2.2.9. Urban Facilities

In the study, wide ranges of data for urban facilities were collected. Those data consist of:

1) Facility Name, Address and Function

2) Size of land, building

3) Structural type and age of building

The list of the urban facilities for the Study is as follows:

1) Fire Fighting Stations

2) Police Stations

3) Traffic Police Stations

4) Hospitals

5) Governmental Facilities

6) Educational Facilities

- Elementary Schools

- Intermediate Schools

- High Schools

- Higher Education Centers (Universities)

7) Parks and Public Open Spaces

In order to strengthen the disaster response capacities of Tehran, the above information can be used in future urban planning. Such information can be extremely useful in making decisions related to locations of new facilities in order to improve their function. Also, when an earthquake occurs, having lists and knowing the locations of these facilities can minimise or prevent damage from a serious disaster.

This information was collected in cooperation with 20 Municipal Districts except for Fire Fighting Station data, which were compiled by Tehran's Fire Fighting Department, and Hospital data, which were compiled by Ministry of Health.

Since the volume of data is relatively large, one of the most critical problems in the process of compiling the data is the difficulty of unifying the data. Also, related agencies were requested to prepare maps of the locations of these facilities, however, most of the agencies are not able to do so, therefore, the Study Team prepared these maps whenever possible in the limited time available. However, to maintain the quality and accuracy of the database in the future, the municipality itself will have to check the data and update it in order to improve it.

Concerning the data requested from the 20 Municipal Districts, several districts have not yet prepared the data, and almost all districts have many discrepancies in their data. Since the time for this study is limited, the Study Team expects the data will be updated by the local Iranian team for future improvement. Therefore, the Study Team has analysed the damage based on the available data supplied by each district and agencies.

In accordance to the data received from each district, the number of each facility per district is summarised in Table 2.2.14.

Table 2.2.14 Facility Distribution by District

District	Fire Fighting Station	Police	Traffic Police	Hospital	Governmental Facility	Elementary School	Intermediate School	High School	Higher Education Center	Park and Public Open Space
1	1	13	0	19	12	69	34	45	17	18
2	4	3	2	3	1	102	97	92	19	37
3	4	13	0	11	4	39	43	48	40	44
4	5	9	0	6	1	83	67	66	19	131
5	4	2	2	4	2	50	52	56	6	46
6	4	3	1	28	15	59	54	33	48	27
7	1	13	2	22	11	51	36	38	16	28
8	2	1	2	5	2	70	37	36	0	26
9	0	2	0	2	3	45	29	33	5	10
10	3	0	2	9	4	54	34	33	2	19
11	6	6	1	13	1	92	62	54	21	10
12	3	5	1	13	1	16	14	14	5	11
13	3	1	0	5	0	66	46	27	10	13
14	2	4	1	14	6	58	25	53	0	36
15	3	3	2	2	10	249	4	2	1	26
16	1	4	0	6	5	62	38	39	0	32
17	1	2	0	2	1	26	26	20	0	27
18	1	2	0	8	0	86	52	43	5	62
19	2	1	0	2	7	27	30	20	1	18
20	2	5	0	4	2	102	56	80	10	37
21	3	1	0	1	0	13	5	10	0	0
22	2	0	0	1	0	1	5	2	0	0
Outside	2	-	-	-	-	-	-	-	-	-
Total	59	93	16	180	88	1,420	846	844	225	658

(1) Fire Fighting Stations

The fire fighting department of the Tehran Municipality prepared facility data for fire fighting stations. In Tehran, there are 55 fire fighting stations, excluding 4 administrative centers. Table 2.2.14 shows the distribution of stations, with the Operations Headquarters located in District 3, the Central Office and Public and International Relations Office located in District 10, and the Educational Facility located in District 5. Figure 2.2.22 shows the location of each facility.

Since the number of fire fighting stations and offices are limited, the accuracy of the data is acceptable. However, coordinate data of the facilities' location was not acceptable. To develop the facilities location map, the Study Team visited the fire fighting department headquarters and transferred the locations from a map kept in the operations room to improve the quality of the database.

(2) Police Stations

Police station data were prepared by 20 municipal districts of Tehran. Since a representative of each district prepared the data, and even though the Study Team provided the representatives with instructions, several discrepancies exist. To avoid such discrepancies, in general, it is ideal for data to be prepared by one organisation. However, for the Study, since it was not possible to collect data from the Tehran Police Department itself, the Study Team asked the Municipality to prepare the data. To build up a database, it is important that the data itself have to unify the format throughout the city. Figure 2.2.23 shows the location of Police Stations in Tehran.

(3) Traffic Police Stations

Traffic Police Station data were also prepared, separately, by 20 municipal districts. Therefore, the same discrepancies can be found in many places. For instance, the format of construction year data is different from district to district. The data should be prepared by the Traffic Police Department. Figure 2.2.24 shows the location of Traffic Police Stations.

(4) Hospitals

The detail data for hospitals were prepared by the Ministry of Health. Accuracy of the data is high since one organization prepared the data for every district. However, some hospitals are missing in the data. Since the Tehran Municipality also prepared some hospitals data, duplicate data were eliminated and the remaining data was added to the data prepared by the Ministry of Health. The distribution of hospitals can be found in Figure 2.2.25.

(5) Governmental Facilities

The data for governmental facilities were prepared by 20 municipal districts. In the data, many duplications can be found; for instance, fire fighting stations and hospitals were included in the list. In addition, facilities not directly related to disaster management such as, banks, museums, workshops, etc. were also included.. The purpose of collecting governmental facilities data is to learn and have available the location of major facilities that will act as controlling units in response to an earthquake. Therefore, the Study Team screened the data and picked out the facilities that were considered important for disaster management. The location of these facilities is shown in Figure 2.2.26.

(6) Educational Facilities

At the time of earthquake events, educational facilities will be used as evacuation sites. Also, if the earthquake occurs in the daytime, it is extremely important to have earthquake-resistant buildings to minimise human casualties. Educational facilities consist of 1)elementary

schools, 2)intermediate schools, 3)high schools and 4)higher education centers. The data for these facilities were prepared by 20 municipal districts. It is ideal for this data to be prepared by the Ministry of Education and the Ministry of Higher Education, since the Ministry of Education keeps a list of Educational Facilities. However, this list does not include building information, which is now under compilation, and, thus, the list was not ready at the time requested.

As a result, the data contains many errors and there are many missing pieces of information. To maintain the quality of the damage estimation and to ensure the planning of proper evacuation sites in case of a seismic disaster, the data should be controlled by the Ministry of Education.

The location of each facility, including elementary schools, intermediate schools, high schools and higher education centers, are shown in a series of maps (Figure 2.2.27 to Figure 2.2.30).

(7) Parks and Public Open Spaces

Parks and public open spaces have an important role in the event of an earthquake. They can be used as primary evacuation sites and construction sites for temporary housing. The data on parks and public open spaces were prepared by 20 municipal districts, since the Municipality is in charge of many parks and open spaces. The data include land area. For future planning of disaster prevention and management, it is extremely important to know the existing condition of land availability. The accuracy of this data is still doubtful, since small open spaces are not covered in the data. It is strongly recommended to update the data for proper planning. The distribution of parks and public opens space are shown in Figure 2.2.31.

Figure 2.2.22

Public Facility (Fire Fighting Station)

Legend

〜 22 Municipal Districts Boundary
+ Greater Tehran Area Boundary

■ Fire Fighting Station

▨ Built-up Area

N
W E
S

0   2   4   6 km

Source : 20 Tehran Municipality Districts (1999)

THE STUDY ON SEISMIC MICROZONING OF THE GREATER TEHRAN AREA IN THE ISLAMIC REPUBLIC OF IRAN

Centre for Earthquake and Environmental Studies of Tehran (CEST)
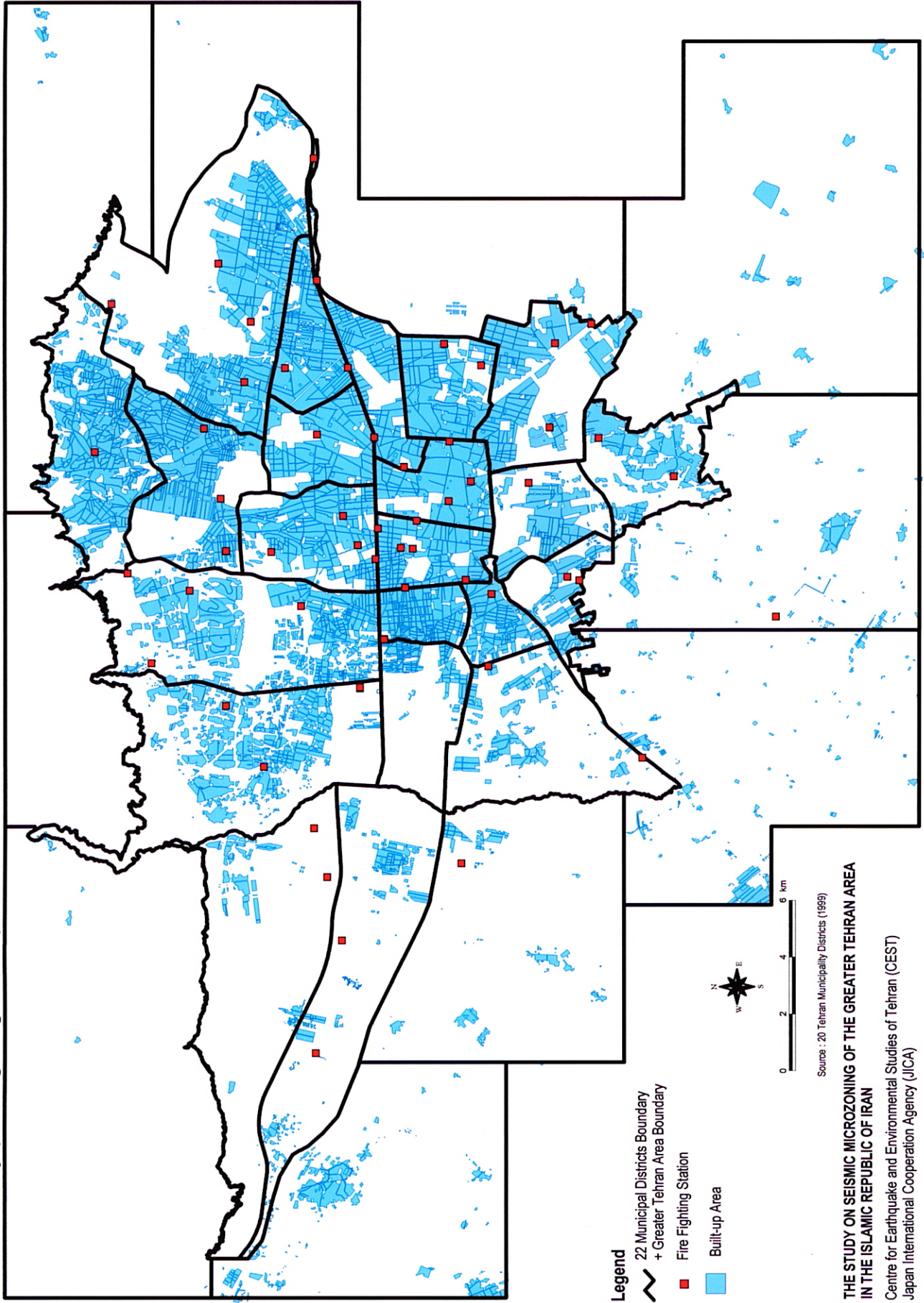Japan International Cooperation Agency (JICA)

Figure 2.2.23

Public Facility (Police Station)

Legend

- 22 Municipal Districts Boundary
- + Greater Tehran Area Boundary
- ■ Police Station
- ▢ Built-up Area

Source : 20 Tehran Municipality Districts (1999)

0   2   4   6 km

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