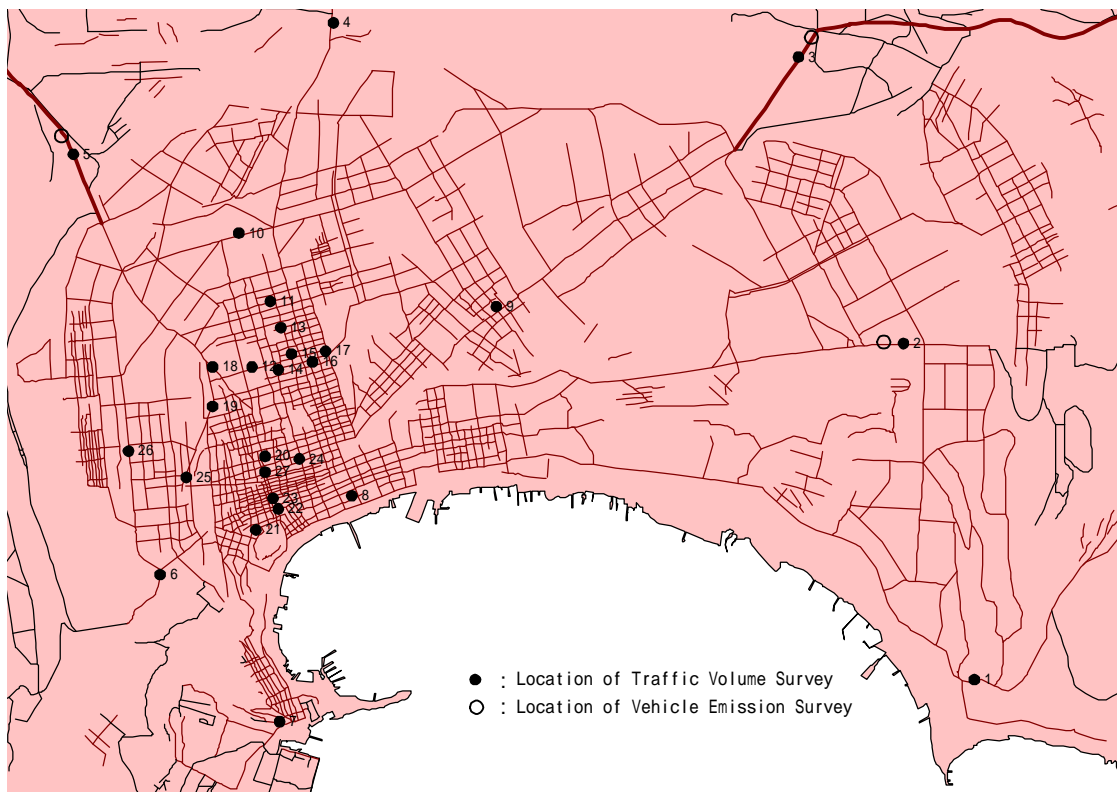
The survey points are shown in Figure 3-1.

Figure 3-1:   Location Map of Survey Points

b.   Type of Fuel used by Large Vehicles

21 shipping and bus companies were interviewed. The following questions were asked: number of large vehicles by fuel type and by year of manufacturing, status of vehicle maintenance, fuel consumption amount, and others.

c.   Measurement of Vehicle Emission

Three sites among the major roads, where traffic volume exceeds 40,000 vehicles per day, were selected, and the vehicles coming into the central district of the city were measured. Exhaust gas from vehicles was analysed by mobile equipment produced USA and Russia. Most of vehicles emit much Carbon Monoxide (CO) in Baku area. Since concentrations of CO might exceed by far the emission standard 2 % (20,000 ppm) in many cases, there was a danger of destroying the analyzer of USA. Therefore, at first concentration of CO of vehicle exhaust was measured by Russian equipment and secondly SOx and NOx were measured by American equipment only in case that CO concentration did not exceed 2 %. Although they have exhaust gas standard of CO from vehicles, but not for SOx and NOx in Azerbaijan, concentrations of SOx and NO   were measured for reference.

The team measured vehicle emissions as below.

Measured items: CO, SOx, NOx

Period: 5 days (26, 27, 28, 29, 30th of October, 2000)

Measurement sites: 3 sites shown inFigure 3-1.

- Trunk Road near Metro station 20 January
- Babek Avenue near Metrostation Khalglar Dostlugu
- Beyuk Shor Motor Road in Sabunchi District

Number of vehicles measured:

- Ordinary vehicles   : more than 60
- Microbuses   : more than 60
- Large buses   : more than 60
- Trucks   : more than 60
- Taxis   : more than 60
- Total   : more than 300

Sampling method : About 25 vehicles were randomly sampled at one measurement site in a day.

Method :   Portable equipment was used to measure vehicle emission during its idling

3.1.3   Results and Findings

a.   Traffic Volume Survey

a.1   Result of Traffic Volume Survey

Daily traffic volume at each survey point is shown in the following table:

Table 3-1: Daily Traffic Volume (23 May 2000)

Station No.	Directions	Vehicle Type	Traffic Volume
Station 1	Direction A	Small	9400
		Large	1210
		Total	10610
	Direction B	Small	9550
		Large	1225
		Total	10775
	Total A+B	Small	18950
		Large	2435
		Total	21385
Station 2	Direction A	Small	13279
		Large	603
		Total	13882
	Direction B	Small	13026
		Large	663
		Total	13689
	Total A+B	Small	26305
		Large	1266
		Total	27571

Station No.	Directions	Vehicle Type	Traffic Volume
Station 3	Direction A	Small	17832
		Large	2603
		Total	20435
	Direction B	Small	18462
		Large	2465
		Total	20927
	Total A+B	Small	36294
		Large	5068
		Total	41362
Station 4	Direction A	Small	8709
		Large	1343
		Total	10052
	Direction B	Small	8635
		Large	1303
		Total	9938
	Total A+B	Small	17344
		Large	2646
		Total	19990
Station 5	Direction A	Small	18601
		Large	1606
		Total	20207
	Direction B	Small	18304
		Large	2075
		Total	20379
	Total A+B	Small	36905
		Large	3681
		Total	40586
Station 6	Direction A	Small	5480
		Large	291
		Total	5771
	Direction B	Small	7382
		Large	422
		Total	7804
	Total A+B	Small	12862
		Large	713
		Total	13575
Station 7	Direction A	Small	8285
		Large	1502
		Total	9787
	Direction B	Small	7814
		Large	1600
		Total	9414
	Total A+B	Small	16099
		Large	3102
		Total	19201
Station 8	Direction A	Small	39675
		Large	1386
		Total	41061
	Direction B	Small	30247
		Large	1351
		Total	31598
	Total A+B	Small	69922
		Large	2737
		Total	72659
Station 9	Direction A	Small	25920

Station No.	Directions	Vehicle Type	Traffic Volume
		Large	1133
		Total	27053
	Direction B	Small	23410
		Large	870
		Total	24280
	Total A+B	Small	49330
		Large	2003
		Total	51333
Station 10	Direction A	Small	16335
		Large	1623
		Total	17958
	Direction B	Small	25594
		Large	2021
		Total	27615
	Total A+B	Small	41929
		Large	3644
		Total	45573
Station 11	Direction A	Small	12713
		Large	520
		Total	13233
	Direction B	Small	11164
		Large	514
		Total	11678
	Total A+B	Small	23877
		Large	1034
		Total	24911
Station 12	Direction A	Small	16393
		Large	244
		Total	16637
	Direction B	Small	19240
		Large	622
		Total	19862
	Total A+B	Small	35633
		Large	866
		Total	36499
Station 13	Direction A	Small	10875
		Large	313
		Total	11188
	Direction B	Small	15420
		Large	429
		Total	15849
	Total A+B	Small	26295
		Large	742
		Total	27037
Station 14	Direction A	Small	28204
		Large	761
		Total	28965
	Direction B	Small	8130
		Large	147
		Total	8277
	Total A+B	Small	36334
		Large	908
		Total	37242
Station 15	Direction A	Small	904
		Large	16

Station No.	Directions	Vehicle Type	Traffic Volume
		Total	920
	Direction B	Small	13890
		Large	640
		Total	14530
	Total A+B	Small	14794
		Large	656
		Total	15450
Station 16	Direction A	Small	17547
		Large	918
		Total	18465
	Direction B	Small	6538
		Large	856
		Total	7394
	Total A+B	Small	24085
		Large	1774
		Total	25859
Station 17	Direction A	Small	5858
		Large	71
		Total	5929
	Direction B	Small	24949
		Large	770
		Total	25719
	Total A+B	Small	30807
		Large	841
		Total	31648
Station 18	Direction A	Small	20623
		Large	1325
		Total	21948
	Direction B	Small	24548
		Large	1405
		Total	25953
	Total A+B	Small	45171
		Large	2730
		Total	47901
Station 19	Direction A	Small	6233
		Large	106
		Total	6339
	Direction B	Small	11913
		Large	297
		Total	12210
	Total A+B	Small	18146
		Large	403
		Total	18549
Station 20	Direction A	Small	13786
		Large	61
		Total	13847
	Direction B	Small	1243
		Large	7
		Total	1250
	Total A+B	Small	15029
		Large	68
		Total	15097
Station 21	Direction A	Small	25912
		Large	758
		Total	26670

Station No.	Directions	Vehicle Type	Traffic Volume
	Direction B	Small	10309
		Large	536
		Total	10845
	Total A+B	Small	36221
		Large	1294
		Total	37515
Station 22	Direction A	Small	3109
		Large	13
		Total	3122
	Direction B	Small	459
		Large	0
		Total	459
	Total A+B	Small	3568
		Large	13
		Total	3581
Station 23	Direction A	Small	3147
		Large	33
		Total	3180
	Direction B	Small	4532
		Large	18
		Total	4550
	Total A+B	Small	7679
		Large	51
		Total	7730
Station 24	Direction A	Small	9797
		Large	389
		Total	10186
	Direction B	Small	37610
		Large	1223
		Total	38833
	Total A+B	Small	47407
		Large	1612
		Total	49019
Station 25	Direction A	Small	7860
		Large	633
		Total	8493
	Direction B	Small	9788
		Large	563
		Total	10351
	Total A+B	Small	17648
		Large	1196
		Total	18844
Station 26	Direction A	Small	7856
		Large	646
		Total	8502
	Direction B	Small	6085
		Large	631
		Total	6716
	Total A+B	Small	13941
		Large	1277
		Total	15218
Station 27	Direction A	Small	7063
		Large	473
		Total	7536
	Direction B	Small	24000

Station No.	Directions	Vehicle Type	Traffic Volume
		Large	831
		Total	24831
	Total A+B	Small	31063
		Large	1304
		Total	32367
Total for 27 station	Direction A	Small	361396
		Large	20580
		Total	381976
	Direction B	Small	392242
		Large	23484
		Total	415726
	Total A+B	Small	753638
		Large	44064
		Total	797702

Note: Direction A means the direction toward the central district of Baku and Direction B means the opposite direction.

a.2   Findings of Traffic Volume Survey

a.2.1   Traffic Volume in the Central District

The distribution of traffic volume in the central district is shown in Table 3-2.

The total number of vehicles for 24 hours was 292,097 on roads in the north-south direction and 321,935 in the east-west direction, that is 30,000 more. As this is assumed to be half, we can say that approximately more than a total of 600,000 vehicles are running within the city centre of Baku each day.

Table 3-2: Distribution of Traffic Volume in the Centre of Baku

Direction of Roads	Traffic Volume (vehicles/24 hr)	Survey Point No.
North-South (10 roads)	292,097	8, 9, 10, 11, 12, 13, 20, 21, 22, 23
East-West (10 roads)	321,935	14, 15, 16, 17, 18, 19, 24, 25, 26, 27

a.2.2   Traffic Volume To and From the Suburbs

The traffic volume to and from the suburbs of Baku is shown in Table 3-3. According to this survey, approximately 90,000 vehicles enter the city centre of Baku each day from the suburbs. The combined number of inbound and outbound vehicles is about 180,000 per day. When considering the number of taxis operating in the central district, it is unlikely that they would pass the survey points so frequently. Therefore, we can assume that, out of the approximately 600,000 vehicles crossing the city centre each day, more than 30% are represented by vehicles coming from the suburbs. Consequently, restriction of inbound traffic can be considered as a means of reducing exhaust gas from mobile sources in the city.

Table 3-3: Traffic Volume To and From the Suburban Area of Baku

Direction of Traffic flow	Traffic Volume (vehicles/24 hr)	Survey Point No.
To City Centre	90,744	1, 2, 3, 4, 5, 6, 7

From City Centre	92,926	

a.2.3   Ratio of Large Vehicles

The ratio of large vehicles to traffic volume is shown in Table 3-4. The ratio of large vehicles to and from the suburbs is as high as 10.3%. We can guess that this includes many trucks carrying cargo and large buses transporting passengers toward the city centre.

In comparison, there are much more small vehicles in the central district, large vehicles accounting for only approximately 4%. As a whole, there are relatively few large vehicles, with approximately 5.5%. Consequently, to reduce air pollution from mobile sources, it will be necessary to target emission countermeasures on small vehicles rather than large vehicles.

Table 3-4:   Ratio of Large Vehicles to Traffic Volume

Unit: Vehicles/24 hr

Roads	Traffic Volume	Large Vehicles	Ratio of Large Vehicles
North-South (10 roads)	292,097	12,452	4.3%
East-West (10 roads)	321,935	12,701	3.9%
From and To the Suburban Area	183,670	18,911	10.3%
Total of all points	797,702	44,064	5.5%

a.2.4   Hourly Fluctuation of Traffic Volume

Figure 3-2 shows the fluctuation of traffic volume within a 24-hour period.
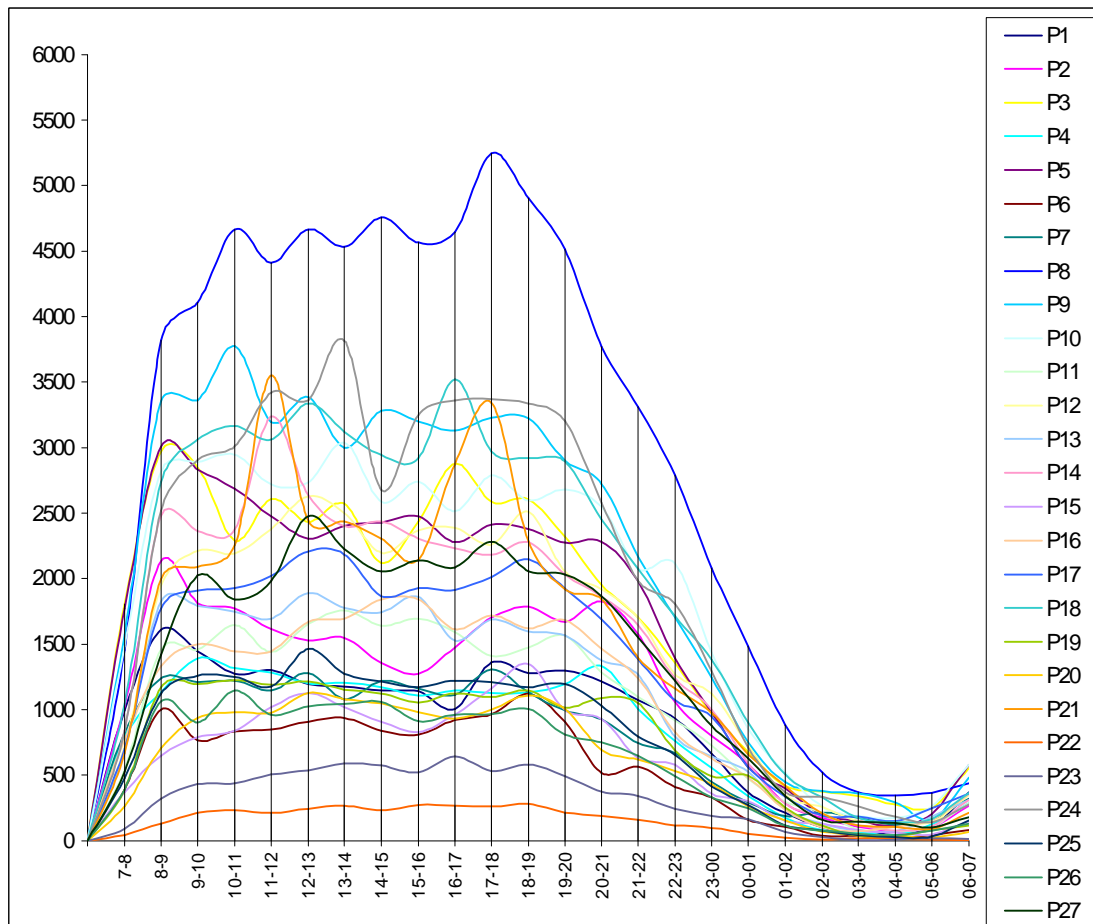
Figure 3-2: Hourly Fluctuation of Traffic Volume

As traffic volume varies with human activities, there are generally two distinctive peaks in the morning and late afternoon corresponding to commuting. In Baku peaks can be observed at 10:00 am and 05:00 pm, although they are not very distinct.

b.   Type of Fuel Used by Large Vehicles

b.1   Result of Large Vehicle Survey

The interview survey covered 21 shipping and bus companies distributed in 10 districts in the study area. Surahani District was excluded because there is neither shipping nor bus company there.

The result of large vehicle survey is shown in the following table.

Table 3-5: The Result of Large Vehicle Survey

#	Name of Company	District	Vehicle	Petrol	Volume of the engine	Age (year)	Engine	Petrol consumption (l/mon.)	Machine mileage (km/mon.)	
1	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	4250	8	Good	107	427	
2	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	4250	7	Average	33	133	
3	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	4250	8	Good	.	.	Out of operation
4	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	4250	7	Good	440	1760	
5	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	4250	8	Good	540	2160	
6	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	4250	8	Good	902	3608	
7	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Diesel	11150	9	Good	280	1220	
8	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	13	Bad	.	.	Out of operation
9	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Diesel	10850	8	Good	437	1748	
10	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	14	Good	1056	2854	
11	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	8	Good	940	2540	
12	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	8	Good	1148	3103	
13	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	8	Good	958	2590	
14	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Diesel	10850	8	Good	292	860	
15	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	8	Good	1087	3505	
16	ATP alliance "Vodostroy" ARAV	Nizami	Bus	Fuel	4250	10	Good	725	2788	
17	ATP alliance "Vodostroy" ARAV	Nizami	Bus	Fuel	2450	17	Good	503	3350	
18	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	4250	16	Good	414	1656	
19	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	4250	8	Good	766	2735	
20	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	4250	8	Good	810	2893	
21	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	4250	9	Good	853	3048	
22	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	2445	12	Good	277	1629	
23	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	3480	12	Good	660	2998	
24	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	11	Good	807	2604	
25	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	14	Good	682	1704	
26	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	6000	8	Good	634	1585	
27	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	4250	8	Good	910	3250	
28	ATP alliance "Vodostroy" ARAV	Nizami	Cargo	Fuel	7000	9	Good	267	650	
29	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	2445	6	Good	758	5615	
30	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	1570	8	Good	451	5306	
31	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	2450	28	Good	437	3234	
32	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	1570	8	Good	467	3888	
33	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	1480	7	Good	497	4967	
34	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	1480	7	Good	124	1237	

35	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	1480	6	Good	320	3208	
36	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	1570	4	Good	417	5342	
37	ATP alliance "Vodostroy" ARAV	Nizami	Passenger	Fuel	1570	15	Good	491	4093	
38	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
39	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
40	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
41	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
42	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
43	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
44	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
45	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
46	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
47	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
48	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
49	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
50	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	980	4900	
51	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	960	4800	
52	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	960	4800	
53	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	960	4800	
54	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	960	4800	
55	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4000	4	Good	960	4800	
56	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	18	Average	1400	5000	
57	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1400	5000	
58	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1400	5000	
59	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1400	5000	
60	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	18	Average	1400	5000	
61	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	18	Average	1400	5000	
62	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	18	Average	1400	5000	
63	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	18	Average	1400	5000	
64	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	18	Average	1400	5000	
65	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	18	Average	1400	5000	
66	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1400	5000	
67	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1344	4800	
68	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1344	4800	
69	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1344	4800	
70	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1344	4800	
71	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1344	4800	
72	Bus park of Sadarak company	Azizbekov	Bus	Diesel	4500	17	Average	1344	4800	
73	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	2200	10000	

74	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Average	800	4300	
75	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	2800	14000	
76	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	2800	14000	
77	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	2800	14000	
78	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	3000	15000	
79	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	2850	14100	
80	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	2800	14000	
81	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	3000	15000	
82	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	3000	15000	
83	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	4334	3	Good	2800	14000	
84	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1200	6000	
85	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1200	6000	
86	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Average	600	3100	
87	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1000	5000	
88	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1600	8000	
89	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1600	8000	
90	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1000	5000	
91	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1200	6000	
92	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1200	6000	
93	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1600	8000	
94	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1000	5000	
95	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	1000	5000	
96	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Average	400	2300	
97	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	600	3000	
98	Azerbaijan-Turkish JV "Azkal"	Nizami	Bus	Diesel	3908	4	Good	600	3000	
99	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
100	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
101	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
102	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
103	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
104	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
105	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
106	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
107	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
108	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
109	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
110	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
111	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
112	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	

113	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
114	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	3	Good	850	3500	
115	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	2	Good	850	3500	
116	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	2	Good	850	3500	
117	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	2	Good	850	3500	
118	Aztrans LTD MMK	Nasimi	Bus	Diesel	3908	2	Good	850	3500	
119	Aztrans LTD MMK	Nasimi	Bus	Fuel	4250	2	Good	750	3200	
120	Aztrans LTD MMK	Nasimi	Bus	Fuel	4250	2	Good	750	3200	
121	Aztrans LTD MMK	Nasimi	Bus	Fuel	4250	2	Good	750	3200	
122	Aztrans LTD MMK	Nasimi	Bus	Fuel	4250	2	Good	750	3200	
123	Aztrans LTD MMK	Nasimi	Bus	Fuel	4250	2	Good	750	3200	
124	Aztrans LTD MMK	Nasimi	Bus	Fuel	4250	2	Good	750	3200	
125	Aztrans LTD MMK	Nasimi	Bus	Fuel	4250	2	Good	750	3200	
126	Bibi-Eybat UTT	Sabayil	Bus	Diesel	10350	11	Average	1200	3870	
127	Bibi-Eybat UTT	Sabayil	Bus	Diesel	10350	11	Average	1200	3870	
128	Bibi-Eybat UTT	Sabayil	Bus	Diesel	10350	18	Average	1200	3870	
129	Bibi-Eybat UTT	Sabayil	Bus	Diesel	10350	20	Average	1200	3870	
130	Bibi-Eybat UTT	Sabayil	Bus	Diesel	6000	14	Average	1200	2826	
131	Bibi-Eybat UTT	Sabayil	Bus	Diesel	14860	9	Good	1200	3000	
132	Bibi-Eybat UTT	Sabayil	Bus	Fuel	6000	9	Average	1200	3300	
133	Bibi-Eybat UTT	Sabayil	Bus	Fuel	6000	14	Average	1200	2826	
134	Bibi-Eybat UTT	Sabayil	Bus	Fuel	7000	13	Average	1000	1851	
135	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	11	Average	1000	3333	
136	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	14	Good	1000	3333	
137	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	9	Average	1000	3530	
138	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	16	Average	1000	3333	
139	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	13	Average	1000	3333	
140	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	10	Average	1000	3333	
141	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	10	Average	1000	3333	
142	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	14	Average	1000	3333	
143	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	13	Average	1000	3333	
144	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	16	Average	1000	3333	
145	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	10	Average	1000	3289	
146	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	10	Average	1000	3289	
147	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	14	Average	1000	3289	
148	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	12	Average	1000	3289	
149	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	13	Average	1000	3289	
150	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	13	Average	1000	3289	
151	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	8	Good	1200	3333	

152	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	8	Good	1200	3333	
153	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	7	Good	1200	3333	
154	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	8	Good	1200	3333	
155	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	7	Good	1200	3333	
156	Bibi-Eybat UTT	Sabayil	Bus	Fuel	4250	7	Good	1200	3333	
157	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	14	Average	800	2200	
158	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	9	Good	800	2318	
159	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	9	Good	800	2318	
160	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	9	Good	800	2318	
161	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	9	Good	1200	4800	
162	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	16	Average	1200	4800	
163	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5070	
164	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5029	
165	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5029	
166	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5029	
167	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5029	
168	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5029	
169	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5029	
170	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	8	Good	1200	5029	
171	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	14	Average	800	2239	
172	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	13	Average	1000	4000	
173	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	13	Average	1000	4000	
174	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	13	Average	1000	4000	
175	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	13	Average	1000	4000	
176	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	13	Average	1000	4000	
177	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	14	Average	1000	4000	
178	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	10850	13	Average	1000	4000	
179	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	10	Average	1400	2916	
180	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	12	Average	1400	2916	
181	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	8	Good	1400	2950	
182	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	12	Average	1400	2916	
183	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	14	Average	2000	3252	
184	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	14	Average	2000	3252	
185	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	10	Average	2000	3597	
186	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	14860	7	Good	1600	2962	
187	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11150	14	Average	1200	3582	
188	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11150	16	Average	1000	4347	
189	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	3480	16	Average	1000	2660	
190	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	14	Average	1200	2857	

191	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	17	Average	1200	2857	
192	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	15	Average	1200	2857	
193	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	14	Average	1200	2857	
194	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	10	Average	1200	2857	
195	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	10	Average	1200	2857	
196	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	15	Average	1200	2857	
197	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	15	Average	1200	2857	
198	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	11310	10	Average	1200	2857	
199	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	32850	2	Good	5000	3424	
200	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	13	Average	1400	3589	
201	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	27	Average	1000	2702	
202	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	18	Average	2400	4440	
203	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	15	Average	2400	4440	
204	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	18	Average	2400	4440	
205	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	16	Average	2400	4440	
206	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	25	Average	1000	2702	
207	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	25	Average	1000	2702	
208	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	19	Average	1000	2702	
209	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	21	Average	1000	2702	
210	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	21	Average	1000	2702	
211	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	13	Average	1600	3902	
212	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	9	Good	1600	3902	
213	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	13	Average	1600	3802	
214	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	11	Average	1600	3802	
215	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	10	Average	1600	3802	
216	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	11	Average	1600	3802	
217	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	16	Average	1200	3870	
218	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	7	Good	1200	3870	
219	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	6000	18	Average	1200	3800	
220	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	3480	16	Average	800	3636	
221	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	3480	8	Average	800	3636	
222	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	3480	11	Average	600	2400	
223	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	2400	9	Good	400	2857	
224	Bibi-Eybat UTT	Sabayil	Cargo	Diesel	2400	3	Good	400	1904	
225	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	4250	3	Good	400	1904	
226	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	2450	8	Good	1200	3529	
227	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	2400	15	Average	600	4285	
228	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	2400	3	Good	600	4365	
229	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	2400	3	Good	600	4365	

230	Bibi-Eybat UTT	Sabayil	Cargo	Fuel	2400	11	Average	600	4285	
231	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	8	Good	600	4615	
232	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	3	Good	600	4615	
233	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	8	Good	600	4615	
234	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	8	Good	600	4615	
235	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	8	Good	600	4615	
236	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	8	Good	600	4615	
237	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	15	Average	600	4500	
238	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	10	Average	600	4500	
239	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	6	Good	600	4615	
240	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	3	Good	600	4615	
241	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	5	Good	600	4615	
242	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	4	Good	600	4615	
243	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	6	Good	600	4615	
244	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	5	Good	600	4615	
245	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	4	Good	600	4615	
246	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	3	Good	600	4615	
247	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	3	Good	600	4615	
248	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	4	Good	600	4615	
249	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	3	Good	600	4615	
250	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	3	Good	600	4615	
251	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	5	Good	600	7058	
252	Bibi-Eybat UTT	Sabayil	Passenger	Fuel	2400	9	Good	400	4000	
253	Bibi-Eybat UTT	Sabayil	Bus	Fuel	2100	15	Average	600	4000	
254	Bibi-Eybat UTT	Sabayil	Bus	Fuel	2100	8	Good	600	4060	
255	Bibi-Eybat UTT	Sabayil	Bus	Fuel	2100	2	Good	600	4060	
256	Bibi-Eybat UTT	Sabayil	Bus	Fuel	2100	14	Average	600	4000	
257	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	2000	10000	
258	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1950	10000	
259	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1900	10000	
260	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1850	9000	
261	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	2000	11000	
262	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	2000	11000	
263	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	2000	11000	
264	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1900	10000	
265	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1850	9000	
266	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1950	10000	
267	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	2000	12000	
268	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1800	11000	

269	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1900	9000	
270	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	2000	11000	
271	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	2000	11000	
272	NORM LTD ÀÒÑÏ	Narimanov	Bus	Diesel	2953	3	Good	1900	9000	
273	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	1	Good	1080	6000	
274	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	1	Good	1080	6000	
275	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	1	Good	1080	6000	
276	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	1	Good	1080	6000	
277	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	1	Good	1080	6000	
278	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
279	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
280	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
281	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
282	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
283	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
284	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
285	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
286	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Good	1080	6000	
287	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Average	1080	6000	
288	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Average	1080	6000	
289	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Average	1080	6000	
290	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Average	1080	6000	
291	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Average	1080	6000	
292	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	2	Average	1080	6000	
293	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
294	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
295	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
296	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
297	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
298	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
299	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
300	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
301	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
302	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
303	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
304	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
305	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	3908	3	Average	1080	6000	
306	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	
307	"Ridan" society ÌÌ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	

308	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	
309	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	
310	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	
311	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	
312	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	
313	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	2	Good	780	6000	
314	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	2	Average	780	6000	
315	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
316	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
317	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
318	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
319	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
320	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
321	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
322	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
323	"Ridan" society İİ	Nasimi	Bus	Diesel	2498	3	Average	780	6000	
324	ATK GNK	Khatai	Bus	Fuel	4250	14	Average	800	4000	
325	ATK GNK	Khatai	Bus	Fuel	4250	10	Good	800	5000	
326	ATK GNK	Khatai	Bus	Fuel	4250	13	Average	800	4000	
327	ATK GNK	Khatai	Bus	Fuel	4250	11	Average	800	4000	
328	ATK GNK	Khatai	Bus	Fuel	4250	13	Good	800	5000	
329	ATK GNK	Khatai	Bus	Fuel	4250	11	Average	800	4000	
330	ATK GNK	Khatai	Bus	Fuel	3480	31	Average	800	4000	
331	ATK GNK	Khatai	Bus	Fuel	4250	17	Average	800	3000	
332	ATK GNK	Khatai	Bus	Fuel	1400	16	Average	400	3500	
333	ATK GNK	Khatai	Bus	Fuel	1400	19	Average	300	3000	
334	ATK GNK	Khatai	Bus	Fuel	1700	8	Good	300	3000	
335	ATK GNK	Khatai	Bus	Fuel	1700	9	Good	400	3000	
336	ATK GNK	Khatai	Bus	Fuel	1550	3	Good	350	3500	
337	ATK GNK	Khatai	Cargo	Fuel	6000	49	Average	1000	2500	
338	ATK GNK	Khatai	Cargo	Fuel	6000	29	Average	1000	3000	
339	ATK GNK	Khatai	Cargo	Fuel	6000	35	Average	1200	3000	
340	ATK GNK	Khatai	Cargo	Fuel	6000	25	Average	1200	2500	
341	ATK GNK	Khatai	Cargo	Fuel	6000	27	Average	1100	3000	
342	ATK GNK	Khatai	Cargo	Fuel	6000	30	Average	1000	2000	
343	ATK GNK	Khatai	Cargo	Fuel	6000	11	Good	1000	3000	
344	ATK GNK	Khatai	Cargo	Fuel	6000	19	Average	1000	3000	
345	ATK GNK	Khatai	Cargo	Fuel	6000	27	Average	1000	2000	
346	ATK GNK	Khatai	Cargo	Fuel	6000	11	Good	1000	3000	

347	ATK GNK	Khatai	Cargo	Fuel	6000	18	Average	1000	3000	
348	ATK GNK	Khatai	Cargo	Diesel	10850	11	Good	1400	3000	
349	ATK GNK	Khatai	Cargo	Fuel	4250	8	Average	1000	2500	
350	ATK GNK	Khatai	Cargo	Fuel	4250	8	Average	800	3500	
351	ATK GNK	Khatai	Cargo	Fuel	4250	13	Good	1000	3000	
352	ATK GNK	Khatai	Cargo	Fuel	4250	26	Average	800	3500	
353	ATK GNK	Khatai	Cargo	Fuel	4250	27	Good	800	3000	
354	ATK GNK	Khatai	Cargo	Fuel	4250	13	Average	1200	2500	
355	ATK GNK	Khatai	Cargo	Fuel	4250	11	Average	1200	4000	
356	ATK GNK	Khatai	Cargo	Fuel	4250	11	Average	1000	4000	
357	ATK GNK	Khatai	Cargo	Fuel	6000	23	Good	1000	3000	
358	ATK GNK	Khatai	Cargo	Fuel	6000	13	Average	1200	2000	
359	ATK GNK	Khatai	Cargo	Fuel	6000	14	Average	1000	3000	
360	ATK GNK	Khatai	Cargo	Fuel	6000	14	Good	1000	4000	
361	ATK GNK	Khatai	Cargo	Fuel	6000	23	Average	1000	3000	
362	ATK GNK	Khatai	Cargo	Fuel	6000	27	Good	1000	3000	
363	ATK GNK	Khatai	Cargo	Fuel	6000	31	Average	1200	3000	
364	ATK GNK	Khatai	Cargo	Fuel	6000	26	Average	1200	3500	
365	ATK GNK	Khatai	Cargo	Fuel	6000	23	Average	1000	3000	
366	ATK GNK	Khatai	Cargo	Fuel	3480	20	Good	1200	4000	
367	ATK GNK	Khatai	Cargo	Fuel	3480	20	Average	800	4000	
368	ATK GNK	Khatai	Cargo	Fuel	3480	12	Good	600	2500	
369	ATK GNK	Khatai	Cargo	Fuel	2300	1	Good	600	4000	
370	ATK GNK	Khatai	Cargo	Fuel	2445	21	Average	600	3000	
371	ATK GNK	Khatai	Cargo	Fuel	2445	14	Good	500	3500	
372	ATK GNK	Khatai	Passenger	Fuel	2445	3	Good	400	4000	
373	ATK GNK	Khatai	Passenger	Fuel	2445	15	Good	500	3000	
374	ATK GNK	Khatai	Passenger	Fuel	2445	7	Good	300	4000	
375	ATK GNK	Khatai	Passenger	Fuel	2450	24	Good	500	2000	
376	ATK GNK	Khatai	Passenger	Fuel	2450	24	Average	500	4000	
377	ATK GNK	Khatai	Passenger	Fuel	2450	29	Good	500	4000	
378	ATK GNK	Khatai	Passenger	Fuel	2450	9	Good	500	3500	
379	ATK GNK	Khatai	Passenger	Fuel	2450	11	Good	350	4000	
380	ATK GNK	Khatai	Passenger	Fuel	1570	3	Good	350	4000	
381	ATK GNK	Khatai	Passenger	Fuel	2445	6	Good	600	5500	
382	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	
383	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	
384	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	
385	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	

386	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	
387	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	
388	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	
389	Rashad LTD	Khatai	Bus	Diesel	2953	3	Good	907	6480	
390	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
391	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
392	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
393	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
394	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
395	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
396	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
397	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	14	Average	1500	3240	
398	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	15	Average	1500	3240	
399	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	14	Average	1500	3240	
400	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	13	Average	1500	3240	
401	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	11	Average	1500	3240	
402	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	11	Average	1500	3240	
403	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	13	Average	1500	3240	
404	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	9	Average	1500	3240	
405	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	9	Average	1500	3240	
406	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	10	Average	1500	3240	
407	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	15825	10	Average	1500	3240	
408	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	13	Average	1130	3240	
409	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	9	Average	1130	3240	
410	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	10	Average	1130	3240	
411	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	8	Average	1130	3240	
412	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	12	Average	1130	3240	
413	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	10	Average	1130	3240	
414	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	4	Average	1130	3240	
415	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	17	Average	1130	3240	
416	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	9	Average	1130	3240	
417	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	9	Average	1130	3240	
418	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	9	Average	1130	3240	
419	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	9	Average	1130	3240	
420	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	11150	17	Average	1240	3240	
421	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	38800	3	Average	3240	3240	
422	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	14860	22	Average	1600	3240	
423	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	14860	9	Average	3240	3240	
424	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	14860	15	Average	1800	3240	

425	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	14860	9	Average	1600	3240	
426	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	14860	6	Average	1550	3240	
427	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	25	Average	1650	3240	
428	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	18	Average	1980	3240	
429	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	18	Average	1980	3240	
430	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	20	Average	1980	3240	
431	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	17	Average	1980	3240	
432	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	18	Average	1980	3240	
433	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	18	Average	1980	3240	
434	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	10850	8	Average	1200	3240	
435	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	19	Average	1000	3240	
436	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	18	Average	1000	3240	
437	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	7	Average	1000	3240	
438	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	11	Average	1000	3240	
439	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	10	Average	1000	3240	
440	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	9	Average	1000	3240	
441	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	9	Average	1100	3240	
442	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	11	Average	1750	3240	
443	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	15	Average	1750	3240	
444	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	9	Average	1750	3240	
445	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	10	Average	1200	3240	
446	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	10	Average	1360	3240	
447	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	13	Average	1550	3240	
448	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	6	Average	1100	3240	
449	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	7000	6	Average	1650	3240	
450	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	7000	6	Average	1100	3240	
451	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	28	Average	1200	3240	
452	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	6000	25	Average	1200	3240	
453	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	21	Average	1200	3240	
454	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	13	Average	1200	3240	
455	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	13	Average	1200	3240	
456	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	23	Average	1200	3240	
457	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	23	Average	1200	3240	
458	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	8	Average	1200	3240	
459	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	8	Average	1200	3240	
460	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	19	Average	1200	3240	
461	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	8	Average	1200	3240	
462	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	23	Average	1200	3240	
463	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	5380	8	Average	1200	3240	

464	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	8	Average	810	3240	
465	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	3480	13	Average	720	3240	
466	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	3480	10	Average	720	3240	
467	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	3480	17	Average	720	3240	
468	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	19	Average	810	3240	
469	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	9	Average	810	3240	
470	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	9	Average	810	3240	
471	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	9	Average	960	3240	
472	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	9	Average	1070	3240	
473	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	9	Average	1070	3240	
474	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	9	Average	1070	3240	
475	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	10	Average	1070	3240	
476	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	11	Average	1070	3240	
477	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	6	Average	1070	3240	
478	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	2445	9	Average	550	3240	
479	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	2445	9	Average	550	3240	
480	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	2445	14	Average	550	3240	
481	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	2445	11	Average	550	3240	
482	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	2445	12	Average	550	3240	
483	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	2445	12	Average	550	3240	
484	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	8	Average	1040	3240	
485	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	4250	8	Average	1040	3240	
486	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	2445	4	Good	550	3240	
487	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	20910	18	Good	3000	3240	
488	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	16031	16	Good	3000	3240	
489	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	16031	16	Good	3000	3240	
490	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Diesel	16031	16	Average	3000	3240	
491	Baku UTT PO "Kaspmornftegaz"	Khatai	Cargo	Fuel	1480	10	Average	320	3240	
492	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	12	Average	1000	3300	
493	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	12	Average	1000	3300	
494	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	17	Average	1000	3300	
495	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	16	Average	1000	3300	
496	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	14	Average	1000	3300	
497	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	14	Average	1000	3300	
498	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	13	Average	1000	3300	
499	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	10	Average	1000	3300	
500	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	12	Average	1000	3300	
501	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	12	Average	1000	3300	
502	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	12	Average	1000	3300	

503	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	12	Average	1000	3300	
504	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	12	Average	1000	3300	
505	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	10	Average	1000	3300	
506	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	10	Average	1000	3300	
507	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	11	Average	1000	3300	
508	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	9	Average	1000	3300	
509	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	8	Average	1000	3300	
510	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	10	Average	1000	3300	
511	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	10	Average	1000	3300	
512	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	10	Average	1000	3300	
513	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	19	Average	1000	3300	
514	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	16	Average	1000	3300	
515	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	4	Good	1000	3300	
516	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	6	Good	1000	3300	
517	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	1	Good	1000	3300	
518	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	8	Average	1000	3300	
519	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	8	Average	1000	3300	
520	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	8	Average	1000	3300	
521	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	7	Average	1000	3300	
522	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	10350	20	Average	1200	3300	
523	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	4250	9	Average	1000	3300	
524	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	1	Good	540	3300	
525	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	1	Good	540	3300	
526	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	14	Average	440	3300	
527	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	14	Average	440	3300	
528	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	11	Average	440	3300	
529	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	9	Average	440	3300	
530	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	21	Average	440	3300	
531	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	7	Average	440	3300	
532	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	8	Average	440	3300	
533	Baku UTT PO "Kaspmornftegaz"	Khatai	Bus	Fuel	2445	7	Average	440	3300	
534	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	12	Average	700	4400	
535	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	13	Average	700	4400	
536	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	9	Average	700	4400	
537	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	13	Average	700	4400	
538	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	1578	7	Average	440	4400	
539	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	1578	7	Average	440	4400	
540	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	1578	3	Good	400	4400	
541	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	1578	2	Good	400	4400	

542	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	1578	5	Average	400	4400	
543	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	41	Average	560	4400	
544	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	21	Average	560	4400	
545	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	26	Average	560	4400	
546	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	15	Average	560	4400	
547	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	8	Average	560	4400	
548	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	11	Average	560	4400	
549	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	10	Average	560	4400	
550	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	13	Average	560	4400	
551	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	9	Average	560	4400	
552	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	8	Average	560	4400	
553	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	10	Average	560	4400	
554	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	12	Average	560	4400	
555	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	6	Average	560	4400	
556	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	8	Average	560	4400	
557	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	8	Average	560	4400	
558	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	4	Good	560	4400	
559	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	8	Average	560	4400	
560	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	7	Average	560	4400	
561	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	7	Average	560	4400	
562	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	1	Good	560	4400	
563	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	3	Good	560	4400	
564	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	3	Good	560	4400	
565	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	2	Good	560	4400	
566	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	1	Good	560	4400	
567	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	1480	7	Average	440	4400	
568	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	1480	9	Average	440	4400	
569	Baku UTT PO "Kaspmornftegaz"	Khatai	Passenger	Fuel	2445	1	Good	440	4400	
570	Kalmass expedition for deepwater drilling	Garadakh	Bus	Fuel	4250	10	Good	1790	5967	
571	Kalmass expedition for deepwater drilling	Garadakh	Bus	Fuel	4250	13	Good	1354	4518	
572	Kalmass expedition for deepwater drilling	Garadakh	Bus	Fuel	4250	14	Good	1500	4996	
573	Kalmass expedition for deepwater drilling	Garadakh	Bus	Fuel	4250	14	Good	1898	5585	
574	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Fuel	6000	10	Good	496	1594	
575	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Fuel	6000	9	Good	602	1504	
576	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Fuel	6000	13	Bad	.	.	Out of operation
577	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Fuel	4250	14	Good	366	1204	
578	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	14860	11	Good	1273	1690	
579	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	11150	14	Good	691	2471	
580	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	15825	13	Good	274	620	

581	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	5825	12	Bad		.		.	Out of operation
582	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	11150	11	Good		875		1236	
583	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	14860	13	Good		63		82	
584	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	14860	17	Good		369		573	
585	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	14860	13	Good		673		908	
586	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	10850	9	Good		974		1930	
587	Kalmass expedition for deepwater drilling	Garadakh	Cargo	Diesel	14860	13	Good		931		2019	
588	Kalmass expedition for deepwater drilling	Garadakh	Passenger	Fuel	1570	5	Good		466		3150	
589	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	1300	4	Good		356		4185	
590	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	1300	4	Good		312		3685	
591	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	1300	4	Good		358		4167	
592	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2445	14	Average		705		5730	
593	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2445	8	Average		535		4125	
594	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2445	8	Average		505		3850	
595	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2445	8	Average		580		4550	
596	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2445	8	Average		720		5547	
597	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2450	8	Average		840		6440	
598	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2450	8	Average		676		5200	
599	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2450	4	Good		1209		9300	
600	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2450	4	Good		990		7520	
601	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	1480	6	Good		360		3600	
602	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	1480	6	Good		355		3600	
603	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	1480	6	Good		485		4960	
604	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	1570	2	Good		612		5100	
605	Transport agency PE Shellfprojectstroy	Garadakh	Passenger	Fuel	2450	4	Good		651		3829	
606	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	3	Good		1434		4780	
607	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	12	Average		1221		4070	
608	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	12	Average		1605		5350	
609	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	12	Average		993		3310	
610	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	12	Average		1495		4914	
611	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	7	Good		2310		7735	
612	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	11150	11	Average		1140		4960	
613	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	7000	12	Average		1512		2800	
614	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	7000	12	Average		1993		3690	
615	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	7000	11	Average		1458		2700	
616	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	6000	10	Average		1643		4007	
617	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	7000	13	Average		1639		3811	
618	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	7000	13	Average		1376		3200	
619	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	6000	13	Average		1308		3190	

620	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	8	Good	1804	5305	
621	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	8	Good	1564	4600	
622	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	8	Good	1448	4260	
623	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Fuel	4250	4	Good	2482	6894	
624	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	11150	13	Average	1693	5460	
625	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	11150	13	Average	1721	4530	
626	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	11150	11	Average	1908	5020	
627	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	4750	2	Good	1004	5018	
628	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	4750	2	Good	1116	5580	
629	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	4750	2	Good	1100	5500	
630	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	4750	2	Good	961	4805	
631	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	4750	2	Good	840	4200	
632	Transport agency PE Shellfprojectstroy	Garadakh	Bus	Diesel	4750	2	Good	1100	5500	
633	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	14860	10	Average	2011	4190	
634	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	14860	9	Good	1440	3000	
635	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	14860	11	Average	1548	3225	
636	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	12670	10	Average	1412	3362	
637	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	12670	11	Average	1355	3225	
638	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	12670	9	Good	1848	4400	
639	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	12670	9	Good	1661	3955	
640	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	11150	13	Average	1001	3575	
641	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	11150	9	Good	952	3400	
642	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	10850	7	Good	1460	4000	
643	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	15	Average	1362	3680	
644	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	15	Average	1480	4000	
645	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	7	Good	1225	3603	
646	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	7	Good	1241	3650	
647	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	7	Good	1212	3565	
648	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	8	Good	1511	4445	
649	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	10	Average	1353	3480	
650	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	8	Good	1353	3480	
651	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	9	Good	1206	3548	
652	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	4250	8	Good	1688	5480	
653	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	10850	13	Average	1521	5530	
654	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	10850	13	Average	806	3225	
655	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	10850	13	Average	1390	5054	
656	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	1480	10	Average	733	6111	
657	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	4250	9	Good	1169	3160	
658	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	8	Good	1151	3120	

659	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	10850	12	Average	1142	3564	
660	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	3480	15	Average	941	3840	
661	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	4250	15	Average	1159	3595	
662	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	9	Good	825	2268	
663	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	4250	13	Average	1269	4380	
664	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	15	Average	1549	3870	
665	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	2450	15	Average	413	2580	
666	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	8	Good	825	2270	
667	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	8	Good	1373	3776	
668	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	10850	10	Average	1170	1607	
669	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	6000	12	Average	1391	2495	
670	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	11150	14	Average	1324	1610	
671	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	14860	11	Average	1222	3055	
672	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Diesel	10850	3	Good	1601	5900	
673	Transport agency PE Shellfprojectstroy	Garadakh	Cargo	Fuel	2450	1	Good	662	3677	
674	Ambulance auto base	Narimanov	Bus	Fuel	2445	7	Average	900	5000	
675	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Good	750	4167	
676	Ambulance auto base	Narimanov	Bus	Fuel	2445	16	Average	450	2500	
677	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	450	2500	
678	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	600	3334	
679	Ambulance auto base	Narimanov	Bus	Fuel	2445	12	Average	600	3334	
680	Ambulance auto base	Narimanov	Bus	Fuel	2445	12	Average	750	4167	
681	Ambulance auto base	Narimanov	Bus	Fuel	2445	13	Average	600	3334	
682	Ambulance auto base	Narimanov	Bus	Fuel	2445	3	Good	900	5000	
683	Ambulance auto base	Narimanov	Passenger	Fuel	2445	12	Average	750	4412	
684	Ambulance auto base	Narimanov	Cargo	Fuel	4250	10	Average	900	3104	
685	Ambulance auto base	Narimanov	Cargo	Fuel	2445	7	Average	750	3000	
686	Ambulance auto base	Narimanov	Passenger	Fuel	2445	10	Average	450	3462	
687	Ambulance auto base	Narimanov	Passenger	Fuel	2445	7	Average	600	4615	
688	Ambulance auto base	Narimanov	Passenger	Fuel	1600	5	Average	300	3334	
689	Ambulance auto base	Narimanov	Passenger	Fuel	1600	5	Average	300	3334	
690	Ambulance auto base	Narimanov	Bus	Diesel	2476	4	Average	450	4091	
691	Ambulance auto base	Narimanov	Bus	Diesel	2476	4	Average	600	5455	
692	Ambulance auto base	Narimanov	Bus	Diesel	2476	2	Good	450	4500	
693	Ambulance auto base	Narimanov	Bus	Diesel	2476	2	Good	450	4500	
694	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
695	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	450	2813	
696	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
697	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	

698	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Average	600	3530	
699	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Average	600	3530	
700	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Good	600	3530	
701	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Good	600	3530	
702	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Average	600	3530	
703	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Average	300	1765	
704	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Good	600	3530	
705	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Average	600	3530	
706	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Bad	600	3530	
707	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Average	750	4412	
708	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Good	450	2648	
709	Ambulance auto base	Narimanov	Bus	Fuel	2000	6	Average	750	4412	
710	Ambulance auto base	Narimanov	Bus	Fuel	2445	8	Average	600	3334	
711	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	900	5000	
712	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	600	3334	
713	Ambulance auto base	Narimanov	Bus	Fuel	2445	12	Good	650	3612	
714	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
715	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	450	2813	
716	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
717	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
718	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	750	4688	
719	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
720	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
721	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
722	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	300	1875	
723	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
724	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
725	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
726	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
727	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
728	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	750	4688	
729	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
730	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
731	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
732	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
733	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	750	4688	
734	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Good	450	2813	
735	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Good	900	5625	
736	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Good	600	3750	

737	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Good	600	3750	
738	Ambulance auto base	Narimanov	Bus	Fuel	2445	8	Good	600	3750	
739	Ambulance auto base	Narimanov	Bus	Fuel	2445	8	Good	600	3750	
740	Ambulance auto base	Narimanov	Bus	Fuel	2445	8	Good	600	3750	
741	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Good	450	2813	
742	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	450	2813	
743	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	600	3750	
744	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	750	4688	
745	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	750	4688	
746	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	450	2813	
747	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	600	3750	
748	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	600	3750	
749	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	450	2813	
750	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
751	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Good	600	3750	
752	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	450	2813	
753	Ambulance auto base	Narimanov	Bus	Fuel	2445	5	Average	600	3750	
754	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
755	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
756	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	600	3750	
757	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Good	450	2813	
758	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	900	5625	
759	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	600	3750	
760	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
761	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
762	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
763	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
764	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	600	3750	
765	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	600	3750	
766	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
767	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	750	4688	
768	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Average	450	2813	
769	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Average	450	2813	
770	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Average	450	2813	
771	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Average	600	3750	
772	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Average	450	2813	
773	Ambulance auto base	Narimanov	Bus	Fuel	2445	9	Average	450	2813	
774	Ambulance auto base	Narimanov	Bus	Fuel	2445	12	Average	600	3750	
775	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Bad	450	2813	

776	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	450	2813	
777	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	450	2813	
778	Ambulance auto base	Narimanov	Bus	Fuel	2445	12	Average	450	2813	
779	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	450	2813	
780	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	600	3750	
781	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	600	3750	
782	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	450	2813	
783	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	450	2813	
784	Ambulance auto base	Narimanov	Bus	Fuel	2445	11	Average	450	2813	
785	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	600	3750	
786	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Good	600	3750	
787	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	900	5625	
788	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
789	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	600	3750	
790	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	900	5625	
791	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	450	2813	
792	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Average	900	5625	
793	Ambulance auto base	Narimanov	Bus	Fuel	2445	10	Good	750	4688	
794	Ambulance auto base	Narimanov	Passenger	Fuel	2445	10	Average	450	3334	
795	Ambulance auto base	Narimanov	Passenger	Fuel	2445	11	Average	450	3334	
796	Ambulance auto base	Narimanov	Passenger	Fuel	2445	12	Average	450	3334	
797	Ambulance auto base	Narimanov	Passenger	Fuel	2445	10	Average	600	4445	
798	Ambulance auto base	Narimanov	Passenger	Fuel	2445	11	Average	450	3334	
799	Ambulance auto base	Narimanov	Passenger	Fuel	2445	10	Average	450	3334	
800	Ambulance auto base	Narimanov	Passenger	Fuel	2445	15	Bad	450	3334	
801	Ambulance auto base	Narimanov	Passenger	Fuel	2445	10	Average	450	3334	
802	Ambulance auto base	Narimanov	Passenger	Fuel	2445	9	Average	450	3334	
803	Ambulance auto base	Narimanov	Passenger	Fuel	2445	9	Average	600	4445	
804	Ambulance auto base	Narimanov	Passenger	Fuel	2445	11	Average	450	3334	
805	Ambulance auto base	Narimanov	Passenger	Fuel	2445	14	Average	450	3334	
806	Ambulance auto base	Narimanov	Passenger	Fuel	2445	12	Average	450	3334	
807	Ambulance auto base	Narimanov	Passenger	Fuel	2445	12	Average	450	3334	
808	Ambulance auto base	Narimanov	Passenger	Fuel	2445	9	Average	450	3334	
809	Ambulance auto base	Narimanov	Passenger	Fuel	2445	9	Average	450	3334	
810	Ambulance auto base	Narimanov	Passenger	Fuel	2445	15	Average	450	3334	
811	Ambulance auto base	Narimanov	Passenger	Fuel	2445	10	Average	600	4445	
812	Ambulance auto base	Narimanov	Passenger	Fuel	2445	12	Average	900	5625	
813	Ambulance auto base	Narimanov	Bus	Fuel	2445	12	Average	450	2813	
814	Ambulance auto base	Narimanov	Bus	Fuel	1450	2	Average	270	3000	

815	Ambulance auto base	Narimanov	Passenger	Fuel	1450	2	Good	270	3000	
816	Ambulance auto base	Narimanov	Passenger	Fuel	1578	5	Good	600	5000	
817	Ambulance auto base	Narimanov	Passenger	Fuel	1450	1	Good	270	3000	
818	Ambulance auto base	Narimanov	Bus	Fuel	2445	1	Good	600	3530	
819	Ambulance auto base	Narimanov	Bus	Fuel	2445	1	Good	600	3530	
820	Ambulance auto base	Narimanov	Bus	Fuel	2445	1	Good	600	3530	
821	Service EATP	Binagadi	Bus	Fuel	2450	4	Average	400	2350	
822	Service EATP	Binagadi	Bus	Fuel	2450	1	Average	850	5000	
823	Service EATP	Binagadi	Bus	Fuel	2450	14	Average	1032	6177	
824	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	510	3000	
825	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1161	6836	
826	Service EATP	Binagadi	Bus	Fuel	2450	10	Average	581	3418	
827	Service EATP	Binagadi	Bus	Fuel	2450	9	Average	1161	6836	
828	Service EATP	Binagadi	Bus	Fuel	2450	9	Average	1205	7090	
829	Service EATP	Binagadi	Bus	Fuel	2450	6	Bad	.	.	Out of operation
830	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	1225	7207	
831	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	748	4400	
832	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	510	3000	
833	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	300	1134	
834	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1204	7207	
835	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1170	7574	
836	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1204	7207	
837	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1172	6890	
838	Service EATP	Binagadi	Bus	Fuel	2450	10	Average	591	3475	
839	Service EATP	Binagadi	Bus	Fuel	2450	10	Average	1205	7089	
840	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	1133	6664	
841	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	765	4500	
842	Service EATP	Binagadi	Bus	Fuel	2450	9	Average	510	3000	
843	Service EATP	Binagadi	Bus	Fuel	2450	11	Bad	.	.	Out of operation
844	Service EATP	Binagadi	Bus	Fuel	2450	4	Average	1386	8156	
845	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	595	3500	
846	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	1205	7090	
847	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	510	3000	
848	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	1182	6950	
849	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	1288	7574	
850	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	1387	8156	
851	Service EATP	Binagadi	Bus	Fuel	2450	6	Bad	.	.	Out of operation
852	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	1262	7420	
853	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1262	7420	

854	Service EATP	Binagadi	Bus	Fuel	2450	5	Bad	.	.	Out of operation
855	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1182	6950	
856	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1262	7420	
857	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1225	7207	
858	Service EATP	Binagadi	Bus	Fuel	2450	5	Bad	.	.	Out of operation
859	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	1225	7207	
860	Service EATP	Binagadi	Bus	Fuel	2450	5	Average	631	3710	
861	Service EATP	Binagadi	Bus	Fuel	2450	11	Average	610	3570	
862	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	991	5826	
863	Service EATP	Binagadi	Bus	Fuel	2450	11	Bad	.	.	Out of operation
864	Service EATP	Binagadi	Bus	Fuel	2450	9	Bad	.	.	Out of operation
865	Service EATP	Binagadi	Bus	Fuel	2450	6	Bad	.	.	Out of operation
866	Service EATP	Binagadi	Bus	Fuel	2450	6	Bad	.	.	Out of operation
867	Service EATP	Binagadi	Bus	Fuel	2450	6	Average	604	3550	
868	Service EATP	Binagadi	Bus	Diesel	2450	4	Average	900	6000	
869	Service EATP	Binagadi	Bus	Diesel	2450	4	Average	900	6000	
870	Service EATP	Binagadi	Bus	Diesel	2870	7	Average	1155	6793	
871	Service EATP	Binagadi	Bus	Diesel	2870	7	Average	1155	6793	
872	Service EATP	Binagadi	Bus	Diesel	2870	7	Average	1114	6550	
873	Service EATP	Binagadi	Bus	Diesel	2870	7	Bad	.	.	Out of operation
874	Service EATP	Binagadi	Bus	Diesel	2870	7	Average	1110	3000	
875	Service EATP	Binagadi	Cargo	Diesel	10850	9	Average	1125	3750	
876	Service EATP	Binagadi	Passenger	Fuel	2450	9	Average	900	6000	
877	Service EATP	Binagadi	Passenger	Fuel	2445	4	Average	900	6000	
878	Service EATP	Binagadi	Passenger	Fuel	2445	4	Average	900	6000	
879	Service EATP	Binagadi	Passenger	Fuel	2445	7	Average	900	6000	
880	Service EATP	Binagadi	Passenger	Fuel	2445	5	Average	990	6600	
881	Service EATP	Binagadi	Passenger	Fuel	2445	4	Average	525	3500	
882	Service EATP	Binagadi	Passenger	Fuel	2445	8	Average	450	3000	
883	Service EATP	Binagadi	Passenger	Fuel	2445	6	Average	693	4620	
884	Service EATP	Binagadi	Passenger	Fuel	2450	21	Average	300	3000	
885	Service EATP	Binagadi	Passenger	Fuel	2450	4	Average	500	5000	
886	Service EATP	Binagadi	Passenger	Fuel	2450	7	Average	420	4200	
887	Service EATP	Binagadi	Passenger	Fuel	2450	12	Average	450	4500	
888	Service EATP	Binagadi	Passenger	Fuel	1570	2	Good	450	4500	
889	Service EATP	Binagadi	Passenger	Fuel	1570	2	Good	500	5000	
890	Service EATP	Binagadi	Passenger	Fuel	1570	5	Average	450	4500	
891	Service EATP	Binagadi	Passenger	Fuel	1570	4	Average	990	6600	
892	Service EATP	Binagadi	Passenger	Fuel	2450	12	Average	500	5000	

893	Service EATP	Binagadi	Passenger	Fuel	1570	1	Good	500	5000	
894	Service EATP	Binagadi	Passenger	Fuel	1570	1	Good	500	5000	
895	Service EATP	Binagadi	Passenger	Fuel	1570	1	Good	500	5000	
896	Service EATP	Binagadi	Passenger	Fuel	1570	1	Good	450	4500	
897	Service EATP	Binagadi	Passenger	Fuel	1570	1	Good	500	5000	
898	Service EATP	Binagadi	Passenger	Fuel	1480	9	Average	300	3000	
899	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	5880	1	Good	1500	2500	
900	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	5880	1	Good	1500	2500	
901	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	5880	1	Good	1500	2500	
902	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	5880	1	Good	1500	2500	
903	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	10880	1	Good	1700	2700	
904	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	10880	1	Good	1700	2700	
905	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	10880	1	Good	1700	2700	
906	"KASCO RÑĐ" BM	Yasamal	Cargo	Diesel	10880	1	Good	1700	2700	
907	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
908	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
909	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
910	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
911	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
912	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
913	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
914	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
915	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
916	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	6000	8	Average	900	1900	
917	"KASCO RÑĐ" BM	Yasamal	Cargo	Fuel	1480	9	Average	250	2500	
918	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	12	Average	450	1200	
919	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	14	Average	470	1400	
920	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	
921	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	
922	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	
923	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	
924	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	
925	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	
926	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	13	Average	450	1200	
927	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	12	Average	450	1200	
928	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	12	Average	450	1200	
929	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	12	Average	450	1200	
930	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	12	Average	450	1200	
931	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	

932	TiM communal enterprise	Sabunchi	Cargo	Fuel	4250	8	Average	450	1200	
933	TiM communal enterprise	Sabunchi	Cargo	Fuel	6000	8	Average	450	1200	
934	TiM communal enterprise	Sabunchi	Cargo	Diesel	14860	9	Average	80	200	
935	TiM communal enterprise	Sabunchi	Bus	Fuel	4250	14	Average	.	.	Out of operation
936	TiM communal enterprise	Sabunchi	Passenger	Fuel	2450	9	Average	250	1500	
937	TiM communal enterprise	Sabunchi	Passenger	Fuel	2445	7	Average	250	1500	
938	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
939	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
940	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
941	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
942	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
943	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
944	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
945	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
946	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	2200	8400	
947	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Bad	2200	8400	
948	Star taxi LTD	Yasamal	Bus	Diesel	5675	3	Good	2200	8400	
949	Star taxi LTD	Yasamal	Bus	Diesel	5675	3	Good	2200	8400	
950	Star taxi LTD	Yasamal	Bus	Diesel	5675	3	Good	2200	8400	
951	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
952	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
953	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
954	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
955	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
956	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
957	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
958	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
959	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
960	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
961	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
962	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
963	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
964	Star taxi LTD	Yasamal	Bus	Diesel	5675	2	Good	2200	8400	
965	Star taxi LTD	Yasamal	Bus	Diesel	5675	4	Good	1700	6490	
966	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
967	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
968	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
969	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
970	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	

971	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
972	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
973	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
974	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
975	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
976	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
977	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	990	7380	
978	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	995	7380	
979	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	995	7380	
980	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	995	7380	
981	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	995	7380	
982	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	650	4800	
983	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	650	4800	
984	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	650	4800	
985	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	650	4800	
986	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
987	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
988	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
989	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
990	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
991	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
992	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
993	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
994	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
995	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
996	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	644	4800	
997	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
998	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
999	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
1000	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
1001	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
1002	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
1003	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
1004	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
1005	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	576	4320	
1006	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	586	4320	
1007	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Good	748	5600	
1008	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	748	5600	
1009	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	748	5600	

1010	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	748	5600	
1011	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	748	5600	
1012	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	748	5600	
1013	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	750	5600	
1014	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	750	5600	
1015	Azerbaijan-Turkish JV "Òempo LTD"	Binagadi	Bus	Diesel	2953	2	Average	750	5600	
1016	Apsheron regional water JS	Binagadi	Cargo	Diesel	6177	3	Good	1657	3252	
1017	Apsheron regional water JS	Binagadi	Cargo	Diesel	5490	3	Good	1206	2117	
1018	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	13	Average	490	3933	
1019	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	6	Good	517	5267	
1020	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	10	Average	518	5283	
1021	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	6	Good	400	4050	
1022	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	6	Good	313	3200	
1023	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	7	Good	263	3690	
1024	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	6	Good	363	3717	
1025	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	6	Good	543	6733	
1026	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	4	Good	668	4875	
1027	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	8	Average	575	5007	
1028	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	7	Good	.	.	Out of operation
1029	Apsheron regional water JS	Binagadi	Passenger	Fuel	2445	8	Average	727	4100	
1030	Apsheron regional water JS	Binagadi	Passenger	Fuel	2445	7	Average	867	4917	
1031	Apsheron regional water JS	Binagadi	Passenger	Fuel	2445	7	Average	993	5600	
1032	Apsheron regional water JS	Binagadi	Passenger	Fuel	2445	4	Good	1067	6000	
1033	Apsheron regional water JS	Binagadi	Passenger	Fuel	2450	6	Good	653	4733	
1034	Apsheron regional water JS	Binagadi	Passenger	Fuel	2450	6	Average	508	6333	
1035	Apsheron regional water JS	Binagadi	Passenger	Fuel	2450	5	Good	507	6267	
1036	Apsheron regional water JS	Binagadi	Cargo	Diesel	6177	3	Good	1813	6100	
1037	Apsheron regional water JS	Binagadi	Cargo	Diesel	6177	3	Good	990	3000	
1038	Apsheron regional water JS	Binagadi	Cargo	Diesel	6177	3	Good	387	1133	
1039	Apsheron regional water JS	Binagadi	Cargo	Diesel	6177	3	Good	773	2227	
1040	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	725	6023	
1041	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	552	4600	
1042	Apsheron regional water JS	Binagadi	Bus	Fuel	4250	7	Average	.	.	Out of operation
1043	Apsheron regional water JS	Binagadi	Bus	Fuel	2450	9	Average	980	5633	
1044	Apsheron regional water JS	Binagadi	Bus	Fuel	2450	18	Average	655	3800	
1045	Apsheron regional water JS	Binagadi	Bus	Diesel	2476	3	Good	617	5133	
1046	Apsheron regional water JS	Binagadi	Bus	Diesel	2476	3	Good	277	2297	
1047	Apsheron regional water JS	Binagadi	Bus	Diesel	2476	3	Good	430	3583	
1048	Apsheron regional water JS	Binagadi	Bus	Diesel	2476	3	Good	627	5167	

1049	Apsheron regional water JS	Binagadi	Bus	Diesel	5675	3	Good	787	2633	
1050	Apsheron regional water JS	Binagadi	Bus	Diesel	5675	3	Good	717	2410	
1051	Apsheron regional water JS	Binagadi	Cargo	Fuel	2445	11	Average	1013	5500	
1052	Apsheron regional water JS	Binagadi	Cargo	Fuel	2445	11	Average	.	.	Out of operation
1053	Apsheron regional water JS	Binagadi	Cargo	Fuel	4250	8	Average	1190	4188	
1054	Apsheron regional water JS	Binagadi	Cargo	Diesel	6177	3	Good	1677	3283	
1055	Apsheron regional water JS	Binagadi	Cargo	Diesel	5490	3	Good	1053	1923	
1056	Apsheron regional water JS	Binagadi	Cargo	Fuel	2445	10	Average	567	3087	
1057	Apsheron regional water JS	Binagadi	Cargo	Fuel	4250	7	Good	1030	3608	
1058	Apsheron regional water JS	Binagadi	Cargo	Fuel	4250	7	Good	1447	5050	
1059	Apsheron regional water JS	Binagadi	Cargo	Fuel	4250	7	Good	1313	4550	
1060	Apsheron regional water JS	Binagadi	Cargo	Fuel	2445	13	Average	983	5350	
1061	Apsheron regional water JS	Binagadi	Cargo	Diesel	10850	8	Good	410	1383	
1062	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	647	5400	
1063	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	385	3437	
1064	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	323	2713	
1065	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	628	5217	
1066	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	618	5167	
1067	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	500	4167	
1068	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	500	4167	
1069	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	3	Good	432	3567	
1070	Apsheron regional water JS	Binagadi	Cargo	Diesel	2476	7	Good	567	5433	
1071	Apsheron regional water JS	Binagadi	Cargo	Fuel	5380	3	Good	1573	4650	
1072	Apsheron regional water JS	Binagadi	Cargo	Diesel	5490	3	Good	1660	4983	
1073	Apsheron regional water JS	Binagadi	Cargo	Diesel	5490	3	Good	2027	6083	
1074	Apsheron regional water JS	Binagadi	Cargo	Diesel	5490	3	Good	1697	5300	
1075	Apsheron regional water JS	Binagadi	Cargo	Diesel	5490	3	Good	1663	5133	
1076	Apsheron regional water JS	Binagadi	Passenger	Fuel	1581	4	Good	777	6787	
1077	Apsheron regional water JS	Binagadi	Passenger	Fuel	1581	7	Good	683	5947	
1078	Apsheron regional water JS	Binagadi	Passenger	Fuel	1480	6	Good	408	5033	
1079	Apsheron regional water JS	Binagadi	Passenger	Fuel	2450	27	Average	687	4597	
1080	Apsheron regional water JS	Binagadi	Passenger	Fuel	1997	3	Good	733	6690	
1081	Apsheron regional water JS	Binagadi	Passenger	Fuel	1997	3	Good	697	6386	
1082	Apsheron regional water JS	Binagadi	Passenger	Fuel	1997	3	Good	625	5780	
1083	Apsheron regional water JS	Binagadi	Passenger	Fuel	1997	3	Good	790	7213	
1084	Apsheron regional water JS	Binagadi	Passenger	Fuel	1997	2	Good	763	6957	
1085	Apsheron regional water JS	Binagadi	Passenger	Fuel	1997	2	Good	743	4300	
1086	Apsheron regional water JS	Binagadi	Passenger	Diesel	2476	3	Good	780	5570	
1087	Apsheron regional water JS	Binagadi	Passenger	Fuel	2445	8	Good	660	3720	

1088	Apsheron regional water JS	Binagadi	Passenger	Fuel	2450	1	Good	510	6367	
1089	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	2	Good	660	6000	
1090	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	3480	6	Average	625	2350	
1091	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	2	Good	450	2420	
1092	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	2	Good	900	3060	
1093	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	2	Good	950	3130	
1094	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	2	Good	350	2940	
1095	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	2445	2	Good	400	2870	
1096	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	2445	2	Average	330	2690	
1097	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	2445	2	Average	260	2520	
1098	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	2445	2	Average	290	2630	
1099	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	2445	2	Average	375	2700	
1100	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	2	Good	480	2740	
1101	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	7000	1	Good	1200	2890	
1102	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	7000	2	Good	1330	4120	
1103	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	1200	3250	
1104	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	1195	2970	
1105	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	1300	2777	
1106	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	1250	2776	
1107	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	4250	10	Average	1200	2700	
1108	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	4250	10	Average	1300	2690	
1109	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Diesel	6000	2	Good	1160	3883	
1110	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Diesel	2445	2	Good	345	2870	
1111	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	1680	3950	
1112	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	1250	2939	
1113	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Good	1195	3000	
1114	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Good	1250	2938	
1115	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	2	Average	405	4120	
1116	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	2	Good	750	4610	
1117	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	1630	3810	
1118	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	290	2630	
1119	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	650	2560	
1120	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	700	2870	
1121	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	6000	9	Average	750	3040	
1122	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	2445	2	Good	620	3215	
1123	TiM agency BAKGORVODOPROVOD	Nasimi	Cargo	Fuel	2445	9	Average	625	2920	
1124	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	3	Good	375	4020	
1125	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	2	Good	600	3772	
1126	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	3	Good	710	4610	

1127	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	3	Average	410	4120	
1128	TiM agency BAKGORVODOPROVOD	Nasimi	Passenger	Fuel	1570	3	Average	375	4050	
1129	Transport company	Khatai	Bus	Diesel	2498	2	Good	1260	9560	
1130	Transport company	Khatai	Bus	Diesel	2498	2	Good	1260	9560	
1131	Transport company	Khatai	Bus	Diesel	2498	2	Good	1260	9560	
1132	Transport company	Khatai	Bus	Diesel	2498	2	Good	1260	9560	
1133	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1134	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1135	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1136	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1137	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1138	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1139	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1140	Transport company	Khatai	Bus	Diesel	2498	2	Good	1400	10600	
1141	Transport company	Khatai	Bus	Diesel	2498	1	Good	1260	9560	
1142	Transport company	Khatai	Bus	Diesel	2498	1	Good	1260	9560	
1143	Transport company	Khatai	Bus	Diesel	2498	1	Good	1260	9560	
1144	Transport company	Khatai	Bus	Diesel	2498	1	Good	1260	9560	
1145	Transport company	Khatai	Bus	Diesel	2498	1	Good	1260	9560	
1146	Transport company	Khatai	Bus	Diesel	2498	1	Good	1400	10600	
1147	Transport company	Khatai	Bus	Diesel	2498	1	Good	1400	10600	
1148	Transport company	Khatai	Bus	Diesel	2498	1	Good	1400	10600	

b.2   Findings of Large Vehicle Survey

(Main 3.1.1. above table 3-4) Large buses, microbuses and minibuses were included in the bus category, and the survey showed that large buses and microbuses represented approximately 50% of the bus traffic respectively. Apart from 2 auto cranes, the truck category of vehicles consisted of trucks only.

Table 3-6:   Details of Large Vehicles

Vehicle	Type	Qty	Share (%)
Bus	Bus	258	45.6
	Microbus	302	53.4
	Minibus	6	1.1
	Total	566	100.0
Truck	Auto crane	2	0.5
	Truck	390	99.5
	Total	392	100.0

b.2.1   Fuel Used by Large Vehicles

Table 3-7 shows the results of the survey on fuel used by large vehicles.

The ratio of buses using petrol and diesel is almost the same, i.e. about 50% each. However, concerning trucks, petrol vehicles account for 60.5% and diesel vehicles for approximately 40%. This is extremely remarkable, in comparison with Japan, Europe and North America where most trucks run on diesel. This is a common characteristic of FSU, as petrol engines for large trucks used to be manufactured in FSU.

Based on the results of this survey, we will consider that approximately 50% of exhaust gas from buses are diesel, and 40% of exhaust gas from trucks are diesel.

Table 3-7: Ratio of Large Vehicles Using Petrol and Diesel

Vehicle	Fuel Type	Qty	Share (%)
Bus	Petrol	279	49.3
	Diesel	287	50.7
	Total	566	100.0
Truck	Petrol	237	60.5
	Diesel	155	39.5
	Total	392	100.0

b.2.2   Ages of Large Vehicles

Figure 3-3 shows the results of the survey on vehicle ages.

B us
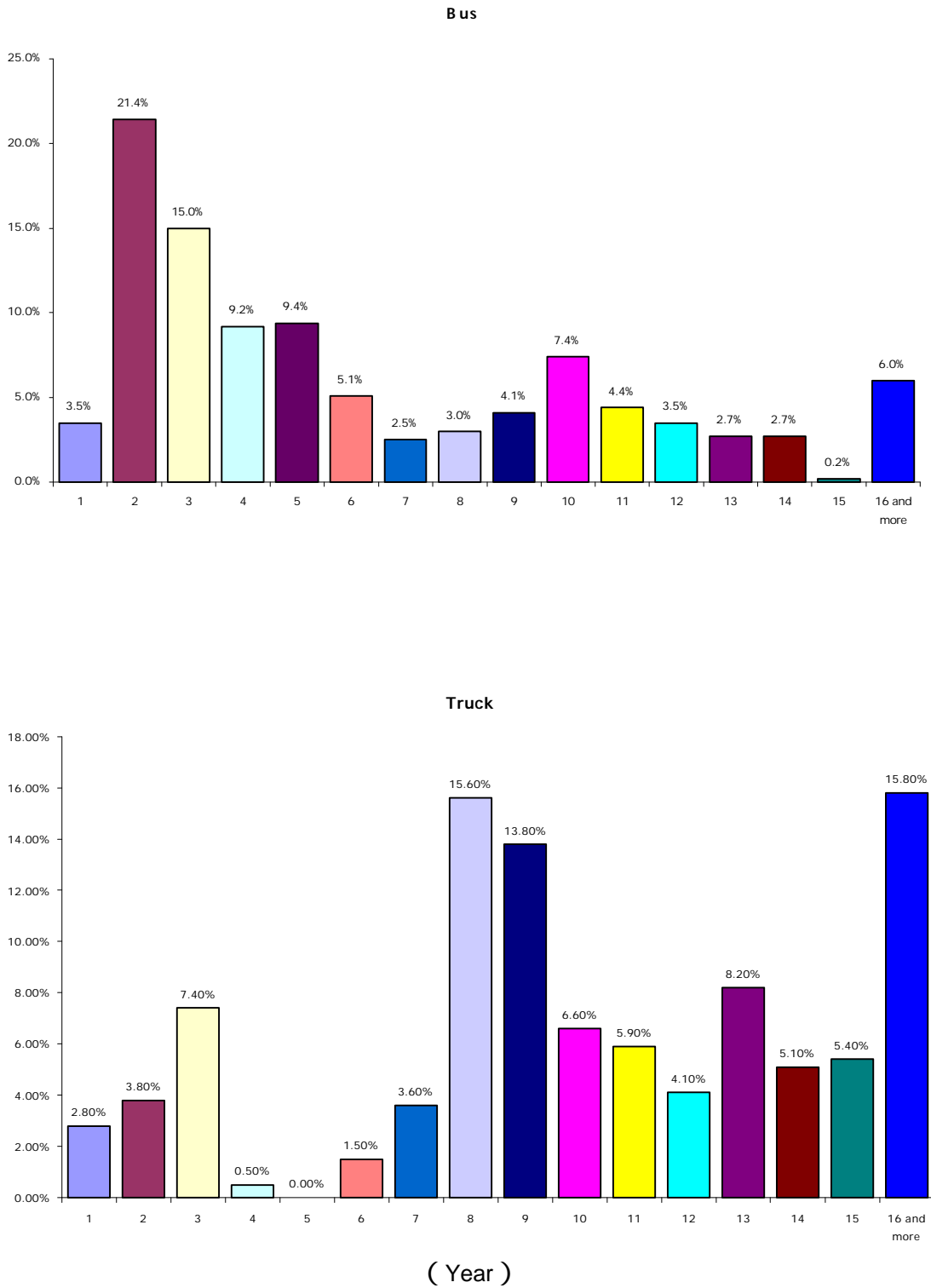
Truck

Year

Figure 3-3: Ages of Large Vehicles

The number of 4-, 5-, 6- and 7-year-old trucks is extremely small, which probably reflects the economic slump of those years, but for some reason, the number of buses purchased during the same period is relatively high. This increase of bus purchase starting about 6 years ago shows that the bus transport business was flourished.

Concerning trucks, after the large volume of purchases 9 and 8 years ago, there were almost no purchases during a 4-year period. It could be viewed as a business switch, from carrying cargo to transporting passengers. Undoubtedly, buses have become an essential means of transportation for the residents, and microbuses are especially popular.

When comparing the ages of buses and trucks, many trucks have been bought 8 years ago or more, accounting for 80.5%, including trucks aged 16 years and over (15.8%). On the other hand, there are only 34% of buses aged 8 years or more. The fact that there are few old buses is good in view of the fact that safety is extremely important for buses transporting people compared with trucks carrying cargo.

b.2.3   Mileage

The average distance travelled within a month by large vehicles, as shown in Table 3-8 is 3,116.57 km/month for trucks, whereas buses travel 5,202.37 km/month, that is to say over 2,000 km more.

The distance travelled by fuel is shown in Table 3-9. Petrol and diesel trucks cover about the same distance, approximately 3,000 km/month on average. However diesel buses travel an average of 6,477.39 km/month, which is 1.7 times more than petrol buses that travel 3,841.71 km/month. Supposing that the amount of exhaust gas is proportional to the distance travelled, we can determine that diesel buses produce 1.7 times more emission than petrol buses.

Table 3-8: Mileage of Large Vehicles (km/month)

Vehicle	Qty	Minimum (km/month)	Maximum (km/month)	Average mileage (km/month)
Bus	554	1,134	15,000	5,202.37
Truck	387	82	6111	3,116.57

Table 3-9: Mileage of Large Vehicles by Fuel

Vehicle	Fuel	Qty	Minimum (km/month)	Maximum (km/month)	Average mileage (km/month)
Bus	Petrol	268	1134	8156	3841.71
	Diesel	286	2297	15000	6477.39
Truck	Petrol	233	133	6111	3001.70
	Diesel	154	82	6100	3290.38

b.2.4   Fuel Consumption

The fuel consumption by large vehicles for 100 km is shown in Table 3-10.

The average fuel consumption of buses and trucks was determined by the following calculations. Fuel consumption of trucks is high, at 1.5 times more than that of buses. Consequently, when estimating the environmental impact of vehicles according to

their emissions, if we suppose that the volume of exhaust gas is proportional to fuel consumption, it is necessary to fix the exhaust gas volume of trucks at 1.5 times that of buses.

Bus   23.2 *l* /100km

{15x122+(15+30)/2x359+(30+45)/2x81+45x4}/566=23.2 *l* /100km

Truck   34.4 *l* / 100km

{15x28+(15+30)/2x89+(30+45)/2x173+45x102}/392= 34.4 *l* /100km

Table 3-10: Fuel Consumption by Large Vehicle

	Specific Fuel Consumption	Number of Vehicles	Share (%)
Bus	Up to 15 *l* for 100 km	122	21.6
	15-30 *l* for 100 km	359	63.4
	30-45 *l* for 100 km	81	14.3
	More than 45 *l* for 100 km	4	0.7
	Total	566	100.0
Truck	Up to 15 *l* for 100 km	28	7.1
	15-30 *l* for 100 km	89	22.7
	30-45 *l* for 100 km	173	44.1
	More than 45 *l* for 100 km	102	26.0
	Total	392	100.0

c.   Vehicle Emission

c.1   Result of Vehicle Emission Survey

The result of vehicle emission survey is shown in the following table.

Table 3-11: The Result of Vehicle Emission Survey

	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO_2, ppm	SÎ$_2$, ìg/ì^3	NÎx, ÐÐì	NÎx, ìg/ì^3	t^ì exhaust
4	HD	GAZ 24 - 10	10 - EJ - 922	Light car	22	1978	4.1					90
5	HD	VAZ 21 - 06	10 - BO - 441	Light car	14	1986	1	9		52		60
6	HD	VAZ 21 - 07	10 - BO - 898	Light car	13	1987	4					78
7	HD	Lancia *	10 - BP - 948	Light car	14	1986	4					82
8	HD	PAZ	10 - BO - 820	Light car	10	1990	1	14		75		95
9	HD	VAZ 21 - 06	10 - EJ - 869	Light car	7	1993	6.3					68
10	HD	IZH Comby	10 - HL - 213	Light car	22	1978	1	12		67		65
13	HD	VAZ 21 - 07	10 - GR - 773	Light car	0	2000	8.5					92
14	HD	VAZ 21 - 06	10 - EE - 886	Light car	2	1998	8					110
15	HD	VAZ 21 - 07	10 - FO - 363	Light car	18	1982	8					69
16	HD	GAZ 24 - 101	10 - FX - 318	Light car	18	1982	1.5	12		69		79
17	HD	VAZ 21 - 05	10 - CS - 918	Light car	18	1982	1.5	8		54		85
18	HD	VAZ 21 - 02	10 - FE - 575	Light car	17	1983	6.1					81
19	HD	NIVA 21 -21	10 - EV - 360	Light car	11	1989	2.2					90
20	HD	IZH Comby 1500	10 - HC - 119	Light car	11	1989	7.8					115
22	HD	VAZ 21 - 06	10 - GB - 148	Light car	25	1975	1.5	15		70		89
23	HD	VAZ 21 - 07	10 - FG - 445	Light car	17	1983	4.3					83
31	HD	Renaut 12 sw*	10 - HA - 106	Light car	4	1996	8.2					125
46	HD	Moskvich 2141	42 - BA - 574	Light car	8	1992	2	10		64		93
48	HD	FORD Scorpio*	10 - FG - 979	Light car	15	1985	1	13		52		81
49	HD	Moskvich 2140	10 - CP - 644	Light car	12	1988	8.5					98
51	HD	TOFASH *	10 - AF - 265	Light car	2	1998	1	9		42		83
52	HD	DAEWOO RAISER*	10 - HV - 730	Light car	5	1995	7.7					85
55	HD	VAZ 21 - 06	19 - BA - 727	Light car	11	1989	1	13		48		94
61	HD	VAZ 21 - 06	10 - ET - 270	Light car	14	1986	8					73
65	HD	VAZ 21-099	10 - CO - 046	Light car	4	1996	8.5					95
71	HD	AUDI 80*	10 - CF - 017	Light car	12	1988	6.2					71
94	HD	VAZ 21-099	25 - BA- 801	Light car	6	1994	1.5	6		71	133.48	62
95	HD	GAZ 31-010	04 - BC - 166	Light car	2	1998	1.3	14		79	148.52	47
98	HD	PAZ 21 - 06	EEB - 579	Light car	5	1995	2.5					75
101	HD	GAZ 24	10 - DG - 284	Light car	15	1985	2	22		50	94	83
104	HD	VAZ 21 -11	10 - EO - 288	Light car	18	1982	4					80
152	20Y	VAZ 21 -07	50 - ÂD - 236	Light car	9	1991	5					80
153	20Y	GAZ 24	01 - BB - 073	Light car	11	1989	4.8					75
154	20Y	VAZ 21 - 06	10 - CZ - 212	Light car	4	1996	2.5					68

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	Post	Car brand	Plate number	Type	Ages	Year of production	$ÑÎ$, %	SO_2, ppm	$SÎ_2$, ìg/ì³	$NÎx$, ÐÐÌ	$NÎx$, ìg/ì³	t^i exhaust
155	20Y	VAZ 21 - 06	01 - BB - 499	Light car	3	1997	1	5		20	37.6	89
159	20Y	VAZ 21 -07	10 - EG - 242	Light car	3	1997	4					81
167	20Y	VAZ 21 - 06	10 - HL - 679	Light car	11	1989	2	2		24	45.12	90
169	20Y	Ì - 412	T 34 - 30 ÀÃ	Light car	13	1987	4.5					83
172	20Y	TOYOTA	10 - GS - 080	Light car	10	1990	3					80
173	20Y	AUDI *	10 - HL - 932	Light car	19	1981	2	2		93	174.84	55
174	20Y	RENAULT *	10 - ED - 070	Light car	7	1993	2	2.2		28	52.64	72
175	20Y	HYUNDAI*	10 - CT - 860	Light car	5	1995	3.5					88
181	20Y	LADA 21 - 10	10 - EJ - 702	Light car	1	1999	3					70
184	20Y	GOLLOPER 2*	H 007 921	Light car	2	1998	3					73
189	20Y	OPEL WECTRA*	10 - DN - 433	Light car	3	1997	1.7	10		37	68.8	77
192	20Y	DAEWOO NEXIA*	10 - AT - 539	Light car	3	1997	4					128
225	20Y	TOFASH *	01 - BD - 059	Light car	2	1998	0.5	7		47		80
227	20Y	TOYOTA	H 007 242	Light car	10	1990	1.2	10		54		100
230	20Y	VAZ 21 -11	10 - BA - 226	Light car	15	1985	7					135
232	20Y	PEUQEOT *	10 - CP - 707	Light car	8	1992	4					75
235	20Y	MERCEDES*	10 - DH - 052	Light car	14	1986	6.5					95
237	20Y	DAEWOO ESPERO*	10 - BL - 070	Light car	2	1998	3.5					55
240	20Y	DAIMLER BENZ*	10 - FP - 485	Light car	15	1985	6					140
243	20Y	MOSKVICH 21 - 41	10 - BD - 802	Light car	9	1991	5.5					140
244	20Y	RENAULT 12*	10 - BD - 148	Light car	4	1996	1.5	9		36		91
245	20Y	GAZ 24-10	10 - BD - 365	Light car	22	1978	4.5					80
246	20Y	VAZ 21 - 06	10 - BB - 066	Light car	14	1986	3.5					79
248	20Y	VAZ 21 -099	10 - DO - 474	Light car	3	1997	1.5	6		33		80
249	20Y	VAZ 21 - 06	10 - FD - 958	Light car	15	1985	3.5					63
250	20Y	VAZ 21 - 06	10 - BM - 210	Light car	11	1989	6.4					85
252	20Y	VAZ 21 -09	10 - DK - 993	Light car	5	1995	2.8					81
255	20Y	VAZ 21 - 06	10 - DX - 061	Light car	15	1985	8.3					69
273	20Y	VAZ 21 -09		Light car	10	1990	6					55
274	20Y	DAEWOO RAISER*		Light car	7	1993	2	9		51		95
278	20Y	VAZ 21 - 06		Light car	8	1992	1	11		58		98
281	20Y	TOFASH *		Light car	3	1997	3.5					140
282	20Y	GAZ 24		Light car	23	1977	3.5					137
285	20Y	VAZ 21 - 07		Light car	9	1991	2	11		47		95
287	20Y	VAZ 21 - 011		Light car	15	1985	1.2	14		69		110
288	20Y	VAZ 21 - 011		Light car	25	1975	5					115
289	20Y	VAZ 21 - 011		Light car	29	1971	3					110
290	20Y	VAZ 21 - 21		Light car	19	1981	2.5					110

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	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO_2, ppm	SÎ₂, ìg/ì³	NÎx, ÐÐÌ	NÎx, ìg/ì³	tᵢ exhaust
293	20Y	HYUNDAI EXCEL*		Light car	5	1995	1.5	12		56		120
294	20Y	UAZ 3741 - 01		Light car	12	1988	1.8	12		33		95
295	20Y	VAZ 21 - 06		Light car	2	1998	5	5		45		80
296	20Y	VAZ 21 - 06		Light car	8	1992	4.5					100
297	20Y	VAZ 21 - 07		Light car	2	1998	5.5					140
298	Sab	IZH 271501	20 - BV - 059	Light car	15	1985	4					75
299	Sab	Ì - 212	10 - EN - 476	Light car	20	1980	2.5					61
303	Sab	Ì - 21406	10 - FG - 368	Light car	14	1986	4					85
304	Sab	Ì - 21406	10 - FA - 143	Light car	11	1989	4.5					61
305	Sab	VAZ 21 - 061	10 - CY - 991	Light car	12	1988	3					66
309	Sab	UAZ - 469 Â	10 - GG - 486	Light car	18	1982	3.5					92
310	Sab	VAZ 21 - 06	06 - BA - 444	Light car	19	1981	4					88
312	Sab	RENAULT 12*	10 - DO - 137	Light car	5	1995	2.5					94
313	Sab	GAZ 24	10 - DV - 910	Light car	24	1976	2.5					91
316	Sab	VAZ 21 - 011	10 - EN - 511	Light car	22	1978	4					71
319	Sab	VAZ 21063	10 - GR - 329	Light car	16	1984	3					95
320	Sab	VAZ 21 - 06	10 - CE - 811	Light car	20	1980	4					100
321	Sab	VAZ 21013	10 - CV - 665	Light car	18	1982	4					84
322	Sab	VAZ - 21063	10 - HP - 274	Light car	15	1985	3					75
324	Sab	VAZ - 2109901	10 - DG - 116	Light car	6	1994	4.2					78
325	Sab	BMW - 320*	10 - BA - 302	Light car	16	1984	3.1					81
326	Sab	GAZ - 31029	10 - FE - 250	Light car	8	1992	5.1					90
328	Sab	GAZ - 2417	10 - ER - 864	Light car	11	1989	3.1					82
329	Sab	ALFA ROMEO	10 - CT - 983	Light car	19	1981	2.3					90
331	Sab	GAZ - 31029	10 - CM - 224	Light car	4	1996	4.1					63
332	Sab	MERCEDES - 280 - se*	25 - BA - 483	Light car	16	1984	3.6					72
333	Sab	VAZ - 2108	10 - ER - 056	Light car	13	1987	3.5					81
334	Sab	MERCEDES BENZ *	10 - DU - 484	Light car	15	1985	5.1					93
335	Sab	VAZ - 21093	10 - HT - 093	Light car	6	1994	4.8					80
336	Sab	BMW - 7351*	10 - ED - 116	Light car	12	1988	2.1					100
337	Sab	VAZ - 21063	10 - GH - 236	Light car	8	1992	3.5					79
339	Sab	VAZ - 21093	10 - EK - 778	Light car	8	1992	3.5					73
341	Sab	MOSKVICH IZH - 2715 - 01	66 - BC - 240	Light car	13	1987	4.5					83
342	Sab	VAZ - 21013	04 - BD - 071	Light car	19	1981	1.5	11		64		69
343	Sab	VAZ - 21053	20 - BF - 871	Light car	5	1995	3.8					75
344	Sab	VAZ - 2109	10 - DZ - 605	Light car	12	1988	5.5					90
346	Sab	VAZ - 21074	10 - FA - 440	Light car	2	1998	4.5					78
347	Sab	VAZ - 21063	60 - BE - 455	Light car	2	1998	2.6					73

	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO_2, ppm	$SÎ_2$, ìg/ ì³	NÎx, ÐÐÌ	NÎx, ìg/ ì³	t^i exhaust
348	Sab	VAZ - 2109	15 - BE - 681	Light car	12	1988	5.5					92
349	Sab	VAZ - 21011	10 - DD - 573	Light car	25	1975	2.1					98
350	Sab	GAZ - 24	10 - BP - 557	Light car	12	1988	2.1					63
352	Sab	GAZ - 3129	10 - FR - 215	Light car	8	1992	1.5	8		29		53
353	Sab	VAZ - 21 - 01	10 - BO - 326	Light car	26	1974	4					93
354	Sab	VAZ - 21 - 21	10 - FH - 473	Light car	9	1991	2.5					69
355	Sab	VAZ - 21 - 061	10 - EB - 317	Light car	3	1997	3					82
356	Sab	VAZ - 21 - 011	10 - EA - 125	Light car	25	1975	2.1					63
357	Sab	VAZ - 21 - 063	10 - BK - 781	Light car	16	1984	2.5					69
358	Sab	VAZ - 21 - 063	59 - BB - 066	Light car	14	1986	1.6	12		42		55
359	Sab	BMW - 525*	10 - FB - 575	Light car	9	1991	2.6					71
361	Sab	VAZ - 21 - 061	02 - BE - 418	Light car	9	1991	2.2					42
363	Sab	VAZ - 21 - 065	10 - EA - 824	Light car	6	1994	2	8		56		85
364	Sab	VAZ - 21 - 063	10 - EO - 015	Light car	8	1992	1.5	9		45		52
365	Sab	NISSAN MAXIMA*	10 - GL - 512	Light car	0	2000	1.5	5		39		52
367	Sab	BMW - 520*	10 - CX - 240	Light car	13	1987	2.1					63
368	Sab	VAZ - 21 - 21	85 - BK - 050	Light car	11	1989	2.2					71
410	Sab	GAZ - 31	10 - GB - 307	Light car		1994	1	7		40		65
424	Sab	VAZ - 21061	10 - FD - 958	Light car	16	1984	5.3					91

	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO_2, ppm	$SÎ_2$, ìg/ ì³	NÎx, ÐÐÌ	NÎx, ìg/ ì³	t^i exhaust
2	HD	RENAULT *	10 - TC- 303	TAXI	0	2000	0.4	9		60		71
3	HD	RENAULT *	10 - EH - 615	TAXI	6	1994	4					73
26	HD	RENAULT *	10 - EE - 794	TAXI	5	1995	2.5					65
27	HD	TOFASH*	10 - EH - 987	TAXI	3	1997	2	12		60		80
37	HD	HYUNDAI *	10 - ET - 548	TAXI	6	1994	1	23		79		95
43	HD	DAEWOO*	10 - TC - 009	TAXI	3	1997	4.1					101
53	HD	DAEWOO*	10 - AT - 924	TAXI	3	1997	3.5					52
54	HD	TOFASH*	10 - AT - 109	TAXI	3	1997	1.5	15		51		85
56	HD	DAEWOO*	10 - FM - 815	TAXI	2	1998	3.2					73
58	HD	DAEWOO*	10 - AT - 877	TAXI	2	1998	5.7					77
60	HD	RENAULT 125W*	10 - TA - 524	TAXI	3	1997	1.5	7		42		68
62	HD	DAEWOO*	10 - FD - 943	TAXI	9	1991	4.5					81
63	HD	HYUNDAI *	10 - ET - 548	TAXI	6	1994	1.5	22		68		84

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	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO$_2$, ppm	SÎ$_2$, ìg/ì^3	NÎx, ÐÐÌ	NÎx, ìg/ì^3	t^i exhaust
64	HD	RENAULT 125W*	10 - DV - 154	TAXI	5	1995	2.5					94
67	HD	VAZ 21-09	10 - HD - 562	TAXI	10	1990	2	22		73		87
68	HD	DAEWOO*	10 - DL - 809	TAXI	2	1998	3.5					99
69	HD	RENAULT *	10 - GG - 845	TAXI	2	1998	4.3					68
72	HD	RENAULT 125W*	10 - ES - 106	TAXI	4	1996	6					85
73	HD	RENAULT 125W*	10 - AF - 299	TAXI	4	1996	5.1					89
74	HD	DAEWOO*	17 - A 1585	TAXI	4	1996	2.5					95
75	HD	HYUNDAI *	10 - FA - 906	TAXI	19	1998	0.1	14		35		68
77	HD	RENAULT 12 SW*	10 - BV - 103	TAXI	6	1994	6					70
78	HD	HONDA *	10 - FD - 003	TAXI	2	1998	3.5					90
80	HD	TOFASH*	10 - AF - 233	TAXI	3	1997	1	20		88		90
83	HD	DAEWOO*	10 - AT - 597	TAXI	2	1998	4.5					50
84	HD	TOFASH*	10 - AH - 318	TAXI	3	1997	2.6					68
85	HD	TOFASH*	10 - AF - 220	TAXI	3	1997	1.2	3		62		72
87	HD	RENAULT 12SW*	10 - AT - 284	TAXI	2	1998	2.1					90
88	HD	DAEWOO*	10 - CB - 639	TAXI	5	1995	6					55
102	HD	RENAULT 12SW*	10 - ET - 575	TAXI	2	1998	1.8	18		42		92
103	HD	VAZ 21 - 09	10 - DZ - 720	TAXI	12	1988	5					65
156	20Y	HYUNDAI NEXIA*	10 - FM - 451	TAXI	2	1998	3.5					68
160	20Y	DAEWOO LEGANZA*	10 - TC - 046	TAXI	3	1997	3					73
177	20Y	HYUNDAI SONATA*	10 - EB - 096	TAXI	2	1998	1	2		21		50
178	20Y	HYUNDAI EXCEL*	10 - TC - 447	TAXI	6	1994	1	3		28		21
179	20Y	HYUNDAI NEXIA*	10 - AT - 610	TAXI	4	1996	4					85
180	20Y	HYUNDAI EXCEL*	10 - TA - 389	TAXI	6	1994	1.5	15		40		58
185	20Y	TOFASH*	10 - AT - 733	TAXI	3	1997	1.8	4		35		44
195	20Y	DAEWOO*	10 - TC - 036	TAXI	3	1997	2	48		28		68
204	20Y	HYUNDAI EXCEL*	10 - AT - 381	TAXI	6	1994	1.5	5		19		50
210	20Y	RENAULT *	10 - DV - 482	TAXI	5	1995	4.7					70
221	20Y	RENAULT 12*	10 - AT - 271	TAXI	2	1998	1	23		40		60
228	20Y	RENAULT *	10 - TA - 545	TAXI	3	1997	4					80
229	20Y	RENAULT *	10 - TC - 353	TAXI	1	1999	2.5					82
236	20Y	RENAULT *	10 - AT - 225	TAXI	2	1998	1.5	9		56		85
238	20Y	RENAULT *	10 - TC - 307	TAXI	1	1999	8					100

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	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO$_2$, ppm	SÎ$_2$, ìg/ì^3	NÎx, ÐÐÌ	NÎx, ìg/ì^3	t^i exhaust
257	20Y	GAZ 24	10 - GM - 544	TAXI	26	1974	10					75
259	20Y	DAEWOO*	10 - AT - 933	TAXI	11	1989	1	18		74		60
280	20Y	HYUNDAI EXCEL*		TAXI	6	1994	6.5					80
284	20Y	TOFASH SHAHIN*		TAXI	3	1997	6					90
286	20Y	RENAULT 12*		TAXI	5	1995	1.5	26		65		106
327	Sab	DAEWOO RAISER	10 - AE - 212	TAXI	4	1996	2.6					75
330	Sab	HYUNDAI ACCENT*	10 - GB - 338	TAXI	5	1995	3.6					78
372	Sab	RENAULT 12*	10 - EZ - 920	TAXI	5	1995	2.5					75
373	Sab	DAEWOO NEXIA*	10 - GH - 549	TAXI	4	1996	2.5					77
374	Sab	RENAULT 12*	10 - BZ - 459	TAXI	7	1993	7					89
375	Sab	DAEWOO*	10 - AT - 626	TAXI	4	1996	4.3					89
376	Sab	RENAULT 12*	10 - DC - 619	TAXI	3	1997	3.5					76
380	Sab	HYUNDAI *	10 - AT - 653	TAXI	4	1996	2	17		52		83
381	Sab	HYUNDAI *	10 - AT - 068	TAXI	2	1998	2.8					79
382	Sab	TOFASH*	10 - BA - 272	TAXI	3	1997	5					68
400	Sab	RENAULT *	10 - AT - 369	TAXI			1.8	10		52		50
408	Sab	DAEWOO*	10 - FL - 861	TAXI			6					57
409	Sab	GAZ - 24 - 10	10 - AT - 949	TAXI			1	14		62		50
415	Sab	HYUNDAI *	10 - TC - 094	TAXI			3.2					69
420	Sab	HYUNDAI *	10 - JA - 110	TAXI			2	14		38		68
423	Sab	RENAULT 12*	10 - HD - 380	TAXI	9	1991	4.2					90
430	Sab	RENAULT 12*	10 - BE - 115	TAXI	5	1995	2.1					83
434	Sab	RENAULT *	10 - ES - 390	TAXI	4	1996	3					70
435	Sab	HYUNDAI *	10 - GM - 351	TAXI	5	1995	1.5	21		81		69
439	Sab	RENAULT *	10 - HC - 927	TAXI	3	1997	2.1					90
447	Sab	DAEWOO*	10 - GL - 263	TAXI	3	1997	1.5	14		69		90
448	Sab	GAZ - 24 - 10	10 - HS - 865	TAXI	15	1985	4					81

	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO$_2$, ppm	SÎ$_2$, ìg/ì^3	NÎx, ÐÐÌ	NÎx, ìg/ì^3	t^i exhaust
11	HD	RAF	10 - AD - 255	MINIBUS	6	1994	1	9.0		58		90
21	HD	GAZEL 32213	10 - JG - 484	MINIBUS	11	1989	6					140
28	HD	RAF	10 - BR - 301	MINIBUS	10	1990	6.5					110
33	HD	RAF	10 - AD - 457	MINIBUS	8	1992	8					95

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	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO$_2$, ppm	SÎ$_2$, ìg/ì^3	NÎx, ÐÐÌ	NÎx, ìg/ì^3	t^i exhaust
38	HD	GAZEL	10 - GC - 782	MINIBUS	1	1999	10					93
39	HD	GAZEL	10 - AG - 932	MINIBUS	8	1992	4.5					110
40	HD	GAZEL	10 - GH - 894	MINIBUS	0	2000	8.7					98
41	HD	RAF	10 - AJ - 580	MINIBUS	8	1992	4.5					75
45	HD	GAZEL	10 - HG - 261	MINIBUS	2	1998	9					81
50	HD	RAF	02 - DB - 058	MINIBUS	14	1986	2	20.0		74		90
126	HD	GAZEL	10 - FV - 878	MINIBUS	1	1999	4.5					72
127	HD	GAZEL	10 - XE - 261	MINIBUS	2	1998	5					84
128	HD	RAF	10 - AG -255	MINIBUS	6	1994	1	10.0		36		62
129	HD	RAF	20 - BH - 801	MINIBUS	9	1991	2	18.0		54		90
130	HD	GAZEL	10 - TA- 666	MINIBUS	2	1998	6					78
131	HD	RAF	10 - FT - 351	MINIBUS	8	1992	3.2					82
132	HD	GAZEL	10 - FX - 485	MINIBUS	1	1999	4.3					90
133	HD	GAZEL	10 - HJ - 680	MINIBUS	2	1998	2.8					90
134	HD	GAZEL	10 - EC - 430	MINIBUS	3	1997	1	8.0		40		69
135	HD	RAF	10 - DF - 562	MINIBUS	10	1990	7					75
136	HD	RAF	10 - DL - 503	MINIBUS	10	1990	6					86
137	HD	GAZEL	10 - HT - 054	MINIBUS	6	1994	2	14.0		45		89
138	HD	GAZEL	10 - HK - 715	MINIBUS	6	1994	4					72
139	HD	GAZEL	10 - HJ - 912	MINIBUS	2	1998	7					90
140	HD	RAF	66 - BA - 664	MINIBUS	16	1984	4.5					88
141	HD	GAZEL	10 - HK - 236	MINIBUS	0	2000	7.1					78
142	HD	GAZEL	10 - HO - 773	MINIBUS	1	1999	8.8					90
143	HD	RAF	10 - FS - 196	MINIBUS	3	1997	5.3					71
144	HD	RAF	10 - AJ - 970	MINIBUS	8	1992	4					83
145	HD	GAZEL	10 - FV - 840	MINIBUS	1	1999	6.5					89
146	HD	PAZ	10 - JF - 660	MINIBUS	13	1987	1	13.0		53		79
147	HD	RAF	M - 308 - ÀÃ 72	MINIBUS	9	1991	3.5					90
148	HD	GAZEL	10 - HB - 750	MINIBUS	2	1998	1	11.0		44		90
149	HD	GAZEL	10 - HO - 562	MINIBUS	8	1992	3.2					75
150	HD	GAZEL	10 - HT - 048	MINIBUS	1	1999	4					88
151	HD	GAZEL	10 - GC - 126	MINIBUS	3	1997	5.7					71
157	20Y	RAF 2203	40 - BB - 480	MINIBUS	10	1990	1	2.0		73		110
165	20Y	VAZ 22 - 03	19 - BA - 094	MINIBUS	10	1990	4					75
182	20Y	GAZEL	50 - BJ - 497	MINIBUS	1	1999	4					
194	20Y	GAZEL	10 - FZ - 397	MINIBUS	2	1998	2	7.0		60		110
196	20Y	RAF 2203	20 - BM - 125	MINIBUS	15	1985	4.5					105

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	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO_2, ppm	$SÎ_2$, ìg/ì³	NÎx, ÐÐÌ	NÎx, ìg/ì³	t^i exhaust
199	20Y	KIA*	10 - CN - 368	MINIBUS	2	1998	1.8	16.0		24		105
207	20Y	MITSUBISHI *	50 - CE - 727	MINIBUS	2	1998	1.8	6.0		22		80
208	20Y	MITSUBISHI *	50 - BD - 777	MINIBUS	3	1997	1.5	5.5		22		28
213	20Y	FORD *	10 - FL - 170	MINIBUS	3	1997	4					124
214	20Y	GAZEL	17 - BB -010	MINIBUS	1	1999	4.5					85
219	20Y	GAZEL	10 - GB - 789	MINIBUS	1	1999	6					90
223	20Y	GAZEL	10 - FK - 618	MINIBUS	1	1999	2.5					88
256	20Y	RAF	10 - EV - 574	MINIBUS	21	1979	9					60
258	20Y	GAZEL	10 - ES - 770	MINIBUS	1	1999	3					55
261	20Y	GAZEL	10 - GE - 941	MINIBUS	1	1999	1	9		52		91
262	20Y	RAF	10 - GJ - 555	MINIBUS	10	1990	4					61
263	20Y	GAZEL	10 - ES - 123	MINIBUS	2	1998	2.5					73
264	20Y	UAZ	10 - GS - 444	MINIBUS	11	1989	6					85
265	20Y	GAZEL	10 - GJ - 351	MINIBUS	1	1999	1.5	11		43		91
266	20Y	RAF	10 - DC - 841	MINIBUS	9	1991	2.8					78
272	20Y	GAZ 32 2100		MINIBUS	4	1996	10					120
306	Sab	RAF - 220301	10 - GH - 308	MINIBUS	9	1991	3					75
307	Sab	RAF - 220301	10 - FC - 682	MINIBUS	12	1988	4.5					90
311	Sab	UAZ - 3962	10 - AD - 841	MINIBUS	9	1991	4.5					110
314	Sab	GAZ - 2705	10 - DR - 532	MINIBUS	2	1998	3					68
366	Sab	RAF - 2203	10 - EL - 108	MINIBUS	9	1991	4					95
377	Sab	RAF	20 - BE - 975	MINIBUS	2	1998	4					89
378	Sab	GAZEL	10 - BE - 150	MINIBUS	2	1998	7					95
379	Sab	GAZEL	10 - CN - 825	MINIBUS	3	1997	4.5					79
383	Sab	RAF	10 - BE - 269	MINIBUS	15	1985	7					92
384	Sab	GAZEL	52 - BA - 679	MINIBUS	2	1998	4					95
385	Sab	RAF	10 - CL - 965	MINIBUS	2	1998	6.5					98
398	Sab	RAF	10 - DU - 173	MINIBUS			6					89
401	Sab	GAZEL	10 - GN - 814	MINIBUS			7					91
402	Sab	GAZEL	10 - FS - 342	MINIBUS			5.1					21
404	Sab	RAF	10 - AD - 015	MINIBUS			10					78
406	Sab	GAZEL	10 - FA -771	MINIBUS			6.5					82
407	Sab	GAZEL	10 - HD - 149	MINIBUS			3					72
425	Sab	RAF	10 - DV - 173	MINIBUS	9	1991	2	12		44	78.96	94
426	Sab	GAZEL	10 - GN -804	MINIBUS	2	1998	6.3					68
427	Sab	RAF	50 - BL - 164	MINIBUS	10	1990	3.5					75
433	Sab	GAZEL	10 - GF - 062	MINIBUS	2	1998	2	25		90	169.2	75

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	Post	Car brand	Plate number	Type	Ages	Year of production	$\tilde{N}\hat{I}$, %	SO_2, ppm	$S\hat{I}_2$, ìg/ì^3	$N\hat{I}x$, ÐÐÌ	$N\hat{I}x$, ìg/ì^3	t^i exhaust
24	HD	PAZ	10 - AG - 956	BUS	12	1988	2	25		52		75
32	HD	PAZ	15 - BC - 375	BUS	21	1979	10					90
34	HD	PAZ	32 - 70ÀÃÄ	BUS	9	1991	2.1					71
35	HD	PAZ	58 - AA - 023	BUS	10	1990	4.7					80
42	HD	KAVZ	10 - AG - 586	BUS	8	1992	6.6					80
44	HD	PAZ	10 - EE - 595	BUS	12	1988	1	18		43		92
76	HD	PAZ	10 - AC - 984	BUS	25	1975	2.5					73
100	HD	PAZ	58 - AC - 626	BUS	11	1989	4					79
105	HD	PAZ	10 - AC - 984	BUS	10	1990	4.5					60
107	HD	PAZ	10 - JF - 244	BUS	11	1989	6					80
108	HD	PAZ	10 - GL - 514	BUS	13	1987	2	22		60	112.8	81
109	HD	LAZ	20 - BO - 296	BUS	18	1982	5					95
110	HD	LAZ	10 - HL - 139	BUS	18	1982	4.3					91
114	HD	KAVZ 53	10 - JB - 251	BUS	11	1989	3.5					98
120	HD	GAZ 53	10 - AL - 078	BUS	9	1991	8.5					110
121	HD	GAZ 53	94 - 05 ÀÒÔ	BUS	11	1989	7.3					85
122	HD	KAVZ	52 - BB - 479	BUS	9	1991	6					95
123	HD	KAVZ	10 - GJ - 099	BUS	10	1990	4					91
124	HD	GAZ 53	10 - GX - 335	BUS	14	1986	7.5					99
125	HD	PAZ	10 JB - 568	BUS	19	1981	9					83
188	20Y	IVECO*	10 - TA - 264	BUS	2	1998	5					70
190	20Y	PAZ	10 - FT - 729	BUS	1	1999	3					65
191	20Y	UAZ 452	10 AS - 374	BUS	15	1985	5					56
197	20Y	PAZ	50 - AC - 385	BUS	16	1984	6					110
198	20Y	PAZ	50 - BK - 954	BUS	1	1999	3.8					103
206	20Y	PAZ	35 - BB - 624	BUS	16	1984	5.5					86
209	20Y	PAZ	50 - AC - 736	BUS	14	1986	4.5					105
215	20Y	PAZ	10 - AT - 846	BUS	3	1997	6					90
216	20Y	KAVZ	10 - EF - 670	BUS	13	1987	5					10
217	20Y	KAVZ	10 - JD - 670	BUS	16	1984	6.5					85
222	20Y	PAZ	50 - BJ - 209	BUS	16	1984	2	21		50		95
224	20Y	PAZ	50 - AC 386	BUS	2	1998	1.5	25		61		115
234	20Y	PAZ	10 - FX - 990	BUS	3	1997	3.8					85

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	Post	Car brand	Plate number	Type	Ages	Year of production	$\text{Ñ}\hat{\text{I}}$, %	SO_2, ppm	$\text{S}\hat{\text{I}}_2$, ìg/ ì^3	$\text{N}\hat{\text{I}}$x, ÐÐÌ	$\text{N}\hat{\text{I}}$x, ìg/ ì^3	t^i exhaust
242	20Y	KAVZ	10 - EF - 670	BUS	15	1985	3					90
267	20Y	PAZ	10 - DV - 485	BUS	15	1985	6.5					91
268	20Y	KAVZ	10 - DK - 089	BUS	10	1990	5.5					89
269	20Y	PAZ	10 - BB - 535	BUS	5	1995	4					78
270	20Y	PAZ	10 - DK - 355	BUS	10	1990	6.2					85
271	20Y	LAZ	10 - JM - 044	BUS	12	1988	8					88
277	20Y	KAVZ		BUS	19	1981	2.5					90
386	Sab	PAZ	20 - BB - 345	BUS	8	1992	4					79
387	Sab	KAVZ	20 - BF - 570	BUS	10	1990	8					90
388	Sab	LAZ	10 - BB - 576	BUS	18	1982	8.6					110
389	Sab	LAZ	10 - BA - 143	BUS	5	1995	4.5					75
390	Sab	PAZ	10 - DS - 294	BUS	10	1990	4					95
391	Sab	LAZ	40 - BB - 095	BUS	13	1987	6					90
392	Sab	KAVZ	52 - BA - 035	BUS	10	1990	8					98
393	Sab	PAZ	12 - BA - 145	BUS	19	1981	7					90
394	Sab	LAZ	10 - CL - 860	BUS	17	1983	6					100
395	Sab	PAZ	10 - DD - 189	BUS	21	1979	6.5					93
396	Sab	KAVZ	10 - BH - 639	BUS	11	1989	5.5					79
397	Sab	PAZ	10 - JE - 243	BUS	15	1985	4.5					62
412	Sab	PAZ	10 - AV - 818	BUS		1988	6					82
413	Sab	PAZ	10 - TA - 231	BUS		1995	2.8					58
414	Sab	PAZ	10 - JJ - 306	BUS		1990	4.5					59
416	Sab	PAZ	10 - AT - 633	BUS		1997	1.5	23			56	51
428	Sab	PAZ	10 - DQ - 347	BUS	6	1994	5.5					70
432	Sab	PAZ	10 - HV - 449	BUS	8	1992	3.2					87
436	Sab	PAZ	10 - GJ - 353	BUS	10	1990	4.8					65
438	Sab	PAZ	10 - TS - 093	BUS	11	1989	6.8					95

	Post	Car brand	Plate number	Type	Ages	Year of production	$\text{Ñ}\hat{\text{I}}$, %	SO_2, ppm	$\text{S}\hat{\text{I}}_2$, ìg/ ì^3	$\text{N}\hat{\text{I}}$x, ÐÐÌ	$\text{N}\hat{\text{I}}$x, ìg/ ì^3	t^i exhaust
1	HD	ZIL130	10 - GE - 645	LORRY	8	1992	1.2	12		21		68
12	HD	ZIL130	10 - JC - 447	LORRY	22	1978	1	24		68		90
25	HD	ZIL MMZ	10 - GH - 563	LORRY	8	1992	1.4	16		40		68
29	HD	GAZ 53	10 - AJ - 109	LORRY	7	1993	5					112
30	HD	ZIL130	10 - HE - 765	LORRY	13	1987	3.6					95

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	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO$_2$, ppm	SÎ$_2$, ìg/ì^3	NÎx, ÐÐÌ	NÎx, ìg/ì^3	t^i exhaust
36	HD	GAZ 53	10 - FB - 976	LORRY	6	1994	8.4					83
47	HD	GAZ 53	10 - GD - 853	LORRY	11	1989	3.5					110
57	HD	GAZEL	10 - JF - 331	LORRY	2	1998	6					85
59	HD	GAZ 52	10 - JA - 538	LORRY	11	1989	4.5					84
66	HD	GAZEL	10 - GG - 319	LORRY	4	1996	2.5					81
70	HD	GAZEL	42 - BE - 155	LORRY	2	1998	4					71
79	HD	GAZEL	10 - GE - 452	LORRY	3	1997	5.7					60
81	HD	GAZEL	10 - GD - 368	LORRY	1	1999	0.5	6		40	75.2	89
82	HD	GAZEL	10 - HH - 979	LORRY	2	1998	1.5	4		85	159.8	73
86	HD	GAZEL	01 - BC - 976	LORRY	2	1998	5					50
89	HD	GAZEL	10 - HF - 543	LORRY	2	1998	8				206.8	59
90	HD	GAZEL	F - 733EO - rus	LORRY	5	1995	6					55
91	HD	GAZEL	10 - FS - 813	LORRY	2	1998	6.5					90
92	HD	GAZEL	10 - FV - 874	LORRY	1	1999	8					90
93	HD	UAZ	10 - JA - 197	LORRY	9	1991	6					78
96	HD	GAZ 53	14 - BA - 946	LORRY	11	1989	9					76
97	HD	UAZ	14 - BA - 429	LORRY	2	1998	4					100
99	HD	ZIL 130	10 - JS - 421	LORRY	9	1991	4					80
106	HD	GAZ 53	10 - JB - 541	LORRY	13	1987	5.5					73
111	HD	ZIL130	21 - 07 ÀÃÀ	LORRY	20	1980	5.6					63
112	HD	ZIL131	10 - HD - 934	LORRY	19	1981	7.5					68
113	HD	ZIL132	18 - GM - 381	LORRY	21	1979	6					101
115	HD	ZIL133	10 - AC - 784	LORRY	19	1981	3					68
116	HD	MMZ	82 - 83 ÀÆÊ	LORRY	16	1984	5					75
117	HD	GAZ 53	10 - JH - 574	LORRY	9	1991	6					80
118	HD	ZIL 130	82 - 52 ÀÃÎ	LORRY	8	1992	6.5					86
119	HD	GAZ 53	19 - AC - 082	LORRY	10	1990	9					95
158	20Y	GAZEL	10 - FS - 274	LORRY	2	1998	2.6					54
161	20Y	GAZ 53	10 - JA - 706	LORRY	9	1991	3.8					71
162	20Y	UAZ 33 - 03	10 - GL - 906	LORRY	2	1998	1	2		18	33.84	90
163	20Y	GAZ 35 - 07	10 - JG - 798	LORRY	10	1990	6					91
164	20Y	GAZEL	H 007739	LORRY	1	1999	1.2	8		28	52.64	65
166	20Y	UAZ 33 - 03	10 - JE - 823	LORRY	16	1984	5.5					81
168	20Y	GAZ - 52	01 - AC -338	LORRY	10	1990	6					100
170	20Y	UAZ 452	17 - 16 ÀÃÀ	LORRY	18	1982	8					94
171	20Y	UAZ 33 - 03	48 - 13 ÀÃÑ	LORRY	12	1988	5					76
176	20Y	GAZ 33 - 07	H 006 772	LORRY	1	1999	4					86
183	20Y	GAZEL	18 - BC - 607	LORRY	1	1999	4					100

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	Post	Car brand	Plate number	Type	Ages	Year of production	$\tilde{N}\hat{I}$, %	SO_2, ppm	$S\hat{I}_2$, ìg/ì³	$N\hat{I}x$, ÐÐÌ	$N\hat{I}x$, ìg/ì³	t^i exhaust
186	20Y	GAZ 33 - 021	H 005 449	LORRY	1	1999	2.5					81
187	20Y	GAZ 33 - 021	10 - HR - 558	LORRY	2	1998	4					95
193	20Y	ZIL ÌÌ 345023	10 - AV - 908	LORRY	12	1988	2	8		65	122.2	80
200	20Y	ZIL 130 Â	10 - FN - 463	LORRY	15	1985	1	22		42	78.56	125
201	20Y	ZIL 431412	10 - DA - 455	LORRY	8	1992	0.5	18		40	85.2	109
202	20Y	GAZEL	10 - HA - 448	LORRY	2	1998	2.3				13.16	55
203	20Y	UAZ 3962	10 - AV - 984	LORRY	9	1991	5.7					105
205	20Y	GAZ 330210	10 - AJ - 740	LORRY	4	1996	6.5					105
211	20Y	GAZEL	10 - MK - 455	LORRY	1	1999	1.2	7		55	103.4	115
212	20Y	GAZEL	10 - BC - 236	LORRY	2	1998	4.5					105
218	20Y	UAZ	10 - JA - 698	LORRY	18	1982	4.5					55
220	20Y	UAZ	10 - HB - 118	LORRY	14	1986	2.5					105
226	20Y	GAZEL	10 - CD - 123	LORRY	1	1999	1.5	8		23		96
231	20Y	GAZEL	10 - DS - 774	LORRY	2	1998	1	11		30		95
233	20Y	GAZ 53	10 - JA - 076	LORRY	15	1985	3.5					95
239	20Y	UAZ	10 - BJ - 603	LORRY	16	1984	3					65
241	20Y	UAZ	01 - BB - 359	LORRY	13	1987	4.5					85
247	20Y	GAZ 33 - 021	10 - DV - 540	LORRY	2	1998	2	10		23		82
251	20Y	ZIL 43410	10 - JA - 528	LORRY	6	1994	8					95
253	20Y	GAZ 33 - 021	42 - BG - 087	LORRY	1	1999	2	8		19		75
254	20Y	UAZ 3303 - 01	02 - BD - 776	LORRY	18	1982	6.5					80
260	20Y	UAZ 3303	10 - DX - 021	LORRY	12	1988	5.5					93
275	20Y	ZIL MMZ - 555		LORRY	4	1996	1.5	21		28		105
276	20Y	IZH 27 - 15		LORRY	8	1992	5					120
279	20Y	GAZEL 33 - 021		LORRY	3	1997	1.5	15		33		94
283	20Y	GAZ 33 - 021		LORRY	2	1998	0.5	14		29		95
291	20Y	GAZ 35 - 07		LORRY	14	1986	4.5					120
292	20Y	UAZ 3741 - 01		LORRY	15	1985	3					95
300	Sab	UAZ - 30629	10 - FZ - 594	LORRY	2	1998	3.5					68
301	Sab	GAZ 33 02	10 - FR - 774	LORRY	2	1998	4.5					76
302	Sab	UAZ - 33 - 03	10 - JA - 740	LORRY	12	1988	6					79
308	Sab	GAZ - 33 021	C 525 CP 54/RUS	LORRY	3	1997	2	12		36		91
315	Sab	MMZ - 4502	10 - BF - 271	LORRY	20	1980	6					75
317	Sab	GAZ - 3507	10 - JH - 316	LORRY	13	1987	6					84
318	Sab	GAZ - 33021	10 - HJ - 164	LORRY	2	1998	4					90
323	Sab	GAZ - 2705	10 - HN - 628	LORRY	1	1999	3.5					68
338	Sab	UAZ	10 - EX - 822	LORRY	12	1988	4.2					75
340	Sab	UAZ - 3741	10 - AL - 502	LORRY	11	1989	4					72

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	Post	Car brand	Plate number	Type	Ages	Year of production	ÑÎ, %	SO$_2$, ppm	SÎ$_2$, ìg/ì^3	NÎx, ĐĐÌ	NÎx, ìg/ì^3	t^i exhaust
345	Sab	GAZ 53	10 - DJ - 968	LORRY	9	1991	3.6					80
351	Sab	UAZ - 452 ĐÊ	10 - FD - 369	LORRY	19	1981	2.2					71
360	Sab	GAZ - 330210	10 - DH - 864	LORRY	4	1996	1.6	4		12		55
362	Sab	GAZ 53	10 - AV - 728	LORRY	21	1979	5.5					122
369	Sab	GAZ - 3507	10 - JH - 316	LORRY	13	1987	0.5	20		40		85
370	Sab	GAZ - 33021	10 - JG - 841	LORRY	1	1999	2	6		21		65
371	Sab	UAZ - 3962	10 - HG - 438	LORRY	2	1998	1.5	11		35		91
399	Sab	UAZ -3307	10 - AD - 144	LORRY		1998	2	4		17		55
403	Sab	GAZ 53	39 - BA - 389	LORRY		1993	8					53
405	Sab	ZIL - 130	10 - DE - 284	LORRY		1984	2.5					85
411	Sab	UAZ -3307	10 - AF - 005	LORRY		1997	2.8					78
417	Sab	UAZ - Drop-sided	10 - AU - 621	LORRY		1991	3.5					90
418	Sab	ZIL - 130	10 - AG - 302	LORRY		1985	6					88
419	Sab	ZIL - 130	10 - AL - 406	LORRY		1980	5.5					71
421	Sab	GAZ 53	10 - GK - 801	LORRY		1991	1.5	3		22		52
422	Sab	GAZ 53	58 - AC - 382	LORRY		1985	1	6		33		60
429	Sab	UAZ - 3307	10 - GE - 360	LORRY	14	1986	7.5					80
431	Sab	UAZ - 3307	10 - JV - 524	LORRY	10	1990	1.5	22		75	141	90
437	Sab	GAZEL	10 - GL - 480	LORRY	10	1990	2	23		50	94	73
440	Sab	GAZ 53	10 - DO - 558	LORRY	12	1988	6.3					85
441	Sab	ZIL - 130	10 - AV - 186	LORRY	20	1980	8					80
442	Sab	GAZEL	10 - HF - 851	LORRY	2	1998	3					70
443	Sab	GAZEL	10 - FS - 704	LORRY	1	1999	2	22		48	90.24	71
444	Sab	ZIL - 130	10 - FN - 286	LORRY	18	1982	5.5					68
445	Sab	ZIL - 130	10 - JC - 445	LORRY	16	1984	7.5					60
446	Sab	GAZ - 52	10 - FN - 629	LORRY	10	1990	2.5				94	63

c.2 Findings of Vehicle Emission Survey

The findings are in Table 3-12. The emission standard of CO in Azerbaijan is 2%. The ratio of vehicles exceeding this standard in each vehicle type is also shown. The comparison among ordinary vehicles, taxis, microbuses, buses and trucks shows that buses have the highest ratio of vehicles exceeding the standard (90%). Taxis have the lowest, but it is still high (63%). As a whole, 74.6% of vehicles measured in this study do not comply with the standard.

NOx and SOx were measured only when the concentration of CO was below 2%. Nevertheless, the concentrations of NOx and SOx were 50.3 ppm and 12.0 ppm respectively, both of which were found to be low.

Table 3-12: Result of Vehicle Emission (CO)

Vehicle	Vehicles measured (vehicles)	Vehicles exceeding 2% of CO concentration (vehicles)	Ratio of vehicles exceeding standard (%)
Ordinary car	130	95	73.1
Taxi	73	46	63.0
Microbus	78	61	78.2
Bus	60	54	90.0
Truck	107	78	72.9
Total	448	334	74.6

3.2 Factories (Point Pollution Sources) Survey

3.2.1 Objectives

An environmental passport contains data on pollution caused at the factory in such forms as air, water, solid waste, and energy (i.e. noise and vibration) and it should provide a vital information source for the study. Since the rate of operation of factories in Azerbaijan has been dropped due to depressed economy, it is uncertain whether the data in the environmental passport are still valid to describe the current condition.

The purpose of this survey is to obtain the current data of the point pollution sources (factories) in the study area, the area under control by the BCE. The survey consists of two components; i.e. review of environmental passport and opinion survey for factories.

The objective of the environmental passport review is to identify the current status of the point pollution sources (factories) in the study area through the visits of factories and the checks of the passports submitted.

The opinion survey for factories is to understand the opinion of factories regarding improvement of the environment, willingness to pay (WTP) for the environmental conservation, needs for administrative supports for pollution control, etc.

3.2.2 Study Method

a. Study Outline

The interview was conducted at 250 factories selected from those that are located in BCE jurisdiction and might have submitted the environmental passports.

The work was subcontracted to a local consultant, SULACO. Personnel who were in charge of the submission of the environmental passport were personally interviewed. The interviewers were required to have sufficient knowledge on pollution and directly communicate with interviewees. The study team was present at interviews of major factories and review the output from the subcontractor.

The opinion survey for factories was carried out together with review of environmental passport by the local consultant.

b.   Study Items

b.1   Review of Environmental Passport

An environmental passport has huge information as shown in Section 3.1 of the Data Book. Due to the limited time for the survey and large numbers, 250 factories, the team concentrated the survey items to those particularly related to pollution caused by factories. A questionnaire for the survey is prepared as shown in Section 2.2 of the Data Book.

b.2   Opinion Survey for Factories

The opinion survey for factories is to understand the opinion of factories regarding items below.

- How much paid for environmental fund for what reasons.
- Methods used to control pollution.
- Awareness of responsibility as polluters.
- Interest in environment conservation (introduction plan of new pollution control equipment, awareness of cleaner production technology (CPT), CPT introduction plan, etc.).
- Opinions on PPP (polluters pay principle).
- Needs for governmental support (legislative arrangement, soft loans, tax exemption, etc).
- Others.

A questionnaire for the survey is prepared as shown in Section 2.2 of the Data Book.

c.   Selection of Factories

c.1   Lists of Factories

c.1.1   Factory Lists of SCE/BCE

The approval of environmental passports became the responsibility of a commission of SCE according to the Decree #134 issued by SCE on the 5th of August 1999. Therefore, environmental passports are currently not submitted to BCE and no copies are available. According to the committee of SCE responsible for environmental passports there is neither a list of factories with environmental passports nor a list of factories in the study area. BCE, therefore, prepared a list of factories inspected by BCE inspectors at present. According to the list the number of factories in the study area is 250.

c.1.2   Factory List obtained by the Local Consultant

Since factory list prepared by the BCE does not cover all the factories in the study area, the local consultant subcontracted the survey visited the tax inspection office of Baku Executive Power (BEP) and statistic offices of all districts in Baku. The consultant prepared a list of enterprises (including factories) in the study area engaging production and service activities. The list is presented in Section 3.2 of the Data Book.

c.2   Scope of Industries for the Study

In Azerbaijan the ISIC (International Standard Industrial Classification) is not applied to the categories of industry. It is not clear what kind of industry in ISIC code should submit the environmental passport. Taking the objective of the survey, *to identify the current status of the point pollution sources*, into consideration, the team decided to primarily classify the enterprises listed in the list of enterprises in the study area into the following categories of industries for the survey:

- Manufacturing industries (ISIC code 30000)
- Mining industries (ISIC code 20000)
- Energy industries (ISIC code 40000)
- Others including maintenance and repairing services for machine, etc.

Then the team further classified the above-mentioned categories into 17 categories as shown in the table below. These 17 categories of industry are applied to the survey.

Table 3-13: Number of Enterprise in the Study Area by Category of Industry

Type	Code Number and Category of Industry	Quantity	Possession of Environmental Passport (EP)		Rate of Possession of EP(%)
			No	Yes	
1. Mining	01. Oil and gas production	8		8	100%
	02. All other mining than the above (coal, lime stone, stone, clay, sand, iron, etc.)	11	4	7	64%
	Mining Total	**19**	**4**	**15**	**79%**
2. Energy	03. Oil Refining	4		4	100%
	04. Electricity (generation, transmission, distribution, etc)	5	1	4	80%
	05. Other energy (gas, district heating, thermal energy supply, etc.)	8		8	100%
	Energy Total	**17**	**1**	**16**	**94%**
3. Manufacturing	06. Cement (production, distribution, etc.)	10	5	5	50%
	07. Chemical product	18	9	9	50%
	08. Machinery	80	26	54	68%
	09. Construction materials (brick, panel, roof, wall, door, etc.)	86	42	44	51%
	10. Food, Beverage, Tobacco industry	155	116	39	25%
	11. Textile and wearing apparel industry	36	27	9	25%
	12. Wood industry (furniture, etc.)	16	8	8	50%
	13. Leather industry	9	7	2	22%
	14. Paper industries (pulp, paper, paper board, container, printing, etc.)	7	2	5	71%
	15. Other consumer products	15	8	7	47%
	Manufacturing Total	**432**	**250**	**182**	**42%**
4. Other Industries	16. Factory maintenance, machine maintenance, ship maintenance, etc.	58	8	50	86%
	17. All of other services	249	224	25	10%
	Other industries Total	**307**	**232**	**75**	**24%**
	Grand Total	**775**	**487**	**288**	**37%**

c.3 Selection of Factories for the Survey

c.3.1 Selection Criteria

In order to select factories for the survey from the enterprises listed in the list of enterprises in Baku the team established selection criteria as follows:

- Factory shall be an important point pollution source at present.
- Therefore factory shall be in operation.
- Large scale of factories shall be selected from the same category of industry.
- As for other categories of industry than mining/energy/manufacturing enterprises that may emit contaminant to the environment shall be selected such as maintenance and repairing services for machine, etc.

- Transportation enterprises were omitted since they were to be covered by another field investigation of the team.

c.3.2   Selection of Factories for the Survey

Based on the above-mentioned criteria the team and the consultant selected 324 enterprises. Among them enterprises 52 of them were not in operation and 22 refused to receive the survey. Finally 250 factories listed in Table 3-14 were surveyed. Detailed list of the enterprises is presented in Section 3.3.1 of the Data Book.

Among the selected 250 factories, the number of manufacturing factories is 184 and 74 % of the total. The manufacturing types of them are machinery (64), construction materials (38), food (32), and others industry. Major factories of machinery produce drilling related machines for oil extraction and equipment for oil refining. Other machinery factories produce transportation machines and electrical machines such as motors and construction machines. Factories for construction materials produce not only basic construction materials such as brick and stone, but also produce construction parts such as roof, window, door, wall, tile, and even furniture. Products of food factories are basic food such as meat, bread, butter and supplementary food such as snack, beverage and ice cream.

The number of energy related factories including oil refinery, power generation and gas producing are only 16. These factories, however, have large capacities and generate huge amount of air pollutants as well as wastewater.

The number of oil and gas extraction enterprises is 8, which control almost all of oil drilling on shore and generate large amount of volatile organic compounds as well as wastewater.

Big factories for ship painting and repair, though they are categorized into other industry, have also significant influence on the local environment.

Table 3-14: Number of Enterprises Selected for the Survey by 17 Categories

Type	Code Number and Category of Industry	Quantity	Possession of Environmental Passport (EP)		Rate of Possession of EP(%)
			No	Yes	
1. Mining	01. Oil and gas production	8		8	100%
	Mining Total	**8**		**8**	**100%**
2. Energy	03. Oil Refining	3		3	100%
	04. Electricity (generation, transmission, distribution, etc)	5	1	4	80%
	05. Other energy (gas, district heating, thermal energy supply, etc.)	8		8	100%
	Energy Total	**16**	**1**	**15**	**94%**
3. Manufacturing	06. Cement (production, distribution, etc.)	5	2	3	60%
	07. Chemical product	7	3	4	57%
	08. Machinery	64	11	53	83%
	09. Construction materials (brick, panel, roof, wall, door, etc.)	38	11	27	71%
	10. Food, Beverage, Tobacco industry	32	8	24	75%
	11. Textile and wearing apparel industry	14	7	7	50%
	12. Wood industry (furniture, etc.)	6	2	4	67%
	13. Leather industry	4	2	2	50%
	14. Paper industries (pulp, paper, paper board, container, printing, etc.)	6	2	4	67%
	15. Other consumer products	8	2	6	75%
	Manufacturing Total	**184**	**50**	**134**	**73%**
4. Others	16. Factory maintenance, machine maintenance, ship maintenance, etc.	15	7	8	53%
	17. All of other services	27	9	18	67%
	Services industries Total	**42**	**16**	**26**	**62%**
	Grand Total	**250**	**67**	**183**	**73%**

Location of 250 factories is in general widely dispersed in 11 districts. This location data will be valuable when considering environment monitoring points and sites for industrial waste treatment and disposal.

Table 3-15: Number of Factories in 11 Districts

District	Category Number of the Factory																	Total
	Mining		Energy			Manufacturing										Services		
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	
01-Sabayil	1						2	7	1	3	2			1	1	4	2	24
02-Yasamal							2	2	2	4	1	1		1	1		2	16
03-Nasimi						1	1	1	4	3	2		2	2		1	3	20
04-Narimanov								14		3	2	1	1		1	1	3	26
05-Nizami			1	1		1		6	4	3		2	1	1	2	2	1	25
06-Khatayi			2	1	3	3	1	3	7	4	2			1	1	3	5	36
07-Karadag	2				3	1		3	10									19
08-Binagadi	1			1				5	8	4			1			3	8	31
09-Sabunchi	1			1		1		8	3	3	3						2	22
10-Surakhany	2				1			7	2	1			1					14
11-Azizbeyov	1			1	1			8		3	1					1	1	17
Grand Total	8	0	3	5	8	5	7	64	38	32	14	6	4	6	8	15	27	250

c.4   Possession Rate of Environmental Passport

Since neither BCE nor SCE have copies of environmental passports, the only way to identify the existence of environmental passports is to ask enterprises. The local consultant through the direct contact with the enterprises found out the possession rate of environmental passport. The possession rate of the enterprises in the study area is presented in the Table 3-13 and the rate of the 250 enterprises surveyed is in Table 3-14. According to the tables the number of factories in the study area that have the environmental passports is 288 in total. The highest rate of the possession of environmental passports is the energy sector (94 %). The lowest is the others (only 24 %).

3.2.3 Results

a.   Review of Environmental Passport

a.1   Survey Items

An environmental passport has considerable amount of information. Due to the limited time for the survey and large number of samples (250) factories, the team concentrated the survey items to those particularly related to pollution caused by factories as shown below.

- General data on factories, i.e. name, address, industrial category, major raw materials, and main products.

- Annual consumption of energy, i.e. electricity, gas, coal, LPG, petroleum, heavy oil, and thermal energy.

- Major air pollutants discharged into atmosphere, i.e. SOx, NOx, particulate matter.

- Major water pollutants discharged directly outside of the factory, i.e. BOD, COD, and suspended solid.

- Major industrial solid waste generated and discharged from the factory.

a.2   Database

Data obtained from questionnaires used on the factory survey is compiled as an Excel format in a database. Since this database contains real emission discharge data from most of factories operating in Baku it is very valuable information source on environmental management for the administrative organisation. This database is submitted to the BCE in the form of floppy diskettes.

The team strongly wishes that environmental administrative organisations (BCE and SCE) fully utilize this database to control emissions from factories and renew the data by collecting information from factories periodically to keep reliability.

a.3   Energy Consumption

This section shows the brief summary of the energy consumption on the selected 250 factories. Detailed information is shown in Section 3.3.2 a of the Data Book.

The table below shows the energy consumption of the selected 250 factories. In this table, the data in the column "present" means current data of energy consumption and the data in the column "passport" shows the data described in the environmental passport. The major results of the survey are presented below.

Electricity

- This survey dose not guarantee that the survey results include all the energy consumption of all factories.

- Since the data described in environmental passport is past information, the data of present should be more reliable, which shows the current energy consumption.

- "Blank" in the data column was considered as zero in computation. Accordingly, the cases that either of the data of "present" or "passport" was blank resulted in the deference between them in total.

- In general energy consumption of "present" is smaller than that of "passport. From this difference the JICA team guesses that the production at present is in lower level than the production at the time when environmental passport was prepared.

- Regarding power consumption there is a big difference between "present" and "passport". The reason is that a factory located in Khatayi district shows huge amount of power consumption i.e. 24,820,268 kWh/y in "passport" and left blank in "present" column. The data of "passport" is doubtful.

- Result of the factory survey shows that only 3 factories consume 60% of the total electricity and 6 factories including these 3 consume 78 % of the total at present.

- Manufacturing industry consumes 66% of the total electricity and other industry including repairing factories consumes 28% of the total at present. As for the

manufacturing industry, factories producing machinery consume 43% of the total electricity.

- Electricity consumption of energy sector including oil refinery is less than 2%. The team guesses that this low consumption rate is because of their possession of own power generation systems.

Gas and Coal

- Gas consumption of a factory located in Subunchi district accounts for 70% of the total at present.

- The manufacturing industry consumes 80% of the total gas supply at present.

- Only factory in Nizami district uses coal as an energy source at present.

Liquid Fuel and Others

- Current liquid fuel consumption is 380,000 ton/year, in which heavy fuel consumption is 42%, kerosene:42%, LPG:6%.

- Survey result shows that almost of all LPG is consumed by 15 manufacturing factories at present.

- Factory survey shows that present kerosene consumption is 75% for oil refineries, 17% for service industries, 6% for manufacturing industries.

- 5 factories of energy sector consume 96% of heavy fuel in the study area for power generation, oil refining and district heating at present.

- Factory survey result shows that Energy industry consumes 90% of thermal energy supplied by district heating systems.

Table 3-16: Energy Consumption

Factory Type	Category	1-Electricity (10³W.h/y) Present	Passport	2-Gas (10 m3/year) Present	Passport	3-Coal (Ton/y) Present	Passport	4-LPG (Ton/y) Present	Passport	5-Petroleum (Ton/y) Present	Passport	6-Heavy Oil (Ton/y) Present	Passport	7-Thermal Energy (Kkal/y) Present	Passport
1. Mining	01. Oil and gas production	153,653	163,270	76,688	69,750					2,816	2,276	677	212	654	654
	Mining Total	**153,653**	**163,270**	**76,688**	**69,750**					**2,816**	**2,276**	**677**	**212**	**654**	**654**
2. Energy	03. Oil Refining	192	963	110,114	110,130					150,000	150,000	50,444	58,053		
	04. Electricity (generation, transmission, distribution, etc)	41,835	36,853	9,453				2				25,217		59,994	
	05. Other energy (gas, district heating, thermal energy supply, etc.)	70,845	27,897,134	146,851	168,533							79,083	123,200	225,264	13,042
	Energy Total	**112,872**	**27,934,949**	**266,418**	**278,663**			**2**		**150,000**	**150,000**	**154,744**	**181,253**	**285,258**	**13,042**
3. Manufacturing	06. Cement (production, distribution, etc.)	538	1,724	210	850										
	07. Chemical product	761	9,402	63	1,764					1					
	08. Machinery	1,997,454	2,523,987	1,383,274	1,369,931			15,521	20,739	11,424	84,165	299	343	7,033	33,190
	09. Construction materials (brick, panel, roof, wall, door, etc.)	111,350	34,393	5,537	10,120			4,650	3,970	146	107	984	1,220	50	225
	10. Food, Beverage, Tobacco industry	19,630	31,716	5,874	22,930				1	668	513	302	4,169	1,710	
	11. Textile and wearing apparel industry	7,916	17,651	934	1,573					6			2,396		75,391
	12. Wood industry (furniture, etc.)	48,711	299	0											0
	13. Leather industry	843,698	353	21	804					10	150				
	14. Paper industries (pulp, paper, paper board, container, printing, etc.)	4,619	8,586	4,113	11,552									21,000	31,307
	15. Other consumer products	1,548	22,118	40	8,934			45	2		3		3		40,000
	Manufacturing Total	**3,036,226**	**2,650,228**	**1,400,065**	**1,428,458**			**20,216**	**24,712**	**12,256**	**84,938**	**1,584**	**8,131**	**29,793**	**180,114**
4. Other Industries	16. Factory maintenance, machine maintenance, ship maintenance, etc.	11,992	20,754	1,082	980,682			11	6	4,748	471	512	1,404		
	17. All of other services	1,272,762	1,249,541	4,727	9,336	2,250	2,250	4	11	29,715	3,306	3,023	11,009	1,475	90
	Other Industries Total	**1,284,754**	**1,270,295**	**5,809**	**990,019**	**2,250**	**2,250**	**15**	**17**	**34,464**	**3,777**	**3,535**	**12,413**	**1,475**	**90**
Grand Total		**4,587,505**	**32,018,743**	**1,748,981**	**2,766,890**	**2,250**	**2,250**	**20,232**	**24,729**	**199,536**	**240,991**	**160,540**	**202,009**	**317,180**	**193,900**

(Note)   Present : Current data (April to May, 2000)   Passport : Data described in environmental passport

a.4   Waste Gas Emission

This section shows the brief summary of waste gas emission from the selected 250 factories. Detailed information is shown in Section 3.3.2 a of the Data Book.

The table below shows the waste gas emission from the selected 250 factories. In this table, the data in the column "present" means current data of waste gas emission and the data in the column "passport" shows the data described in the environmental passport. The major results of the survey are described below.

- This survey dose not guarantee that the survey results include all of the waste gas emission from all the factories.

- Since the data described in environmental passport is past information, the data of present should be more reliable, which shows the current waste gas emission.

- "Blank" in the data column was considered as zero in computation. Accordingly, the cases that either of the data of "present" or "passport" was blank resulted in the deference between them in total.

- In general waste gas emission of "present" is smaller than that of "passport. From this difference the JICA team guesses that the production at present is in lower level than the production at the time when environmental passport was prepared.

- Total volume of waste gas generating is 2,350,000m3/hour and only one source of energy sector discharges 63% of the total at present.

- The 4 big waste gas sources discharge 96% of the total at present.

- One waste gas source discharges 34% of total sulphur dioxide at present.

- The amount of nitrogen oxide generation of "present" is much smaller than that of "passport". The reason is that a factory in Surakhany district generates huge amount of NOx, i.e. 17,750 ton/y in "passport" and shows very small amount of NOx generation, i.e. 1,668ton/y in "present". The data in "passport" is doubtful from the practical and technical points of view.

- The amount of nitrogen oxide generated is 3,114 tons/year and roughly 3 times of sulphur oxide at present. However only one factory of the mining industry discharges 1,668 tons/year of nitrogen oxide. From the technical point of view this numerical figure is suspicious. If we eliminate this doubtful data, amount of nitrogen oxide generated is 1,446 tons/year and 1.46 times of sulphur dioxide generated. In this case, generation rates of nitrogen oxide are 17% from energy industry, 24% from machinery manufacturing industry, and 46% from other industry respectively.

- The dust generation from one factory, which produces construction material, is 2,279 tons/year and 85% of the total at present. Since this volume is extremely large and doubtful from the character of construction material factory, the team guesses this dust is not air pollutant discharged into air but solid powdery waste from the factory

Table 3-17: Waste Gas Emission

Factory Type	Category	Total Volume of Flue Gas (Nm3/h)		Amount of Pollution discharge into atmosphere (ton/y)						Average Concentration of Pollutants (mg/Nm3)					
				SOx		NOx		Particulate		SOx		NOx		Particulate	
		Present	Passport	Present	Passport	Present	Passport	Present	Passport	Present	Passport	Present	Passport	Present	Passport
1. Mining	01. Oil and gas production	22,120.0	25,480.3	69.8	17.5	1,778.2	17,873.2	0.3	1.1						
	Mining Total	**22,120.0**	**25,480.3**	**69.8**	**17.5**	**1,778.2**	**17,873.2**	**0.3**	**1.1**						
2. Energy	03. Oil Refining	270,000.0	510,000.0	336.2	303.9	154.0	162.4	8.0	10.5	192.1	197.2	126.5	103.6		
	04.Electricity (generation, transmission, distribution, etc)		192,636.0				0.3			0.5	0.1	0.1	0.1	0.2	0.0
	05. Other energy (gas, district heating, thermal energy supply,)	2,020,070.0	2,160,720.0	52.4	103.2	85.2	130.0	0.4	1.0	165.0	103.1	46.3	75.1	1.2	13.0
	Energy Total	**2,290,070.0**	**2,863,356.0**	**388.6**	**407.1**	**239.2**	**292.7**	**8.4**	**11.5**	**142.9**	**100.1**	**69.2**	**59.6**	**0.7**	**4.4**
3. Manufacturing	06. Cement (production, distribution, etc.)			23.9	23.9	5.7	3.9	32.3	38.3						
	07. Chemical product	10.0					48.9		2.4				0.5	2.5	132.0
	08. Machinery	18,176.8	28,301.6	324.0	333.3	353.3	588.8	70.3	196.9	0.9	13.3	5.0	238.4	42.2	32.9
	09. Construction materials (brick, panel, roof, wall, door, etc.)	1,313.4	1,727.1	7.7	11.5	9.3	42.7	2,468.3	2,868.3	0.5	0.1	2.3	195.9	32.8	21.8
	10. Food, Beverage, Tobacco industry	13,175.7	20,841.7	8.2	43.3	7.6	32.3	4.8	3.4	8.1	0.7	20.5	6.4	1.0	0.4
	11. Textile and wearing apparel industry	334.0	922.4		0.5	0.1	0.2	2.1	59.0	0.2	0.3	3.3	2.7	2.0	2.4
	12. Wood industry (furniture, etc.)					49.6		31.3	1.5						
	13. Leather industry					0.3	4.2	0.0	0.3				0.0		0.2
	14. Paper industries (pulp, paper, board, container, printing, etc.)	1,329.0					17.1		74.4			0.2	0.2	9.1	8.8
	15. Other consumer products	0.0	880.1		0.3		19.8		46.0		0.8	0.1	0.2	6.6	3.5
	Manufacturing Total	**34,338.9**	**52,672.9**	**363.8**	**412.8**	**426.0**	**757.9**	**2,609.2**	**3,290.4**	**4.3**	**6.9**	**9.5**	**115.3**	**16.9**	**19.7**
4.Other Industries	16.Factory maintenance, machine maintenance, ship maintenance,			0.9	14.0	38.1	74.3	20.8	17.1		0.1		0.0		0.3
	17. All of other services	3,341.8	7,124.7	169.1	164.4	632.5	558.7	40.1	51.9	66.5	92.9	6.4	30.5	1.7	2.2
	Other Industries Total	**3,341.8**	**7,124.7**	**170.0**	**178.5**	**670.6**	**633.0**	**60.9**	**69.0**	**66.5**	**74.3**	**6.4**	**27.1**	**1.7**	**1.7**
	Grand Total	**2,349,870.7**	**2,948,633.8**	**992.3**	**1,015.9**	**3,113.9**	**19,556.8**	**2,678.8**	**3,371.9**	**67.1**	**42.7**	**16.9**	**90.3**	**13.5**	**15.8**

Present : Current data (April to May, 2000)   Passport : Data described in environmental passport

a.5   Wastewater Discharge

This section shows the brief summary of wastewater discharge from the selected 250 factories. Detail information is shown in Section 3.3.2 a of the Data Book.

The table below shows the wastewater discharge from the selected 250 factories. In this table, the data in the column "present" means current data of wastewater discharge and the data in the column "passport" shows the data described in the environmental passport. The major results of the survey are presented below.

- This survey dose not guarantee that the survey results include all of the wastewater discharge from all the factories.

- Since the data described in environmental passport is past information, the data of present should be more reliable, which shows the current wastewater discharge.

- "Blank" in the data column was considered as zero in computation. Accordingly, the cases that either of the data of "present" or "passport" was blank cased in the deference of both data.

- In general wastewater discharge of "present" is smaller than that of "passport. From this difference the JICA team guesses that the production at present is in lower level than the production at the time when environmental passport was prepared.

- Seawater for cooling use only is not covered by the survey.

- The survey is limited to wastewater discharged outside from factories and does not include recycled water inside factories.

- Total amount of wastewater discharge except cooling water is about 18,000 tons/hour at present. This survey shows that 46% of wastewater is from one factory of the energy sector.

- 67% of the total wastewater (18,000tons/hour) is discharged from the energy industry and 20% is from manufacturing industry.

- Among 18,000 tons/hour of wastewater, 33% of it is sent to sewage plants and 60% is discharged to public body.

- Wastewater send to sewage plants is 18% from mining industry, 30% from energy industry, and 47% from manufacturing industry.

- 94% of wastewater discharged to public water bodies is from energy sector.

- As for the concentration of pollutants in the wastewater, which is discharged to public water bodies, BOD is of 10.9mg/litter, COD of 32.6mg/litter and SS (suspended solid) of 123mg/litter at maximum respectively.

Table 3-18: Wastewater Discharge

| Factory | | Volume Waste Water From Factories | | Average Concentration | | | | | |
Type	Category	Present	Passport	BOD (mg/l)		COD (mg/l)		Suspended Solid (mg/l)	
				Present	Passport	Present	Passport	Present	Passport
1. Mining	01. Oil and gas production	1,417.46	1,443.05	12.30	9.75		43.00	39.97	33.93
	Mining Total	**1,417.46**	**1,443.05**	**12.30**	**9.75**		**43.00**	**39.97**	**33.93**
2. Energy	03. Oil Refining	1,711.08	3,885.77	7.10	1.43	146.00	146.00	27.13	20.47
	04. Electricity (generation, transmission, distribution, etc)	8,327.21	17,590.97	1.70	121.50		283.70		4.95
	05. Other energy (gas, district heating, thermal energy supply, etc.)	1,939.54	58.05	2.00	135.20		500.00	29.82	101.24
	Energy Total	**11,977.83**	**21,534.79**	**5.00**	**92.33**	**146.00**	**268.93**	**28.48**	**63.62**
3. Manufacturing	06. Cement (production, distribution, etc.)	602.78	2.78	360.00	375.00	427.00	500.00	535.00	375.00
	07. Chemical product	2.14	4.45	210.10	132.25	240.30	283.70	2.10	14.25
	08. Machinery	2,203.10	921.22	56.33	160.27	116.06	235.60	48.82	116.76
	09. Construction materials (brick, panel, roof, wall, door, etc.)	442.53	806.82	211.00	161.57	226.85	191.93	15.85	45.06
	10. Food, Beverage, Tobacco industry	94.31	52.22	189.79	225.86	197.08	265.31	85.31	117.06
	11. Textile and wearing apparel industry	51.81	546.88	226.47	261.40	264.50	751.10	3.07	47.17
	12. Wood industry (furniture, etc.)	1.58	1.27		120.10		283.70		3.24
	13. Leather industry	0.51	4.80						
	14. Paper industries (pulp, paper, paper board, container, printing, etc.)	54.70	47.97	305.50	207.97	391.50	264.03	197.90	185.65
	15. Other consumer products	46.02	131.99	135.10	216.45	250.70	273.43	8.60	141.45
	Manufacturing Total	**3,499.48**	**2,520.40**	**160.41**	**200.14**	**212.05**	**321.07**	**73.87**	**107.99**
4. Other Industries	16. Factory maintenance, machine maintenance, ship maintenance, etc.	57.82	58.00	0.21	79.26	0.23	123.01	12.00	49.36
	17. All of other services	835.04	1,124.70	152.10	154.91	242.87	247.74	28.76	65.84
	Other Industries Total	**892.86**	**1,182.70**	**121.72**	**129.69**	**182.21**	**192.30**	**26.66**	**59.25**
Grand Total		**17,787.63**	**26,680.94**	**134.02**	**163.36**	**205.25**	**293.64**	**59.13**	**89.91**

(Note) Present: Current data (April to May, 2000), Passport: Data described in environmental passport.

a.6   Industrial Waste Discharge

This section shows the brief summary of industrial waste discharge from the selected 250 factories. Detailed information is shown in Section 3.3.2 a of the Data Book.

The table below shows the industrial waste discharge from the selected 250 factories. In this table, the data in the column "present" means current data of industrial waste discharge and the data in the column "passport" shows the data described in the environmental passport. The major results of the survey are described below.

- This survey dose not guarantee that the survey results include all of the industrial waste discharge from all the factories.

- Since the data described in environmental passport is past information, the data of present should be more reliable, which shows the current industrial waste discharge.

- "Blank" in the data column was considered as zero in computation. Accordingly, the cases that either of the data of "present" or "passport" was blank resulted in the deference between them in total.

- Waste recycled by enterprises themselves is not included in this survey.

- Total amount of industrial waste generation is about 140,000 tons/year at present. 0.07% of it is waste oil, 0.4% is oil sludge, 30% is organic sludge, 0.05% is inorganic sludge, 7.1% is waste chemicals, 3.2% is burnable solid waste, 57% is non-burnable solid waste and 1.4% is others.

- Among total amount of industrial waste generated at present, 97% of waste oil, 91% of oil sludge, 92% of organic sludge, all of inorganic sludge and 82% of burnable solid waste are taken away from factories. JICA team guesses that these wastes may be treated and disposed by third parties.

- 99.9% of waste chemicals is not taken away from the factories. Almost of all chemical waste is stored, accumulated or disposed of at the factory's compounds.

- 96% of non-burnable solid waste is not taken away from the sites. JICA team guesses that big generators dispose them of at their compounds.

- One factory of the other industry generates 92% of organic sludge of the total and the manufacturing industry generates 7.5% of them at present.

- Present discharge of non-oily organic sludge is much larger than that of "passport". The reason is that a factory in Khatayi district shows large amount of waste discharge, i.e. 39,442 ton/y at "present" but no waste discharge in "passport".

- Present discharge of inorganic sludge is much lower than that of "passport". The reason is that a factory in Yazamal district shows 7,000ton/y of discharge in "passport" and no discharge at "present".

- Other industry generates 86% of burnable solid waste of the total at present.

- One factory, which produces construction material, generates 95% of non-burnable solid waste of the total at present.

- Present discharge of waste chemicals is much more than that of "passport". The reason is that a factory in Sabunchi district shows 9,900 ton/y of discharge at "present" and left blank in "passport".

- Present discharge of non-burnable waste is much lower than that of "passport". This reason is that a factory in Karadaq district and a factory in Azizbeyov district reduced their discharge drastically.

Table 3-19: Industrial Waste Generation

Factories Type	Category	Waste Oil (ton/y) Present	E/P	Oil Sludge (ton/y) Present	E/P	Non-Oily Organic Sludge (ton/y) Present	E/P	Inorganic Sludge (ton/y) Present	E/P	Waste Chemical (ton/y) Present	E/P	Burnable Solid Waste (ton/y) Present	E/P	Non-Burnable Solid Waste (ton/y) Present	E/P	Other Waste (ton/y) Present	E/P	Total Present	E/P
1. Mining	01. Oil and gas production	4.00	4.20	230.53	284.15									33.25	33.25			**267.78**	**321.60**
	Mining Total	**4.00**	**4.20**	**230.53**	**284.15**									**33.25**	**33.25**			**267.78**	**321.60**
2. Energy	03. Oil Refining			0.40	1.80									150.00	500.00			**150.40**	**501.80**
	04. Electricity (generation, transmission, distribution, etc)	1.00				15.00									44,100.00	30.00		**46.00**	**44,100.00**
	05. Other energy (gas, district heating, thermal energy supply, etc.)	2.00				25.00										48.00		**75.00**	
	Energy Total	**3.00**		**0.40**	**1.80**	**40.00**								**150.00**	**44,600.00**	**78.00**		**271.40**	**44,601.80**
3. Manufacturing	06. Cement (production, distribution, etc.)													7.20				**7.20**	
	07. Chemical product	2.00								9,900.00		0.60	4.00	0.20		12.50		**9,915.30**	**4.00**
	08. Machinery	31.20	56.14	160.00	200.00	3,204.00	3,200.65	65.44	1,055.46	12.08	160.12	56.03	28.52	635.88	4,269.03	127.36	76.58	**4,291.98**	**9,046.50**
	09. Construction materials (brick, panel, roof, wall, door, etc.)	3.00	7.00					9.00	7,010.00			6.00	0.09	77,524.15	127,378.31	11.00	2.00	**77,553.15**	**134,397.40**
	10. Food, Beverage, Tobacco industry	3.00		21.00						19.15	13.10	187.18	311.65	0.90	11.30	37.10	1,051.44	**268.33**	**1,387.49**
	11. Textile and wearing apparel industry									3.40	138.30	6.46	12.30	6.00	40.00	44.02		**59.88**	**190.60**
	12. Wood industry (furniture, etc.)											62.46	7.00					**62.46**	**7.00**
	13. Leather industry											10.19	1.71					**10.19**	**1.71**
	14. Paper industries (pulp, paper, paper board, container, printing, etc.)											222.08		0.35	271.35	2.00		**224.43**	**271.35**
	15. Other consumer products	4.70										32.10	8.00	42.20	81.50	78.10	203.20	**157.10**	**292.70**
	Manufacturing Total	**43.90**	**63.14**	**181.00**	**200.00**	**3,204.00**	**3,200.65**	**74.44**	**8,065.46**	**9,934.63**	**311.52**	**583.11**	**373.26**	**78,216.88**	**132,051.49**	**312.07**	**1,333.22**	**92,550.02**	**145,598.75**
4. Other Industries	16. Factory maintenance, machine maintenance, ship maintenance.	44.58	53.72									3.30	21.60	387.10	364.75	19.00		**453.98**	**440.07**
	17. All of other services	3.96	5.15	119.00	157.00	39,442.00						3,902.70	6.00	1,340.71	1,428.57	1,541.00	3,000.00	**46,349.37**	**4,596.72**
	Other Industries Total	**48.53**	**58.87**	**119.00**	**157.00**	**39,442.00**						**3,906.00**	**27.60**	**1,727.81**	**1,793.32**	**1,560.00**	**3,000.00**	**46,803.35**	**5,036.79**
Grand Total		**99.43**	**126.21**	**530.93**	**642.95**	**42,686.00**	**3,200.65**	**74.44**	**8,065.46**	**9,934.63**	**311.52**	**4,489.11**	**400.86**	**80,127.94**	**178,478.05**	**1,950.07**	**4,333.22**	**139,892.55**	**195,558.94**

Present :Current data (April to May, 2000)   Passport : Data described in environmental passport

b.   Opinion Survey for Factories

b.1   Survey Items

The following items were surveyed by the opinion survey for factories.

- Efforts of the factories for the pollution control.
- Major environmental issues of the factories and the countermeasures.
- Problems for the factories to control emission.
- Payment for pollutants discharge from.
- Future plan to introduce so-called clean production technology.
- Future plan to implement pollution control measures.
- Needs for financial support from the government to facilitate pollution control.
- Treatment process and final disposal of hazardous waste.

b.2   Results of the Survey Items

Q.1   How do you evaluate your factory regarding efforts to reduce adverse impacts to the environment by the operation of the factory?

	Number	%
1. We do our best.	159	63.6
2. We make a certain efforts.	55	22.0
3. We do few efforts.	6	2.4
4. We do not make any efforts.	30	12.0
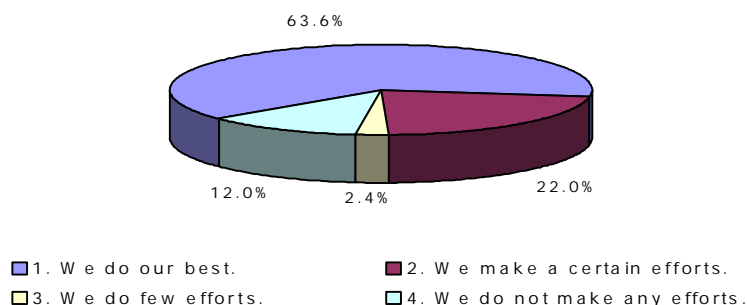
Taking into account that 68.4% of the surveyed enterprises are state-owned, the high percent of the respondents choosing the answer "we do our best" seems doubtful according to the local consultant conducted the survey. Because, as in the Soviet period, the chiefs of the state enterprises in general give just a little attention to ecological aspects of production. Furthermore in the period of economic recession in Republic private enterprises under the burden of heavy taxes tend to think of survival rather than ecological safety of the enterprise. The answer "we do not make any efforts" was mostly raised by the chiefs of those enterprises that have no emissions basically.

Detailed information on the Answer 4, we do not make any efforts, is available in the Section 3.3.2 b.1 of the Data Book.

Q.2 **Please tick the following environmental conservation measures that your factory applies to and then specify target pollutants and their reduction methods.**

	Number	%
1. Air pollution measures	139	55.6
2. Water pollution measures	51	20.4
3. Hazardous waste treatment/disposal	11	4.4
4. Noise and vibration measures	44	17.6
5. Offensive odour measures	17	6.8
6. Soil pollution measures	6	2.4
7. Other measures	40	16.0
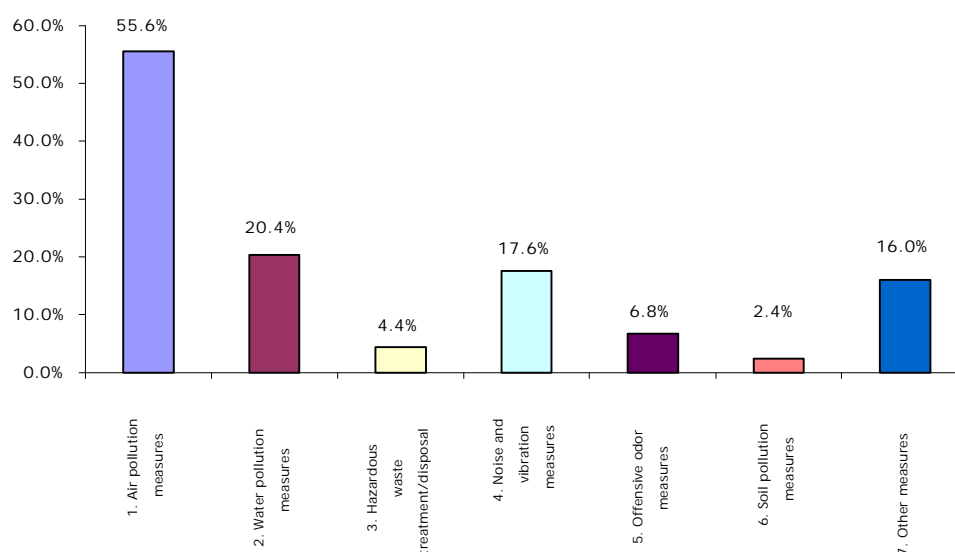
The majority of the enterprises in Baku are in the sectors of oil, oil refining, petrochemical and accompanying branches. Therefore natural reduction of air pollution is noted in the majority of the questionnaires. The answers to this question indicate that the reduction of problems with wastewater, noise and vibration is still very important for Baku city.

It is interesting also that reduction of land pollution worries only 6 enterprises, that are involved gas- and oil-producing and generate soil polluting substances.

Detailed information on Answer 7, other measures (target pollutants and reduction method), is available in the Section 3.3.2 b.2 of the Data Book.

Q.3 **What are the problems regarding environmental conservation of your factory? (Plural answers are acceptable):**

		Numder	%
1.	Lack of regulations and guidelines defining what to do.	6	2.4
2.	Lack of instruction by which we can identify what we should do for environmental conservation.	18	7.2
3.	Lack of information on technology for environmental conservation measures.	35	14.0

4.	Cost of environmental conservation measures is too high.	57	22.8
5.	Although we have introduced environmental conservation measure(s), it (those) has (have) not well functioned.	29	11.6
6.	Lack of financial supports, especially from the government.	68	27.2
7.	Financial limitation for environmental conservation measures.	25	10.0
8.	Others	68	27.2
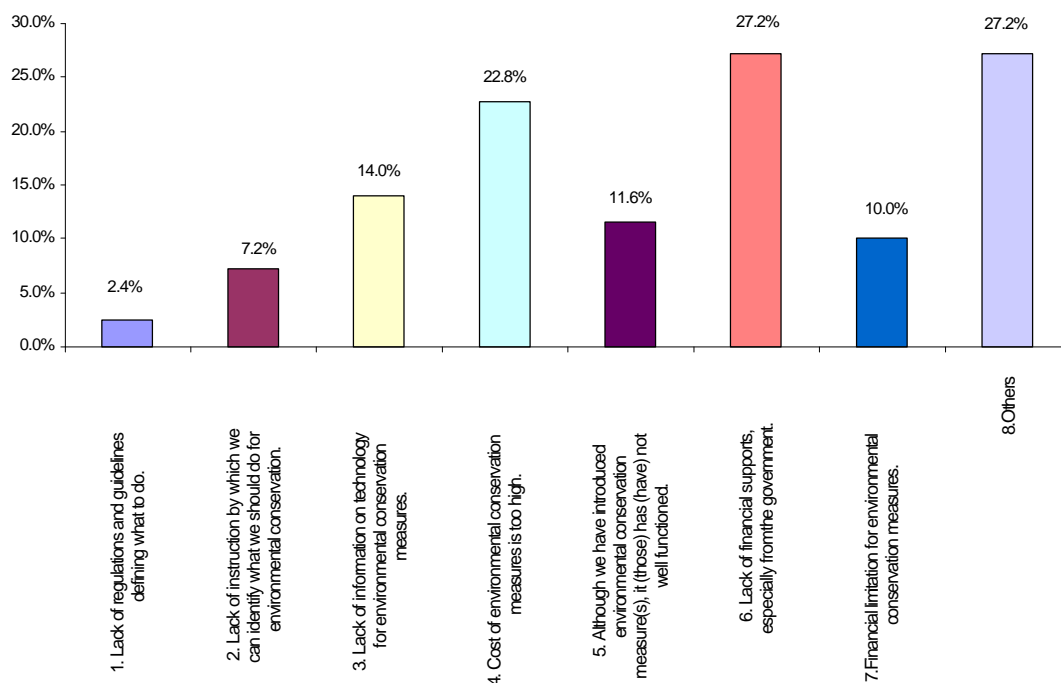
A large part of the respondents have stated such problems in the field of ecology as lack of the information about technologies on environmental conservation, high cost of environmental conservation measures and lack of financial support especially from government. Under the economically difficult situation, those answers were rather natural.

Detailed information on Answer 8, others, is available in the Section 3.3.2 b.3 of the Data Book.

Q.4 **Does your factory pay for "environmental fund"? If yes, please answer the amount of annual payment, for what kinds of pollutants you paid and the reason why you prefer payment to following emission standards. In case of No, please specify the reason you do not pay.**

	Numder	%
1. Yes	115	48.9
2. No	120	51.1

48.9%

51.1%

☐ 1. Yes   ☐ 2 No
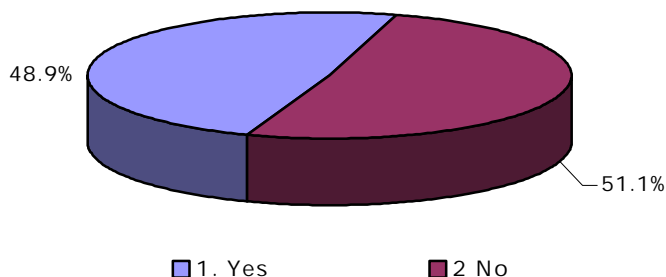
Almost half of enterprises make payment for ecological fund. The annual sum of payment varies from 12,500 manat to 343,812,000 manat, and these deductions are made into ecological fund for hazardous wastes within the frames of the established standards. The most of negatively answering enterprises mainly do not pay because of absence of finances. 15 enterprises did not answer this question, since they do pay, but do not know what for.

The annual payment amount of factories that answer "Yes" is available in the Section 3.3.2 b.4.1 of the Data Book. The reason the factories do not pay (that answer "No") is available in the Section 3.3.2 b.4.2 of the Data Book.

Q.5   Do you know the "Cleaner production technology (CPT)"? In case of Yes, has your factory already introduced the CPT or do you have any plan to introduce it?

	Number	%
1. Already introduced.	37	16.6
2. Have an introduction plan.	59	26.5
3. I don't know.	127	56.9

56.9%

26.5%   16.6%
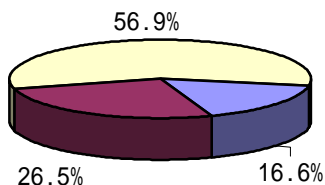
☐ 1. Already introduced   ☐ 2. Have an introduction plan.
☐ 3. I don't know

The fact that 56.95 % of the respondentst answered that they did not know about "Cleaner production technology" (CPT) signifies the present realities in Republic. According to the questionnaire joint ventures or branches of the western companies have already introduced CPT basically. 27 enterprises did not answer this question, since they have no wastes.

The year of CPT introduction of factories that answered "1" is available in the Section 3.3.2 b.5.1 of the Data Book. The planned introduction year of CPT of factories that answered "2" is available in the Section 3.3.2 b.5.2 of the Data Book.

Q.6   Does your factory have a plan to implement environmental conservation measures?

	Number	%
1. Yes	184	73.6
2. No	66	26.4
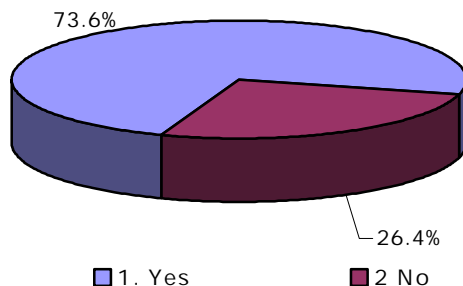
At the majority of the enterprises there is a plan of realization of measures on environmental conservation.

Q.7   Do you need any financial support from the government if you implement environmental conservation measures or improve existing environmental conservation facility?

	Number	%
1. Yes, we need full support.	96	38.4
2. Yes, we need partial support.	82	32.8
3. No, we could manage the finance for it.	72	28.8

The interviewees were split into three evenly. According to the questionnaire the state enterprises working in incomplete condition require financial support, the prosperous state enterprises mainly require partial support. On the other hand private factories and plants are going to finance measures on environmental conservation by themselves.

Q.8   What kinds of support do you need from the government to improve environmental conservation facility of your factory? (Plural answers are acceptable):

	Number	%
1. Legislative arrangement	5	2.0
2. Soft loan for investment of environmental conservation facility.	85	34.0
3. Tax exemption or reduction for investment of environmental conservation facility.	55	22.0
4. Technical assistance and advise for the improvement.	124	49.6
5. Provision of technical information for the improvement.	71	28.4
6. Others	48	19.2
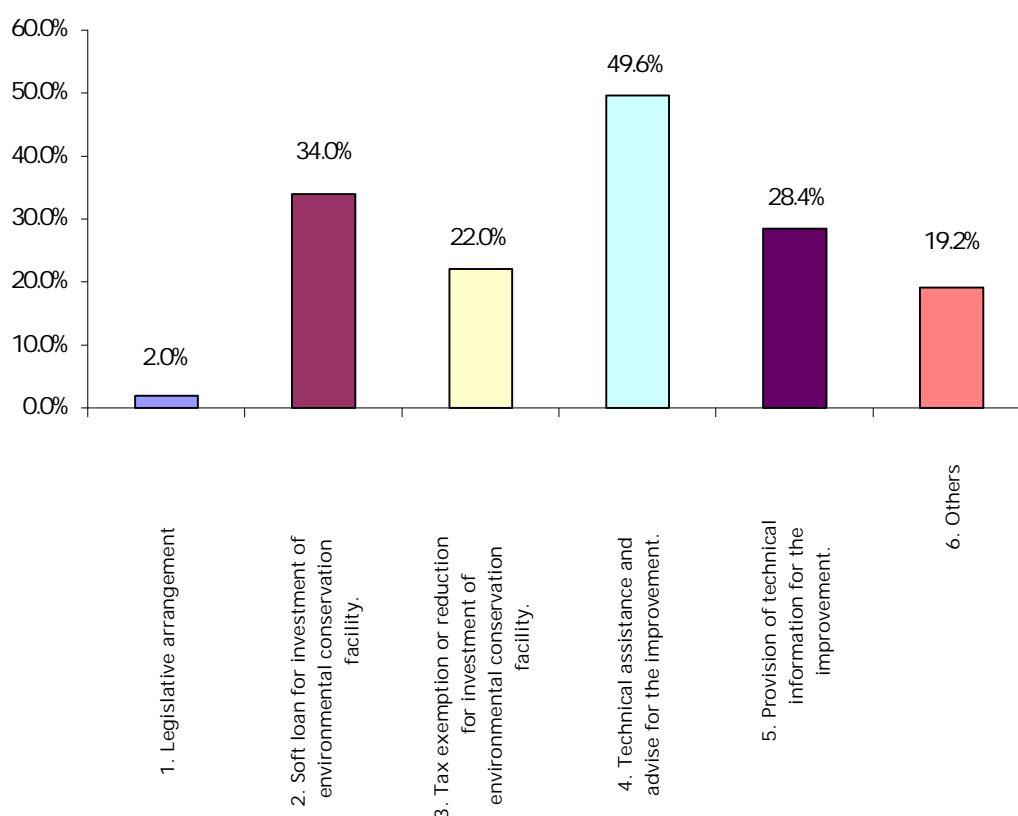
Technical solutions appear to be largely demanded. As economical matters were raised in Q.3, here the majority of the respondents has also indicated the necessity of reduction of the taxes and increase of the preferential loans for ecological measures.

Detailed information on the Answer 6, others, is available in the Section 3.3.2 b.6 of the Data Book.

Q.9   How do you treat/dispose hazardous wastes (HW) generated in your factory at present?

	Number	%
1. Treat/dispose HW within factory's compound.	102	40.8
2. Treat HW in our factory and entrust disposal of treated HW to the waste disposal agent.	5	2.0
3. Entrust all treatment/disposal works to the waste disposal agent.	24	9.6
4. Others	123	49.2
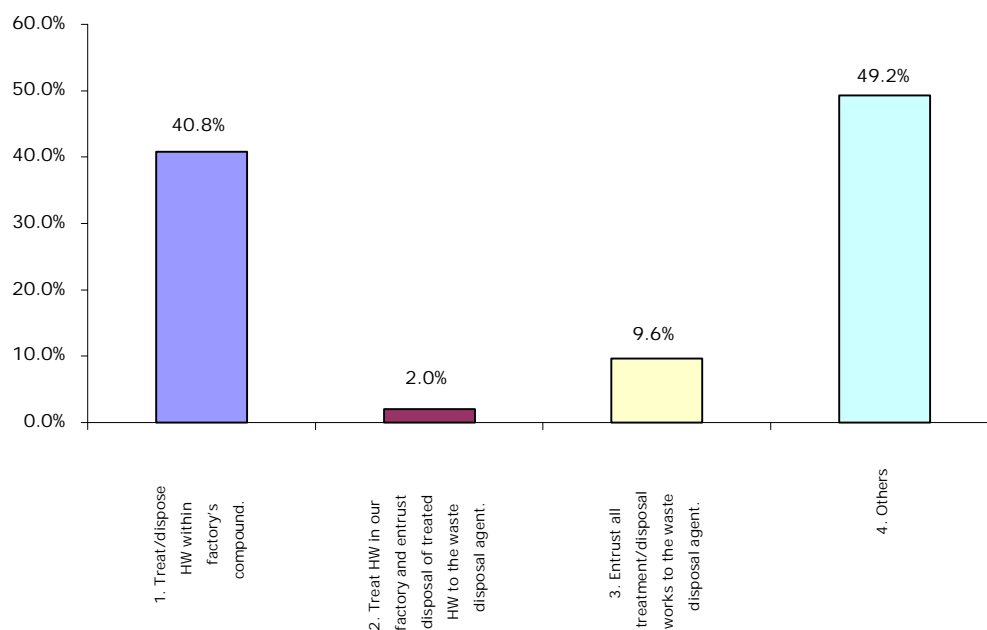
The majority of the enterprises independently treat and dispose of hazardous waste by themselves. Almost half of the respondents have indicated answer 3 "other" giving various answers.

Detailed information on Answer 4, others, is available in the Section 3.3.2 b.7 of the Data Book.

Q.10   What is your treatment/disposal plan of HW generated in your factory in future?

	Number	%
1. Treat/dispose HW within factory's compound.	106	42.4
2. Treat HW in our factory and entrust disposal of treated HW to the waste disposal agent.	7	2.8
3. Entrust all treatment/disposal works to the waste disposal agent.	33	13.2
4. Others	107	42.8
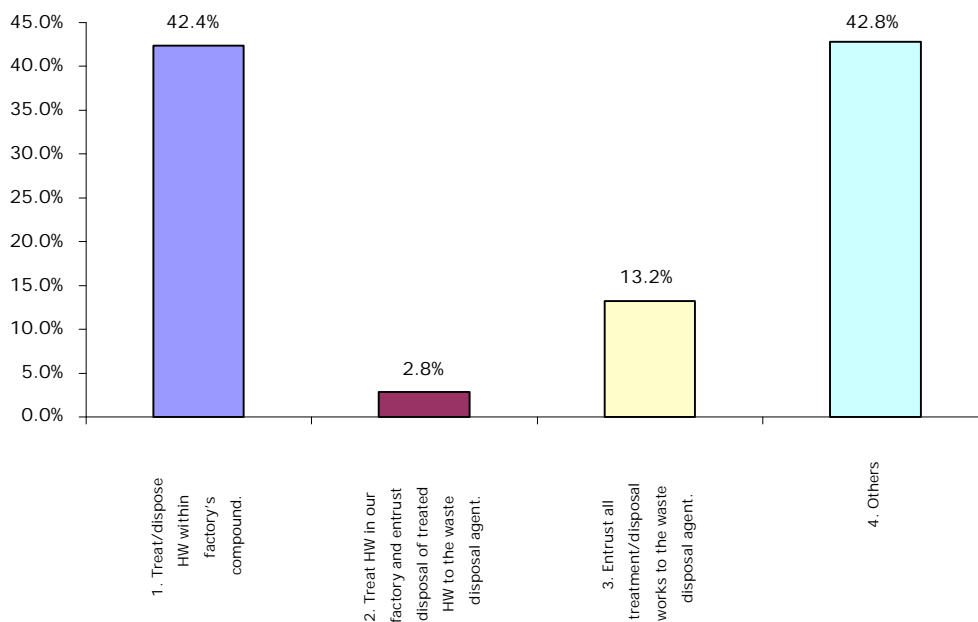
Comparison of the answers on questions 9 and 10 shows that most enterprises are reluctant to change the way of treatment and disposal of hazardous wastes.

Detailed information on the Answer 8, others, is available in the Section 3.3.2 b.8 of the Data Book.

Q.11   In case where you need to entrust treatment/disposal works to the waste disposal agent, what kinds of HW do you ask? Please specify kinds of HW and annual generation amount of it. (Up to three HWs)

Number of types of waste	Number of enterprises	%
1 type	36	69.23
2 types	11	21.15
3 types	5	9.62
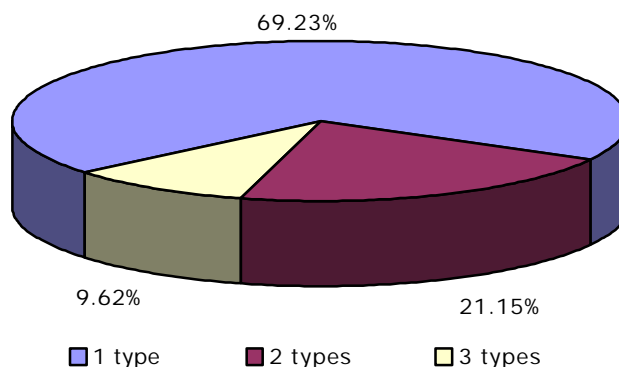
This question is answered by 52 respondents and it is fairly appropriate to number of enterprises that entrust and/or are going to entrust treatment/disposal works to another organization. (see Q.9 and Q.10). Of them 1 type of wastes have 36 enterprises, 2 types – 16 enterprises, 3 types – 5 enterprises.

Detailed information on the Answer, kinds of HWs and annual generation amount, is available in the Section 3.3.2 b.9 of the Data Book.

Q.12 In case where you need to entrust treatment/disposal works to the waste disposal agent, how much does your factory can pay for one ton of HW treatment/disposal?

Payment for treatment/disposal works	Manat/ton
Maximum	9,676,800
Minimum	1,997
Average	2,579,906

Enterprises	Number	%
Paying for treatment of wastes	5	50
Paying for disposal of wastes	5	50

- Paying for treatment of wastes
- Paying for disposal of wastes
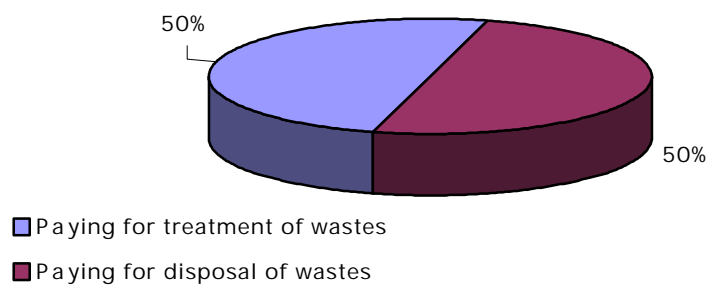
This question was answered by 10 respondents. 5 of them pay for treatment and the rest 5 pay for disposal works to other organizations. Amount of payment for treatment/disposal of 1 ton of waste varies from 1997 manat to 9676800 manat.

Q.13 Your company is owned by;

	Number	%
1. State	171	68.4
2. Private	66	26.4
3. Joint organization	13	5.2

68.4%

26.4%

5.2%

☐ 1. State   ■ 2. Private   ☐ 3. Joint organization
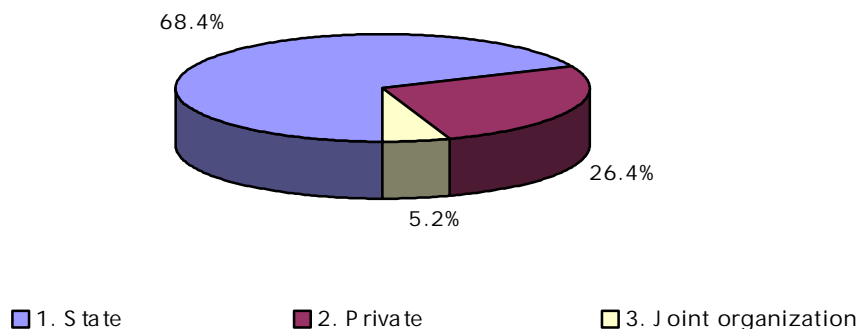
Almost 2/3 of enterprises are state, about 26 are private and only 5.2 % are joint.

Q.14   What do you think about the future prospects of your company

	Number	%
1. very good	53	21.2
2. good	121	48.4
3. fair	6	2.4
4. no good, but possible to continue running	36	14.4
5. no good, and may stop running	2	0.8
6. I do not know.	32	12.8

21.2%

0.8%

14.4%

2.4%

48.4%

☐ 1. very good   ■ 2. good

☐ 3. fair   ☐ 4. no good, but possible to continue running

■ 5. no good, and may stop running   ■ 6. I do not know.
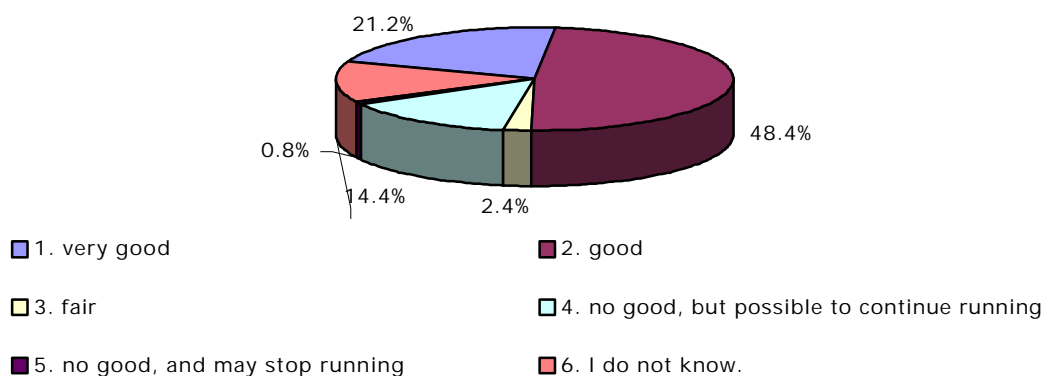
About 70 % of the enterprises have a good perspective in the future, about 16 % have pessimism, and 12.60 % were at a loss to answer this question.

Q.15   Do you have a plan to increase or reduce the production scale in future?

	Number	%
1. to increase	179	71.6
2. to reduce	2	0.8
3. no change, and continue with the current scale	31	12.4
4. I do not know.	38	15.2

71.6%

15.2%

12.4%   0.8%

☐ 1. to increase

☐ 2. to reduce

☐ 3. no change, and continue with the current scale

☐ 4. I do not know.
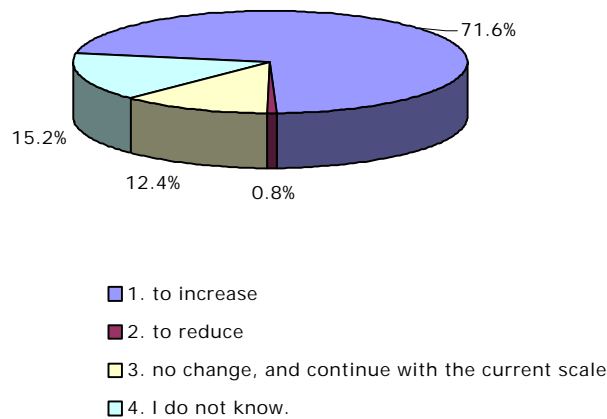
71.60 % of the enterprises are going to increase volumes of production. Their capabilities for this purpose are more, since all state enterprises were constructed basically in the Soviet period and were designed for production of the goods with allowance for all USSR. The distribution of the respondents to this question almost completely corresponds to distribution of the answers to question 14.

Q.16   In case where the factory is located within or near the central part of the city, is it possible for you to move the factory out side the central part of the city?

	Number	%
1. Yes, it is possible, if another good location is provided	5	2.0
2. Yes, with the conditions of	2	0.8
3. No, we do not want to move from here.	228	91.2
4. I do not know.	12	4.8

91.2%

0.8% 2.0% 4.8%

☐ 1. Yes, it is possible, if another good location is provided

☐ 2. Yes, with the conditions of

☐ 3. No, we do not want to move from here.

☐ 4. I do not know.
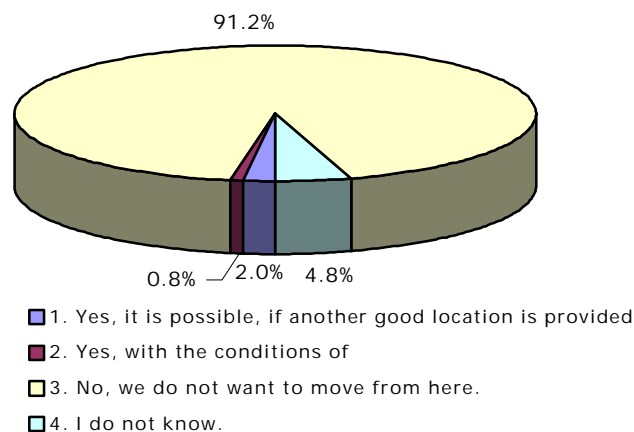
Almost all enterprises do not want to change their location, because they will lose their periphery.

3.2.4 Findings

a. Review of Environmental Passport

a.1 Applicability of the Survey Results

JICA team could not get any authorised or official list of factories. Therefore the local consultant employed by the team prepared a list of 775 enterprises in the study area as shown in Data Book Chapter 3.2. Based on this list we selected 250 factories for the study and conducted the survey. Factories selected are shown in Data Book Chapter 3.3.1. Since a list of enterprises that may affect the environment is essential material for proper environmental management of the study area, we strongly recommend that BCE prepare an official list of factories if available or complete a list based on the list of 775 enterprises.

We conducted the factory survey at major point pollution sources in the study area. The structure of industrial category of interviewees and the whole structure of industry in the study area are compared in the following table.

Table 3-20: Rate of Surveyed Factories

Category of Industry	Number of Surveyed Enterprises	Number of Enterprises in the Study Area	Rate of Surveyed Enterprises (%)
Mining	8	19	42.1
Energy	16	17	94.1
Manufacturing	184	432	42.6
Others	42	307	13.7
Total	250	775	32.3

a.2 Energy Consumption

The seven items of energy (electricity, gas, coal, LPG, petroleum, heavy oil and thermal energy) consumption were surveyed. Of five items (electricity, gas, LPG, petroleum and heavy oil), current energy consumption is much less than it reported in the passport, especially electricity is only 14.3 % of the passport. This proves the fall in operation rate.

By reviewing all of the energy use, JICA team understands that gas consumption is much more than the other energy sources. Amount of gas consumption converted to weight unit is from 1,250,000 tons/year to 1,450,000 tons/year depending on the gas composition (1,250,000 tons/year in case of 100% methane, 1,450,000 tons/year in case of 80% methane and 20% ethane).

This amount of gas consumption is about 75% of primary energy use of total (200,000 tons/year of kerosene, 160,000 tons/year of heavy oil, 20,000 tons/year of LPG). On the top of that, the survey result shows that sulphur content of gas is very low. As to nitrogen oxide and particulate matter, generation of them by gas combustion is 20% to 40% lower than oil and coal combustion.

From these reasons, structure of energy use in Baku, which is largely depending on natural gas with low sulphur content, is in very favourable situation to prevent air from pollution. In general, coal burning is a serious pollution source in many

developed countries since it generates sulphur oxide and soot very much. In Baku however only one factory uses coal and this is another favourable reason for air environment.

Fossil energy consumption per capita except electricity is roughly 0.9 tons/year/person. This level is less than half of ones in major European countries and Japan. Accordingly energy consumption in Baku will probably increase in the future along with economic growth.

a.3   Current Pollutant Emission

The team examined current pollution emissions from factories regarding 7 items for air pollutants, 5 for wastewaters and 9 for industrial wastes. However, these numbers do not cover all pollutants. There were some cases where the interviewer could not get enough information from factories. In addition all data were informed by the factories and none of quantitative ones measured by the public institutions including the BCE. Taking these limitations into consideration, the team presents the following findings regarding current pollutant emission from factories.

a.3.1   Air Pollutant Emission

The three items of air pollutants (SOx, NOx and particulate matter) emission were surveyed. All of current air pollutants emissions are less than it reported in the passport, especially NOx is only 15.9 % of the passport while SOx and particulate matter are 97.7 and 79.4 respectively. This proves the fall in operation rate.

i.   Sulphur Dioxide

The maximum concentration of SOx emission is 309mg/Nm^3 (108ppm) and the average concentration is 67mg/Nm^3 (23ppm). In Japan, general emission standard of SOx is from 1,000 mg/Nm^3 (350ppm) to 172mg/Nm^3 (60ppm) depending on the area in case that the gas volume is 500,000 Nm^3/hour and effective height of the stack is 100 meter.

From this comparison, JICA team understands that SOx concentration of the waste gases in Baku is very low. This low level of concentration without any sulphur removal facilities is largely due to low sulphur content in fuel oil (less than 0.5%) and fuel gas.

Accordingly, if SO$_2$ concentration of ambient air is under the air quality standard, installation of sulphur removal facilities is not necessary. On the other hand, if SO$_2$ concentration of ambient air is over the standard, it is favourable to install flue gas de-sulphurisation units to 3 emission sources with high concentration of SOx.

ii.   Nitrogen Dioxide

The maximum concentration of NOx emission is 160mg/Nm^3 (110ppm) and the average concentration is 17mg/Nm^3 (12ppm). In Japan, general emission standard of NOx is190mg/Nm^3 (130ppm) for oil boilers with big capacity and 88mg/Nm^3 (60ppm) for gas boilers with big capacity. From this comparison, JICA team understands that NOx concentration of the waste gases in Baku is relatively low.

Accordingly, if NO$_2$ concentration of ambient air is under the air quality standard, NOx control is not always necessary. On the other hand, if NO$_2$ concentration of

ambient air is over the standard, it is recommendable to install NOx control facilities to 2 emission sources with high concentration of NOx.

iii.   Particulate Matter (Dust and Soot)

From the factory survey JICA team received concentration data of particulate matters on 18 waste gases. The volume of these 18 gases is 22% of the total. The maximum concentration is 207mg/Nm^3 and the average concentration is 14mg/Nm^3.

Comparing these data to the emission standard applied in Japan, only one data exceed the standard and others are all under the standard level. Therefore except one waste gas there is no need to install dust collectors.

These 18 waste gases however only cover 22% of total waste gases. Besides pollution sources of particulate matters in general are factories processing powdery materials even though the waste gas volume is not so large. It is, therefore, recommendable to collect information with focus on factories treating powdery materials and consider the necessity of the countermeasures.

a.3.2   Industrial Wastewater Discharge

The current discharge volume of industrial wastewater is only 66.7 % of it reported in the passport. This may be due to the fall in operation rate. The three items of pollutants (BOD, COD and SS) were surveyed and average concentrations of them are also less than those reported in the passport.

Survey shows that there are 199 wastewater discharge sources (factories) and the total volume is 17,800 tons/hour except cooling water with no pollution. Among this volume, 33% of it (107 wastewater, 5,800 tons/hour) is sent to sewage plants. Maximum concentration of pollutants of the water is 381mg/litter for BOD, 513mg/litter for COD and 535mg/litter for suspended solid.

A common sewage plants with biological treatment process can treat this concentration level if the wastewater does not contain harmful materials. The 33% of wastewater, therefore, does not have any problems if the capacities of the sewage plants are enough and wastewater does not contain harmful materials for the plants. A technical paper describing the performance of a big sewage plant in Baku shows that BOD of the effluent water is about 10mg/litter. Comparing emission standard of BOD applied to sewage plants in Japan, which is from 20mg/litter to 30mg/litter, discharge level of BOD in Baku is very low.

On the other hand, 60% of wastewater discharge sources (46 wastewater, 10,700 tons/hour) are discharged to public water bodies. JICA team through the survey got BOD data of 5 wastewater discharge sources, among which maximum value is 10.9 mg/litter. Since this numerical value is the same level of effluent water from the sewage plant mentioned above, there may be no problems for this 5 wastewater discharge sources.

As for the 41-wastewater discharge sources without BOD data, it is essential to know their BOD concentration. If the BOD concentration is higher than discharge standard, the wastewater should be sent to sewage plants or treated in the factory to meet the standard.

As for the COD concentration JICA received data on 2 wastewater and both of them show very low pollution level (larger one is 32mg/litter). So no problem is on this 2

wastewater. But for other 44-wastewater discharge sources without COD data, it is necessary to identify the COD concentration. If the COD level is higher than discharge standard, the wastewater should be sent to sewage plants or treated in the factory to meet the standard.

For suspended solid (SS), JICA got concentration data on 6 wastewater discharge sources among 46. The maximum concentration of them is 122 mg/litter and average concentration is 34 mg/litter. Comparing this concentration to the discharge standard of Japan, even the maximum data is lower than the standard and it may not cause any problems.

For remaining 40 wastewater discharge sources without SS data however, it is essential to identify their SS concentrations. If the SS concentration is higher than discharge standard, the wastewater should be sent to sewage plants or treated in the factory to meet the standard.

This factory survey did not identify whether remaining 7% of wastewater (46 wastewater) go to sewage plants or discharge to public water bodies. On this wastewater the confirmation of the discharge destination is required and if the wastewater with high pollutants discharges into public water bodies, appropriate countermeasures should be taken.

a.3.3   Industrial Wastes Generation

The 8 items of industrial wastes (waste oil, oil sludge, non-oily organic sludge, inorganic sludge, waste chemical, burnable solid waste, non-burnable solid waste and other wastes) generation were surveyed. The amount of industrial waste generated in the surveyed factories is 140,000 ton/year in total and 71.5 % of the amount reported in the passport. This may prove the fall in operation rate. 57% of generated waste, 80,000 ton/year, is non-burnable solid waste and 31% 43,000 ton/year is non-oily organic sludge. Waste chemical generation is 9934 tons/year (7.1% of total) and is disposed or accumulated in the factory because of the toxicity. There are very limited waste oil (0.07% of total) and oil sludge (0.38%) generation. This may be because most of these categories of waste are discharged into the natural environment in the form of wastewater without treatment

b.   Opinion Survey for Factories

b.1   Efforts for Pollution Control

Most of factories (85.6%) surveyed make effort to reduce adverse impacts to the environment; i.e. they do their best (63.6%) or make a certain efforts (22.0%). However, the local consultants conducted the survey are doubtful of the answers because majority (68.4%) of the factories surveyed are state owned and they have paid little attention on environmental conservation measures since the Soviet period.

b.2   Environmental Conservation Measures

More than half of the factories (55.6%) apply the air pollution measures but those seem to be very primitive ones, because measures they replied were ventilation, dust-filters, etc. The water pollution measures are taken by 20.4% of factories following air pollution, and noise and vibration measure are taken by 17.6 %. The environmental conservation measures on the other aspects are very limited.

Regarding the problems on environmental conservation lack of financial supports especially from the government is the highest (27.2%), followed by high cost of measures (22.8%), lack of information on technology (14.0%).

Majority of the factories (73.6%) have a plan to implement environmental conservation measures.

b.3   Environmental Fund

About half of factories (48.9%) pay environmental fund for compensation of pollutant emission. The total amount of environmental fund paid by factories surveyed is 531 million manat and average amount of payment is 4,828 thousand manat/year. There are many factories (34%) that do not pay environmental fund due to financial difficulties.

b.4   Cleaner Production Technology (CPT)

More than half of factories (56.9%) do not know CPT. Factories that introduced the CPT are limited (16.6%). Among them majority (53.6%) introduced it after independence of the country.

b.5   Needs for the Government Assistance

For the implementation of environmental conservation measures or improvement of existing facility the majority (71.2%) need to have financial support from the government (full support 38.4% and partial 32.8%). Regarding the governmental support for the improvement of environmental conservation facility the most important issue is technical assistance and advice for the improvement; as half of factories (49.6%) indicated. Following the technical assistance and advice, 34.0% pointed out soft loan and 28.4% provision of technical information for the improvement.

b.6   Hazardous Waste Management (HWM)

The most of the factories (77.9%), which produce HW, treat/dispose HW within their compound. According to the answer for future HWM, most of the factories (72.6%) that produce HW will continue to treat/dispose HW within their compound. Very limited number of factories (14.4%) expressed that they may entrust treatment/disposal works to waste disposal agents. Although number of factories that may entrust is very limited (only 5 among 250), in average they may pay 2.6 million manat/ton for treatment/disposal of HW.

b.7   Others

About 2/3 of surveyed factories are state owned and only 1/4 are private company. Since Majority of the factories (69.6%) anticipate better futures, 71.6% of factories have a plan to increase the production scale in future.

Most of the factories (91.2%) express that they do not want to move the factory out side the central part of the city.

3.3 Environmental Quality Survey

3.3.1 Objectives

a. Assessment of Reliability and Accuracy of Data

Environmental quality was studied in order to assess the reliability and accuracy of environmental data obtained by the local monitoring organizations. The team observed their facility and analysis practices.

Assessment of reliability and accuracy of data was subcontracted out to a local company who had advanced laboratory equipment.

b. Data Verification

It is an obligation of a factory to submit an environmental passport to start its productive activity. Since the rate of operation of factories in Azerbaijan has been dropped due to depressed economy, it is uncertain whether the data in the environmental passport are still valid to describe the current condition. Therefore, three factories were selected and pollutants generated at factories including industrial waste, gas emission and wastewater were sampled and measured to assess the data validity.

c. Environmental Quality Survey

c.1 Monitoring of Pollutants Vehicle Exhausts

There are nine air monitoring stations in the study area, but only one of them can monitor vehicle exhaust gas pollution. Therefore, the significance of pollution caused by exhaust gas cannot be fully assessed. In order to understand the extent of impacts of vehicle emission and to examine the necessity of monitoring vehicle exhaust gas pollution, a pilot monitoring was executed.

c.2 Sediment of Lakes

Many lakes in and around the city are severely contaminated due to their history of being used as wastewater receptors from households, industries and oil fields. Hydromet has undertaken regular lake water monitoring. It is fortunate that most of those polluted lakes are not used for domestic or agricultural purposes and major health effects are not reported. However, since accumulation of pollutants in lake sediments can cause future incidents, sediment monitoring is necessary.

The sediment quality measurement was carried out to understand the current status and decide the necessity of regular sediment monitoring.

c.3 Water of Jeiranbatan

Although the Jeiranbatan reservoir is out of the BCE's jurisdiction area, the BCE should understand its water quality, considering the importance of the reservoir as a major drinking water source.

The Study Team conducted water quality analysis of Jeiranbatan reservoir and waterway around it.

c.4 Water in Lakes

Some of lakes in Baku city have been regularly monitored by Hydromet, but most of them have never been monitored. The Study team and BCE conducted an analysis of water quality of them in order to know the existing situation and take it into consideration for master plan formulation.

3.3.2   Study Method

Assessment of Reliability and Accuracy of Data

a.1   Air

The survey was done as follows.

> Frequency and period: 9 am on 23 May 2000 – 9 am on 30 May 2000
>
> (24 hours x 7 days)
>
> Phenol and Hg were studied 3 times a day for 4 days

Items: SO_2, NO_2 (NO), Dust, CO, phenol, Hydrocarbons(HC), Hg, Temperature, Humidity, Wind speed, Wind direction (12 items)

Location: The existing monitoring point by the side of Moscow Avenue in the city centre

Local monitoring organization: The State Committee for Hydrometeorology (Hydromet) measured air pollutants 3 times a day (at 07:00, 14:00 and 19:00) during this survey at the same point.

Concentrations of SO_2, NO_2 and CO in the air were measured by means of a "Testo-350". "Testo-350" is produced by a German company TESTO GmbH and Co. This device uses electrochemical cells for CO, NO, NO_2 and SO_2. Unit sensitivity is 1 ppm. The total contents of hydrocarbons in the air were measured by means of «Universal Gas Analyser», by passing 300 ml of air through a detector tube.

To decrease the lower limit of measurement the cryogenic was employed to measure the concentrations of SO_2, NO_2, CO and hydrocarbon. The air sample was passed at a speed of 2.5 l/min within 30 minutes through silica gel for chromatography, filled into an U-shaped tube and placed into a Dewar flask with solid CO_2. The increment of the speed to draw air up to 2.5 l/min through the U-shaped tube does not change linear dependence of the concentration of pollutants on the volume of pumped air. After air pumped, the U-shaped tube was taken out of the cooler and placed into desorbent at temperature of 300° and pollutants accumulated on the silica gel were detached into the wind chamber of polyester fibre, the volume of which was 2.5 liters. Complete desorption confirmed the reproducibility of the results.

Thus, pollutant contents were concentrated in the air by 30 times. The concentrations of SO_2, NO_2, NO, and CO in the air had to be obtained by multiplying the result by 0.033.

Dust contents in the air was measured by pumping 2 m^3 of air through a filter. The filters were prepared from a fabric on the basis of ultra thin filaments and recommended by the State Standard of the FSU for determination of dust contents in the air. The filter was brought up to a stationary condition while air was pumped t during 15 minutes of the analysis. Then air was again pumped through the suspended

filter on a speed of 100 l/min for 20 minutes and weighed the filter. After this the filter was weighed and the amount of dust held by the filter was determined.

Phenol was absorbed from air by a layer of glass granules, covered by KOH. Phenol content was determined by colour intensity of its composition of 4-amino antipyrine.

To determine the wind speed a manual anemometer was used. The anemometer was kept on for 10 minutes using a stopwatch, the initial and final indications were recorded, a residual was divided by 600 seconds, then the wind speed was determined with an accuracy of 0.1 m/sec.

Air humidity was determined by means of a psychrometer.

a.2 Water

The survey was done as follows.

> Frequency and period: Once at the same time when samples are taken as a routine work of the monitoring organization.

> Items: COD, BOD, pH, DO, SS, and heavy metals (Cd, Pb, Zn, Hg, Cr, As)

> Location: Lake Beyuk-Shor

In cooperation with the Hydromet 3 liters of water was taken for analysis from Lake Beyuk-Shor on 11 May and sent to the laboratory for analysis. Parameters to be analyzed were BOD, COD, pH, dissolved oxygen, suspended matters, heavy metals (Cd, Pb, Zn, Cr, Hg, As) and oil products. Air temperature was 25.5°C, and water temperature 22°C. The weather was fair.

Analysis methods were EPA405.1, EPA410.2, EPA150.1, EPA360.1, EPA200.0 and ISO TC/190.

a.3 Sediment

The survey was done as follows.

> Frequency and period: Once at the same time when samples are taken as a routine work of the monitoring organization.

> Items: Heavy metals (Cd, Pb, Zn, Hg, Cr, As) and oil content

> Location: An existing monitoring point

For implementation of this survey, a boat and specific equipment were prepared, and the sediment sample was taken in Baku bay water area near Sadko cafeteria 200 m off the coast. The sediment was taken from a depth of 6 m. The sea water temperature was 20°C. Air temperature was 21°C. The weather was fair.

Contents of heavy metals (Cd, Pb, Zn, Cr, Hg, As), oil products and their composition were analyzed in the sediment. Contents of heavy metals in the sample were analyzed by an atomic-absorption spectrometer, and contents of oil products and their composition were analyzed by a chromatographic method with a flame-ionization detector.

Analysis methods were EPA200.0 and ISO TC/190.

b. Data Verification

b.1   Waste from factories

The following factories were selected: Azernaftyanajag (oil refinery), Baku Iodine Plant and Machinery Plant named after Sattarkhan. Industrial waste was sampled once on a particular day at those factories and the concentrations of heavy metals (Cd, Pb, Zn, Hg, Cu, Cr and As) were measured by means of an atomic-absorption spectrometer.

Analysis method was EPA200.0.

b.2   Gas Emitted from Factories

Since large factories measure pollutants in emitted gas by themselves and report the result to authorities, their stacks have an inlet to sample gas. Although three such factories were chosen after the environmental passport was examined, one of them was changed to another because it was not in operation. Gas was sampled twice on a particular day and NOx and CO were measured by means of a Testo-350 unit.

The selected factories were Azerneftyanajag (oil refinery- capacity is 4,200,000t/year), HES named after Bayramzade (heat electric station - capacity is 88,000kW), and Baku Steel Casting Plant (steel casting-capacity is 3,625t/year).

b.3   Wastewater from Factories

Three factories which analyse wastewater by themselves were selected. However, two of them were changed to other plants because they had not discharged wastewater due to the suspension of operation. Their Wastewater was sampled twice a day at a point of wastewater discharge and BOD, pH, SS, and heavy metals (Cd, Pb, Zn, Hg, Cr, and As) were analyzed. Three factories were Azerneftyanajag (oil refinery), NGDU "Balahanineft" and Baku Wine Facotry No.1.

Analysis methods ere EPA405.1, EPA150.1 and EPA200.0.

c.   Environmental Quality Survey

c.1   Monitoring of Pollutants Vehicle Exhausts

Two monitoring points were selected in the middle of the city as shown in Figure 3-4.

Monitoring was carried out for 24 hours from 7:00 am on 25th to 7:00 am on 26th in November, 2000.

Monitoring items are SO_2, NO_2, CO, HC, Pb, Dust, Phenol.

c.2   Sediment of Lakes

One sample was taken at each point by using a sediment collector sunk from a boat.

   Sampling Points: 15 points shown in Figure 3-5.

Ganligol:	2 points
Khojasan:	3 points
Beyuk Shor:	3 points
Bul buli:	3 points
Zykh:	3 points
Krasnoye	1 point

Measured Items:

Heavy Metals (Cd, Pb, Hg, Mehtyl-Hg, As)

Oil content

c.3   Water of Jeiranbatan

Sampling point: The sampling points are as shown in Figure 3-6.

3 points in the reservoir
3 points (each one in a wastewater pond and 2 lakes in Jeiranbatan catchment area)

2 points (each one in 2 waterways around the reservoir)

1 point of groundwater seapage

Measured items: Cd, As, Hg, Pb, CN, Cr^{6+}, PCB and oil content

c.4   Water in Lakes

Water sampling was carried out on a boat.

Sampling points: 22 points as shown in Figure 3-7.

Beyuk Shor	3 points
Krasnoye 2	2 points
Ganligol	2 points
Khojasan	2 points
Masazyrgyol	2 points
Mirzaladi	2 points
Bulbuli	2 points
Zykh	2 points
Krasnoye 1	1 point
Krasnoye 3	1 point
Yashamal 1	1 point
Yashamal 2	1 point
Zabrat	1 point

Measured Items:

BOD, COD, SS, Oil content
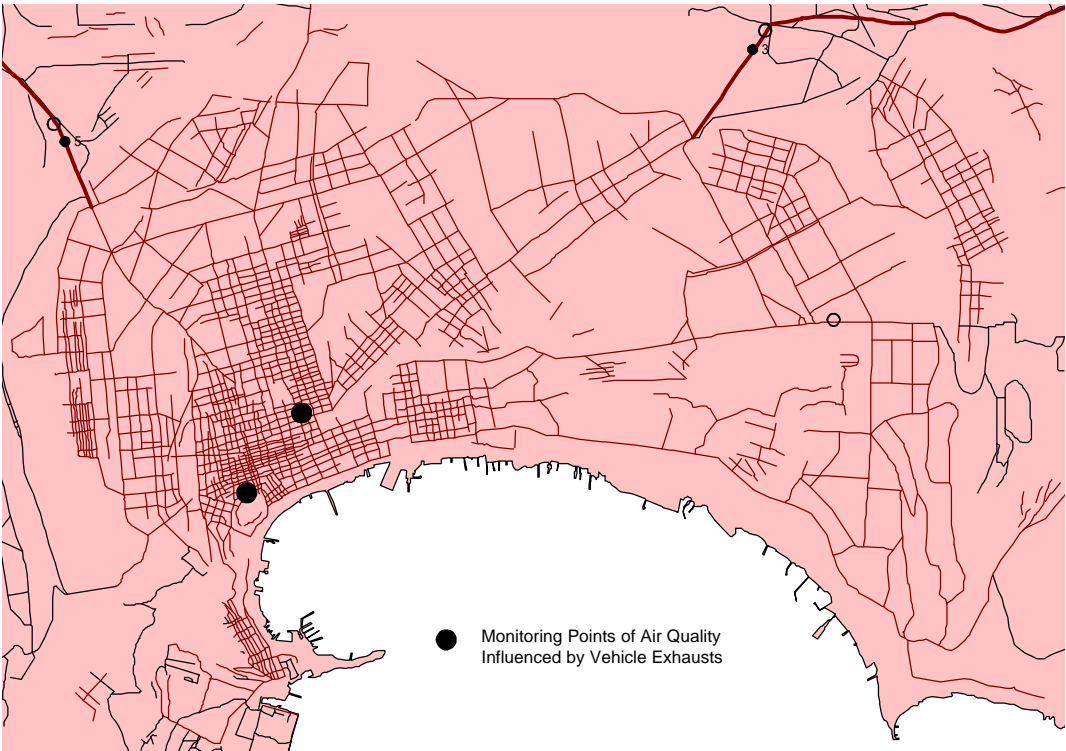
Figure 3-4: Monitoring Points of Air Quality Influenced by Vehicle Exhausts
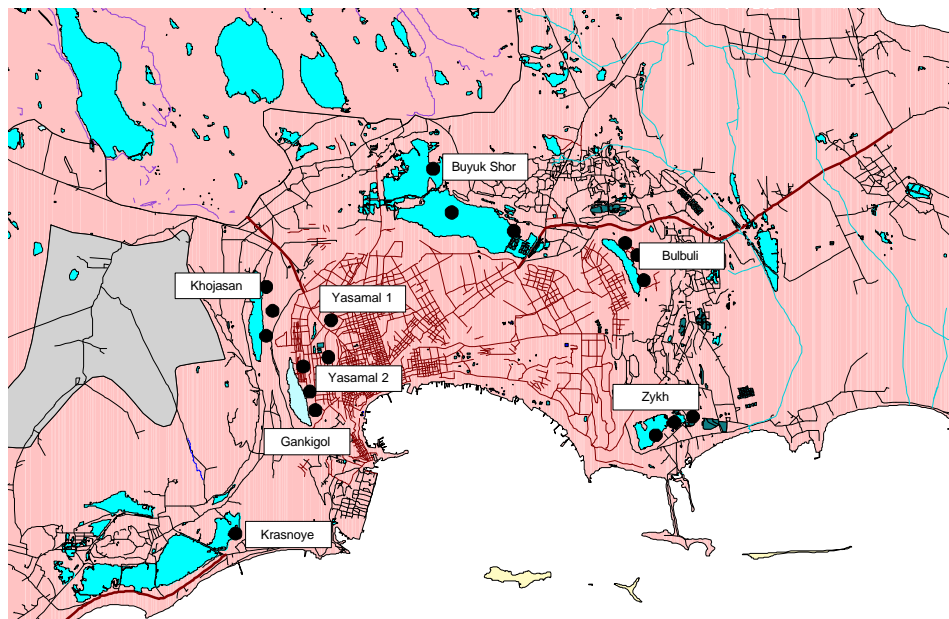
Figure 3-5: Location of Sampling Points for Sediment Analysis
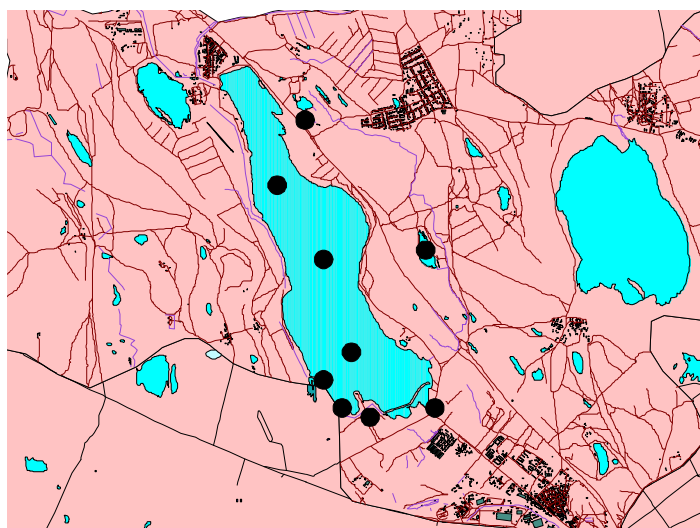
● Water sampling point

Figure 3-6: Water Sampling Points for Jeiranbatan Reservoir

● Water sampling point
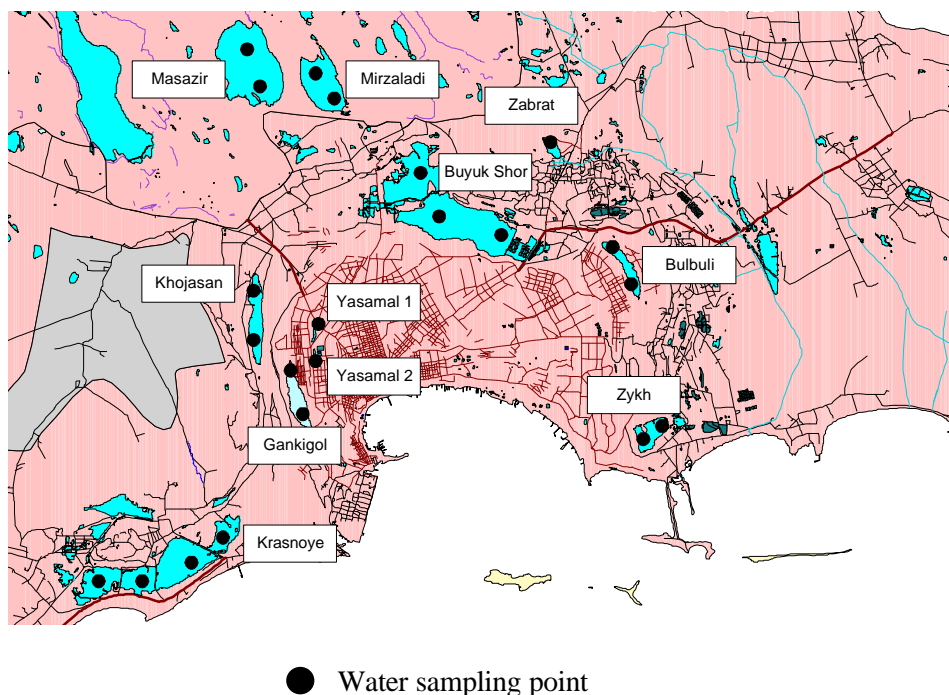
Figure 3-7: Water Sampling Points in Lakes

3.3.3 Results

a. Assessment of Reliability and accuracy of Data

a.1 Air

The results of the survey are shown in

Table 3-21-Table 3-28.

The data shows that the concentration of CO exceeded Maximum Permitted Emission (MPE) in Azerbaijan Republic (3 mg/m^3) only on the first day of the survey, exactly during the daytime. On the other days CO concentration was lower than MPE. It should also be noted that strong northern winds, which started midday on 26 May, led to sudden drop of CO concentration in the air. The same changes in concentration were observed for hydrocarbons during the week. Thus, concentration of hydrocarbons in the air was almost equal to zero on the last days. Maximum concentrations of NO_x and SO_2 were observed during the day time from 15.00 to 19.00.

Changes of air pollutant concentration after the lunchtime during the week is shown in Figure 3-8. As be seen, a sudden rise of wind speed leads to decrement of CO and hydrocarbons concentration in the air and increment of dust contents. The Figure also shows that during the period of survey concentration of NOx and SO_2 did not change actually. A little concentration decrement of these elements on the 5th day of the survey must be due to brief raining. Mercury concentration in the air in windy days was equal to zero. Only on Friday at 20.00 its concentration was equal to 0.0008 mg/m^3, which did not exceed mercury EAC that is 0.003 mg/m^3. Phenol

concentration in the air in windy days was also much lower than that on days with low wind speed. Thus, phenol concentration in the afternoon on Monday 29 was equal to 0.009 mg/m^3 at 12.00 and 0.010 mg/m^3 at 16.00, which exceeded limit concentration for phenol (0.003 mg/m^3).

A previous study[1] shows that contents of CO and hydrocarbons on transport arteries in cities correlate with the volume of vehicles driving there.

Another study[2] shows that maximums of harmful pollutant concentrations are observed twice during the morning and evening peak hours of traffic volume.

By comparing the daily concentration of CO and hydrocarbons with traffic volume flow, which was measured near Moscow Avenue on 23 May, cimilar changes are observed with slow increase in concentration by 17-18 to hours (Figure 3-9).

Thus, we may say that the main source of CO and hydrocarbon is transport vehicles.

Table 3-21: Atmospheric air quality research results on meteorology point. Date 23 May 2000

Time	t^{0}C	Weather	Humidity, %	Wind speed m/sec	Wind direction	Dust, mg/m^3	Ñî, mg/m^3	Hydrocarbons, mg/m^3	NO$_2$, mg/m^3	NO, mg/m^3	SO$_2$, mg/m^3	Phenol, mg/m^3	Mercury, mg/m^3
1													
2													
3													
4													
5													
6													
7													
8													
9	20.0	fair	80	1.5	S	0.08	2.75	10	0.07	0.07	0.09		
10	19.0	fair	80	1.2	S	0.10	2.88	18	0.14	0.14	0.09		
11	20.2	fair	71	1.3	S	0.07	2.88	20	0.14	0.14	0.09		
12	23.6	fair	64	1.1	S	0.12	2.88	19	0.14	0.21	0.19		
13	24.0	fair	61	1.6	S	0.08	3.00	20	0.14	0.14	0.09		
14	24.2	fair	60	1.5	S	0.05	3.00	20	0.14	0.21	0.19		
15	24.5	fair	65	1.5	S	0.10	3.25	21	0.14	0.21	0.19		
16	24.4	fair	46	0.8	S	0.08	3.38	19	0.14	0.21	0.19		
17	22.6	fair	68	1.9	N	0.10	3.25	21	0.07	0.14	0.19		
18	22.0	fair	61	2.1	N	0.13	3.13	20	0.07	0.14	0.09		
19	22.8	fair	60	0.3	N	0.09	3.25	18	0.07	0.14	0.09		
20	21.6	fair	67	1.7	N	0.14	3.00	17	0.07	0.14	0.09		
21	20.8	fair	69	2.4	N	0.11	2.88	15	0.07	0.21	0.09		
22	20.2	fair	71	1.9	N	0.10	2.50	14	0.07	0.21	0.09		
23	19.4	fair	76	1.8	N	0.13	2.50	12	0.07	0.14	0.09		
24	19.2	fair	77	-	-	0.08	2.13	11	0.07	0.14	0.09		

[1] Bezuglaya E.Y. (1986), *Monitoring of a condition of pollution of an atmosphere*, page 95

[2] Isidorov V.A., Zenkevich I.G. (1982), *Chromatomass-spectrometer definition of traces of organic substances in an atmosphere*, page 24

Table 3-22: Atmospheric air quality research results on meteorology point.
Date 24 May 2000

Time	t^0C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m^3	Ñî, mg/m^3	Hydrocarbons, mg/m^3	NO_2, mg/m^3	NO, mg/m^3	SO_2, mg/m^3	Phenol, mg/m^3	Mercury, mg/m^3
1	19.1	fair	78	1.1	N	0.12	2.00	7	0.07	0.21	0.09		
2	19.1	fair	80	1.5	N	0.13	2.00	6	0.07	0.21	0.09		
3	19.6	fair	75	1.8	N-W	0.10	1.88	5	0.07	0.14	0.09		
4	18.1	fair	81	2.4	N	0.12	1.88	5	0.07	0.21	0.09		
5	17.4	fair	95	2.9	N	0.10	1.75	7	0.07	0.21	0.09		
6	16.6	fair	85	0.7	N	0.11	1.63	8	0.07	0.21	0.09		
7	16.4	fair	94	1.3	N	0.14	1.88	10	0.14	0.14	0.09		
8	18.2	fair	82	2.8	N	0.10	2.25	12	0.14	0.14	0.09		
9	20.4	fair	66	2.8	N	0.10	2.50	14	0.14	0.14	0.09		
10	22.0	fair	58	3.1	N	0.12	2.38	16	0.14	0.14	0.09		
11	23.8	fair	50	1.3	N	0.10	2.50	15	0.14	0.14	0.09		
12	25.1	fair	47	2.8	N	0.10	2.75	17	0.14	0.14	0.09		
13	27.8	fair	40	0.9	N	0.08	2.50	18	0.14	0.14	0.19		
14	27.8	fair	42	1.3	N	0.06	2.63	17	0.21	0.21	0.19		
15	28.6	fair	37	0.6	N	0.08	2.50	19	0.21	0.21	0.29		
16	27.2	fair	35	2.8	N	0.12	2.63	18	0.21	0.21	0.19		
17	27.4	fair	37	1.2	N	0.10	2.50	19	0.21	0.21	0.29		
18	27.4	fair	31	0.9	N	0.05	2.75	20	0.21	0.21	0.29		
19	23.6	fair	40	2.6	N	0.08	2.75	16	0.14	0.14	0.19		
20	21.2	fair	49	1.8	N	0.16	2.50	14	0.14	0.14	0.19		
21	19.6	fair	57	3.6	N	0.21	2.50	10	0.21	0.21	0.19		
22	18.6	fair	66	2.6	N	0.11	2.38	7	0.14	0.14	0.09		
23	18.6	low-cloud	64	3.3	N	0.15	2.25	5	0.14	0.14	0.09		
24	18.0	low-cloud	69	3.8	W	0.20	2.25	4	0.14	0.21	0.09		

Table 3-23: Atmospheric air quality research results on meteorology point.
Date 25 May 2000

Time	t^0C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m^3	Ñî, mg/m^{30}	Hydrocarbons, mg/m^3	NO_2, mg/m^3	NO, mg/m^3	SO_2, mg/m^3	Phenol, mg/m^3	Mercury, mg/m^3
1	18	cloudy	73	4.1	N-W	0.20	2.00	3	0.07	0.21	0.09		
2	18	cloudy	74	2.2	W	0.15	1.75	2	0.07	0.14	0.09		
3	18	low-cloudy	75	4.8	W	0.15	2.00	2	0.07	0.14	0.09		
4	17.0	fair	77	3.1	W	0.14	1.75	2	0.07	0.21	0.09		
5	17.2	fair	82	2.1	W	0.10	1.63	5	0.07	0.14	0.09		
6	17.4	low-cloudy	78	3.2	W	0.12	1.63	6	0.07	0.21	0.09		
7	17.2	fair	78	3.2	W	0.10	1.75	6	0.14	0.42	0.09		
8	17.4	fair	91	3.0	W	0.10	1.89	7	0.14	0.14	0.19		
9	21.0	fair	65	1.6	N-W	0.09	2.00	8	0.14	0.14	0.19		

10	21.3	fair	61	3.4	N-W	0.07	2.13	9	0.14	0.14	0.19		
11	24.0	cloudy	38	1.8	W	0.08	2.38	8	0.14	0.14	0.19		
12	25.3	overcast	35	1.0	N	0.06	2.25	7	0.14	0.14	0.19		
13	25.3	overcast	53	-	-	0.08	2.38	9	0.14	0.14	0.19		
14	27.0	overcast	38	1.5	E	0.03	2.25	8	0.14	0.21	0.19		
15	27.2	cloudy	27	0.4	E	0.06	2.13	9	0.21	0.21	0.19		
16	26.8	fair	31	1.5	N	0.05	2.00	10	0.14	0.21	0.19		
17	25.6	fair	40	1.1	N	0.07	1.25	7.5	0.21	0.21	0.19		
18	26.2	fair	36	0.6	N	0.10	1.13	10	0.21	0.21	0.29		
19	26.2	fair	34	-	-	0.10	1.89	8	0.14	0.14	0.29		
20	25.6	low-cloudy	34	-	-	0.08	2.50	7	0.14	0.21	0.19		
21	21.8	low-cloudy	55	-	-	0.08	3.63	9	0.14	0.42	0.09		
22	22.4	low-cloudy	48	0.8	N	0.16	2.00	5	0.14	0.21	0.09		
23	22.2	cloudy	58	0.5	S	0.20	2.25	4.5	0.14	0.21	0.09		
24	22.2	fair	60	0	-	0.15	1.75	4	0.14	0.21	0.09		

Table 3-24: Atmospheric air quality research results on meteorology point.
Date 26 May 2000

Time	t^0C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m^3	Ñî, mg/m^3	Hydrocarbons, mg/m^3	NO_2, mg/m^3	NO, mg/m^3	SO_2, mg/m^3	Phenol, mg/m^3	Mercury, mg/m^3
1	20.4	fair	83	-	-	0.10	1.38	5	0.07	0.14	0.09		
2	20.2	fair	81	-	-	0.08	0.75	4	0.07	0.14	0.09		
3	20.2	fair	81	-	-	0.12	1.25	4	0.68	0.21	0.09		
4	20.0	fair	85	-	-	0.09	1.50	3	0.07	0.21	0.09		
5	20.0	fair	88	-	-	0.10	1.75	3	0.07	0.21	0.09		
6	19.2	fair	76	3.1	N	0.18	1.89	4	0.07	0.21	0.09		
7	18.8	fair	70	4.3	N	0.22	1.38	4	0.07	0.21	0.09		
8	19.5	fair	64	3.4	N	0.26	2.88	2	0.14	0.21	0.09		
9	21.2	cloudy	48	5.0	N	0.24	1.25	3	0.14	0.14	0.09		
10	23.1	fair	51	5.0	N	0.25	1.75	2	0.14	0.21	0.09		
11	24.2	fair	46	6.7	N	0.30	1.13	2	0.14	0.21	0.09		
12	24.3	fair	39	4.4	N	0.30	1.25	4	0.14	0.14	0.09		
13	25.9	cloudy	32	4.3	N	0.28	0.63	2	0.14	0.21	0.09		
14	26.6	fair	32	3.8	N	0.27	1.63	2	0.14	0.14	0.09		
15	25.8	cloudy	31	4.9	N	0.33	0.75	2	0.14	0.14	0.09		
16	24.4	cloudy	45	3.3	N	0.29	1.50	10	0.14	0.21	0.09	0.002	0.0001
17	24.2	low-cloudy	42	1.7	N	0.25	1.50	6	0.14	021	0.09		
18	23.4	low-cloudy	49	3.0	N	0.31	1.75	5	0.14	0.21	0.09		
19	22.2	low-cloudy	48	5.6	N	0.28	2.00	3	0.14	0.21	0.09		
20	22.2	fair	53	5.8	N	0.30	1.38	5	0.14	0.21	0.09	0.003	0.0008
21	21.2	fair	54	6.0	N	0.28	1.50	1	0.07	0.21	0.09		
22	21.4	low-cloudy	53	6.2	N	0.40	1.50	1	0.07	0.21	0.09		
23	22.6	low-cloudy	53	5.8	N	0.33	1.63	5	0.07	0.21	0.09		
24	23.4	low-cloudy	61	5.4	N-W	0.30	1.38	4	0.07	0.21	0.09	0.001	0

Table 3-25: Atmospheric air quality research results on meteorology point.
Date 27 May 2000

Time	t⁰C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m³	Ñî, mg/m³	Hydrocarbons, mg/m³	NO_2, mg/m³	NO, mg/m³	SO_2, mg/m³	Phenol, mg/m³	Mercury, mg/m³
1	24.4	low-cloudy	59	4.8	N-W	0.25	0.75	3	0.07	0.14	0.19		
2	24.2	low-cloudy	54	6.0	N	0.35	1.50	6	0135	0.21	0.29		
3	24.4	low-cloudy	59	5.4	N	0.36	2.00	10	0.21	0.21	0.29		
4	24.2	low-cloudy	60	6.1	N	0.26	2.88	11	0.14	0.42	0.19		
5	23.4	low-cloudy	63	6.7	S-W	0.30	2.38	12	0.14	0.21	0.19		
6	23.6	cloudy	61	6.5	S-W	0.38	2.00	13	0.14	0.14	0.09		
7	24.2	cloudy	54	6.2	W	0.35	1.38	12	0.07	0.21	0.09		
8	23.7	cloudy	52	8.2	W	0.40	2.00	4	0.07	0.14	0.09		
9	22.6	fair	56	6.5	W	0.43	3.00	6	0.07	0.14	0.09		
10	23.7	cloudy	49	4.4	S-W	0.28	1.63	5	0.07	0.14	0.09		
11	23.8	cloudy	46	7.5	S-W	0.41	1.13	5	0.07	0.14	0.09	0.002	0
12	25.0	cloudy	53	7.6	S-W	0.36	2.50	4	0.07	0.14	0.09		
13	24.8	fair	48	8.6	N	0.30	1.25	4.5	0.07	0.21	0.09		
14	25.2	cloudy	51	6.8	N	0.37	1.00	4	0.07	0.21	0.09		
15	24.6	cloudy	53	7.7	N	0.35	2.25	5	0.07	0.21	0.09		
16	23.6	low-cloudy	61	8.8	N	0.35	1.50	6	0.07	0.14	0.09		
17	23.6	low-cloudy	61	5.9	N	0.32	1.13	2.5	0.07	0.21	0.09		
18	23.2	low-cloudy	61	7.1	N	0.31	1.13	4	0.07	0.14	0.09	0.005	0
19	22.2	low-cloudy	67	7.5	N	0.33	0.75	3	0.07	0.14	0.09		
20	19.6	cloudy	85	8.0	N	0.34	0.88	0	0.07	0.14	0.09		
21	20.4	overcast	78	6.9	N	0.44	1.00	0	0.07	0.14	0.09		
22	20.6	overcast	74	5.6	N	0.43	0.63	0	0.07	0.14	0.09		
23	20.8	overcast	73	5.6	N	0.28	0.50	0	0.07	0.14	0.09	0.001	0
24	20.0	overcast	78	7.3	N	0.30	1.50	1	0.07	0.21	0.09		

Table 3-26: Atmospheric air quality research results on meteorology point.
Date 28 May 2000

Time	t⁰C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m³	Ñî, mg/m³	Hydrocarbons, mg/m³	NO_2, mg/m³	NO, mg/m³	SO_2, mg/m³	Phenol, mg/m³	Mercury, mg/m³
1	20.0	low-cloudy	74	5.4	N	0.22	1.38	1	0.07	0.14	0.09		
2	19.8	cloudy	76	7.2	N	0.35	1.75	2	0.07	0.21	0.09		
3	19.2	cloudy	81	7.3	N	0.45	1.25	2.5	0.07	0.21	0.09		
4	19.8	cloudy	72	4.6	N	0.27	1.00	2	0.07	0.14	0.09		
5	19.2	cloudy	79	8.4	N	0.42	1.00	3	0.07	0.14	0.09		
6	19.6	low-cloudy	76	6.1	N	0.26	1.00	3	0.07	0.21	0.09		
7	19.8	low-cloudy	71	5.6	N	0.25	1.13	3.5	0.07	0.14	0.09	0.001	0
8	20.8	cloudy	70	10.3	N	0.33	1.50	4	0.07	0.14	0.09		
9	22.0	cloudy	56	6.2	N	0.28	1.00	2.5	0.07	0.14	0.09		

Time	t^0C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m^3	Ñì, mg/m^3	Hydrocarbons, mg/m^3	NO$_2$, mg/m^3	NO, mg/m^3	SO$_2$, mg/m^3	Phenol, mg/m^3	Mercury, mg/m^3
10	22.8	cloudy	52	6.6	N	0.32	1.38	2.3	0.07	0.21	0.09		
11	22.6	cloudy	51	8.8	N	0.35	2.38	2	0.07	0.14	0.09		
12	22.8	cloudy	57	5.4	N	0.50	2.25	2.5	0.14	0.21	0.09		
13	23.6	fair	46	5.3	N	0.65	3.13	2.4	0.14	0.21	0.09		
14	24.2	cloudy	49	10.3	N	0.40	2.50	2.6	0.14	0.14	0.09	0.001	0
15	22.6	cloudy	55	7.7	N	0.30	1.88	2	0.14	0.21	0.19		
16	22.6	cloudy	51	9.3	N	0.36	0.88	5	0.14	0.21	0.19		
17	22.6	cloudy	55	5.2	N	0.35	0.88	2.5	0.14	0.21	0.29		
18	22.0	low-cloudy	56	5.8	N	0.36	0.75	1.5	0.14	0.14	0.19		
19	21.8	low-cloudy	53	6.3	N	0.35	0.75	1.5	0.14	0.14	0.09	0.004	0
20	21.2	fair	59	6.4	N	0.30	0.63	1	0.14	0.14	0.09		
21	24.0	fair	53	6.6	N	0.30	0.63	0	0.14	0.14	0.09		
22	22.0	cloudy	66	5.7	N	0.30	0.50	0	0.14	0.42	0.19		
23	26.0	cloudy	61	6.0	N	0.20	0.75	0	0.14	0.14	0.19		
24	28.0	low-cloudy	61	6.4	N	0.25	0.38	0	0.14	0.21	0.19		

Table 3-27: Atmospheric air quality research results on meteorology point.
Date 29 May 2000

Time	t^0C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m^3	Ñì, mg/m^3	Hydrocarbons, mg/m^3	NO$_2$, mg/m^3	NO, mg/m^3	SO$_2$, mg/m^3	Phenol, mg/m^3	Mercury, mg/m^3
1	21.2	low-cloudy	57	6.8	N	0.3	0.25	0	0.21	0.21	0.19		
2	21.0	low-cloudy	55	5.9	N	0.25	0.38	0	0.21	0.21	0.29		
3	20.8	low-cloudy	58	6.2	N	0.26	0.38	0	0.14	0.14	0.29		
4	19.4	low-cloudy	67	4.2	N	0.23	0.5	0	0.14	0.14	0.29		
5	20.6	fair	56	6.3	N	0.24	0.75	0	0.14	0.21	0.19	0.002	0
6	20.4	fair	63	5.3	N	0.25	0.75	0	0.14	0.14	0.19		
7	21.0	fair	58	4.6	N	0.26	0.63	0	0.14	0.14	0.19		
8	21.0	fair	49	5.4	N	0.25	0.75	0	0.14	0.14	0.19		
9	22.4	cloudy	45	1.9	N	0.23	0.88	0	0.14	0.14	0.19		
10	22.4	cloudy	41	6.9	N	0.25	0.63	0	0.14	0.14	0.19		
11	23.6	fair	36	6.0	N	0.21	0.75	0	0.14	0.21	0.29		
12	23.8	fair	40	6.4	N	0.18	0.63	0	0.21	0.14	0.29	0.009	0
13	24.2	fair	36	5.0	N	0.20	0.63	0	0.14	0.14	0.19		
14	24.8	fair	36	6.5	N	0.22	0.63	0	0.21	0.14	0.29		
15	24.7	fair	41	3.5	N	0.15	0.88	0	0.21	0.14	0.29		
16	24.6	fair	46	2.4	N	0.10	0.75	0	0.21	0.21	0.29	0.010	0
17	24.2	fair	53	3.5	N	0.15	0.75	0	0.21	0.21	0.29		
18	24.2	fair	43	3.9	N	0.20	0.63	0	0.21	0.14	0.19		
19	23.8	fair	48	4.8	N	0.10	0.63	2	0.14	0.21	0.19		
20	22.8	fair	44	4.1	N	0.20	0.5	1.5	0.07	0.14	0.09		
21	21.2	fair	52	3.4	N	0.20	0.5	2.3	0.07	0.21	0.09		
22	19.6	fair	62	3.8	N	0.20	0.5	0	0.07	0.21	0		
23	19.0	fair	68	2.5	N	0.15	0.38	0	0.07	0.14	0		
24	18.6	fair	73	3.2	N	0.22	0.5	0	0.07	0.14	0		

Table 3-28: Atmospheric air quality research results on meteorology point. Date 30 May 2000

Time	t^0C	Weather	Humidity, %	Wind speed, m/sec	Wind direction	Dust, mg/m^3	Ñî, mg/m^3	Hydrocarbons, mg/m^3	NO$_2$, mg/m^3	NO, mg/m^3	SO$_2$, mg/m^3	Phenol, mg/m^3	Mercury, mg/m^3
1	18.6	fair	81	3.1	N	0.20	0.50	0	0.07	0.21	0.09		
2	19.0	fair	66	2.8	N	0.25	0.25	0	0.07	0.14	0.09		
3	19.2	fair	61	2.1	N	0.20	0.63	0	0.07	0.14	0.09		
4	18.6	fair	70	2.8	N	0.26	0.50	0	0.07	0.1	0.09		
5	18.4	fair	78	1.8	N	0.15	0.50	0	0.07	0.14	0.09		
6	18.4	fair	72	2.1	N	0.25	0.38	0	0.07	0.07	0.09		
7	18.5	fair	67	2.1	N	0.20	0.25	0	0.07	0.07	0.09		
8	19.4	fair	64	2.1	N	0.10	0.25	0	0.07	0.07	0.09		
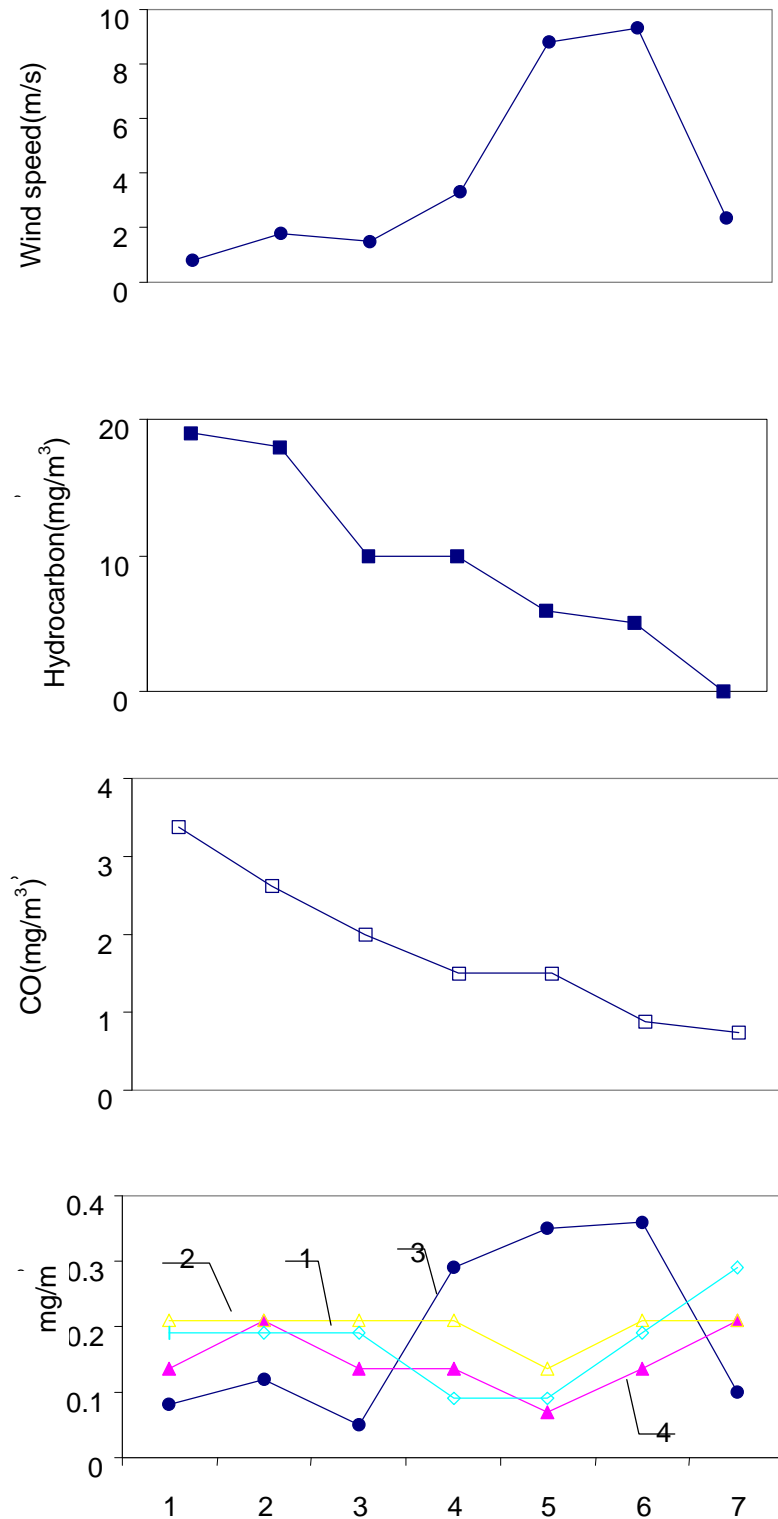
Figure 3-8: Wind speed, hydrocarbon, carbon monoxide and SO_2 (1), NO
(2), dust (3) and NO_2 (4) in atmosphere from 23 to 29 May 2000
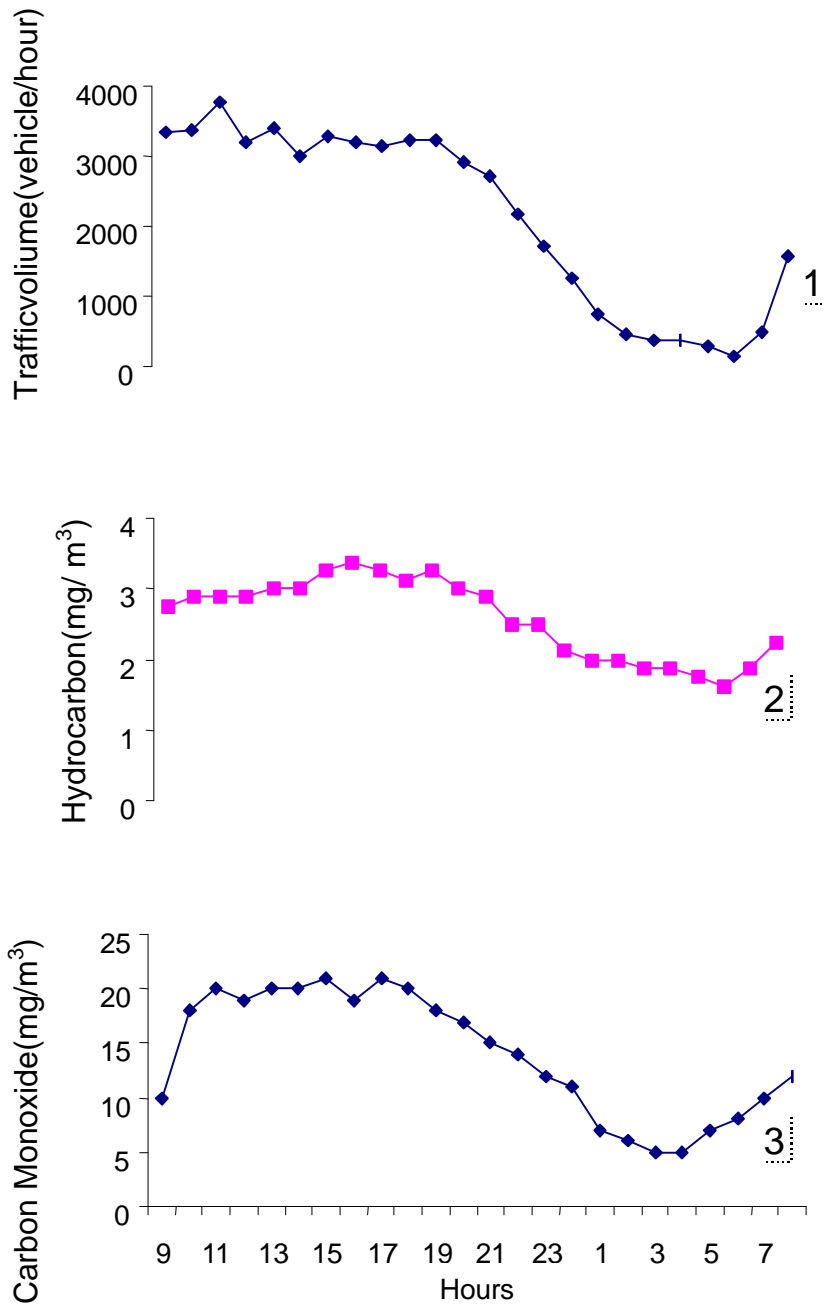
Figure 3-9: Change of concentration of hydrocarbon and carbon monoxide in air according to the intensity of traffic volume within day on 23rd of May.

a.2   Water

The result of analysis is given in Table 3-29. The figures are generally low except for suspended matter.

Table 3-29: Result of Water Quality Analysis at Lake Beyuk-Shor

(mg/ l)

Item	Results
BOD	18
COD	5.1
pH	8.94
Dissolved Oxygen	5.5
Suspended matter (SM)	13630
SM (<5ì)	(12.40%)
SM (5-10ì)	(4.30%)
SM (10-50ì)	(83.30%)
Cd	0.00023
Pb	0.0061
Zn	0.0658
Hg	0.0003
Cr	0.0023
As	0.0108
Oil Hydrocarbons	7.65

a.3 Sediment

The result of analysis is given in Table 3-30. The figure of Cr and Hydrocarbon is high and it is observed that sediment is polluted by oil.

Table 3-30: Result of sediment analysis in Baku bay area

(mg/ kg)

Item	Results
Cd	2.3
Pb	10.3
Zn	46.25
Hg	0.085
Cr	134.1
As	9.49
Oil Hydrocarbons	7874
C10-C14	(15.1%)
C14-C20	(61.5%)
C20-C26	(22.1%)
C26-C34	(1.3%)

Cn stands for the hydrocarbon which has n carbons in a molecule.

b. Data Verification

b.1 Waste from Factories

The result of analysis is shown in Table 3-31. The figures of Pb, Cr, Cu in Azerneftyanajag and Cr in Machinery Plant are high. Such waste should be carefully treated.

Table 3-31: Heavy metals contents in waste from factory

(mg/kg)

Item \ Factory	1. Azerneftyanajag	2. Baku Iodine Plant	3. Machinery Plant
Cd	1.26	0.010	0.412
Pb	70.14	0.61	5.88
Zn	196.1	7.01	15.33
Hg	0.0012	0.012	0.0006
Cr	29.13	9.59	54.35
As	10.2	1.61	2.57
Cu	270	2.94	57.65

b.2 Gas Emitted from Factories

The result is shown in Table 3-32. As for emission from Azerneftyanajag, the concentration of CO is high and of NO_x is low because of the consumption of oxygen was low. As for the Baku steel casting plant, sampling was not made at chimney but at electric furnace. This polluted emission was discharged through the roof, but part of the emission goes down in the room. Therefore the working condition of the labourers should be carefully managed. As for emission from Baku steel casting plant, Both NO_x and CO are high.

Table 3-32: Contents of NO_x & CO in gas emitted from factories

Factory	Time of measurement	Gas temperature (°C)	NO_x (ppm)	ÑÎ (ppm)
Azerneftyanajag (Smoke stack of slowed down coking plant # 43)	11:20	240	26	31
	19:00	241	27	32
HES-1 named after Bayramzade (Smoke stack of the furnace that uses natural gas)	13:00	135	35	32
	17:30	135	36	33
Baku steel casting plant (Gas over the electric furnace for fusion of metal)	14:30	37.1	126	79
	21:10	37.0	129	81

b.3 Wastewater from Factories

The result is shown in Table 3-33. At NGDU, the concentration of suspended matter is high. As for the Baku wine plant No1, alkalinity of wastewater is high due to water discharged from the process to wash used wine bottles.

Table 3-33: Wastewater from Factories

(mg/l)

Items \ Factory	Azerneftyanajag		NGDU "Balakhanineft"		Baku Wine Plant No.1	
	First	Second	First	Second	First	Second
BOD	16.5	24	15	13.5	29	18.5
PH	7.11	7.57	7.71	7.45	10.3	9.68
Suspended	2.368	1.990	9.450	7.690	0.960	1.070

matter (SM)						
SM (<5 ì)	78.5%	65.3%	32.3%	47.1%	19.2%	22.9%
SM (5-10ì)	18.6%	21.6%	49.2%	38.6%	63.7%	53.2%
SM (10-50ì)	2.9%	13.1%	18.5%	14.3%	17.1%	23.9%
Cd	0.0002	0.00018	0.00025	0.00047	0.00022	0.0013
Pb	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Zn	0.068	0.0673	0.0612	0.067	0.004	0.008
Hg	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Cr	0.0056	0.0199	0.0085	0.0088	0.0065	0.0086
As	0.0084	0.0155	0.0614	0.0967	0.0015	0.0013

c.   Environmental Quality Survey

c.1   Monitoring of Pollutants Vehicle Exhausts

The result of monitoring of air quality polluted by vehicle exhaust are shown in Table 3-34 and Table 3-35.

Table 3-34: Result of Air Quality Polluted by Vehicle Exhaust at Station 1(Baki Soveti)

Hour	Weather	Wind direction	Wind speed, m/s	Temperatur ,^{O}C	Humidity , %	Dust, mg/m^3	HC, mg/m^3	CO, mg/m^3	NO, mg/m^3	NO$_2$, mg/m^3	SO$_2$, mg/m^3	Phenol, (mg/m^3)	Pb, (mg/m^3)
4	cloudy	N	1,0	10	92	0.09	0,30	0,50	0.13	<0,051	<0,071	<0,001	0,80
5	cloudy	N	0.5	10	90	0.12	0.28	0.26	0,20	<0,051	<0,071	0.001	0.95
6	cloudy	"	0.6	10	85	0,20	0.36	0.38	0.13	0.103	0.143	0.001	0.88
7	few clouds	"	0.3	10	82	0.31	0.44	1,00	0.17	0.103	0.285	0.001	1,30
8	few clouds	"	0.2	10	82	0,33	0,50	1.12	0.27	0.051	0.356	<0,001	1.53
9	few clouds	"	0.3	11	81	0.35	0.58	1,80	0.29	0.103	0.428	0.001	1,60
10	few clouds	"	0.2	11	80	0.36	0.73	2,50	0,40	0.205	0.428	0.001	1.45
11	few clouds	"	0.1	13	80	0.38	0.88	6.25	0.51	0.205	0.428	<0,001	1.93
12	clear	N	0.1	16	79	0.36	0.75	1.63	0.27	0.154	0.356	0.002	1.93
13	clear	E	0.3	18	78	0.35	0,70	1.65	0,20	0.103	0.285	0.001	1,60
14	"	S-E	0.3	18	76	0.38	0,68	1.25	0.27	0.154	0.214	0.002	1.23
15	"	S-E	0.4	15	79	0.35	0,70	1.25	0.27	0.154	0.214	0.001	1,20
16	"	E	0.4	15	80	0.33	0.65	1,00	0,20	0.103	0.214	0.001	1.32
17	"	S-E	0.4	14	82	0,30	0.55	0.63	0.27	0.154	0.214	0.001	1,20
18	"	"	0.4	14	83	0,30	0.53	0.75	0.27	0.154	0.214	<0,001	1.53
19	"	"	0.1	14	84	0.33	0,60	1,00	0.29	0.103	0.214	0.001	1.38
20	"	"	0.1	13	85	0.35	0.68	1.88	0.33	0.154	0.285	0.002	1,40
21	"	"	0.1	13	86	0.32	0.66	2.12	0.77	0.205	0.428	0.001	1.13
22	"	"	0.1	13	88	0.29	0,70	2,00	0,80	0.154	0.356	<0,001	0,80
23	"	"	0.1	12	88	0.26	0.65	2.12	0.54	0.205	0.428	0.001	0.95
24	"	"	0.3	12	89	0.23	0.55	1.63	0.47	0.154	0.428	0.001	0.95
1	"	"	0.4	11	89	0,20	0,50	1.43	0,40	0.154	0.285	0.001	0.95
2	"	"	0.2	11	90	0.18	0.48	1.12	0.29	0.103	0.214	<0,001	0.95
3	"	"	0.2	10	91	0.16	0.46	1.18	0.27	0.103	0.143	<0,001	1.08
4	"	"	0.2	10	90	0.15	0,50	1,20	0,20	0.103	0.143	<0,001	1.05

Table 3-35: Result of Air Quality Polluted by Vehicle Exhaust at Station 2 (Rashid Beybutov)

Hour	Weather	Wind direction	Wind speed, m/s	Temperature, $^{\circ}C$	Humidity, %	Dust, mg/m^3	HC, mg/m^3	CO, mg/m^3	NO, mg/m^3	NO$_2$, mg/m^3	SO$_2$, mg/m^3	Phenol, (mg/m^3)	Pb, (mg/m^3)
4	cloudy	N	1,0	11	92	0.18	0.55	2,0	0.033	<0,051	<0,071	0.001	0.85
5	cloudy	N	1,0	11	90	0.21	0,60	2.2	0.033	<0,051	<0,071	0.002	0.98
6	cloudy	"	0.7	12	91	0.24	0,70	3,0	0.067	0.051	0.071	0.002	1.12
7	few clouds	"	0.5	12	90	0.26	1.05	6,0	0,100	0.051	0.071	0.002	1.54
8	few clouds	"	0.4	12	89	0,30	1.46	9.7	0,270	0.102	0.142	0.002	1.84
9	few clouds	"	0.3	12	86	0.35	2,30	15,0	1.071	0.307	0.286	0.002	1.75
10	few clouds	"	0.2	12	84	0.38	2,80	18.8	1.607	0.614	0.572	0.002	2.05
11	few clouds	N	0.2	15	82	0.42	3,70	21,2	2.009	1.025	1.428	0.001	2.42
12	clear	E	0.3	18	80	0.45	3.64	22.5	2.679	1.435	1.714	0.001	2.48
13	clear	S-E	0.3	18	80	0.44	4,10	23.8	2.679	2,050	2.857	0.002	2.54
14	"	S-E	0.4	16	79	0.35	3.28	17.5	2.001	1.025	2.286	0.002	1.84
15	"	"	0.4	15	79	0.37	3.32	11.3	1.339	0.923	2.286	0.001	1.84
16	"	"	0.4	15	80	0.36	3.16	10,0	1.339	1.025	2.143	0.001	1.92
17	"	"	0.3	14	82	0.31	3,10	9.3	1.205	0,820	2.143	0.001	1.94
18	"	"	0.4	14	82	0.32	3.28	10.5	1.339	1.025	2,000	<0,001	1.82
19	"	"	0.2	13	84	0.48	3.42	11.8	1.473	1.127	2.143	<0,001	2.05
20	"	"	0.2	13	84	0.62	3.56	13.5	1.607	1,230	2.286	0.001	2.42
21	"	"	0.2	13	85	0.58	3,40	10.3	1.473	1.025	1.857	0.001	1.72
22	"	"	0.2	13	86	0.49	3.04	9.3	1.205	0,820	1.429	<0,001	1.58
23	"	"	0.2	13	88	0.45	3.12	8.2	1.071	0,820	1.142	0.001	1.25
24	"	"	0.3	13	89	0,40	2.44	5.8	0.938	0.718	1,000	0.001	1.18
1	"	"	0.3	12	90	0.36	2.38	4.8	1,071	0.718	1,000	<0,001	1.25
2	"	"	0.2	12	91	0.28	2.32	5.5	0.804	0.615	0.857	<0,001	1.32
3	"	"	0.2	12	90	0.26	2.44	5.3	0,670	0.513	0.714	<0,001	1.34
4	"	"	0.2	11	91	0.24	2.18	5,0	0.804	0.615	0.857	<0,001	1.44

c.2   Sediment of Lakes

The results are shown in Table 3-36.

Table 3-36: Result of Sediment Analysis in Lakes

(mg/kg)

Items / Points	Cd	Pb	Hg	Methyl-Hg	As	Oil content
Ganligol 1	0.01	37.0	<0.2	<0.2	21.5	155
Ganligol 2	0.02	21.4	<0.2	<0.2	26.0	165
Khojasan 1 (south)	0.04	18.2	<0.2	<0.2	47.5	104
Khojasan 2 (center)	0.03	6.4	<0.2	<0.2	50.0	120
Khojasan 3 (north)	0.03	16.4	<0.2	<0.2	42.0	88
Beyuk Shor 1 (north)	0.06	22.6	<0.2	<0.2	48.0	350
Beyuk Shor 2 (center)	0.07	24.8	<0.2	<0.2	34.5	260
Beyuk Shor 3 (south)	0.05	7.6	<0.2	<0.2	57.5	45,000
Bul bul 1 (north)	0.18	48.6	<0.2	<0.2	60.5	1,250
Bul bul 2 (center)	0.21	67.4	<0.2	<0.2	64.0	880
Bul bul 3 (south)	0.25	52.6	<0.2	<0.2	68.5	1,160
Zykh 1 (west)	0.18	8.6	<0.2	<0.2	38.0	13,600
Zykh 2 (center)	0.23	7.4	<0.2	<0.2	53.0	19,400
Zykh 3 (east)	0.24	19.6	<0.2	<0.2	62.5	14,700
Krasnoye	0.05	5.2	<0.2	<0.2	37.5	568
Japanese waste facility standard	5	50	2		25	

c.3   Water of Jeiranbatan

The results are shown in Table 3-37.

Table 3-37: The Result of Water Quality Analysis

Items / Points	Cd µg/l	As µg/l	Hg µg/l	Pb µg/l	CN mg/l	Cr^{+6} µg/l	PCB mg/l	Oil content mg/l
Jeiranbatan Reservoir 1	<0.1	<0.1	<0.1	<2.0	<0.1	<10	<0.0005	<0.05
Jeiranbatan Reservoir 2	<0.1	<0.1	<0.1	<2.0	<0.1	<10	<0.0005	<0.05
Jeiranbatan Reservoir 3	<0.1	<0.1	<0.1	<2.0	<0.1	<10	<0.0005	<0.05
Waterway 1	<0.1	12	<0.1	<2.0	<0.1	<10	<0.0005	<0.05
Waterway 2	<0.1	14	<0.1	<2.0	<0.1	<10	<0.0005	0.14
Groundwater	<0.1	24	<0.1	<2.0	<0.1	<10	<0.0005	0.08
Wastewater pond	<0.1	<0.1	<0.1	<2.0	<0.1	<10	<0.0005	<0.05
Lake 1	<0.1	16	<0.1	<2.0	<0.1	<10	<0.0005	0.06
Lake 2	<0.1	34	<0.1	<2.0	<0.1	<10	<0.0005	<0.05
Russian standard (drinking water)	1.0	50	0.5	30	0.1	50	0	0.1

Russian standard (fishery)	10	100	5.0	100	0.1	100	0	0.1

c.4   Water in Lakes

The result is shown in Table 3-38.

Table 3-38: The result of Water Quality Analysis in Lakes

	BOD mg/l	COD mg/l	SS mg/l	Oil content	PH	EC	Salinity (mg/l)
Ganligol 1	4.6	12	0.53	4.6	8.8	750	445
Ganligol 2	4.3	14	0.58	8.7	8.7	619	367
Yashamal 1	4.8	11	1.51	1.2	8.5	910	550
Yashamal 2	5.1	15	1.64	3.2	8.7	1,110	680
Khojasan 1	3.1	22	0.82	6.5	8.9	1,710	1,020
Khojasan 2	3.9	24	0.70	9.4	9.0	1,850	1,100
Krasnoye 1	0.7	19	10.2	5.2	8.1	-	-
Krasnoye2-1	0.5	22	9.34	4.3	8.1	-	-
Krasnoye2-2	0.6	24	9.61	4.2	8.3	-	-
Krasnoye3	2.6	18	4.13	12.1	9.4	7,490	4,840
Zabrat	0.3	21	16.8	5.4	10.2	55,400	39,400
Bulbul 1	3.6	15	2.29	4.8	9.8	1,180	700
Bulbul 2	4.1	18	2.41	4.7	9.7	666	399
Zikh 1	0.6	24	19.6	15.6	8.3	-	-
Zikh 2	0.5	21	29.5	19.3	8.5	-	-
Mizalar 1	0.4	14	41.6	7.2	8.8	-	-
Mizalar 2	0.3	17	56.2	6.8	8.8	-	-
Masazir 1	0.6	14	9.54	2.3	8.7	-	-
Masazir 2	0.4	12	7.43	1.8	8.5	-	-
Beyul Shor 1	3.2	18	18.7	12.5	9.9	27,000	17,800
Beyuk Shor 2	4.3	15	21.2	16.2	10.0	26,800	17,700
Beyuk Shor 3	4.1	17	24.8	13.4	10.1	13,300	8,300
Russian standard for fishery water	6.0	30	0.2	0.1			

3.3.4 Findings

a.   Assessment of Reliability and Accuracy of Data

a.1   Air

The result of air quality analysed by Hydromet routine work is shown in Table 3-39. It is informed that monitoring frequency is three times a day and the table shows maximum and average values of the day. Comparison of the result by Hydromet with that by the JICA Team is shown in Table 3-40.

As for the dust and CO, the figures of Hydromet and the team are more or less the same. As for the figures of Hg, there is a difference but it is difficult to assess because the number of sampling is very limited and concentration is very low. But as for the

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NO, there is a quite large difference between them. The analytical procedure should be carefully reviewed.

Table 3-39: The Result of Air Quality analysed by Hydromet Routine Work

(mg/m^3)

Item / Date		Dust	CO	CO_2	NO	Black Carbon	Hg	Phorm-aldehyde	$C_6H_4(OH)_2$
23 May	Max	0.1	2	0.06	0.03	0.05	0.000	0.005	0.04
	Average	0.1	1	0.04	0.02	0.02	0.000	0.004	0.04
24 May	Max	0.2	2	0.10	0.05	0.05	0.000	0.006	0.07
	Average	0.1	1	0.06	0.02	0.02	0.000	0.005	0.05
25 May	Max	0.0	2	0.09	0.04	0.05	0.000	0.005	0.04
	Average	0.0	1	0.07	0.03	0.02	0.000	0.004	0.03
26 May	Max	0.2	2	0.06	0.03	0.05	0.000	0.005	0.05
	Average	0.1	1	0.05	0.02	0.03	0.000	0.004	0.04
27 May	Max	0.4	1	0.07	0.03	0.05	0.000	0.004	0.05
	Average	0.3	1	0.06	0.02	0.02	0.000	0.004	0.04
28 May	Max	-	-	-	-	-	-	-	-
	Average	-	-	-	-	-	-	-	-
29 May	Max	0.3	1	0.08	0.04	0.05	0.000	0.006	0.05
	Average	0.2	1	0.06	0.03	0.02	0.000	0.005	0.04
30 May	Max	0.1	1	0.09	0.04	0.05	0.005	0.006	0.05
	Average	0.0	1	0.08	0.03	0.02	0.003	0.005	0.03

Table 3-40: Comparison of the result by Hydromet with that by JICA Team

Date		Dust		CO		NO		Hg	
		Hydromet	JICA	Hydromet	JICA	Hydromet	JICA	Hydromet	JICA
23 May	Max	0.1	0.1	2	3	0.03	0.14	0.000	-
	Average	0.1	0.1	1	3	0.02	0.14	0.000	-
24 May	Max	0.2	0.1	2	3	0.05	0.14	0.000	-
	Average	0.1	0.1	1	2	0.02	0.14	0.000	-
25 May	Max	0.0	0.1	2	2	0.04	0.42	0.000	-
	Average	0.0	0.1	1	2	0.03	0.23	0.000	-
26 May	Max	0.2	0.3	2	2	0.03	0.21	0.000	0.0008
	Average	0.1	0.3	1	1	0.02	0.21	0.000	0.0003
27 May	Max	0.4	0.3	1	1	0.03	0.21	0.000	0.0000
	Average	0.3	0.3	1	1	0.02	0.18	0.000	0.0000
28 May	Max	-	0.7	-	3	-	0.21	-	0.0000
	Average	-	0.4	-	2	-	0.16	-	0.0000
29 May	Max	0.3	0.3	1	1	0.04	0.21	0.000	0.0000
	Average	0.2	0.2	1	1	0.03	0.16	0.000	0.0000
30 May	Max	0.1	0.2	1	0.3	0.04	0.07	0.005	-
	Average	0.0	0.2	1	0.3	0.03	0.07	0.003	-

a.2   Water

In order to assess the reliability and accuracy of water quality data obtained by the Hydromet, the JICA team compared the water quality data as shown in Table 3-41.

Based on the results, as for the suspended matter, Zn and Cr, there are considerably large difference between the two. In general, it is quite rare to have such high concentration of Zn and Cr as measured by the Hydromet. There might be some mistakes during the process of analysis.

Table 3-41: Evaluation of Water Quality Analysis at Lake Beyuk-Shor

(mg/l)

Items	Hydromet	JICA Team
BOD	6.60	18
pH	8.80	8.94
Dissolved Oxygen	3.43	5.5
Suspended matter (SM)	25.77	13630
Cd	NA	0.00023
Pb	NA	0.0061
Zn	1.90	0.0658
Hg	0.00	0.0003
Cr	2.70	0.0023
As	NA	0.0108
Oil Hydrocarbons	8.70	7.65

a.3   Sediment

In order to assess the reliability and accuracy of sediment quality data obtained by the Hydromet, the JICA team compared the sediment data as shown in Table 3-42.

Based on the results, there is no significant difference between them except Oil Hydrocarbon, As and Cr. For the items analysis of which resulted in a large difference, the procedures of pre-treatment and analysis need a thorough review

Table 3-42: Evaluation of sediment analysis at Baku bay area

(mg/kg)

Items	Hydromet	JICA Team
Cd	NA	2.3
Pb	8.2	10.3
Zn	41	46
Hg	0.07	0.085
Cr	80	134
As	1.5	9.5
Oil Hydrocarbons	334.7	7874

a.4   Assessment

The result from the series of environmental analysis presented in this section implies that the reliability and accuracy of analysis of the local monitoring body are not sufficiently high and its practice of pre-treatment and analysis has to be improved.

b. Data Verification

b.1 Waste from Factories

Azerneftyanajag is the oil refinery plant, which has 8 million tons capacity, and its current operation rate is only 55%. They told that 3 – 5 kg of sludge per one ton of crude oil is generated during the refinery process. According to the team's study, contents of heavy metals such as Pb, Zn, Cr, As, Cu and others are relatively higher than other factories.

The Baku iodine factory has declared in the environmental passport that 9,900 ton of wasted coal was generated annually. Although these wasted coal is not generated now because plant operation was stopped sometime in past, previously generated wasted coal has been accumulated in the stock and appears to be a small mountain. The team was told that the coal contains heavy metals and radioactive materials, but according to the team's study, the content of the heavy metals were not significant. It is not reported that physical damages to the human beings have ever occurred. However, a problem of radioactivity still remains, thus proper treatment of these waste shall be required.

The machinery plant has declared in the environmental passport that steel chips (426 t/year), cast-iron chips (8 t/year), ash (387 t/year) galvanic slag (0.03 t/year), waste oil (15 t/year) and others were generated but they were not observed on the visit of the team.

As stated above, the waste generation amount has reduced in recent years presumably due to the drop of operation ratio.

b.2 Gas Emitted from Factories

Comparisons of the consent of NOx emitted from three factories are shown in the Table 3-43. It is impossible to compare the figures in the environmental passports and those obtained from the factory survey in cases of Azerneftyanajag and the Baku Steel Casting Plant, because the former figures are in volume and the latter figures are in concentration. As for the figures in HES-1 named after Bayramzade, the Team's figure (NOx Consent in actual emission) is less than that of the passport. Both figures are lower than the NOx concentrations of similar factories.

Table 3-43: Comparison of Gas Emitted from Factories

Factory / Items	Azerneftyanajag		HES-1 named after Bayramzade		Baku Steel Casting Plant	
	Passport	JICA	Passport	JICA	Passport	JICA
NOx	160 ton/year	27 ppm	88.8 mg/m^3 52 ppm	33 ppm	1.669 ton/year	80 ppm

b.3 Wastewater from Factories

Comparisons of the figures of BOD and SM (or SS) in wastewater from factories are shown in the Table 3-44. Generally, team's figures of BOD(actual figures analysed by the team) show higher than the figures in the passports. The content of the SM at three factories is lower than that in the passports.

Table 3-44: Comparison of Wastewater from Factories

(mg/l)

Items \ Factory	Azerneftyanajag		NGDU "Balakhanineft"		Baku Wine Plant No.1	
	Passport	JICA	Passport	JICA	Passport	JICA
BOD	0.646	20	12.0	14	12	38
Suspended matter (SM)	15.7	2.4	21	9.5	10	1.1

c.   Environmental Quality Survey

c.1   Monitoring of Pollutants Vehicle Exhausts

The team decided two locations in the city centre, Station 1 and Station 2, which are close enough to heavy traffic. Station 1 is located in front of Baki soveti metro station on Istiglaliyyat street and Station 2 is near the conservatory on Rashid Beybutov street. The result is in Table 3-45. The average figures are more relevant than the maximum figures to the health impact and the averages of dust, NO, NO_2 and SO_2 at both stations exceeded the MPE. Overall, air quality at Station 2 is worse than that at Station 1 probably because Station 2 is closer to more clouded street than Station 1 and the wind direction was from the street to the station at Station 2. The high SO_2 values seem to contradict the fact that the sulphur content in oil used in Azerbaijan is fairly low, but it can be attributed to the use of imported cheap oil with high sulphur content.

The results suggest that the adverse impact by vehicle exhausts may be significant, and the team strongly proposes the expansion of vehicle exhausts monitoring network by installing new stations.

Table 3-45: Air Quality polluted by Vehicle Exhaust Gas

St.		Dust	HC	CO	NO	NO2	SO2	Phenol	Pb
1	Max	0.38	0.88	6.25	0.80	0.21	0.43	0.002	1.93
	Average	0.28	0.58	1.52	0.33	0.13	0.28	0.001	1.25
2	Max	0.62	4.10	23.8	2.68	2.05	2.86	0.002	2.54
	Average	0.37	2.63	10.7	1.17	0.76	1.27	0.001	1.71
MPE	Maximum	0.5	-	5.0	0.4	0.085	0.5	0.01	-
	Average	0.15	-	3.0	0.06	0.04	0.05	0.003	-

Note: the shaded figures are exceeding the standard (MPE).

c.2   Sediment of Lakes

The concentration of Pb in Lake Bul-bul is considerably high. The concentration of As (arsenic) is high in most lakes. Oil content is high in Lakes Beyuk Shor and Zykh.

The concentrations of Pb and As in Lake Bul-bul are outstanding and should be taken seriously because people may catch fish there to eat.

c.3   Water of Jeiranbatan

The main analysis targets were heavy metals, but as far as the study results suggest, the water contamination is not very serious. The current land use in its watershed is, however, threatening the water quality. For example, housing development without

adequate sanitation facility is proceeding although housing development is restricted. Water quality monitoring in and around the reservoir should be started.

c.4   Water in Lakes

If compared with the Russian standard for fishery water, BOD and COD are acceptable, but SS and oil content are highly excessive. In particular, oil content is much higher than the standard in all the lakes studied, even 100 times. Lake Bul-bul, where people catch fish, contains oil content 45 times higher than the standard and a negative health impact is anticipated.

3.4   Opinion Survey for Medical Institutions

3.4.1   Objectives and Definitions

a.   Objectives of the Study

Medical waste requires appropriate treatment and disposal based on its physical, chemical and pathological properties. However, despite the effects of such waste on humans and the natural environment, not enough care is taken in its treatment and disposal. For example, as this waste is handled carelessly, medical staff sometimes injure themselves with sharps. Moreover, when medical waste is disposed of together with general waste, the toxic chemicals and pathogens that it contains may have a grave impact, whether directly on the staff in charge of collection and landfill work, or indirectly on the surrounding environment and the residents living near the disposal sites.

This opinion survey for medical institutions aims to elucidate how infectious, hazardous and general waste generated by medical institutions in Baku city is handled, treated and disposed of. The results of this study should also be useful for the establishment of the future medical waste management system necessary in Baku city.

b.   Definitions

Medical waste in this study include the following types of waste from medical care.

- Infectious waste
- Hazardous waste

For the purpose of this survey, the interviewees, i.e. hospital administrators, were given a clear definition of the different waste categories mentioned in the survey, which are shown in Table 3-46.

Table 3-46: Definition of Infectious, Hazardous, and General Waste

Classification	Definition
Infectious Waste	All pathological waste; liquid human blood, blood products, and items saturated with human blood; cultures and stocks of infectious agents and associated biologicals (such as vaccines); culture dishes and equipment that have come into contact with any biological agent.
	Sharps that have been used in patient care, treatment or in medical research; broken or unbroken glassware that have come into contact with any infectious agent; sharp items that are unused but pose a physical threat to those who subsequently handle these items.
	Items that are tainted with human blood, excrement, or body fluid from humans or animals infected with a contagious disease; contaminated animal carcasses, body parts and bedding of all animals exposed to biological agents during clinical trials.
Hazardous Waste	Chemical waste in solid, liquid gaseous states, used for diagnostic, treatment, or experimental purposes.
	Chemicals used for disinfection, preservation, and cleaning procedures; all pharmaceuticals that have past their expiry dates; any hazardous chemicals that are labelled as toxic, corrosive, flammable, reactive, cytotoxic, mutagenic, teratogenic, carcinogenic, or radioactive.
General Waste	All other waste types including packaging materials, kitchen waste, and other substances that do not require special handling and do not pose a threat to public and environmental health.

3.4.2 Study Method

There are a total of 239 medical institutions in the target areas generating medical waste as shown in the table below.

Table-3-47: Medical Institutions in Baku city

Category of Institution	Fr.		Number of Beds				
			Total		Average	Maximum	Minimum
1. General Hospital	42	18%	11,480	47%	273.3	1,315	30
2. Hospital	18	8%	5,152	21%	286.2	2,190	50
3. Clinic	108	45%	570	2%	5.8	310	0
4. Others	71	30%	6,969	29%	102.5	430	0
Grand Total	239	100%	24,171	100%	106.5	---	---

40 medical institutions in Baku city took part in the questionnaire. The number of medical institutions chosen for this survey were determined in proportion to the number of citizens in each district in Baku as shown in Table 3-48. This study was carried out by a local consultant employed by the study team. The interview focused on the generation, segregation, storage, discharge, collection, treatment, and disposal of infectious and hazardous medical waste.

Table 3-48: Target Medical Institutions for the Survey

District	No. of Samples	Total Number of beds
Azizbekov	1	330
Binagady	1	400
Garadag	2	180
Khatai	4	1,300
Narimanov	2	650
Nasimi	8	3,155
Nizami	5	635
Sabail	5	890
Sabunchi	4	1,750
Surakhan	2	220
Yasamal	6	2025
Total	40	11,535

Hospital administrators at those medical institutions were directly questioned on various waste management practices in their hospitals. The questions were broadly divided into the following topics:

- general questions about the size and location of the medical institution;

- questions related to storage of all waste types in the departments (point of discharge);

- questions on storage of infectious and hazardous waste at the central collection point;

- questions on treatment of infectious and hazardous waste at the hospital prior to discharge;

- the cost of both treatment and collection for individual waste types;

- questions on handling, storage and treatment methods, recycling, and collection costs for general waste;

- questions on training offered by the institution for individuals who come into contact with medical waste (waste management staff);

- opinions of interviewees on in-house waste management and in general.

3.4.3 Results

This study covered 4 categories of medical institutions, namely general hospitals, hospitals, clinics and others. However in Baku city, there are institutions with over 2,000 beds in the hospital category, and whereas most clinics do not have any bed, 3 of them, psychoneurology clinic No. 1, psychoneurology clinic No. 2 and diagnostic centre, have 250, 310 and 10 beds respectively. Therefore, the category of each institution does not precisely reflect its size (number of beds). Many results in this study have been compiled based on the categories of medical institutions, but the above should always be kept in mind.

The 40 medical institutions covered by this study represent 16.7% of the total number of such institutions in Baku city, and 47.7% of the total number of beds.

The list of all 239 medical institutions in Baku city is given in Table 3-103, and the 40 institutions targeted in this study are listed in Table 3-104.

The results of the survey are summarised below.

a.   General Questions to the Interviewees

- Categories and types of institutions

The categories of medical institutions covered in this study were 13 general hospitals (32.5%), 8 hospitals (20.0%), 2 clinics (5.0%) and 17 others (42.5%). The latter category consisted of the following institutions:

- maternity house;
- closed-ended hospital;
- dispensary;
- scientific research institute;
- AIDS centre.

These institutions were divided into 3 types: 35 public (87.5%), 1 private (2.5%) and 4 others (10%), which are government institutions that are partially independent financially. It must be noted however that the component ratio for the type of institutions is unknown, as there are no existing data on the subject and it was not covered by this study.

Table 3-49: Categories and Types of Institutions

Base: All interviewees 40					
Category of Institution	Type of Institution			Grand Total	%
	Public	Private	Others		
1. General Hospital	12		1	13	33%
2. Hospital	8			8	20%
3. Clinic		1	1	2	5%
4. Others	15		2	17	43%
Grand Total	35	1	4	40	100%

Table 3-50: Category of Institution "Others"

Base: Others (17)		
Category of Institution "Others"	Fr.	%
1. Maternity House	5	29%
2. Closed-ended Hospital	1	6%
3. Dispensary	7	41%
4. Scientific Research Institute	3	18%
5. AIDS Centre	1	6%
Grand Total	17	100%

- Number of employees

The average number of employees of medical institutions was 373 full-time and 16 part-time, that is to say more than 95% were employed on a full-time basis. This result was used to compute the number of employees per number of beds, which does not change much from one category to another.

Table 3-51: Number of Employees

Base: All interviewees (40)							
Category of Institution	Full-time		Part-time		Number of Employees/Bed		
	Total	Average	Total	Average	Average	Maximum	Minimum
1. General Hospital	8,210	632	243	19	1.3	2.4	0.7
2. Hospital	3,005	376	58	7	1.4	2.3	0.6
3. Clinic	123	62	47	24	—	—	—
4. Others	3,579	211	296	17	1.5	3.1	0.2
Grand Total	14,917	373	644	16	1.3	3.1	0.2

- Outline of institution: Number of beds

There were disparities in the average number of beds: 536 in general hospitals, 267 in hospitals and 162 in others. It must be noted that both clinics covered in this study as well as the AIDS centre and Clinic No. 2 for Skin and Venereal Diseases in the category "others" were excluded from the total as they do have any bed.

Table 3-52: Number of Beds

Base: Valid answers (36)					
Category of Institution	Fr.	Number of Beds			
		Total	Average	Maximum	Minimum
1. General Hospital	13	6,970	536	1,315	100
2. Hospital	8	2,135	267	500	75
3. Clinic	—	—	—	—	—
4. Others	15	2,430	162	360	75
Grand Total	36	11,535	320	1,315	75

- Outline of institution : Season of occupancy

The tendency was high occupancy in spring and autumn and low in summer and winter, but some institutions had not regular pattern of occupancy. The bed occupation rate was enquired but no consistent answers could be obtained.

Table 3-53: Season of Occupancy

Base: All interviewees (40)				
Season	Occupancy			
	High	%	Low	%
1. Spring	18	45%	4	10%
2. Summer	11	28%	20	50%
3. Autumn	18	45%	4	10%
4. Winter	13	33%	15	38%
5. No Regularity	5	13%	5	13%

- Outline of institution : Number of out-patients/day

The number of out-patients per day was 126 in general hospitals, 81 in hospitals, 35 in clinics and 64 in others, with an average grand total of 86. There were disparities between the categories.

Table 3-54: Number of Out-patients/Day

Base: Valid answers (32)					
Category of Institution	Fr.	Number of Out-patients/Day			
		Total	Average	Maximum	Minimum
1. General Hospital	11	1,388	126	429	5
2. Hospital	5	403	81	305	10
3. Clinic	2	70	35	35	35
4. Others	14	891	64	250	20
Grand Total	32	2,752	86	429	5

Table 3-55: Number of Out-patients/Day (Others)

Base: Category "Others" (14)					
Category of Institution "Others"	Fr.	Number of Out-patients/Day			
		Total	Average	Maximum	Minimum
1. Maternity House	3	67	22	25	20
2. Closed-ended Hospital	7	592	85	250	22
3. Dispensary	3	212	71	102	50
4. Scientific Research Institute	1	20	20	20	20
Grand Total	14	891	64	250	20

b.   Medical Waste Management

b.1   Evaluation of the Present System

- Which of the following phrases best represents the present management of medical waste in your institution?

18 (45%) institutions answered that they have no problem related to medical waste management. The other 22 (55%) institutions answered that employees and patients or the environment were at risk.

Table 3-56: The Present Management of Medical Waste

Base: All interviewees (40)		
Q.5.	Fr.	%
1. Generally there are no problems with the present management.	18	45%
2. The present system potentially poses a risk for employees in the area of waste management.	3	7.5%
3. The present system potentially poses a risk for employees and patients.	3	7.5%
4. The present management is satisfactory from the internal view point, but constitutes an unacceptable risk for the external environment.	16	40%
Grand Total	40	100%

- Which of the following phrases better explains the present management of medical waste in Baku city?

17 (42.5%) institutions of Baku city answered that they do not understand medical waste management. However, among medical institutions which gave meaningful

answers, more than 80% think that waste poses a risk on the employees, the public and the environment.

Table 3-57: The Present Management of Medical Waste in Baku city

Base: All interviewees (40)		
Q.6.	Fr.	%
1. Generally there are no problems with the present management of medical waste.	4	10%
2. The present system potentially poses a risk for employees in the area of waste management.	3	7.5%
3. The present system potentially poses a risk for employees and patients.	1	2.5%
4. The present system potentially poses a risk for the public.	9	22.5%
5. The present management is satisfactory from the internal view point, but constitutes an unacceptable risk for the external environment.	6	15%
6. I don't know.	17	42.5%
Grand Total	40	100%

- To what extent is each of the following aspects attributed to the present situation of medical waste? (Please tick the appropriate boxes.)

Many interviewees said that their responsibility is great in relation to the lack of regulations, guidelines, supervision, funds, obedience and training. A significant proportion of interviewees answered that they do not know about the lack of regulations, guidelines and supervision. This could be representative of the fact that there is not target of medical waste management.

Table 3-58: What is Your Responsibility (Present Situation of Medical Waste)

Base: All interviewees (40)											
Q.7.	1. Great		2. Considerable		3. Low		4. No		5. I don't know		Grand Total
	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	
Lack of legislation and regulations	18	45%	2	5%	7	18%	2	5%	11	28%	40
Lack of guidelines for the present management	22	55%	4	10%	6	15%	1	3%	7	18%	40
Lack of supervision and control by the authorities	14	35%	9	23%	9	23%			8	20%	40
Lack of funds to carry out an appropriate management	29	73%	5	13%	1	3%	2	5%	3	8%	40
Lack of obedience to internal instructions	16	40%	9	23%	7	18%	3	8%	5	13%	40
Lack of training for the equipment	27	68%	7	18%	3	8%	1	3%	2	5%	40

b.2   Generation Amount

- How many kilograms of medical waste is generated per day?

The generation amount of medical waste was investigated and allowed the computation of the generation amount per bed for each category. The results showed disparities among categories, with 0.42 kg in general hospitals, 0.34 kg in hospitals

and 0.59 kg in others. The generation amount per bed in clinics could not be calculated, but the amount per day was estimated at 14 kg at one clinic.

Table 3-59: Generation Amount of Medical Waste (Target of Institutions)

Base: All interviewees (40)						
Category of Institution	Total Fr.	No. of Beds		Medical Waste (kg/day)		
		Fr.	Average	Fr.	Average	kg/day/bed
1. General Hospital	13	13	536	13	223.92	0.42
2. Hospital	8	8	267	8	91.13	0.34
3. Clinic	2	---	---	2	14.00	---
4. Others	17	17	143	17	98.88	0.69
Grand Total	40	38	304	40	140.03	0.46

b.3 Storage

- How do you store medical waste?

31 (77.55%) institutions separate their medical waste and general waste, but 9 (22.5%) institutions mix them together, indicating a risk of infection by medical waste.

Table 3-60: Storage Manner for Medical Waste

Base: All interviewees (40)		
Q.9.	Fr.	%
1. We mix it with general waste.	9	22.5%
2. We store it separately.	31	77.5%
Grand Total	40	100%

- Why don't you separate medical waste?

As for the reason why they do not separate medical waste, many interviewees answered that it is troublesome, and two answered the absence of funds for the organization of such activities. For one interviewee, there is no reason to separate waste.

Table 3-61: Reasons for not Separating Medical Waste

Base: Mix general and medical waste (9)		
Q.10.	Fr.	%
1. There is no reason to separate them.	1	11%
2. It is troublesome to separate them.	6	67%
3. Others	2	22%
Grand Total	9	100%

- How many categories of medical waste are separated?

Among 31 medical institutions which separate medical waste and store it separately, 24 (77%) divide it into more than 2 categories.

Table 3-62: Number of Separation Categories of Medical Waste

Base: Separate general and medical waste (31)		
Q.11.	Fr.	%
1. One category	2	6%
2. Two categories	5	16%
3. More than two categories	24	77%
Grand Total	31	100%

- Please tick the appropriate boxes on the answer sheet to indicate your method of separating of medical waste.

Blood and radioactive waste are separated at 100%. Except for one or two institutions, other types of waste are separated. Two institutions mix sharp materials with other medical waste.

Table 3-63: Separation Manner of Medical Waste

Base: Separate general and medical waste (31)						
Q.12.	Storage				Grand Total	
	Separate		Mix			
Type of waste	Fr.	%	Fr.	%	Fr.	%
1. Blood	29	100%			29	100%
2. Infectious agents, cultures, fungi	18	95%	1	5%	19	100%
3. Non anatomic waste that comes from the medical care of patients and laboratories	25	96%	1	4%	26	100%
4. Pathological waste	22	96%	1	4%	23	100%
5. Sharp materials (needles, surgical knives, etc.)	29	94%	2	6%	31	100%
6. Hazardous waste (chemicals, medicine)	30	97%	1	3%	31	100%
7. Radioactive waste	7	100%	0	0%	7	100%

b.4   Treatment and Recycling

- Is the medical waste treated? (Please tick the appropriate boxes.)

Among institutions which mix medical waste and general waste, 1 (11%) of them treats waste off-site, while 8 (89%) do not apply any treatment.

Among institutions which separate medical waste, most of them treat infectious waste, such as blood and infectious agents, on-site or off-site, but 17 (55%) institutions do not apply any treatment to hazardous waste (chemicals, medicine).

Table 3-64: Treatment Manner of Medical Waste (1)

Base: All interviewees (40)		1. On-site		2. Off-Site		3. No		Total
	Type of Waste / Treatment	Fr.	%	Fr.	%	Fr.	%	Fr.
1. We mix it with general	1. Mixed waste			1	11%	8	89%	9

waste.								
2. We store it separately.	1. Blood	26	90%	2	7%	1	3%	29
	2. Infectious agents, cultures, fungi	17	89%	1	5%	1	5%	19
	3. Non anatomic waste that comes from the medical care of patients and laboratories	19	73%	6	23%	1	4%	26
	4. Pathological waste	19	83%	3	13%	1	4%	23
	5. Sharp materials (needles, surgical knives, etc.)	24	77%	3	10%	4	13%	31
	6. Hazardous waste (chemicals, medicine)	6	19%	8	26%	17	55%	31
	7. Radioactive waste	3	43%	3	43%	1	14%	7
	8. Mixed medical waste			7	23%	24	77%	31

- How is the medical waste treated? (Please tick the appropriate boxes.)

The only institution which treats mixed waste uses open burning. Among treatment of separated medical waste, chemical disinfections of infectious waste such as blood and infectious agents is a commonly used method. Other institutions favour incineration in an incinerator and open burning, and disposal by open burial. Autoclave is also used for the treatment of sharps. Some institutions have their radioactive waste processed by another organization (answer "others": 4 (67%)).

Table 3-65: Treatment Manner of Medical Waste (2)

Base: Have treatment																
Q.14.	Treatment Method* / Type of Waste	1		2		3		4		5		6		7		Total
		Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.
1. We mix it with general waste.	1. Mixed waste			1	100%											1
2. We store it separately.	1. Blood			2	7%	1	4%	25	89%							28
	2. Infectious agents, cultures, fungi	1	6%	1	6%	1	6%	14	78%	1	6%					18
	3. Non anatomic waste that comes from the medical care of patients and laboratories	2	8%	3	12%	2	8%	15	60%			3	12%			25
	4. Pathological waste	1	5%	3	14%			17	77%			1	5%			22
	5. Sharp materials (needles, surgical knives, etc.)			1	4%	3	11%	16	59%	7	26%					27
	6. Hazardous waste (chemicals, medicine)	1	7%	7	50%	4	29%	2	14%							14
	7. Radioactive waste											2	33%	4	67%	6
	8. Mixed medical waste	1	14%	1	14%	2	29%					3	43%			7
(*) 1. Incineration in an incinerator 2. Open burning 3. Open burial 4. Chemical disinfections									5. Autoclave (steam sterilization) 6. I don't know 7. Others							

- Does your institution have a recycling system? Do you recycle any waste generated at your institution?

One institution (2.5%) recycles all types of waste, and another one (2.5%) recycles general waste. nine institutions (22.5%) recycle medical waste after treatment such as sterilization. The remaining 29 institutions (72.5%) do not recycle any type of waste.

Table 3-66: Recycling of Medical Waste

Base: All interviewees (40)		
Q.15.	Fr.	%
1. Yes, we recycle all waste types.	1	2.5%
2. Yes, but we recycle only general waste.	1	2.5%
3. Yes, but we recycle only medical waste that has undergone treatment, e.g. glassware.	9	22.5%
4. No. We do not recycle any of our waste.	29	72.5%
Grand Total	40	100%

- Please fill up the following, with regard to the recycled medical waste items.

The following table shows the items of recycling, as well as the recycling agents, methods and quantities. As indicated, the number of recycled items is limited, and the nurses and medical staff in charge work on a small scale.

Table 3-67: Recycling Items Among Medical Waste

Base: Recycle waste (11)			
Q.16	Recycling agent	Method	(kg/week)
All	Worker	By hand	60
Mattresses	Nurse	By hand	100
Cotton, gloves	Nurse	By hand	2
Dangerous waste	Medical staff	By hand	3
Glass vessels	Laboratory	By hand	1
	Laboratory assistant	By hand	1
Injectors	Medical staff	By hand	3
Injectors, gloves, tips for pipette	Laboratory assistant	By hand	3
Injectors, glass	Medical staff	By hand	5
Injectors, systems for blood transfusion	Medical staff	By hand	5
Scalpels, gloves	Worker	By hand	3

b.5   Waste Discharge

- How do you discharge medical waste?

Among 31 institutions which store medical and general waste separately, 19 of them discharge medical waste by type while the remaining 12 discharge mixed medical waste.

Table 3-68: Medical Waste Discharge

Base: All interviewees (40)		
Q.17.	Fr.	%
1. Separate storage but mixed discharge	12	30%
2. Separate storage and separate discharge	19	48%
3. Mixed storage and mixed discharge	9	23%
Grand Total	40	100%

- In case of "separate storage but mixed discharge", who mixes it?

Employees mix waste in all the institutions which store medical waste separately but mix it up for discharge.

Table 3-69: Who mixes medical waste which has been separated?

Base: Separate storage but mixed discharge		
Q.17.	Fr.	%
1. Our employees	12	100%
Grand Total	12	

- Please tick the appropriate boxes on the answer sheet to indicate your manner of discharge of medical waste.

19 institutions separate and store medical waste by type (Table 3-63), but this separation is not maintained at the time of discharge.

Table 3-70: Discharge Manner of Medical Waste

Base: Generate and store medical waste separately							
Q.9.	Q12 Storage	Discharge Manner / Type of Waste	1. Separate		2. Mixed		Total
			Fr.	%	Fr.	%	Fr.
2. We store it Separately.	1. Separate	1. Blood	22	76%	7	24%	29
		2. Infectious agents, cultures, fungi	14	78%	4	22%	18
		3. Non anatomic waste	20	80%	5	20%	25
		4. Pathological waste	18	82%	4	18%	22
		5. Sharp materials (needles, surgical knives, etc.)	21	72%	8	28%	29
		6. Hazardous waste (chemicals, medicine)	20	67%	10	33%	30
		7. Radioactive waste	6	86%	1	14%	7

b.6   Collection

- Who collects medical waste?

In 8 cases (20%), a private company is contracted by the medical institution to collect the waste. In 17 cases (43%), the municipality or a private company contracted by the municipality collects the waste directly. The staff is in charge of the collection (others) in 10 institutions (25%), and there is no collection service in 5 cases (13%).

Table 3-71: Collection Manner of Medical Waste

Base: All interviewees (40)								
Q.20.	1. Separate storage but mixed discharge		2. Separate storage and separate discharge		3. Mixed storage and mixed discharge		Grand Total	
	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Private company contracted by us	4	33%	3	16%	1	11%	8	20%
2. Private company contracted by municipality	1	8%			1	11%	2	5%
3. Municipality	6	50%	6	32%	3	33%	15	38%
4. Others	1	8%	7	37%	2	22%	10	25%

5. No collection service			3	16%	2	22%	5	13%
Grand Total	12	100%	19	100%	9	100%	40	100%

- How many times per week is it collected? Choose one of the following.

17 institutions (43%) answered "every day", 8 (20%) answered "3 or 4 times a week". For the others, waste is collected once or twice a week or irregularly.

Table 3-72: Collection Frequency of Medical Waste

Base: All interviewees (40)												
Q.21.	Who collects medical waste										Grand Total	
	1. Private company contracted by us		2. Private company contracted by municipality		3. Municipality		4. Others		5. No collection service			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Every day	2	25%	1	50%	5	33%	5	50%	4	80%	17	43%
3. 3 or 4 times a week	2	25%			3	20%	2	20%	1	20%	8	20%
4. Twice a week	2	25%			3	20%	1	10%			6	15%
5. Once a week	2	25%	1	50%	3	20%					6	15%
6. Irregular					1	7%	2	20%			3	8%
Grand Total	8	100%	2	100%	15	100%	10	100%	5	100%	40	100%

- How is the medical waste finally disposed of? Choose one of the following.

Eight institutions (20%) dispose of the collected waste in their own property, 13 (33%) at the landfill after treatment, and eight (20%) at the landfill without treatment. Also nine institutions (23%) answered that they do not know. The "others" category was the AIDS Centre which buries waste into a hole after disinfection.

Table 3-73: Final Disposal Method for Medical Waste

Base: All interviewees (40)												
	Who collects medical waste										Grand Total	
	1. Private company contracted by us		2. Private company contracted by municipality		3. Municipality		4. Others		5. No collection service			
Q.21.	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. We dispose of medical waste in our property.					4	27%	3	30%	1	20%	8	20%
2. We throw it in public places.					1	7%					1	3%
3. It is disposed of at a landfill site for municipal solid waste without treatment.	2	25%	1	50%	3	20%	2	20%			8	20%
4. It is disposed of at a landfill site after treatment.	3	38%			5	33%	2	20%	3	60%	13	33%
5. I don't know.	3	38%	1	50%	2	13%	3	30%			9	23%
6. Others									1	20%	1	3%
Grand Total	8	100%	2	100%	15	100%	10	100%	5	100%	40	100%

b.7   In-house collection System

- Specify the present medical waste collection system in your institution. (Please tick the appropriate boxes.)

Few institutions use a standard system with containers or coloured bags with labels, whereas many use different types of labelled containers, or even cellophane packs or metallic buckets (others).

Table 3-74: In-house Collection System

Base: All interviewees (40)									
		In-house collection system						Grand Total	
Q.9.	Type of Waste	We use a standard system with containers or coloured bags with labels.		We use different types of labelled containers.		Others			
		Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. We mix it with general waste.	8. Mixed waste			3	33%	6	67%	9	100%
2. We store it separately.	1. Blood	7	24%	9	31%	13	45%	29	100%
	2. Infectious agents, cultures, fungi	3	16%	8	42%	8	42%	19	100%
	3. Non anatomic waste	6	23%	10	38%	10	38%	26	100%
	4. Pathological waste	4	17%	10	43%	9	39%	23	100%
	5. Sharp materials (needles, surgical knives, etc.)	7	23%	11	35%	13	42%	31	100%
	6. Hazardous waste (chemicals, medicine)	7	23%	6	19%	18	58%	31	100%
	7. Radioactive waste	3	43%			4	57%	7	100%
	8. Mixed medical waste	7	23%	5	16%	19	61%	31	100%

- Describe the present containers used for the collection of medical waste in your institution. (Please tick the appropriate boxes.)

Some institutions use hard plastic containers to collect waste, but many others use only plastic bags, cellophane packs or metallic buckets.

Table 3-75: Present Containers for the Collection of Medical Waste

Base: All interviewees (40)													
Q.9.	Containers* / Type of waste	1		2		3		4		5		Grand Total	
		Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. We mix it with general waste.	8. Mixed waste	1	11%	2	22%					6	67%	9	100%
2. We store it separately.	1. Blood	10	34%					7	24%	12	41%	29	100%
	2. Infectious agents, cultures, fungi	6	32%					8	42%	5	26%	19	100%
	3. Non anatomic waste	11	42%	1	4%			9	35%	5	19%	26	100%
	4. Pathological waste	10	43%			2	9%	7	30%	4	17%	23	100%
	5. Sharp materials (needles, surgical knives, etc.)	9	29%	2	6%	2	6%	9	29%	9	29%	31	100%
	6. Hazardous waste (chemicals, medicine)	4	13%	4	13%	1	3%	13	42%	9	29%	31	100%
	7. Radioactive waste	3	43%					2	29%	2	29%	7	100%
	8. Mixed medical waste	7	23%	2	6%	2	6%	9	29%	11	35%	31	100%
(*)1. We use hard plastic containers. 2. We use cardboard boxes with a plastic bag liner. 3. We use cardboard boxes without a plastic bag liner. 4. We use only plastic bags. 5. Others (cellophane pack or metallic bucket).													

- Specify the collection frequency of medical waste (of the department) in your institution. (Please tick the appropriate boxes.)

All the institutions answered that in-house collection of waste was carried out once per day.

Table 3-76: In-house Collection Frequency

Base: All interviewees (40)		2. Once per day		Grand Total	
Q.9.	In-house collection frequency / Type of waste	Fr.	%	Fr.	%
1. We mix it with general waste.	8. Mixed waste	9	100%	9	100%
2. We store it separately.	1. Blood	29	100%	29	100%
	2. Infectious agents, cultures, fungi	19	100%	19	100%
	3. Non anatomic waste	26	100%	26	100%
	4. Pathological waste	23	100%	23	100%
	5. Sharp materials (needles, surgical knives, etc.)	31	100%	31	100%
	6. Hazardous waste (chemicals, medicine)	31	100%	31	100%
	7. Radioactive waste	7	100%	7	100%
	8. Mixed medical waste	31	100%	31	100%

- Are there cool storage points for pathological waste in your institution?

Four institutions (10%), among those which store separated medical waste, have cool storage. They are not necessarily large institutions, as their number of beds ranges from 75 to 340.

Table 3-77: Possession of Cool Storage Point

Base: All interviewees (40)					
	Q.9. Storage of Medical Waste			Grand Total	
	Mixed		Separate		
Q.26.	Fr.	%	Fr.	%	Fr.	%
1.Yes			4	13%	4	10%
2. No	9	100%	27	87%	36	90%
Grand Total	9	100%	31	100%	40	100%

- Is there one or several central waste collection points in your institution?

33 institutions (83%) answered that they have one or several central waste collection points.

Table 3-78: Existence of Central Waste Collection Point

Base: All interviewees (40)					
	Q.9. Storage of Medical Waste			Grand Total	
Q.27.	Mixed		Separate		
	Fr.	%	Fr.	%	Fr.	%
1. Yes, there is one waste collection point.	6	67%	22	71%	28	70%
2. Yes, there are more than one waste collection points.			5	16%	5	13%
3. No, the waste is collected directly from the patients' wards or the departments and sent away for treatment and/or disposal.	3	33%	4	13%	7	18%
Grand Total	9	100%	31	100%	40	100%

- Where is (are) this (these) central collection point(s) located? Is it (are they) (an)

specially dedicated area(s) (i.e. separated from the other buildings)?

35 institutions (88%) have one or several central collection points in specially dedicated areas.

Table 3-79: Central Collection Point in Dedicated Area

Base: All interviewees (40)								
Q.28.	Q.27. Is there a central waste collection point						Grand Total	
	Yes, there is one		Yes, more than one		No			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1.Yes	25	89%	4	80%	6	86%	35	88%
2. No	3	11%	1	20%	1	14%	5	12%
Grand Total	28	100%	5	100%	7	100%	40	100%

- How often is (are) the collection point(s) disinfected?

Disinfection of the collection point(s) is carried out regularly, such as once per week or per month, at 20 institutions (50%), and whenever necessary at 18 (45%). Others were institutions which do it twice per week. Disinfection is essential as it prevents the spread of contamination from medical waste.

Table 3-80: Disinfection of Central Collection Point

Base: All interviewees (40)								
Q.29.	Q.27. Is there a central waste collection point						Grand Total	
	Yes, there is one		Yes, more than one		No			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Once a week	8	29%	3	60%			11	28%
3. Once a month	2	7%			2	29%	4	10%
4. Every 2-3 months	1	4%					1	3%
5. Twice per year	1	4%					1	3%
6. With less frequency					1	14%	1	3%
7. When it is considered necessary	12	43%	2	40%	4	57%	18	45%
8. Never	1	4%					1	3%
9. Others	3	11%					3	8%
Grand Total	28	100%	5	100%	7	100%	40	100%

- Is it (are they) enclosed with a fence and locked?

Six institutions (15%) have the central collection point fenced and locked, whereas 14 (35%) only have a fence with no lock. 20 institutions (50%) answered "others" for unfenced and unlocked collection point. These two conditions together are effective in preventing the spread of contamination from medical waste.

Table 3-81: Fenced and Locked Central Collection Point

Base: All interviewees (40)								
Q.30.	Q.27. Is there a central waste collection point						Grand Total	
	Yes, there is one		Yes, more than one		No			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Yes, but only for contaminated waste.	2	7%					2	5%
2. All collection points are enclosed with a fence	4	14%					4	10%

and locked.							
3. Enclosed with a fence but not locked.	7	25%	2	40%	5	71%	14	35%
4. Others	15	54%	3	60%	2	29%	20	50%
Grand Total	28	100%	5	100%	7	100%	40	100%

- Describe the access to the collection point for the collection vehicles (trucks) and the procedure of waste loading.

Except for "others", 39 institutions (97%) have a free access to the collection point for the vehicles. Waste is loaded by machine at 25 institutions (63%) and manually at 14 (35%).

Table 3-82: Access for Collection Vehicles and Loading

Base: All interviewees (40)								
Q.31.	Q.27. Is there a central waste collection point						Grand Total	
	Yes, there is one		Yes, more than one		No			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. There is a free access for the vehicles. The containers are emptied by haul-up or by lift.	3	11%	1	20%	1	14%	5	13%
2. There is a free access for the vehicles. The containers are emptied by lift.	14	50%	4	80%	2	29%	20	50%
3. There is a free access for the vehicles. The waste is loaded manually.	10	36%			4	57%	14	35%
5. Others	1	4%					1	3%
Grand Total	28	100%	5	100%	7	100%	40	100%

- Specify the area of storage for hazardous waste (chemicals, medicine).

13 institutions (33%) have a dedicated storage area for hazardous waste. Others do not have any.

Table 3-83: Storage of Hazardous Waste (Chemicals, Medicine)

Base: All interviewees (40)									
Q.32.	Q.2. Category of Hospital								Grand Total	
	General Hospital		Hospital		Clinic		Others			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. We have an area dedicated to the storage of hazardous waste.	3	23%	3	38%	1	50%	6	35%	13	33%
2. We do not have an area dedicated to the storage of hazardous waste.	10	77%	5	63%	1	50%	11	65%	27	68%
Grand Total	13	100%	8	100%	2	100%	17	100%	40	100%

- Is there any structure for the storage of radioactive waste?

28 of the surveyed institutions (70%) do not generate radioactive waste. Among the others, 3 (8%) have a structure to store radioactive waste for short periods or until the radiation level has diminished, whereas the remaining 9 (22%) do not have any such structure.

Table 3-84: Storage Structure for Radioactive Waste

Base: All interviewees (40)										
Q.33.	Q.2. Category of Hospital								Grand Total	
	General Hospital		Hospital		Clinic		Others			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Yes, for short periods of storage only.	2	15%							2	5%
2. Yes, the waste is stored until the radiation has decreased.			1	13%					1	3%
3. No, because we do not generate radioactive waste.	7	54%	6	75%	2	100%	13	76%	28	70%
4. No, although we generate radioactive waste.	4	31%	1	13%			4	24%	9	22%
Grand Total	13	100%	8	100%	2	100%	17	100%	40	100%

c.   General Waste Management

c.1   Generation Amount

- How many kilograms of general waste are generated every day?

The generation amount per bed and per category was computed based on the survey on the generation amount of general waste. The results show disparity between the categories of institutions, with 0.58 kg/bed for general hospitals, 1.14 kg/bed for hospitals, and 0.72 kg/bed for others. The generation amount could not be computed for each bed in the clinics, but it was estimated at 27.5 kg/day per clinic.

Table 3-85: Generation Amount of General Waste

Base: All interviewees (40)						
Category of Institution	Total Fr.	No. of Beds		General Waste (kg/day)		
		Fr.	Average	Fr.	Average	Kg/day/bed
1. General Hospital	13	13	536	13	311.15	0.58
2. Hospital	8	8	267	8	305.00	1.14
3. Clinic	2			2	27.50	
4. Others	17	17	143	17	104.00	0.72
Grand Total	40	38	304	40	207.70	0.68

c.2   Collection

- Who collects general waste?

In 10 cases (25%), a private company is contracted by the medical institution to collect the waste. In 22 cases (55%), the municipality or a private company contracted by the municipality collects the waste directly. The staff is in charge of the collection (others) in 5 institutions (13%) whereas there is no collection service in 3 institutions (7%).

Table 3-86: Collection Manner for General Waste

Base: All interviewees (40)								
	Q.17. How do you discharge medical waste							
	1. Separate storage but mixed discharge		2. Separate storage and separate discharge		3. Mixed storage and mixed discharge		Grand Total	
Q.35.	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Private company contracted by us	4	33%	5	26%	1	11%	10	25%
2. Private company contracted by municipality	1	8%			1	11%	2	5%
3. Municipality	7	58%	10	53%	3	33%	20	50%
4. Others			3	16%	2	22%	5	13%
5. No collection service			1	5%	2	22%	3	7%
Grand Total	12	100%	19	100%	9	100%	40	100%

- How is it collected?

28 institutions (70%) collect general waste mixed with medical waste, whereas 10 (25%) collect waste separately.

Table 3-87: Collection Manner for General Waste

Base: All interviewees (40)		
Q.26.	Grand Total	
	Fr.	%
1. Mixed collection with medical waste	28	70%
2. Separate collection from medical waste	10	25%
3. I don't know	1	2.5%
4. N/A	1	2.5%
Grand Total	40	100%

- How many times per week is it collected? Choose one of the following.

General waste is collected every day at 11 institutions (28%) and 3 to 6 times a week at 8 (20%). For the others, waste is collected once or twice a week or irregularly.

Table 3-88: Collection Frequency of General Waste

Base: All interviewees (40)												
	Who collects general waste										Grand Total	
	1. Private company contracted by us		2. Private company contracted by municipality		3. Municipality		4. Others		5. No collection service			
Q.37.	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Every day	3	30%	1	50%	4	20%	1	20%	2	67%	11	28%
2. 5 or 6 times a week					1	5%					1	3%
3. 3 or 4 times a week	4	40%			3	15%					7	17%
4. Twice a week	2	20%			8	40%	1	20%	1	33%	12	30%
5. Once a week	1	10%	1	50%	2	10%	1	20%			5	12%
6. Irregularly					2	10%	2	40%			4	10%
Grand Total	10	100%	2	100%	20	100%	5	100%	3	100%	40	100%

d.   Financial Matter

d.1   Medical Waste

- Specify the present medical waste collection costs.

20 institutions (50%) pay a fee for the collection of medical waste. The total amounts showed disparity between the categories of institutions, but there were also huge differences between minimum and maximum. No relationship between these amounts and the generation amounts of medical waste could be identified.

Table 3-89: Payment of Collection Fee for Medical Waste

Base: All interviewees (40)		
Q.38.	Total	%
Pay	20	50%
Don't pay	20	50%
Grand total	40	100%

Table 3-90: Amount of Collection Fee for Medical Waste

Base: Pay collection fee (20)					
Category of Institution	Fr.	Medical Waste Collection Cost (Manat/Month)			
		Total	Average	Maximum	Minimum
1. General Hospital	9	1,730,000	192,222	640,000	40,000
2. Hospital	4	1,983,000	495,750	800,000	300,000
3. Clinic	1	500,000	500,000	500,000	500,000
4. Others	6	5,335,000	889,167	2.590,000	50,000
Grand Total	20	9,548,000	477,400	2.590,000	40,000

- Specify the present medical waste treatment costs (including the cost for self-treatment).

12 institutions (30%) have treatment expenses for medical waste. As the amounts of expenses vary according to the treatment methods, institutions of different categories could not be compared.

Table 3-91: Treatment Expenses for Medical Waste

Base: All interviewees (40)		
Q.39.	Total	%
We have treatment expenses	12	30%
We have no treatment expenses	28	70%
Grand total	40	100%

Table 3-92: Amount of Treatment Expenses for Medical Waste

Base: Have medical waste treatment expenses (12)					
Category of Institution	Fr.	Medical Waste Treatment Cost (Manat/Month)			
		Total	Average	Maximum	Minimum
1. General Hospital	4	2,090,000	522,500	1,000,000	100,000
2. Hospital	3	2,100,000	700,000	1,000,000	100,000
3. Clinic	1	152,000	152,000	152,000	152,000
4. Others	4	1,698,700	424,675	1,300,000	38,700
Grand Total	12	6,040,700	503,392	1,300,000	38,700

- Proper collection, treatment and disposal of medical waste incur considerable expenses. How much could you pay for proper collection, treatment and disposal of medical waste?

10 medical institutions (25%) are willing to pay for proper collection, treatment and disposal of medical waste. The average amount that they are prepared to pay is 205,200 Manat, but there are wide disparities.

Table 3-93: Willingness to Pay (Medical Waste)

Base: All interviewees (40)		
Q.38.	Total	%
Could pay	10	25%
We do not want to pay for it.	30	75%
Grand total	40	100%

Table 3-94: Amount That Institutions Are Willing to Pay for Medical Waste Collection

Base: Could pay (10)					
Category of Institution	Fr.	Medical Waste Collection Cost (Manat/month)			
		Total	Average	Maximum	Minimum
1. General Hospital	2	450,000	225,000	350,000	100,000
2. Hospital	3	1,200,000	400,000	1,000,000	100,000
3. Clinic	2	202,000	101,000	152,000	50,000
4. Others	3	200,000	66,667	100,000	50,000
Grand Total	10	2,052,000	205,200	1,000,000	50,000

d.2   General waste

- Specify the present general waste collection costs.

29 medical institutions (73%) pay a fee for the collection of general waste, which amounts to an average of approximately 541,000 Manat. As for the collection fee for general waste, there is a huge difference between the maximum and the minimum.

Table 3-95: Payment of Collection Fee for General Waste

Base: All interviewees (40)		
Q.41.	Total	%
We pay a collection fee.	29	73%
We do not pay a collection fee.	11	27%
Grand total	40	100%

Table 3-96: Amount of Collection Fee for General Waste

Base: Pay general waste collection fee (29)					
Category of Institution	Fr.	General Waste Collection Cost (Manat/Month)			
		Total	Average	Maximum	Minimum
1. General Hospital	11	4,290,833	390,076	2,200,000	40,000
2. Hospital	5	2,816,000	563,200	1,500,000	200,000
3. Clinic	1	1,568,000	1,568,000	1,568,000	1,568,000
4. Others	12	7,032,406	586,034	2,500,000	50,000
Grand Total	29	15,707,239	541,629	2,500,000	40,000

e.   Cooperation for Waste Management

- Coping with waste requires efforts from not only the municipality but also the general public. Do you think there is something that your institution can do for proper waste management?

14 institutions (35%) show a willingness to cooperate, while 8 (20%) are not interested. 16 institutions (40%) answered that they don't know. Those which answered "others" are willing to cooperate but lack the funds.

Table 3-97: Willingness to Cooperate

Base: All interviewees (40)										
Q.42.	Q.2. Category of Hospital								Grand Total	
	General Hospital		Hospital		Clinic		Others			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Yes	4	31%	4	50%	1	50%	5	29%	14	35%
2. No	2	15%	2	25%			4	24%	8	20%
3. I don't know	6	46%	2	25%	1	50%	7	41%	16	40%
4. Others	1	8%					1	6%	2	5%
Grand Total	13	100%	8	100%	2	100%	17	100%	40	100%

- What do you think your institution can do? (Multiple answer)

29 institutions (73%) answered that they can cooperate by discharging waste neatly. Another 6 (15%) answered that they can contribute to raising the environmental awareness of the public.

Table 3-98: Type of Cooperation

Base: All interviewees (40)										
Q.43.	Q.2. Category of Hospital								Grand Total	
	General Hospital		Hospital		Clinic		Others			
	Fr.	%	Fr.	%	Fr.	%	Fr.	%	Fr.	%
1. Discharging waste neatly	9	69%	6	75%	2	100%	12	71%	29	73%
4. Recycling waste	1	8%							1	3%
5. Treating toxic/ infectious waste appropriately							2	12%	2	5%
6. Raising the environmental awareness of the public	1	8%	2	25%			3	18%	6	15%
7. Providing information to the public	2	15%							2	5%
Grand Total	13	100%	8	100%	2	100%	17	100%	40	100%

3.4.4 Findings

a.   Medical and General Waste Generation from Medical Institutions

a.1   Medical Waste

The results of the evaluation of the amount of medical waste generated by medical institutions in Baku city are shown in the following table. The unit generation rate is lower than in other countries. We computed the amount of medical waste generated in Baku city by applying the results of this survey to 239 medical institutions in the

city. Based on this calculation, we estimated that the amount of medical waste generated each day in all the medical institutions of Baku city was 12,892 kg.

Table 3-99: Medical Waste Generation Amount

Generation Source	Base of Calculation	Unit Generation Rate	Generation of Medical Waste (kg/day)
1. General Hospital	11,480 beds	0.42 kg/bed/day	4,822
2. Hospital	5,152 beds	0.34 kg/bed/day	1,751
3. Clinic	108 institutions	14.00 kg/institutions/day	1,512
4. Others	6,969 beds	0.69 kg/bed/day	4,807
Grand Total	---	---	12,892

Table 3-100: Medical Waste Generation in Other Countries

Country (City)	Type of Institution	Generation of General Waste	Generation of Infectious Medical Waste
Latin America[1]		3 kg/bed/day	0.60 kg/bed/day (=20%)
Chile (Santiago)[2]	Hospitals	2.74 kg/bed/day	1.25 kg/bed/day
	Clinics	2.83 kg/bed/day	1.55 kg/bed/day
	Rural health centres	12.0 kg/unit/day	3.0 kg/unit/day
Latin America[1]		3 kg/bed/day	0.60 kg/bed/day (=20%)
Turkey (Adana)[3]	Hospitalising institution	1.67 kg/bed/day	0.82 kg/bed/day
	Non-hospitalising institution	42.2 kg/institution/day	10.6 kg/institution/day
Turkey (Mersin)[3]	Hospitalising institution	2.62 kg/bed/day	0.59 kg/bed/day
	Non-hospitalising institution	25.5 kg/institution/day	9.25 kg/institution/day
El Salvador (San Salvador)[4]	More than 200 beds	2.83 kg/bed/day	0.55 kg/bed/day
	50 to 200 beds	3.87 kg/bed/day	0.68 kg/bed/day
	Less than 50 beds	2.96 kg/bed/day	0.33 kg/bed/day

Notes: 1) Average assumed generation for Latin America according to *Pan American Health Organization* and *World Health Organization* (/NK3/).

2) The Master Plan Study on Industrial Solid Waste Management in the Metropolitan Region of the Republic of Chile, March 1996, JICA

3) The Study on Regional Solid Waste Management for Adana-Mersin in the Republic of Turkey, January 2000, JICA

4) The Study on Regional Solid Waste Management for San Salvador Metropolitan Area in the Republic of El Salvador, September 2000, JICA

a.2   General Waste

The results of the evaluation of the amount of general waste generated by medical institutions in Baku city are shown in the following table. As for medical waste, the unit generation rate is lower than in other countries. We computed the amount of general waste generated in Baku city by medical institutions by applying the results of this survey to 239 medical institutions in the city. Based on this calculation, we estimated that the amount of general waste generated each day in all the medical institutions of Baku city was 20,588 kg.

Table 3-101: General Waste Generation Amount

Generation Source	Base of	Unit Generation	Generation of General

	Calculation	Rate	Waste (kg/day)
1. General Hospital	11,480 beds	0.58 kg/bed/day	6,658
2. Hospital	5,152 beds	1.14 kg/bed/day	5,873
3. Clinic	108 institutions	27.50 institutions	2,970
4. Others	6,969 beds	0.73 kg/bed/day	5,087
Grand Total	---	---	20,588

a.3 Forecast Generation Amount of Medical Waste and General Waste

The forecast generation amount of medical waste and general waste for 2005 and 2010 (target year) was computed, assuming an increase in the total number of beds proportional to the population increase. As shown in the following table, the generation amount of medical waste is estimated at 13.9 ton/day in 2005 and 15.0 ton/day in 2010.

Table 3-102: Forecast Generation Amount

Year	Medical Waste (ton/day)	General waste (ton/day)	Total (ton/day)
1999	12.9	20.6	33.5
2005	13.9	22.2	36.1
2010	15.0	23.9	38.9

b. Current Medical Waste Management

b.1 Storage

Medical waste management is based on the recognition of the risks of contamination posed by medical waste to people and the environment. However, there are still medical institutions in Baku city that mix medical waste and general waste because it is troublesome to separate them, and the efforts of preventing the spread of toxic chemicals and pathogens are insufficient.

Concerning in-house collection, the increase of medical waste, which needs to undergo proper treatment is a serious concern in view of the practice of mixing infectious waste, and hazardous waste, which had been previously separated, together with general waste for storage. Consequently, it will be necessary to establish a storage system for medical waste.

b.2 Treatment and Recycling

Even though there are institutions, which treat infectious and hazardous waste on-site or off-site, some do not apply any treatment. Therefore, identifying the disposal sites of this untreated waste is essential in preventing the risks of spread of contamination.

Concerning recycling, it will be necessary to develop the recycling trade and properly market recycled products. However, the reality is that almost no recycling is carried out on recyclable materials among general waste and medical waste generated by medical institutions in Baku city. Some institutions recycle some types of medical waste, but the handling system of these materials is lacking in terms of safety, and some appropriate standards will have to be set.

b.3 Waste Discharge

The fact that, at the discharge stage, many institutions mix medical waste which had been separated during in-house collection is a cause for concern. Sterilized materials might end up been mixed with untreated medical waste, which carries the risk of increasing contaminated waste.

b.4 Collection

There are several types of collection, whether by private companies or the municipality. Some waste is transported to an off-site treatment facility, but it seems that most of the waste is carried directly to a disposal site. Even though the collection frequency is high, collection is carried out only once or twice at some institutions. As medical waste contains materials, which putrefy rapidly, a daily collection system should be established. Such a reliable system should be requested to the municipality or other operators in charge of collection.

Some institutions have their own disposal site, but the supervising government office should offer guidance and appropriate advice on the operation & management of these sites. The opinions on this type of disposal should be unified all over Baku city.

b.5 In-house Collection System

A standard system for in-house collection is adopted in approximately 20% of the institutions, but other institutions use non-standard containers and plastic bags.

Colours of containers and plastic bags and symbol marks used for the collection of medical waste are standardized by WHO. It is essential that medical institutions in Azerbaijan establish a system referring to these standards.

In-house collection is carried out daily, and in many cases, waste is stored in a central collection point. However, few institutions have a cool storage system for decaying waste, and a great number of central collection points are neither locked nor even fenced. Also, the disinfection system for these central collection points is insufficient.

Many institutions do not have a special storage area for hazardous (chemicals, medicine) or radioactive waste. Central collection points should be improved to prevent the spread of contamination from medical waste.

b.6 General Waste Collection

General waste is also collected by private companies or the municipality, with a rather high frequency. This collection system should be completely separate from medical waste.

c. Financial Matters

50% of the surveyed medical institutions pay a collection fee for medical waste, and 73% for general waste. However, based on calculation results, the standard usages for fixing the collection fees are unclear. It would be natural to have a higher fee for the collection of medical waste, which entails risks, but this trend does not appear in the survey results.

When all medical waste in Baku city is appropriately treated according to a unified system (disposal in landfill after incineration or chemical disinfection), the collection fee will have to be standardised.

However, the willingness to pay a fee corresponding to appropriate collection, treatment and disposal of medical waste is extremely low. In addition, the fee that some institutions are willing to pay for this service is even lower than the fee that they are currently paying.

To establish a proper medical waste management system, this issue should be understood and addressed not only by the medical institutions, but also by the Ministry of Health (of Azerbaijan), the municipality and Baku city together.

3.4.5   Supplements: Medical Institutions in Baku

Table 3-103: List of Medical Institutions in Baku City

#	Name	# of beds	Category
1	**2**	**3**	**4**
	Azizbeyov Region		
1	Baku Hospital No 26	330	General Hospital
2	Baku Hospital No 29	60	General Hospital
3	Baku Hospital No 31	60	General Hospital
4	Medical Sanitary Station [1]3	210	General Hospital
5	Medical Sanitary Station [1]20	50	General Hospital
6	Medical Sanitary Station [1]13	115	General Hospital
7	Children's Hospital [1] 12	100	General Hospital
8	Stomatology Clinic [1]7	0	Clinic
9	City Clinic [1]17	0	Clinic
10	City Clinic [1]28	0	Clinic
11	Clinic [1]4 for Tuberculosis	265	Others
12	Pulmonaru Sanatorium [1]1	115	Others
13	Pulmonaru Sanatorium [1]2	175	Others
14	Children's Sanatorium No 1 for Tuberculosis	0	Others
15	Children's Sanatorium [1]3	200	Others
16	Children's Sanatorium No 5 for Tuberculosis	100	Others
17	Children's Sanatorium [1]35	75	Others
18	Children's Sanatorium [1]36	75	Others
19	Sanitary Station [1]12	20	Others
20	Rehabilitation Hospital [1]3	75	General Hospital
21	Hospital for Chernobil Khatastroph Victims	300	Hospital
22	Sanatorium after Gindes	112	Others
23	Republic Children's Sanatorium	290	Others
	Binagadi Region		
24	Baku city Hospital No 6	400	General Hospital
25	Medical Sanitary Station [1]6	0	General Hospital
26	Medical Sanitary Station [1]24	0	General Hospital
27	City Clinic [1] 9	0	Clinic
28	City Clinic [1] 10	0	Clinic
29	City Clinic [1] 15	0	Clinic
30	City Clinic [1] 25	0	Clinic
31	City Clinic [1] 27	0	Clinic
32	Children's Clinic [1] 20	0	Clinic
33	Children's Clinic [1] 21	0	Clinic

#	Name	# of beds	Category
1	**2**	**3**	**4**
34	Stomatology Clinic [1]8	0	Clinic
35	Children's Clinic [1] 11	0	Clinic

#	Name	# of beds	Category
36	Woman's Consultation [1] 9	0	Clinic
	Garadag Region		
37	Baku city Hospital No 9	35	General Hospital
38	Baku city Hospital No 17	40	General Hospital
39	Baku city Hospital No 23	65	General Hospital
40	Children's Hospital [1] 4	50	General Hospital
41	Baku city Hospital No 19	100	General Hospital
42	Children's Hospital [1] 9	50	General Hospital
43	City Clinic [1] 13	0	Clinic
44	Stomatology Clinic [1]10	0	Clinic
45	Children's Sanatorium No 39	50	Others
46	City Clinic [1] 32	0	Clinic
47	Maternity House [1] 4	80	Others
48	Hospital for lepers	50	Hospital
	Khatayi Region		
49	Children's Hospital No 6	200	General Hospital
50	Skin-venerologycal Clinic No 1	75	Others
51	Scientific Research Institute for Ophtalmology	210	Others
52	Republic Urological Hospital	250	Hospital
53	Azerbaijan Water Building Hospital	250	General Hospital
54	Narcological Clinic	320	Hospital
55	Neurosurgical Hospital	250	Hospital
56	Medical Sanitary Station [1]1	0	General Hospital
57	Medical Sanitary Station [1]2	0	General Hospital
58	Medical Sanitary Station [1]15	175	General Hospital
59	City Clinic [1]6	0	Clinic
60	City Clinic [1]7	0	Clinic
61	City Clinic [1]14	0	Clinic
62	City Clinic [1]2	0	Clinic
63	City Clinic [1]4	0	Clinic
64	City Clinic [1]8	0	Clinic
65	City Clinic [1]9	0	Clinic
66	Clinic [1]2 for Tuberculosis	65	Others
67	Children's Sanatorium [1]4 for Tuberculosis	170	Others
68	Children's Sanatorium [1]29	75	Others
69	Woman's Consultation [1] 10	0	Clinic
	Narimanov Region		
70	Medical Sanitary Station [1]9	0	General Hospital
71	Medical Sanitary Station [1]16	0	General Hospital
72	City Hospital No 2	775	General Hospital
73	City Hospital No 5	500	General Hospital
74	Psychiatric Clinic	50	Hospital

#	Name	# of beds	Category
1	2	3	4
75	Medical Sanitary Station [1]19	0	General Hospital
76	Medical Sanitary Station [1]22	0	General Hospital
77	Children's Hospital [1]7	150	General Hospital
78	City Clinic [1]8	0	Clinic
79	City Clinic [1]18	0	Clinic
80	City Clinic [1]4	0	Clinic
81	Stomatology Clinic [1]3	0	Clinic
82	Children's Clinic [1] 6	0	Clinic
83	Children's Clinic [1] 7	0	Clinic
84	Children's Clinic [1] 14	0	Clinic
85	Clinic [1]5 for Tuberculosis	0	Clinic
86	Woman's Consultation [1] 7	0	Clinic
87	Scientific Research Institute of Rehabilitation	137	Others
88	Scientific Research Institute of Cardiology	100	Others

89	Clinic of Medical University	100	General Hospital
90	Children's Stomatologcal Clinic	0	Clinic
91	Physical Training Clinic	0	Clinic
92	"Funda Medical Centre" (Turkish)		Clinic
93	Inam Chinese Medicine Centre		Clinic
	Nasimi Region		
94	City Hospital No 1	1315	General Hospital
95	City Hospital No 4	500	General Hospital
96	Ambulance Hospital	500	General Hospital
97	Children's Hospital No 2	500	General Hospital
98	Children's Hospital No 3	215	General Hospital
99	Maternity House [1] 1	100	Others
100	Cosmetologic Centre	0	Clinic
101	Stomatology Clinic No 1	0	Clinic
102	Stomatology Clinic No 4	0	Clinic
103	Psychoneurology Clinic No 2	310	Clinic
104	Oncology Clinic	300	Hospital
105	Clinic No 1 for Tuberculosis	160	Others
106	Ambulance Station	0	Others
107	Children House [1] 1	120	Others
108	Children House [1] 2	60	Others
109	Children's Rehabilitation Centre	0	Clinic
110	Hematology and Blood Transfusion Research Institute	110	Others
111	Scientific Research Institute for Traumatology	360	Others
112	Traumatology and Orthopedic Clinic	130	Hospital
113	Children's Urological Hospital	65	Hospital
114	Clinic for Writers Union	0	Clinic
115	Centre of National Medicine	0	Clinic
116	Central Republic Scientific Research Institute of Prophilactic and Hygiene	0	Others
117	Sanitary-quarantine service	0	Others
118	Scientific Research Institute of forensic expertise	20	Others

#	Name	# of beds	Category
1	**2**	**3**	**4**
119	"Budan Tip Merkezi" (Turkish)		Clinic
120	Turkish-Americal Medical Centre		Clinic
121	"German Medical Service"		Clinic
122	"Overseas Medical Support" (UK)		Clinic
123	"Western Medical"		Clinic
124	Medi Club		Clinic
125	Student's Clinic [1]2	0	Clinic
126	City Clinic [1]5	0	Clinic
127	Clinic of Medical University	0	Clinic
128	Children's Clinic [1] 1	0	Clinic
129	Children's Clinic [1] 3	0	Clinic
130	Children's Clinic [1] 12	0	Clinic
131	Children's Stomatology Clinic [1] 1	0	Clinic
132	City Clinic [1]20	0	Clinic
	Nizami Region		
133	Maternity House [1] 2	160	Others
134	Clinic of Zone of Health	0	Clinic
135	Skin-venerologycal Clinic No 2	0	Others
136	Clinic No 4 for Tuberculosis	150	Others
137	Baku city Hospital No 11	50	General Hospital
138	Baku city Hospital No 32	50	General Hospital
139	Medical Sanitary Station [1]14	160	General Hospital
140	Medical Sanitary Station [1]17	0	General Hospital
141	Children's Hospital [1] 1	175	General Hospital
142	City Clinic [1]26	0	Clinic

143	Children's Clinic [1] 17	0	Clinic
144	Children's Clinic [1] 19	0	Clinic
145	Stomatology Clinic [1] 5	0	Clinic
146	Children's Stomatology Clinic [1] 4	0	Clinic
147	Maternity House [1] 7	170	Others
148	Scientific Research Institute for Pulmonology	430	Others
149	Baku Centre of Epidemiology and Hygiene	0	Others
	Sabayil Region		
150	Hospital of Opthalmology Diseases	100	Hospital
151	Children's Hospital No 5	185	General Hospital
152	Maternity House [1] 5	295	Others
153	Psychoneurology Clinic No 1	250	Clinic
154	Bake Hospital No 15	125	General Hospital
155	Artrological Centre	100	Hospital
156	Shikhov Hospital	75	General Hospital
157	Stomatological Clinic	0	Clinic
158	Clinic [1]1	0	Clinic
159	Clinic [1]2	0	Clinic
160	Endocrinological Clinic	0	Clinic
161	Planning of family	0	Clinic

#	Name	# of beds	Category
1	2	3	4
162	Ambulance Station	0	Others
163	Baku city Hospital No 13	50	General Hospital
164	Hospital [1]5 for Tuberculosis	95	Hospital
165	City Clinic [1]1	0	Clinic
166	City Clinic [1]2	0	Clinic
167	City Clinic [1]29	0	Clinic
168	City Clinic [1]15	0	Clinic
169	Stomatology Clinic [1] 6	0	Clinic
170	Clinic [1]3 for Tuberculosis	0	Clinic
171	Woman's Consultation [1] 1	0	Clinic
	Sabunchu Region		
172	Baku city Hospital No 7	315	General Hospital
173	City Hospital No 34	90	General Hospital
174	City Hospital No 3	1200	General Hospital
175	Medical Sanitary Station [1]5	0	General Hospital
176	City Clinic [1] 11	0	Clinic
177	City Clinic [1] 12	0	Clinic
178	City Clinic [1] 21	0	Clinic
179	City Clinic [1] 22	0	Clinic
180	Stomatology Clinic [1]2	0	Clinic
181	Children's Clinic [1] 18	0	Clinic
182	Children's Stomatology Clinic [1] 3	0	Clinic
183	City Ambulatorium [1]33	0	Clinic
184	City Ambulatorium [1]34	0	Clinic
185	Children's Sanatorium No 18 for Tuberculosis	100	Others
186	Children's Sanatorium No 21	225	Others
187	Children's Sanatorium No 22	50	Others
188	Children's Sanatorium No 37	75	Others
189	Children's Sanatorium No 41	50	Others
190	City Hospital No 28	30	General Hospital
191	City Ambulatorium [1]31	0	Clinic
192	Psychiatric Hospital [1]1	2190	Hospital
	Surakhany Region		
193	Surakhan Hospital [1]2	50	General Hospital
194	City Hospital [1]12	150	General Hospital
195	Medical Sanitary Station [1]4	50	General Hospital

196	Medical Sanitary Station [1]10	50	General Hospital
197	Children's Infectious Diseases Hospital [1]8	100	Hospital
198	City Clinic [1]23	0	Clinic
199	City Clinic [1]24	0	Clinic
200	Hospital [1]16 for Tuberculosis	165	Hospital
201	Ambulatorium [1]30	0	Clinic
202	Stomatology Clinic [1] 9	0	Clinic
203	City Clinic [1]31	0	Clinic
204	Maternity House [1] 3	120	Others

#	Name	# of beds	Category
1	2	3	4
205	Children's Clinic [1] 16	0	Clinic
	Yasamal Region		
206	City Clinic [1]3	0	Clinic
207	City Clinic [1]16	0	Clinic
208	City Clinic [1]19	0	Clinic
209	Student's Clinic [1]1	0	Clinic
210	Children's Clinic [1] 5	0	Clinic
211	City Clinic [1]30	0	Clinic
212	Children's Clinic [1] 10	0	Clinic
213	Children's Clinic [1] 13	0	Clinic
214	Children's Stomathology Clinic [1] 2	0	Clinic
215	Stomathology Clinic [1] 11	0	Clinic
216	Woman's Consultation [1] 2	0	Clinic
217	Children's Hospital for nervous diseases	280	Hospital
218	Endocrinology Clinic	0	Clinic
219	Narcology Dispencer	0	Others
220	Children's Clinic for Psychology Diseases	0	Clinic
221	Central Clinical Hospital [1]1	300	General Hospital
222	Hospital named Gadirli	605	General Hospital
223	Gynecology Research Institute	220	Others
224	Scientific Research Institute for Experimental Clinical Surgery	340	Others
225	Scientific Research Institute for Pediatric	255	Others
226	Oncology Centre	335	Hospital
227	AIDS Centre	30	Others
228	Republic Hospital	1190	General Hospital
229	Diagnostic Centre	10	Clinic
230	Republic Children's Hospital	180	General Hospital
231	Institution's Clinic after Aliev	150	General Hospital
232	Health Centre for Family	10	Others
233	Clinic of Nation Research Institutions	140	General Hospital
234	Maternity House	160	Others
235	Stomatological Centre for Health Care Ministry	0	Others
236	Blood Transfusion Station	0	Others
237	Station on struggle with Daun disease	72	Hospital
238	Department of Disinfection and Sterilization	0	Others
239	"Health" Centre	0	Clinic

Table 3-104: List of the 40 Selected Medical Institutions

#	Name	Address	Region	Category
1	2	3	4	5
1	Clinic No 1 for Skin and Venereal Diseases	135, Tolstoy Street	Sabayil	Others (dispenser and hospital)
2	Children's Hospital for Tubeculosis No 11	92, Alibeyov Brothers Street	Sabayil	Hospital
3	Maternity House No 5	29, Abbasova Street	Sabayil	Others (maternity

				house)
4	Republic Hospital of Clinical Urology	4, Gasym Ismailov Street	Sabayil	Hospital
5	Scientific Research Institute for Ophthalmology	5, Sonakhanum Valikhanly Street	Sabayil	Others (Research Institute with surgical department and clinic)
6	Republic Clinical Hospital named after Mir-Gasimov	212, Sharifzade Street	Yasamal	General Hospital
7	AIDS Centre	34, D.Djabarli Street	Yasamal	Others (Laboratory and clinic)
8	Republic Dental Clinic	10/43, Sharifzade Street	Yasamal	Clinic
9	National Centre of Oncology	10, Sharifzade Street	Yasamal	Hospital
10	Hospital for Tuberculosis No 1	Alatava II	Yasamal	Others (dispenser)
11	Scientific Research Institute of Clinical Medicine named after M.Topchibashev	196, Sharifzade Street	Yasamal	General Hospital
12	Scientific Research Institute of Traumatology and Orthopedy	85, Mirali Gashgay Street	Nasimi	Others (Research Institute and special hospital)
13	Baku Oncology Clinic	112, Azadlyg Street	Nasimi	Others (dispenser and hospital)
14	Turkish-American Centre	41/47, Brothers Mardanov Street	Nasimi	Clinic
15	Scientific Research Institute for Hematology and Blood Transfusion	87, Mirali Gashgay Street	Nasimi	Others (Research Institute)
16	Children's Hospital No 2 named after A.Karaev	66, S.Vurgun Street	Nasimi	Hospital
17	Clinic for Skin and Venereal Diseases	61, Bul-Bul Avenue	Nasimi	Others (dispenser)
18	Municipal Clinical Hospital No 1	1, Mir-Gasimov Street	Nasimi	General Hospital
19	Ambulance Hospital named after M.Nagiev	1, Mir-Gasimov Street	Nasimi	Hospital
20	Municipal Clinical Hospital No 4 named after M.Efendiev	61, Fizuli Street	Narimanov	General Hospital

#	Name	Address	Region	Category
1	2	3	4	5
21	Children's Infectious Diseases Hospital No 7	69, Karabakh Street	Narimanov	Hospital
22	Hospital for Tuberculosis No 4	25/4, Sharifli Street	Nizami	Others (dispenser and special hospital)
23	Children's Infectious Diseases Hospital No 1	66, Ishrin Mirzaeva	Nizami	Hospital
24	Maternity House No 7	11, A.Manafova Street	Nizami	Others (maternity house)
25	Medical Sanitary Station No 14	11, Nasimi	Nizami	General Hospital
26	Clinic No 2 for Skin and Venereal Diseases	1, Veliev Street	Nizami	Others (dispenser and special hospital)
27	Medical Sanitary Station No 15	22, Zyh Highway	Khatayi	General Hospital
28	City Hospital No 2 named after M.Efendiev	19, Jusif Safarov Street	Khatayi	General Hospital
29	Azervodstroy Hospital	111-a, Babek Avenue	Khatayi	General Hospital
30	Republic Maternity House	12, Jusif Safarov Street	Khatayi	Others (maternity house)
31	Municipal United Hospital No 19	19, Nizami Street, Log-Batan Settlement	Garadag	General Hospital
32	Maternity House No 4	15, Seymur Orujev Street, Log-Batan Settlement	Garadag	Others (maternity house)
33	Municipal Clinical Hospital No 6 named after Aydar Melikov	195, Azadlyg Avenue, Rasul Zade Settlement	Binagadi	General Hospital
34	Municipal United Hospital No 7	41, Narimanov Stret, Maschtagi Settlement	Sabunchu	General Hospital
35	Municipal Clinical Hospital No 3	Sabunchi Settlement	Sabunchu	General Hospital
36	City Hospital No 34 (close-ended)	1, Achverdieva, Romani Settlement	Sabunchu	Others (receiver-distribution centre for people without a place for living and a criminal people)
37	Children's Infectious Diseases Hospital No 5	6, Shushinsky Street, Bakikhanov Settlement	Sabunchu	Hospital
38	Maternity House No 3	1, 4-th Promisel Street, Surakhani Settlement	Surakhany	Others (maternity house)
39	Hospital for Tuberculosis No 6	Zykh Settlement	Surakhany	Others (dispenser and special hospital)
40	Municipal United Hospital No 26	6, R.Gasimov Street, Mardakan Settlement	Azizbeyov	General Hospital

3.5   Public Opinion Survey

3.5.1   Objectives

It is fundamental for environmental management planning to understand how much the whole society of Baku is concerned about the environment and how much it is interested in environmental improvement. In particular, willingness to pay (WTP) for the environmental conservation has to be understood since WTP is a key element to make the environmental management M/P practicable and financially sound.

Therefore, a survey was carried out to ask opinions of the general public and enterprises on the environment. The particular purpose of this survey was twofold:

- to understand the degree of anxiety within the public about the ecological condition of city;

- to understand the degree of interest of the public in environmental improvement, including willingness to pay for services to improve the quality of habitat.

3.5.2 Study Method

a. Procedure

Considering the purpose of the survey, the following tasks were executed by a local subcontractor.

- determination of the representative samples of survey objects;
- examination and specification of the questionnaire;
- coding the questions and answers;
- mobilization and training of interviewers;
- organization of face-to-face interviews;
- control of the filled questionnaires and their coding;
- data input;
- calculations and analysis of the results;
- reporting.

b. Objects

Two categories of the clients of urban services were chosen as objects of the survey:

À) households (families) who have fixed addresses in Baku city;

B) working enterprises (offices) located in Baku city.

Interviewees at the households and enterprises were required to be at or over the age of 18 years. Interviewees at the enterprises were also required to be at a manager class or to have appropriate authorisation on the subject.

c. Sample

Number of interview samples was set at 300 for households and 100 for enterprises. The first requirement for the distribution of samples was proportionality to district population for the household survey, and proportionality to the size of each business type for the enterprise survey.

300 families to be interviewed were determined on a basis of 3-stage procedure of quota-random sample based on the data of National Census of the population of 1999 on Baku city which is shown in Table 3-105.

Table 3-105: Statistics of Population in Districts of Baku City

No.	District Code	Admistrative Districts	Location of District	Number of Census Department	Population	Approximate Number of Households
1	6401	Binagadi	Periferial	11	240,630	49,614
2	6402	Garadag	Periferial	7	103,197	21,278
3	6403	Narimanov	Central	8	159,910	32,971
4	6404	Jasamal	Central	12	235,827	48,624
5	6405	Nizami	Periferial	9	171,238	35,307

6	6406	Nasimi	Central	11	207,259	42,734
7	6407	Azizbekov	Periferial	6	128,542	26,504
8	6408	Surakhani	Periferial	9	177,820	36,664
9	6409	Sabajel	Central	4	82,354	16,980
10	6410	Sabunchi	Periferial	11	204,531	42,171
11	6411	Khatai	Periferial	12	230,076	47,438
Total				100	1,941,384	400,285

Source: National Census of the population of 1999

Stage I. Baku city has 100 census departments. With the help of the computer random selection program 62 sites in the territory were selected:

Stage II. Proportionally to the quota of the respondents over area and number of the selected census departments, the concrete addresses in the appropriate quantity (with 20% reserve) were randomly selected:

Stage III. In the presence of inhabitants at each of the chosen addresses with the help of the rule of the nearest birthday the respondent at or over the age of 18 years was selected. The selected member of family was included in a sample for direct interview.

Representative sample of the members of households. The specified procedure has ensured a representative set of 300 respondents on key parameters:

1. Territorial representative proportions of 11 urban districts.

2. Sex of the respondent: 49.7 % of the men and 50.3 % of the women.

3. Age groups of the respondents reflecting a real age structure of the population, including 42.3 % of the respondents that introduced themselves as the heads of families.

4. By number of the members of family (3 members – 15.7 %, 4 members – 34.3 %, 5 members – 20.0 %)

5. The given proportions on a standard of well-being of families were evaluated under the approximate maximal monthly charges per one member of family and the following results were received:

Well-to-do families	Over 500,000 manats per one family member	9.7%
Mean-provided families	From 200,000 to 400,000 manats (economic level just enough to obtain daily needs.))	33.6%
Needy families	Income per family member below 187,500 manats	56.7%

Thus, the given conditions should provide representative of results of the survey.

d.   Method

To standardise the survey the appropriate instructions for surveyors were specified in the questionnaire. Besides demonstration cards were prepared to help the respondents to answer multi-alternative questions. For an identification of the respondent by birthday the contact sheets applied at the first visiting of family were used.

The interview was conducted only with the selected respondent. In the event of his/her absences at the first visit, appointment was made for the next visit to interview.

e. **Control of the Data and Coding**

Data were controlled both at a stage of survey and at their receipt in the survey group. The completeness and correctness of answers were checked visually and non-discrepancy of the answers was logically controlled. The on-line control was carried out with the help of monitoring of interview by the repeated reference to the respondent on the phone or directly on a residence.

Reasons of revealed discrepancies were presumed and the meaning of answers was identified to raise data reliability.

3.5.3 Results

a. **Household survey**

a.1. **Basic aspects of the living environments**

Is the interviewee head of the family?

	Number	Percent
1. Yes	127	42.3%
2. No	173	57.7%

District:

Name	Number	Percent
Sabayil	12	4.0%
Yasamal	34	11.3%
Nasimi	32	10.7%
Narimanov	25	8.3%
Nizami	26	8.7%
Khatayl	36	12.0%
Garadag	15	5.0%
Binagadi	38	12.7%
Sabunchu	32	10.7%
Surakhany	30	10.0%
Azizbeyov	20	6.7%
Total	300	100.0%

Q.1. How many persons are there in your premises?

Persons	Number	Percent
1	19	6.3%
2	34	11.3%
3	47	15.7%
4	103	34.3%
5	60	20.0%
6	20	6.7%

7	10	3.3%
8	3	1.0%
9	3	1.0%
10	0	0.0%
11	1	0.3%
Average	3.97	

Q.2. What is the type of your house?

	Number	Percent
1. Detached house	55	18.3%
2. Apartment	233	77.7%
3. Commercial building	0	0.0%
4. Others	12	4.0%

The fact that the majority of households (77.7 %) live in apartment buildings would underlie their concerns about the living environment and public services rendered to them.

Q.3. What is the business category of the House?

Name	Number	Percent
1. Residence	300	100.0%
2. Restaurant		
3. Retail		
4. Others		

Q.4. Who earns living of your family? (Plural answer)

	Number	Percent
1. Father	203	67.7%
2 Mother	146	48.67%
3. Children	64	21.3%
4. Other family member	29	9.7%
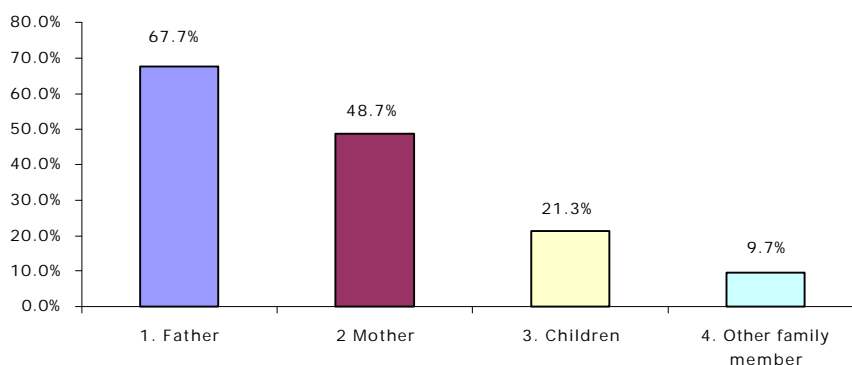
In the majority of families more than one family member have earnings presumably because of economic necessity. In nearly half families, mothers work and in every fifth family children also work. Other members of family who have earnings include grandfathers and grandmother who receive pension and also relatives such as cousins.

Q.5. How much is the total expenditure of your family per month?

	Number	Percent
1. Less than 200,000 Manat/month	68	22.7%
2. 200,001 – 400,000 Manat/month	136	45.3%
3. 400,001 –1,500,000 Manat/month	79	26.3%
4. 1,500,001 – 3,000,000 Manat/month	12	4.0%
5. More than 3,000,000 Manat/month	5	1.7%
Average – 548,833 Manat/month		

The expenditure of many families (68%) is less than 400,000 manats, which merely covers the minimum daily needs.

Q.6. How many years have you lived in the present premise?

	Number	Percent
1. Less than 5 years	42	14.0%
2. 5 – 9 years	52	17.3%
3. 10 – 19 years	100	33.3%
4. 20 years or more	106	35.3%

Though the majority of the population live in the present place of residence long time (over 10 years – 68.7 %), it is also true that not a few families are rather new inhabitants (less than five years).

a.2. Problems of public services at residence

Q.7. How do you get drinking water for your daily life?

	Number	Percent
1. Water supply tap(s) in my premises.	260	86.7%
2. A communal water supply tap in my area.	21	7.0%
3. Well/groundwater.	10	3.3%
4. Others	9	3.0%
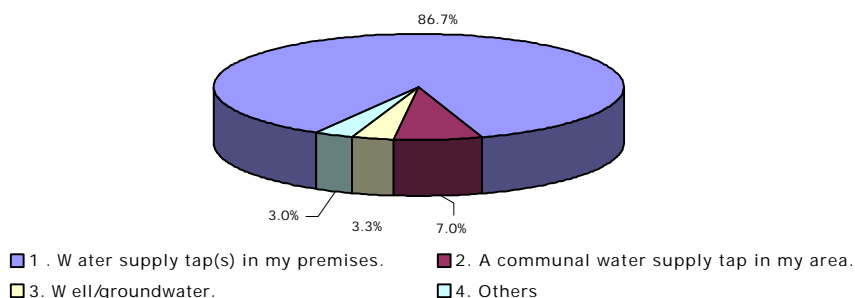
The majority of families are provided with water pipes in premises (86.7 %) while the communal water supply taps are used mainly by inhabitants of yard systems and communal flats (7 %). The inhabitants of country suburbs (3.3 %) receive water from wells in general. Other answers include water transported (brought) from outside.

Q.8. How much do you pay for water per month?

	Amount (manat/month)	Numbers	Percent (%)
Water Supply Tap	0	51	19.6
	1 – 1,500	7	2.7
	1,501 – 3,000	26	10.0
	3,001 – 5,000	44	16.9
	5,001 – 10,000	77	29.6
	10,001 – 15,000	46	17.7
	15,001 – 20,000	9	3.5
Sub total		260	
Communal water supply tap	Amount (manat/month)	Numbers	Percent (%)
	0	10	47.6
	1 – 1,500	0	0
	1,501 – 3,000	3	14.3
	3,001 – 5,000	1	4.8
	5,001 – 10,000	4	19.0
	10,001 – 15,000	2	9.5
	15,001 – 20,000	1	4.8
Total		21	

	Manat/month
Maximum	30,000
Minimum	750
Mean	8,182

As much as 25.3 % of interviewed families do not pay for water for different reasons. The reasons include exemption from payment, absence or irregular water delivery and absence of means for payment. Minimum, maximum and mean monthly payment for water are as shown in the table.

The reasons for not paying	Number	Percent
We have no resources	2	5.3%
We are exempted from payment	34	89.5%
We are unsatisfied by services	2	5.3%

Q.9. Do you have sewage service in your premise?

	Number	Percent
1. Yes	268	89.3%
2. No	32	10.7%

The dwellings of the majority (89.3 %) are equipped with a sewer system, those who do not have a sewer system are basically found in suburban and country zones.

Q.10. If yes, how much do you pay for sewage service per month?

Amount (manat/month)	Numbers	Percent (%)
0	58	21.6
1 – 1,500	38	14.2
1,501 – 3,000	96	35.8
3,001 – 5,000	47	17.5

5,001 – 10,000	26	9.7
10,001 – 15,000	3	1.1
Total	268	

Among those who have the sewer system 26.8 % do not pay for the services, and among those who are paying, the minimum, maximum and mean monthly payment are as shown in the table.

Value	Manat/month
Maximum	15,000
Minimum	200
Mean	3,446

The reasons for not paying	Number	Percent
We have no resources	2	7.7%
We are exempted from	34	92.3%

Q.11. Which type of toilet facility do you use in your premises?

Type of toilet	Number	Percent
1. Flush toilet with a septic tank	259	86.3%
2. Pit latrine.	33	11.0%
3. No toilet.	3	1.0%
4. Others	5	1.7%

The majority of the citizens (86.3 %) have toilets with an over-flow tank, since basically they live in apartment houses.

Q.12. Do you have refuse collection services?

	Number	Percent
1. Yes	262	87.3%
2. No	38	12.7%

Only 12.7 % of the interviewed persons answered that they are not provided with services in garbage collection on the place of residence. It could be because of rather irregular service of garbage removal in the given area.

Q.13. If yes, how much do you pay per month for collection service?

Amount (manta/month)	Numbers	Percent (%)
0	58	21.6
1 – 1,500	38	14.2
1,501 – 3,000	96	35.8
3,001 – 5,000	47	17.5
5,001 – 10,000	26	9.7
10,001 – 15,000	3	1.1
Total	268	

Minimum, maximum and mean payments for garbage removal are as shown in the table.

Value	Manat/month
Maximum	12,000
Minimum	280

The reasons for not paying	Number	Percent
We have no resources	2	5.7%
We are exempted from	30	85.7%

Mean	3,229		We are unsatisfied by services	3	8.6%

Q.14. If no in Q.12, how do you dispose of you refuse?

	Number	Percent
1. Burn in the yard	9	23.7%
2. Bury in the yard	8	21.1%
3. Dump in vacant lot	17	44.7%
4. I do not know	0	0.00%
5. Others	4	10.5%

Among those who are not provided with garbage removal services, most inhabitants (41.4 %) dump garbage in vacant lots, and every fifth interviewee noted that they burn garbage in a yard.

Q.15. Is there electricity supply in your premises?

	Number	Percent
1. Yes	300	100.0%
2. No		

100 percent of the premises are supplied with electricity.

Q.16. If yes, how much do you pay per month for electricity?

Amount (manat/month)	Numbers	Percent (%)
0	44	14.7
1 – 1,500	1	0.3
1,501 – 3,000	2	0.7
3,001 – 5,000	10	3.3
5,001 – 10,000	104	34.7
10,001 – 15,000	61	20.3
15,001 – 20,000	45	15.0
> 20,001	33	11.0
Total	300	

The minimum, maximum and mean payments defined by quantity of a consumed electricity are as below

Value	Manat/month
Maximum	70000
Minimum	1500
Mean	15071

The reasons for not paying	Number	Percent
We have no resources	2	5.4%
We are exempted from	34	91.9%
We are unsatisfied by services	1	2.7%

Q.17. Please tick the boxes corresponding to the degree of importance for each basic infrastructure and service for the living environment.

	Great importance	Moderate importance	Little importance	No problem	Do not know
Water supply	73.7%	9.0%	6.0%	11.3%	0
Storm water drainage	30.0%	21.3%	19.3%	27.0%	2.3%

Waste water collection	48.7%	14.7%	11.3%	24.7%	0.7%
Solid waste collection	45.7%	17.7%	15.3%	19.0%	2.3%
Electricity supply	64.3%	15.3%	7.0%	13.0%	0.3%
Hot water supply	36.7%	21.0%	17.3%	13.3%	11.7%
Access road to my premises	33.7%	24.3%	12.0%	29.7%	0.3%
Other	5.0%	0.3%	0.3%	94.3%	0.0%

It was revealed that in a daily life stable water supply and uninterrupted electrical power supply play prime roles. They are of great importance for 73.7 % and 64.3 % of respondents, respectively. Much smaller group of people raised issues of improvement of roads, uninterrupted operation of the domestic and storm water drainage whilst. 25-30 % of the respondents consider that there are no problems in these aspects generally.

Q.18. Please tick the organization(s) that is (are) responsible in your opinion for the problem(s) regarding basic infrastructure and services for the living environment. (Plural answer question) (Surveyor: show card B).

	Government of the Republic	Executive Power	Municipal Council	Inhabitants	Transport	Enterprises	All	Other	Do not know
Water supply	18.7%	66.3%	9.0%	2.7%	0.3%	14.7%	1.7%	3.7%	3.7%
Storm water drainage	5.3%	59.7%	11.3%	4.0%	2.3%	9.0%	0.7%	3.0%	17.0%
Waste water collection	4.3%	67.7%	11.7%	11.7%	0.7%	15.0%	1.0%	3.3%	4.0%
Solid waste collection	3.7%	59.3%	15.3%	12.7%	3.7%	14.0%	2.0%	2.3%	10.3%
Electricity supply	24.0%	59.0%	5.0%	4.0%	0.7%	21.7%	1.0%	4.3%	5.0%
Hot water supply	4.3%	47.3%	8.3%	3.3%	0.7%	11.0%	0.0%	3.3%	28.7%
Access road to my premises	6.7%	67.7%	11.7%	7.7%	13.3%	5.7%	0.3%	1.0%	9.3%
Other	1.7%	1.0%	0.0%	0.7%	0.3%	3.7%	0.0%	0.3%	0.0%

The inhabitants expressed their awareness of who should take responsibility for each urban service. 18.7 % and 24 % of respondents respectively required the government to bear responsibility for the issues of water and electrical power supply. However, much more often the responsibility of the local executive power was pointed out for all spectrums of problems. It is interesting that inhabitants are not regarded as a responsible body by themselves, but their responsibility for solid waste collection is relatively highly appreciated. Small part of the interviewed persons (8-12 %) even mentioned a role of recently elected municipal councils, in the jurisdiction of which the provision of many kinds of life support services of area is supposedly included.

Q.19. Please tick the boxes corresponding to the degree of importance for each problem in your daily life regarding the following environmental issues (**Surveyor: show card** A)

	Great importance	Moderate importance	Little importance	No problem	Do not know
Air pollution	79.3%	10.3%	3.7%	6.3%	0.3%

Water pollution	79.3%	11.0%	4.0%	4.3%	1.3%
Refuse	59.3%	23.3%	8.0%	8.7%	0.7%
Insects	61.0%	23.7%	11.3%	4.0%	0.0%
Inundation	42.3%	22.0%	10.3%	22.3%	3.0%
Noise and vibration	34.3%	22.0%	20.3%	20.7%	2.7%
Lack of green areas	56.0%	20.3%	11.7%	11.7%	0.3%
Other	1.0%	0.0%	0.3%	98.7%	0.0%

Inhabitants as a whole are sensible to influence of all spectrums of problems, but in particular the degradation of air and water concerns the majority of them.

Q.20. Please tick the organization(s) that should be responsible in your opinion for the following environmental problems. (Plural answer question) (Surveyor: show card B)

	Government of the Republic	Executive Power	Municipal Council	Inhabitants	Transport	Enterprises	All	Other	Do not know
Air pollution	29.3%	29.3%	2.3%	8.0%	32.3%	27.3%	13.7%	0.7%	6.3%
Water pollution	28.3%	39.0%	3.0%	7.3%	1.3%	26.3%	11.3%	0.7%	6.0%
Waste	6.0%	54.0%	10.3%	25.0%	2.0%	23.7%	8.3%	0.3%	5.0%
Insects	4.7%	38.3%	7.3%	36.7%	1.3%	11.3%	6.7%	5.3%	9.0%
Inundation	4.7%	53.3%	8.0%	17.3%	0.3%	6.7%	1.3%	0.0%	20.7%
Noise and vibration	6.7%	23.7%	3.3%	17.0%	42.7%	8.3%	5.7%	0.3%	16.0%
Lack of green areas	10.3%	54.7%	12.7%	36.3%	0.7%	10.7%	11.7%	1.0%	4.7%
Other	0.00%	0.0%	0.3%	0.0%	0.3%	0.0%	0.0%	0.3%	0.0%

In opinion of the inhabitants, government, the local executive power and the enterprises bear high responsibility for pollution of water and air. More than half of the interviewees have noted that the responsibility for problems of waste, inundation and lack of green areas rests with the local government bodies.

Q.21. What is the most important matter for you that requires an urgent decision? Please choose one and describe the reason.

	Number	Percent
Water supply	144	48.0%
Storm water drainage	12	4.0%
Night soil collection	15	5.0%
Solid waste collection	22	7.3%
Electricity supply	39	13.0%
Hot water supply	36	12.0%
Access road to my premises	11	3.7%
Other (what exactly?)	21	7.0%
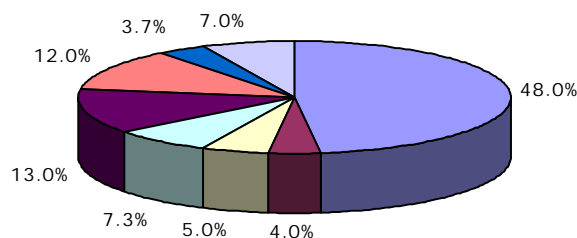
- ■ Water supply
- ■ Storm water drainage
- □ Night soil collection
- □ Solid waste collection
- ■ Electricity supply
- ■ Hot water supply
- ■ Access road to my premises
- □ Other (what exactly?)

The reasons

	Number	Percent
No water (often and continuous failures); less water.	25	8.3%
Failures in water supply (Nonfulfilment of water supply schedule).	32	10.7%
Water is the most important resource in human life.	35	11.7%
Condition of household sewerage system: "Pipes are blocked often and go out of service".	11	3.7%
Unsanitary condition is a consequence of non-satisfying organization of garbage clean-up.	16	5.3%
Failures in power supply.	27	9.0%
Each house requires hot water.	19	6.3%
Pressure of gas is low in winter.	9	3.0%

The answers to this question show peculiar acknowledgement of priority problems for the inhabitants of Baku. For 48 % of the inhabitants the problem of water supply is most serious doe to the faults in water delivery, poor quality, and deficit in summer time. The problem of electrical power supply, which is on the second place, is raised by only 13 % of the inhabitants. The reason included the fault in maintenance and troubles with obsolete lines and equipment.

Q.22. Which of the following problems requires an urgent solution? Please choose three items and describe the reasons.

	Number	Percent
Air pollution	169	56.3%
Water pollution	196	65.3%
Waste	108	36.0%
Insects	124	41.3%
Inundation	46	15.3%
Noise and vibration	42	14.0%
Lack of green areas	91	30.3%
Other	4	1.3%

The reasons

	Number	Percent

Harmful influence of polluted air to human health	49	16.3%
Air is significantly polluted – needs to be purified	29	9.7%
Polluted water is threat to human health	63	21.0%
Infraction of sanitary-hygienic norms – poor potable water quality	29	9.7%
Irrational garbage gathering and sanitation system not corresponding to the present requirements	50	16.7%
Rats and insects are disease transmitters causing health problems	36	12.0%
Noise causes recreation problems	21	7.0%
Trees purifies air, thus are beneficial for human health	39	13.0%

Many inhabitants are anxious about pollution of water and air for the reason of negative impact on health. It should be noted that the problem of insects, raised by 41.3% of respondents, is bound with irrational use of water, dumps and inundation.

a.3. Perception concerning the cost of services

Q.23. In your opinion what are necessary to improve environmental problems in your daily life? (Plural answers are acceptable):

	Number	Percent
1. Provisions of laws, regulations and guidelines	175	58.3%
2. Public awareness about environmental status and conservation	91	30.3%
3. Introduction of environmental conservation technology	108	36.0%
4. Public fund aid for environmental conservation measures	114	38.0%
5. Increase of the environmental conservation measures	100	33.3%
6. Others	14	4.7%

Among the different measures, the necessity to ensure the effectiveness of laws, instructions and rules (58.3 %) is highlighted. Other measures were also indicated by about every third interviewed persons (30.3 %- 38 %). Thus the institutional strengthening of nature protection measures in various aspects are in great need.

Q.24. Are you willing to take part in solving ecological problems which have negative impact on your life?

	Number	Percent
1. Yes	238	79.3%
2. No (Go to Q.25.)	62	20.7%

The majority of the interviewed persons (79.3 %) are willing to take part in solving those ecological problems which have negative impact on their life.

Q.24a. (If the answer to Q.24 is "Yes") What kind of participation would be possible for you to solve these problems?

	Number	Percent
1. Payment for the improved environmental conservation services	57	19.0%
2. Participation in gardening in our area	165	55.0%
3. Participation in public control of the environmental status	105	35.0%

	Number	Percent
4. Participation in ecological education of the population (lectures, meetings etc.)	50	16.7%
5. Preparation of material publication (brochures, booklets etc.)	6	2.0%
6. Other	7	2.3%

Large percent of the respondents consider that they would participate in activity for greenery in their quarter and in public control of the environmental state.

Q.25. In your opinion, the service charge for city water supply is:

	Number	Percent
1. Expensive	148	49.3%
2. Reasonable	88	29.3%
3. Cheap	4	1.3%
4. I do not know	60	20.0%

About half of the interviewees think that the charge for water is expensive. This would be supported by previous questions that revealed unsatisfactory water supply.

Q.26. In your opinion, the service charge for sewerage is:

	Number	Percent
1. Expensive	98	32.7%
2. Reasonable	125	41.7%
3. Cheap	4	1.3%
4. I do not know	73	24.3%

Almost one third of the interviewees consider that the charge for sewage is also expensive, but more people answered that it is reasonable.

Q.27. In your opinion, the service charge for refuse collection is:

	Number	Percent
1. Expensive	100	33.3%
2. Reasonable	126	42.0%
3. Cheap	3	1.0%
4. I do not know	71	23.7%

The result is similar to the result of Q.27. Most considers that the fee is reasonable, but it is expensive for 33% of the households.

Q.28. If city water supply service is improved better than the present situation, are you ready to pay more?

	Number	Percent
1. Yes, I am ready to pay more	113	37.7%
2. No, I do not want to pay more	151	50.3%
3. Do not know	36	12.0%

Half of the interviewed persons is not ready to pay more for improved water supply services.

Q.29. If sewerage service is improved better than the present situation, are you ready to pay more?

	Number	Percent
1. Yes, I am ready to pay more	91	30.3%
2. No, I do not want to pay more	161	53.7%
3. Do not know	48	16.0%

Q.30. If refuse collection service is improved better than the present situation, are you ready to pay more?

	Number	Percent
1. Yes, I am ready to pay more	93	31.0%
2. No, I do not want to pay more	165	55.0%
3. Do not know	42	14.0%

More than half of the interviewees are not ready to pay more for the improved sewage and refuse collection services.

It should be noted, however, that at the same time the considerable group (about third of population) is ready to pay more for better public services.

a.4.   Willingness to participate in improving the living conditions

Q.31. Are you familiar with "Environmentally Conscious Products"? (These are products which have no negative impact on organisms and the environment)

	Number	Percent
1. Yes	245	81.7%
2. No	55	18.3%

The population is familiar with environmentally conscious products. Only 18.3 % of the interviewed persons stated that they are not familiar with this notion.

Q.32. Which of the following statements regarding environmentally conscious products is the appropriate description of your attitude? (Surveyor: read the first four sentences)

	Number	Percent
1. I buy them even if they are a little bit more expensive than ordinary products	85	34.7%
2. I only buy them if the price is the same with that of ordinary products	82	33.5%
3. I don't think they are really environmentally conscious products	60	24.5%
4. I am not interested in them (I do not give a special attention to them)	13	5.3%
5. Do not know	5	2.0%

The awareness of environmentally conscious products has an influence on products selection of the majority of households. The majority of the interviewed persons (68 %) may purchase them, but half of them only do so if the price is the same with that of ordinary products. At the same time it is interesting to note that almost every fourth inhabitant expresses doubt that those products are really environmentally conscious.

Q.33. As for detergents used for laundry and dishes, do you know there are "phosphate free" and "conventional (phosphate-containing)" detergents?

	Number	Percent
1. Yes	96	32.0%
2. No	204	68.0%

As opposed to Q.32, the majority of the interviewees do not know about the presence of "conventional (phosphate-containing)" and "phosphate free" detergents. Probably it implies that they do not consider possible impact that phosphate of detergents could put on the environment.

Q.34. Which type of detergents do you usually use?

	Number	Percent
1. No- phosphate	52	17.3%
2. Phosphate	45	15.0%
3. Do not know	203	67.7%

The majority of them do not know which type of detergents they use, confirming the result of Q.33.

Q.35 Which type of beer and soft drinks (juice, carbonated water etc.) do you prefer to buy: canned or bottled or in polyethylene bottles?

	Number	Percent
1. Bottled beer and soft drinks	142	47.3%
2. Bottled beer and canned soft drinks	10	3.3%
3. Canned soft drinks and bottled soft drinks	56	18.7%
4. Canned beer and soft drinks	2	0.7%
5. Soft drinks in polyethylene bottles	49	16.3%
6. Do not buy (Go to Q.37.)	37	12.3%
7. Do not know. (Go to Q.37.)	4	1.3%

The majority of the interviewed persons consuming beer and the soft drinks prefer to purchase them in bottles. It is much less than those who purchase canned drinks (18.7 %) and drinks in polyethylene bottles (16.3 %).

Q.36. Why do you buy those? (Plural answers are acceptable)

	Bottled beer	Bottled soft drinks	Canned beer	Canned soft drinks	Soft drinks in Polyethylene bottles
It is lighter	14.8%	59.3%	0.0%	11.1%	14.8%
It is cheaper	9.5%	14.3%	0.0%	9.5%	66.7%
It is tasty	25.7%	46.4%	0.7%	8.6%	18.6%
Convenient to carry	6.5%	9.7%	6.5%	19.4%	58.1%
Convenient to conserve	27.7%	38.6%	1.2%	10.8%	21.7%
More environmentally friendly	35.7%	55.6%	0.4%	4.9%	3.5%

Other	100.0%	0.0%	0.0%	0.0%	0.0%

The most frequently answered reasons of preference included ecological safety (35.7 %) and delicacy of drinks (59.3 %) for bottled beer; ecological safety (55.6 %) and lightness (59.3%) for bottled soft drinks. Thus, the city dwellers have rather stable opinion that bottles are good for ecology.

Q.37. If the municipality would introduce a new waste collection system (for example, such as segregating the waste into "easily decomposable" (food wastes) and "recyclable" (metal, bottles), would you follow these new rules?

	Number	Percent
1. Yes	249	83.0%
2. No	19	6.3%
3. Do not know	32	10.7%

The inhabitants of Baku would follow the new rules of urban authorities for garbage collection. Thus, potentially there would be a public support to bring modifications in rules of garbage collection.

Q.38. Why would you not be willing to cooperate with such a system? (Plural answers are acceptable)

	Number	Percent
1. Several containers and bags are needed	7	13.7%
2. More work and effort are needed	7	13.7%
3. I do not have time (It will demand much time)	20	39.2%
4. It is very inconvenient	3	5.9%
5. It could increase the waste collection fee	13	25.5%
6. Other	6	11.8%

The reasons for not being ready to accept modifications in the rules of garbage collection include that "it can take too much time (39.2 %)" and "it can increase the cost for such services (25.5 %)".

a.5.   Other questions

Q.39. How often did your family make an out-of-town trip for 1-2 days or longer period (e.g. to northern part of the peninsula) in 1999?

	Number	Percent
I. None	149	49.7%
2. Once a year	68	22.7%
3. Twice a year	29	9.7%
4. 3 - 4 times a year	27	9.0%
5. More than 5 times a year	27	9.0%

About half of urban families do not leave city more than one day probably because of the shortages of means, time, or accomodations to stay for some days etc. On the other hand, among those who make out-of-town trips almost half do so rather longer term. The other half made short time trips a few times.

Q.39a. How many days in total did your family spend out of town in 1999?

Number of days spent out of town	Number	Percent (%)
0	149	49.7
1 - 9	44	14.7
10 - 19	32	10.7
20 - 29	19	6.3
30 - 39	22	7.3
40 - 49	8	2.7
50 - 59	1	0.3
> 60	24	8,0
Total	300	

Among those peoples who spent out of town more than one day, about half spent less than 20 days and 8 % spent more than 2 months. Most answers of the last category is, in fact, were from the inhabitants in suburban housing estates.

Q.40. Approximately how much does your family spend for one trip?

Amount (manat)	Number	Percent (%)
< 100,000	43	28.5
100,000 – 300,000	54	35.8
300,000 – 500,000	25	16.6
500,000 – 1,000,000	16	10.6
> 1,000,000	11	7.3
Total	151	

The mean expense of families that leave city for trips is 311,550 manats in a year, and this is equal to 23.245 manats per one day of out-of-city stay.

Q.41. In your opinion for which sector the government should increase budget allocation from year to year? Please choose three items.

	Number	Percent
1. Social welfare	76	25.3%
2. Health	39	13.0%
3. Science and education	58	19.3%
4. Culture and sport	54	18.0%
5. Transport	54	18.0%
6. Agriculture and fishery	10	3.3%
7. Mining	5	1.7%
8. Utility improvement	13	4.3%
9. Economic and industrial development	24	8.0%
10. Promotion of employment opportunity	6	2.0%
11. Anti-pollution measures for the improvement of air/water quality	2	0.7%
12. Nature conservation	6	2.0%
13. National security	98	32.7%
14. Support of the State staff	125	41.7%
15. Foreign relations	59	19.7%

16. To nobody	4	1.3%
17. I do not know	19	6.3%

1. Social welfare
2. Health
3. Science and education
4. Culture and sport
5. Transport
6. Agriculture and fishery
7. Mining
8. Utility improvement
9. Economic and industrial development
10. Promotion of employment opportunity
11. Anti-pollution measures for the improvement of air/water quality
12. Nature conservation
13. National security
14. Support of the State staff
15. Foreign relations
16. To nobody
17. I do not know

The interviewees emphasis increased expenditures on state needs (keeping the state staff, national security and the foreign relations), followed social security. Other items of expenses are marked in a much smaller degree. Budget allocation to the improved environment is pointed out by significantly limited people.

a.6.   Surveyor's Observation and Conclusion

A. Type of pavement of access road of the interviewee's house/building

	Number	Percent
1. Asphalt/cement/ limestone plates	266	88.7%
2. Gravel	12	4.0%
3. No pavement (ground, sand)	19	6.3%
4. Other	3	1.0%

B. How would you evaluate the attitude of the interviewee?

	Number	Percent
1. Very cooperative	150	50.0%
2. Cooperative	132	44.0%
3. Uncooperative	18	6.0%
4. Very uncooperative	0	0.0%

C. How do you rate the economic status of the family?

	Number	Percent
1. High	15	5.0%
2. Higher middle	35	11.7%
3. Middle	127	42.3%
4. Lower middle	88	29.3%
5. Low	35	11.7%

b.   Enterprise Survey

b.1.   Basic aspects of working conditions

District:

District Name	Number	Percent
Sabayil	7	7.0%
Yasamal	12	12.0%
Nasimi	12	12.0%
Narimanov	8	8.0%
Nizami	9	9.0%
Khatayl	12	12.0%
Garadag	5	5.0%
Binagadi	12	12.0%
Sabunchu	10	10.0%
Surakhany	6	6.0%
Azizbeyov	7	7.0%
Total	100	100%

Q.1. How many persons are there in your premises?

Number of employees	Number	Percent
1 - 9	71	71.0
10 - 19	20	20.0
20 - 49	5	5.0
50 - 99	0	0
>=100	4	4.0

Value	Person
Maximum	385
Minimum	1
Mean	17

Considering to the size of employees, these enterprises can considered small or medium, except for four hotel complexes having more than 100 workers. Accordingly, care is needed to read this report since answers of those four respondents can differ substantially from the others.

Q.2. What is the type of your office?

	Number	Percent
1. Detached house	27	27.0%
2. Apartment	20	20.0%
3. Commercial building	43	43.0%
4. Others	10	10.0%

The significant part of offices (43 %) is located in commercial buildings and almost half of the total (47 %) in apartment houses or detached houses. The latter group of

enterprises would need to manage local ecological problems in coordination with actions of the inhabitants in neighbourhood.

Q.3. What is the business category of the office?

	Number	Percent
1. Residence	0	0.0%
2. Restaurant	18	18.0%
3. Retail	42	42.0%
4. Others	40	40.0%

Description of others
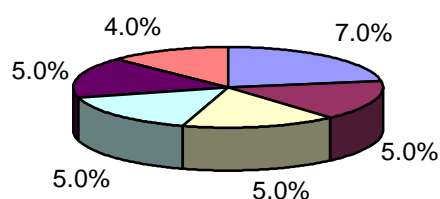
- Hairdressing saloon
- Bath-house (Sauna)
- Hotel
- Ceremonies' house
- Autoservice
- Chemistry cleaning

Most of surveyed enterprises are engaged in trade followed by restaurants. The share of other 6 types of the surveyed enterprises makes 40 % of premises.

Q.6. How many years have you lived in the present premise?

	Number	Percent
1. Less than 5 years	64	64.0%
2. 5 – 9 years	20	20.0%
3. 10 – 19 years	8	8.0%
4. 20 years or more	8	8.0%

The majority of offices (64 %) are placed in the present premises for less than 5 years.

b.2.   Problems of public services at the enterprises

Q.7. How do you get drinking water for your daily life?

	Number	Percent
1 . Water supply tap(s) in my premises.	65	65.0%
2. A communal water supply tap in my area.	19	19.0%
3. Well/groundwater.	0	0.0%
4. Others	16	16.0%

In comparison with households, slightly greater part of offices (19 %) uses common water supply sources.

Q.8. How much do you pay for water per month?

Value	Manat/month
Maximum	50,000,000
Minimum	2,000
Mean	1,082,820

On average the offices pay for water 1,082,820 manats per month with the minimal value of 2,000 manats and the maximal value of 50 million manats. Excluding 6 largest payers, the average payment is 73,585 manats per month.

Q.9. Do you have sewage service in your premise?

	Number	Percent
1. Yes	77	77.0%
2. No	23	23.0%

Only 77 % of the enterprises have a sewage system.

Q.10. If yes, how much do you pay for sewage service per month?

Value	Manat/month
Maximum	18,000,000
Minimum	4,000
Mean	381,822

On average the payment per month for the sewage is 381,822 manats with the minimal value of 4,000 manats and the maximal value of 18 million manats. Excluding 3 largest payers the average payment is 37,210 manats per month.

Q.11. Which type of toilet facility do you use in your premises?

	Number	Percent
1 Flush toilet with septic tank	76	76.0%
2 Pit latrine.	4	4.0%
3. No toilet.	16	16.0%
4. Others	4	4.0%

There is no toilet in 16 objects out of 100 and the employees use toilets in the next establishments.

Q.12. Do you have refuse collection services?

	Number	Percent
1. Yes	81	81.0%
2 No	19	19.0%

19 interviewees out of 100 are not supplied with services of garbage removal. Out of 19, 9 interviewees stated that they do not generate solid wastes and at 7 offices answered "garbages are dumped in vacant lots".

Q.13. If yes, how much do you pay per month for collection service?

Value	Manat/month
Maximum	10,000,000
Minimum	2,000
Mean	218,379

The monthly average payment for garbage removal among those who pay for the service is 218,379 manats with the minimal payment of 2,000 manats and maximal value of 10 million manats. Excluding 2 largest payers the average value comes to 42,250 manats.

Q.14. If no in Q.12, how do you dispose of you refuse?

	Number	Percent
1. Burn in the yard	3	15.8%
2. Bury in the yard	0	0.0%
3. Dump in vacant lot	7	36.8%
4. I do not know	0	0.0%
5. Others	9	47.4%

Q.15. Is there electricity supply in your premises?

	Number	Percent
1. Yes	300	100,00%
2. No		

Q.16. If yes, how much do you pay per month for electricity?

Value	Manat/month
Maximum	20,000,000
Minimum	2,000
Mean	787,612

All enterprises are provided with the electric power supply. An average monthly payment is 787,612 manats. Two enterprises pay more than 10 million per month and the average monthly payment of the rest is 369,877 manats.

Q.17. Please tick the boxes corresponding to the degree of importance for each basic infrastructure and service for the living environment.

	Great importance	Moderate importance	Little importance	No problem	Do not know
Water supply	70.0%	12.0%	8.0%	10.0%	0.0%
Storm water drainage	27.0%	18.0%	21.0%	29.0%	5.0%
Waste water collection	49.0%	13.0%	11.0%	26.0%	1.0%
Solid waste collection	37.0%	16.0%	14.0%	30.0%	3.0%
Electricity supply	67.0%	10.0%	2.0%	21.0%	0.0%
Hot water supply	26.0%	13.0%	19.0%	27.0%	15.0%
Access road to my premises	41.0%	7.0%	11.0%	41.0%	0.0%
Other	0.0%	0.0%	1.0%	99.0%	0.0%

The problems concerned by the offices seem to be similar to those by households. The majority of them think water supply (70%) and electricity supply (67%) as the most important problems of public services.

Q.18. Please tick the organization(s) that is (are) responsible in your opinion for the problem(s) regarding basic infrastructure and services for living environment. (Plural answer question)

	Government of the Republic	Executive Power	Municipal Council	Inhabitants	Transport	Enterprises	All	Other	Do not know
Water supply	18.0%	56.0%	3.0%	3.0%	1.0%	14.0%	7.0%	3.0%	5.0%
Storm water drainage	6.0%	57.0%	8.0%	6.0%	2.0%	9.0%	4.0%	1.0%	14.0%
Waste water collection	2.0%	58.0%	2.0%	14.0%	0.0%	20.0%	2.0%	3.0%	10.0%
Solid waste collection	5.0%	58.0%	7.0%	8.0%	1.0%	22.0%	0.0%	1.0%	12.0%
Electricity supply	26.0%	52.0%	0.0%	2.0%	0.0%	20.0%	2.0%	6.0%	7.0%
Hot water supply	5.0%	44.0%	9.0%	8.0%	0.0%	10.0%	0.0%	3.0%	29.0%
Access road to my premises	5.0%	57.0%	7.0%	14.0%	4.0%	4.0%	1.0%	2.0%	12.0%
Other									
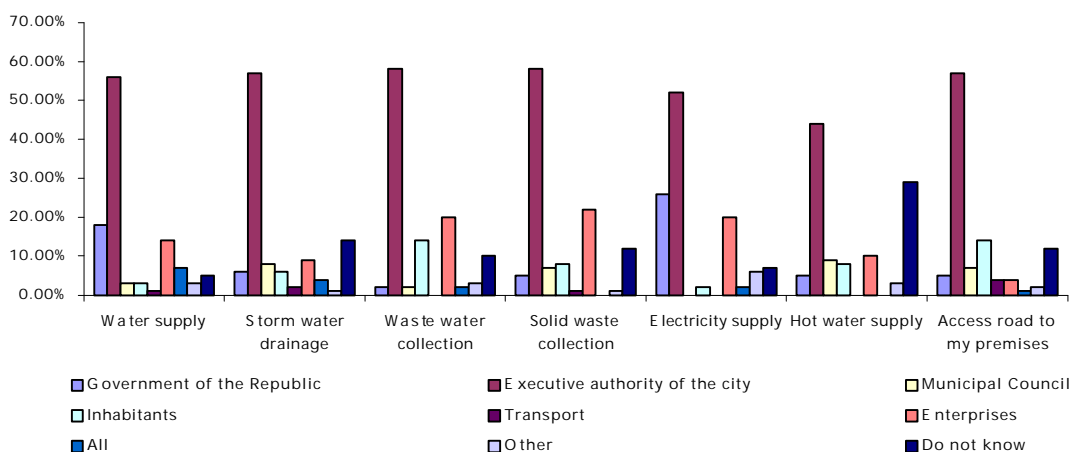
As well as households, the surveyed offices consider that the local executive power should bear the prime responsibility for the decision of communal problems.

Q.19. Please tick the boxes corresponding to the degree of importance for each problem in your daily life regarding the following environmental issues.

	Great importance	Moderate importance	Little importance	No problem	Do not know
Air pollution	79.0%	8.0%	4.0%	7.0%	2.0%
Water pollution	83.0%	5.0%	3.0%	6.0%	3.0%
Refuse	54.0%	20.0%	8.0%	17.0%	1.0%
Insects	51.0%	16.0%	15.0%	16.0%	2.0%
Inundation	31.0%	15.0%	15.0%	34.0%	5.0%
Noise and vibration	28.0%	19.0%	21.0%	27.0%	5.0%

Lack of green areas	52.0%	17.0%	12.0%	19.0%	0.0%
Other	1.0%	0.0%	0.0%	99.0%	0.0%

Q.20. Please tick the organization(s) that should be responsible in your opinion for the following environmental problems. (Plural answer question)

	Government of the Republic	Executive Power	Municipal Council	Inhabitants	Transport	Enterprises	All	Other	Do not know
Air pollution	20.0%	26.0%	1.0%	5.0%	32.0	21.0%	16.0%	1.0%	10.0%
Water pollution	20.0%	40.0%	2.0%	5.0%	2.0%	18.0%	14.0%	2.0%	13.0%
Waste	5.0%	48.0%	6.0%	25.0	1.0%	21.0%	8.0%	1.0%	10.0%
Insects	6.0%	30.0%	4.0%	31.0	0.0%	14.0%	14.0%	4.0%	14.0%
Inundation	7.0%	46.0%	4.0%	16.0	0.0%	9.0%	8.0%	1.0%	21.0%
Noise and vibration	7.0%	29.0%	2.0%	14.0	37.0	7.0%	7.0%	3.0%	21.0%
Lack of green areas	10.0%	45.0%	4.0%	33.0	1.0%	12.0%	16.0%	1.0%	8.0%
Other	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Q.19. & Q.20.) Pollution of air and water is regarded as paramount ecological problems. The executive power offices are considered to be the key body. Many respondents attribute air pollution and creation of noise and vibration to city transport.

Q.21. What is the most important matter for you which requires an urgent decision? Please choose one and describe the reason.

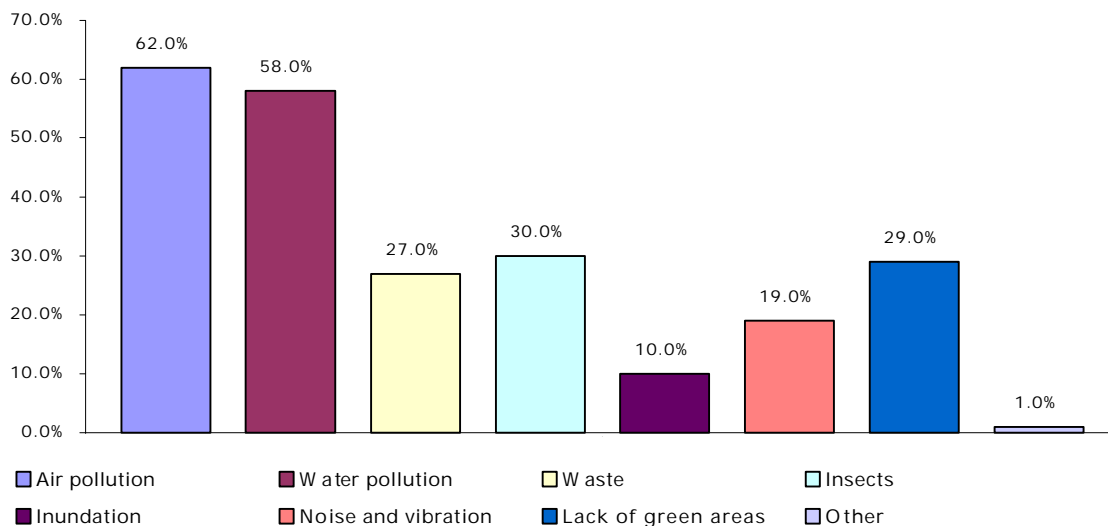|	Number	Percent
Water supply	36	36.0%
Storm water drainage	7	7.0%
Night soil collection	6	6.0%
Solid waste collection	11	11.0%
Electricity supply	26	26.0%
Hot water supply	1	1.0%
Access road to my premises	4	4.0%
Other (what exactly?)	9	9.0%

The offices require urgent decisions for such problems as households did, i.e. water supply (36 %) and electricity supply (26 %).

Reasons:

	Number	Percent
No water (often and continuous failures); less water	15	15.0%
Failures in water supply (Violation of water supply schedule)	7	7.0%
Water – the most important resource in human life	5	5.0%
Failures in power supply	10	10.0%
Electricity absence makes lots of problems	7	7.0%
Tension drops	6	6.0%

Q.22. Which of the following problems requires an urgent solution? Please choose three items and describe the reasons.

	Number	Percent
Air pollution	62	62.0%
Water pollution	58	58.0%
Waste	27	27.0%
Insects	30	30.0%
Inundation	10	10.0%
Noise and vibration	19	19.0%
Lack of green areas	29	29.0%
Other	1	1.0%

Reasons

	Number	Percent
Harmful influence of polluted air to human health	16	16.0%
Air is significantly polluted – needs to be purified	11	11.0%
Polluted water is threat to human health	15	15.0%
Visual evaluation of water quality: "Opaque or black water with sediments"	15	15.0%
Infraction of sanitary-hygienic norms – poor potable water quality	10	10.0%

Irrational garbage gathering and sanitation system not corresponding to the present requirements	15	15.0%

Pollution of air (62 %), pollution of water (58 %) and struggle with insects (30 %) are considered to require urgent solutions by the majority. The answers "others" included a problem of rodents.

b.3.   Opinions concerning the improvement of services and their cost

Q.23. In your opinion what are necessary to improve environmental problems in your daily life? (Plural answers are acceptable):

	Number	Percent
1. Provisions of laws, regulations and guidelines	53	53.0%
2. Public awareness about environmental status and conservation	19	19.0%
3. Introduction of environmental conservation technology	44	44.0%
4. Public fund aid for environmental conservation measures	31	31.0%
5. Increasing of the environmental conservation measures	40	40.0%
6. Others	4	4.0%

The effectiveness of laws and execution of the instructions is put in the first place by the enterprises (53 %) among other measures to improve ecological situation. Further, necessity to introduce ecologically safe technologies (43 %) and increase of efficiency of environment conservation measures (40 %) are pointed out.
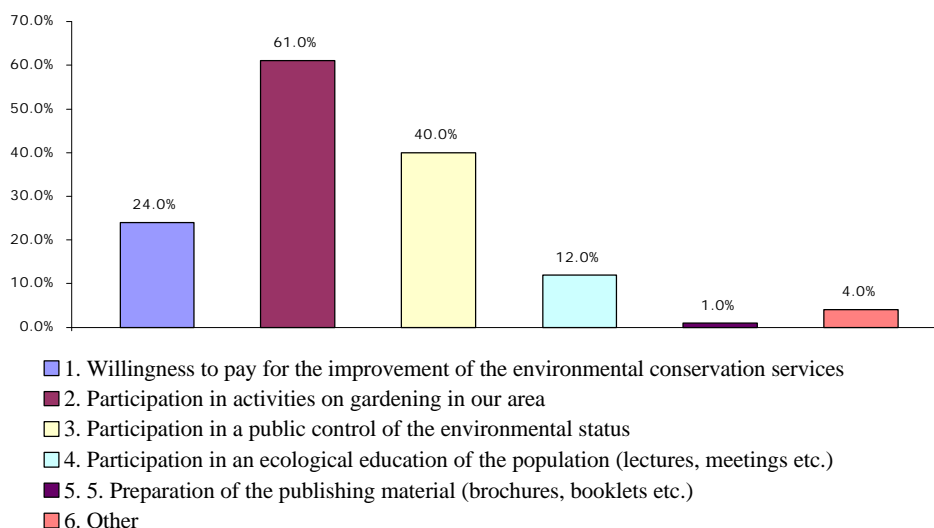
Q.24. Are you willing to take part in solving ecological problems that have negative impact on your life?

	Number	Percent
1. Yes	89	89.0%
2. No (Go to Q.25.)	11	11.0%

The overwhelming majority of the enterprises (89 %) declare willingness to take part in solving ecological problems.
Q.24a. (If the answer to Q.24 is "Yes") What kind of participation would be possible for you to solve these problems?

	Number	Percent
1. Willingness to pay for the improvement of the environmental conservation services	24	24.0%
2. Participation in activities on gardening in our area	61	61.0%
3. Participation in a public control of the environmental status	40	40.0%
4. Participation in an ecological education of the population (lectures, meetings etc.)	12	12.0%
5. 5. Preparation of the publishing material (brochures, booklets etc.)	1	1.0%
6. Other	4	4.0%

■ 1. Willingness to pay for the improvement of the environmental conservation services
■ 2. Participation in activities on gardening in our area
□ 3. Participation in a public control of the environmental status
□ 4. Participation in an ecological education of the population (lectures, meetings etc.)
■ 5. 5. Preparation of the publishing material (brochures, booklets etc.)
■ 6. Other

The preferred form of participation is activities for greenery in territories (61 %) and realization of public control (40 %). These answers were also found in many households.

Q.25. In your opinion, the service charge for city water supply is:

	Number	Percent
1. Expensive	45	45.0%
2. Reasonable	32	32.0%
3. Cheap	0	0.0%
4. I do not know	23	23.0%

Q.26. In your opinion, the service charge for sewerage is:

	Number	Percent
1. Expensive	36	36.0%
2. Reasonable	40	40.0%
3. Cheap	0	0.0%
4. I do not know	24	24.0%

Q.27. In your opinion, the service charge for refuse collection is:

	Number	Percent
1. Expensive	34	34.0%
2. Reasonable	45	45.0%
3. Cheap	0	0.0%
4. I do not know	21	21.0%

(Q.25. Q.26. Q.27.) It should be noted that the surveyed offices tend to consider that the present payment for municipal services is expensive.

Q.28. If city water supply service is improved better than the present situation, are you ready to pay more?

	Number	Percent
1. Yes, I am ready to pay more	35	35.0%

2. No, I do not want to pay more	50	50.0%
3. Do not know	15	15.0%

Q.29. If sewerage service is improved better than the present situation, are you ready to pay more?

	Number	Percent
1. Yes, I am ready to pay more	33	33.0%
2. No, I do not want to pay more	52	52.0%
3. Do not know	15	15.0%

Q.30. If refuse collection service is improved better than the present situation, are you ready to pay more?

	Number	Percent
1. Yes, I am ready to pay more	31	31.0%
2. No, I do not want to pay more	58	58.0%
3. Do not know	11	11.0%

(Q.28. Q.29. Q.30.) More than half offices interviewed are reluctant to pay more for improved services.

b.4.   Willingness to participate in improvement of working conditions

Q.31. Are you familiar with "Environmentally Conscious Products"? (These are products which have no negative impact on organism and the Environment)

	Number	Percent
1. Yes	86	86.0%
2. No	14	14.0%

Q.32. Which of the following statements regarding environmentally conscious products is an appropriate description of your attitude?

	Number	Percent
1. I buy them even if they are a little bit more expensive than ordinary products	50	58.1%
2. I only buy them if the price is the same	20	23.3%
3. I don't think they are really environmentally conscious products	15	17.4%
4. I am not interested in them (I do not give a special attention to this)	1	1.2%
5. Do not know		

(Q.31. Q.32.) The managers of 86 % of offices are familiar with concept of "Environmentally Conscious Products", and 58 % would buy them even if they are slightly more expensive than ordinary products. Thus, this parameter is a little higher than in families.

Q.33. As for detergents used for laundry and dishes, do you know there are "no phosphate" and "conventional (phosphate)" detergents?

	Number	Percent

1. Yes	42	42.0%
2. No	58	58.0%

Q.34. What type of detergents do you usually use?

	Number	Percent
1. No- phosphate	29	29.0%
2. Phosphate	17	17.0%
3. Do not know	54	54.0%

(Q.33. Q.34.) More than half of managers of offices (58 %) are not familiar with "phosphate-containing" and "phosphate free" detergents and 54 % did not pay attention to which type of detergent they usually use at offices.

Q.35 Which type of beer and soft drinks (juice, carbonated water etc.) do you prefer to buy: canned, bottled or in polyethylene bottles?

	Number	Percent
1. Bottled beer and soft drinks	84	84.0%
2. Bottled beer and canned soft drinks	1	1.0%
3. Canned soft drinks and bottled soft drinks	7	7.0%
4. Canned beer and soft drinks	0	0.0%
5. Soft drinks in polyethylene bottles	4	4.0%
6. Do not buy (Go to Q.37.)	3	3.0%
7. Do not know. (Go to Q.37.)	1	1.0%

Q.36. Why do you buy those? (Plural answers are acceptable)

	Bottled beer	Bottled soft drinks	Canned beer	Canned soft drinks	Soft drinks in Polyethylene bottles
It is lighter	60.0%	30.0%	0.0%	0.0%	10.0%
It is cheaper	40.0%	30.0%	0.0%	0.0%	30.0%
It is tasty	41.9%	46.5%	0.0%	7.0%	4.7%
Convenient to carry	0.0%	50.0%	0.0%	0.0%	50.0%
Convenient to conserve	37.5%	50.0%	0.0%	8.3%	4.2%
More environmentally friendly	45.9%	51.4%	0.0%	0.7%	2.1%
Other					

(Q.35. Q.36.) People at offices give preferences to the bottled drinks (84 %) more than in families. More than half noted the ecological safety of drinks in such container as well as the other reasons.

Q.37. If the municipality would introduce a new waste collection system (for example, such as segregating the waste into "easily decomposable" (food wastes) and "recyclable" (metal, bottles)), would you follow these new rules?

	Number	Percent
1. Yes	85	85.0%
2. No	2	2.0%

3. Do not know	13	13.0%

Q.38. Why would you not be willing to cooperate with such a system? (Plural answers are acceptable)

	Number	Percent
1. Several containers and bags are needed	1	6.7%
2. More work and effort are needed	4	26.7%
3. I do not have time (It will demand much time)	9	60.0%
4. It is very inconvenient	1	6.7%
5. It could increase the waste collection fee	2	13.3%
6. Other		

(Q.37, Q.38.) Refusal to follow new rules of the refuse collection (on the basis of their preliminary division) was stated only at two offices. 85 % of offices gave consent.

b.5.   Other questions

Q.39. How often did your family make an out-of-town trip for 1-2 days or longer period (e.g. to northern part of the peninsula) during 1999?

	Number	Percent
l. None	57	57.0%
2. Once a year	21	21.0%
3. Twice a year	8	8.0%
4. 3 - 4 times a year	3	3.0%
5. More than 5 times a year	11	11.0%

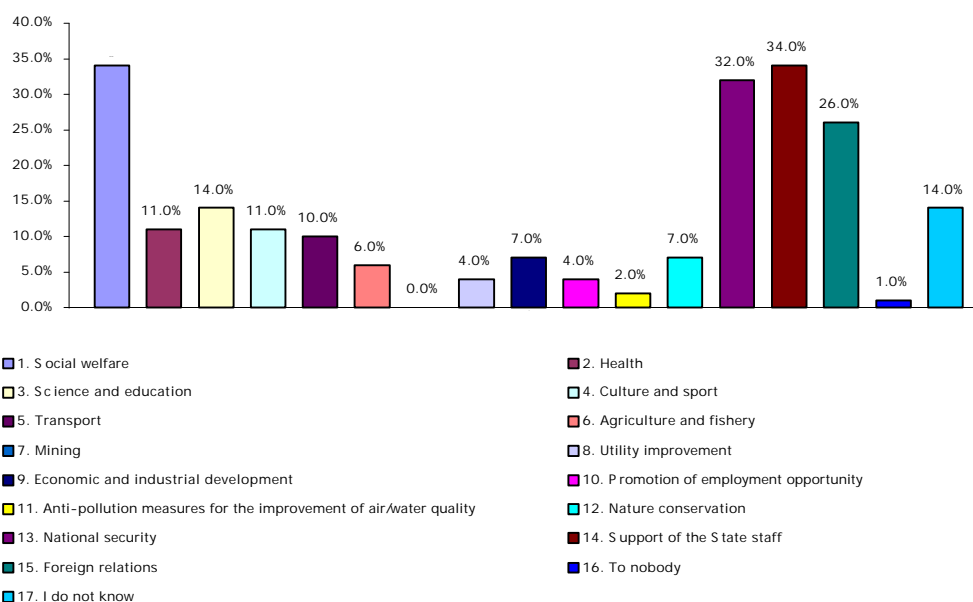Q.39a. How many days in total did your family spend out-of-town during 1999?

Value	Days
Maximum	120
Minimum	2
Mean	30

Q.40. Approximately how much does your family spend for one trip?

Value	Manat
Maximum	2,500,000
Minimum	10,000
Mean	373,953

Q.41. In your opinion for which sector the government should increase budget allocation from year to year? Please choose three items.

	Number	Percent
1. Social welfare	34	34.0%
2. Health	11	11.0%
3. Science and education	14	14.0%

4. Culture and sport	11	11.0%
5. Transport	10	10.0%
6. Agriculture and fishery	6	6.0%
7. Mining	0	0.0%
8. Utility improvement	4	4.0%
9. Economic and industrial development	7	7.0%
10. Promotion of employment opportunity	4	4.0%
11. Anti-pollution measures for the improvement of air/water quality	2	2.0%
12. Nature conservation	7	7.0%
13. National security	32	32.0%
14. Support of the State staff	34	34.0%
15. Foreign relations	26	26.0%
16. To nobody	1	1.0%
17. I do not know	14	14.0%

1. Social welfare
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3. Science and education
4. Culture and sport
5. Transport
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7. Mining
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10. Promotion of employment opportunity
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14. Support of the State staff
15. Foreign relations
16. To nobody
17. I do not know

The opinions heard at offices are similar to opinions stated by families. 34 % consider that the share of means on the support of the State staff grows, as much have noted social security, 32 % have specified growth of budgeting on national security and 26 %   on maintenance of foreign relations.

b.6.   Surveyor's Observation and Conclusion

A. Type of pavement of access road of the interviewee's house/building:

	Number	Percent
1. Asphalt/cement/ limestone plates	99	99.0%
2. Gravel	1	1.0%
3. No pavement (ground, sand)		
4. Other		

B. How would you evaluate the attitude of the interviewee?

	Number	Percent
1. Very cooperative	36	36.0%
2. Cooperative	51	51.0%
3. Uncooperative	11	11.0%
4. Very uncooperative	2	2.0%

3.5.4 Findings

The following findings can be pointed out from the survey of public opinion on the environment.

1. There is generality in perception of communal and ecological problems at residences and offices located in apartment houses. It is important in formulating an ecological management plan to take into account of different problems associated with different types of living circumstances.

2. Any approaches based on a principle of participation of the population and the enterprises in ecological improvement should take into account of limited resources (material and time) in families and offices and to be guided by rational use of public opportunities.

3. The majority of dwellings and offices are equipped with the necessary urban infrastructure, but obsolete and worn-out equipment often causes problems in rendering public services.

4. There are problems in rendering of good services of life-support infrastructure to the clients. Problems are, first of all, deficiency and fault of provision with pure water followed by frequent failures of electric power and problems connected to solid and liquid wastes.

5. The population and the offices more or less regularly pay for given public services. It is, however, deemed that the families sometimes do not pay fully for the rendered services.

6. At the same time the interview has shown that payment is not in all cases carried out as supposed to be. Payment is frequently refused because of delayed service and its low quality. In other cases the absence of monetary resources for due payment is pointed out. It is also necessary to note the presence of population groups exempted from payment for public services.

7. A part of families answered alternative ways to make up for the service failure such as water transport from other places and garbage recycling. It is anticipated that it can increase risk to human health and the environment.

8. The interviewed persons demanded the executive power offices (local and central) for the fundamental responsibility for problems of infrastructure and public services. The responsibility of consumers for services is much less addressed. It does not well comply to the ecological consciousness of the population.

9. The majority of the population obviously express concerns about ecological problems that can affect their daily life. Priorities both for the households and for

employees in offices are put on problems of air pollution, water pollution and water deficiency. Other problems identified are, in fact, derivative from these problems. The interviewees also insisted the necessity of early countermeasures to those issues.

10. The opinion on the parties that should bear basic responsibility for the present ecological condition has correlation with measures addressed by the respondents to improve the situation. Namely, the effectiveness of laws, execution of rules and instructions, and increase in efficiency of measures should basically be ensured (from the viewpoint of the respondents) by the governmental bodies.

11. Though the majority of families and offices express willingness to take part in solving ecological problems, willingness to pay for service improvement is weakly expressed. Preference is given rather to the measures which are not connected to the financial charges: participation in gardening territory and realization of control of environmental conditions.

12. The survey clearly showed the reluctance of the population to cover part of financial expenses under the hypothetical situation of improved urban services. It is very likely that this is because of limited budget allowed for the families.

13. The insufficient level of ecological awareness explains the revealed low level preference to the eco-friendly products and ecologically safe detergents. The preference to the bottled drinks is not always due to the ecological reasons. Thus, this and previously mentioned issue put an emphasis on the necessity to strengthen ecological propagation and education of the population, but with use of new methods to work with communities: i.e. regular consultation and involvement of communities in the decision making of problems.

14. In opinion of the interviewed persons the government does not increase charges connected to public services, nature protection activity, pollution abatement and increase of quality of water and air. According to the inhabitants assessment the expenditures on the own governmental needs, as well as social security, are increased most of all.

Chapter 4

Pilot Projects