JAPAN INTERNATIONAL COOPERATION AGENCY

MINISTRY OF PUBLIC WORKS, TOURISM AND
TERRITORY ADJUSTMENT
REPUBLIC OF ALBANIA

THE STUDY ON THE SEWERAGE SYSTEM IN METROPOLITAN TIRANA IN THE REPUBLIC OF ALBANIA

FINAL REPORT

MAIN REPORT

MARCH 1998

NIPPON JOGESUIDO SEKKEI CO., LTD.
TOHMATSU & CO.

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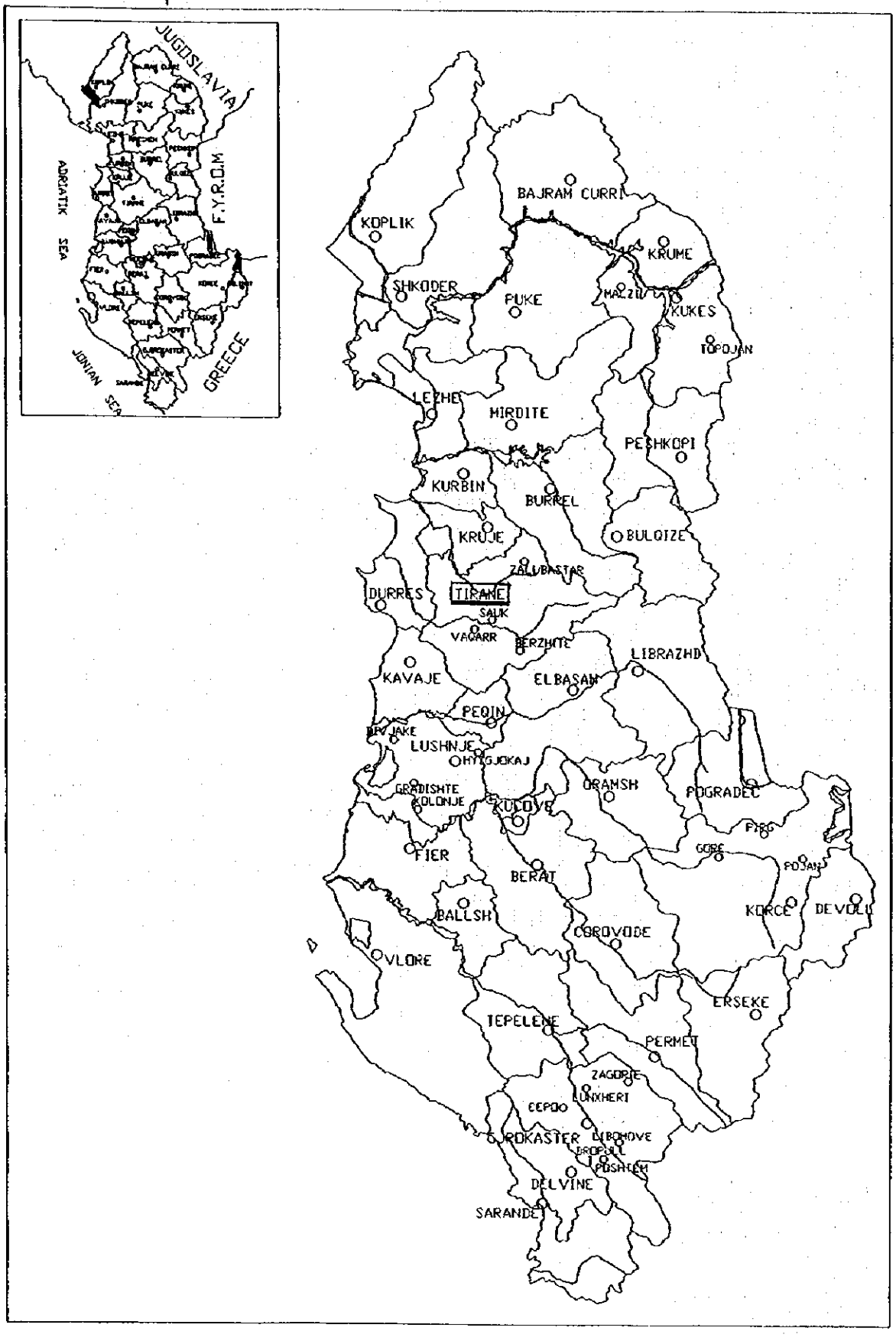

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Abbreviations

1. Unit

ha	Hectare (1 ha = 10,000m^2)
kW	Kilowatt
kV	Kilovolt
lpcd	Liter per capita per day
mg/l	Milligram per liter

2. Water Quality

BOD_5	Biochemical Oxygen Demand (5 days)
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
pH	Hydrogen ion potential
SS	Suspended Solids

3. Organizations

EBRD	European Bank for Reconstruction and Development
EC	European Community
EC/PHARE	EC Assistance Program for Eastern Europe
EIB	European Investment Bank
EMRS	Enterprise Maintenance for Road and Sewerage
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association (soft loan facility of IBRD)
IMF	International Monetary Fund
ISPUN	Institute of Study and Design of Water Supply and Construction
JICA	Japan International Cooperation Agency (Japan)
MOF	Ministry of Finance
MOH	Ministry of Health and Environmental Protection
MOPWT	Ministry of Public Works, Territorial Adjustment and Tourism
NPI	National Planning Institute
OECD	Organization for Economic Cooperation and Development
OECF	Overseas Economic Cooperation Fund (Japan)
UNBK	European Development Bank
UNDP	United Nations Development Program
UNICEF	United Nations International Children's Emergency Fund

USAID	United States Agency for International Development
WHO	World Health Organization
WTO	World Trade Organization

4. Others

BOT	Build - Operate - Transfer
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
FIRR	Financial Internal Rate of Return
GDP	Gross Domestic Product
GNP	Gross National Product
ODA	Official Development Assistance
PIP	Public Investment Program

CHAPTER 1
INTRODUCTION

CHAPTER 1 INTRODUCTION

1.1 Preamble

The Study on the Sewerage System in the Metropolitan Tirana in the Republic of Albania (hereinafter referred to as "the Study") was carried out in accordance with the Scope of Work agreed between the Ministry of Public Works, Territorial Adjustment and Tourism (hereinafter referred to as "the MOPWT") and the Preparatory Study Team dispatched by the Japan International Cooperation Agency (hereinafter referred to as "the JICA") on March 26, 1996. JICA had organized the Japanese Study Team (hereinafter referred to as "the Study Team") and dispatched to commence the Study from July, 1996. The Study was completed on March, 1998 and all of the outcome was compiled into this Report.

1.2 Background of the Study

Tirana City, the national capital of Albania, is located mostly at the center in north-south direction and relatively close to the Mediterranean Sea in east-west direction, and has present population of approximately 460,000. Construction of the existing sewerage system in Tirana City was commenced in 1938 and mostly completed in some time 1965. The existing sewerage system, however, does not have any sewage treatment facility and is discharging collected sewage into the river system resulting major cause of water pollution in public water body. Before 1991, almost 100 % of residents in the City were served by the sewerage system. After introduction of market economy in 1991, the population in the sewerage service area has reached about 338,000 owing to the expansion of residential area to cope with rapid increase of inland migration to Tirana City and service coverage of the sewerage system has dropped to about 73 %.

Domestic sewage in the unserved area of sewerage system are disposed/treated by septic tank/holes and cesspools, but septage collected from these facilities are disposed to the rivers without any treatment. In the residential area of low income groups, considerable amount of nightsoil are directly discharged into rivers and open channels resulting one of major causes of water pollution. It has been said among authorities that deterioration of sewer pipes and clogging by sediments in sewer pipes have led to the leakage of sewage from sewer pipes and contamination to drinking water as serious social problems.

Under these circumstances, the Government of the Republic of Albania (hereinafter referred to as "the Government of Albania") requested the Government of Japan to extend the technical cooperation on the development study aiming at improvement of environmental conditions in the Metropolitan Tirana. In response to the request of the Government of Albania, JICA, the official agency responsible for the implementation of the technical cooperation programs of the Government of Japan, conducted the Study on the Sewerage System in the Metropolitan Tirana and the Feasibility Study on the Priority Project.

1.3 Objectives of the Study

The objectives of the Study are; (1) to conduct a feasibility study for reorganizing the sewerage system in Metropolitan Tirana having an area of 2,700 ha for the target year 2010, with review of existing plans, and (2) to transfer technology on planning methods and skill to counterpart personnel in the course of the Study.

In the conduct of the Study, due attention and consideration were given to the following matters:

(1) Plan for improvement and development of the sewerage system was prepared from the view point of effective utilization of the existing facilities and feasible staged implementation.

(2) Plan of sewerage facilities as well as plans for project implementation and financial arrangement were prepared within reasonable and feasible range for the executing agency and excessively realistic plan was avoided.

1.4 Study Area

The Study Area was delineated to confine the Metropolitan Tirana including Tirana City and its suburban areas with a total land area of 12,000 ha being defined as residential area under the future land use plan through in depth discussion with the MOPWT and the Study Team.

1.5 Scope of Work

(1) The Study involved the preparation of sewerage system development plan for the target year of 2010 and the preparation of plans for institutional development and operation and maintenance. Since the Albanian public sewerage services is under renovation process since introduction of market economy, analysis and recommendations on public entities in charge of public sewerage services were also included in the Study.

(2) For industrial and agricultural wastewater, recommendations on acceptable level of wastewater quality for the sewerage system were prepared and those wastewater conforming to the said level were considered to be accepted to the sewerage system.

1.6 Formation of the Study

1.6.1 General

The Study was carried out in accordance with the Scope of Work agreed upon between the MOPWT and the JICA. The MOPWT had organized the steering committee and counterpart team, and accomplished the Study in close cooperation with the Study Team. The overall set-up for the implementation of the Study is as shown below.

1.6.2 Implementation Set-up of the Japanese Side

The implementation set-up of the Japanese side consisted of the Study Team and the Advisory Committee under the general supervision of the JICA headquarters. The composition of the JICA Advisory Committee is shown below:

Table 1.6.1 Composition of JICA Advisory Committee

Name	Assignment in the Committee	Profession
Prof. Masataka Sugahara	Leader/Sewerage Planning	Professor, Osaka Sangyo Univ.
Mr. Yoshihisa Funayama	Sewage Treatment Planning	Chief of Facility Planning, Planning Div., Sewerage Bureau, Tokyo Metropolitan Gov.
Mr. Kazuchika Satoh	Organization/Institution	Development Specialist, JICA

Composition of the Study Team is shown below.

Table 1.6.2 Composition of JICA Study Team

Name	Assigned Position
Mr. Kenji Hori	Team Leader
Mr. Atsushi Ujiie	Sewerage Planning
Mr. Shin-ichi Osaka	Sewage Treatment Plant Planning
Mr. Hiroshi Terayama	Sewerage Equipment Planning
Mr. Shusaku Ueno	Topographic Survey
Mr. Masuomi Hiroyama	Water Quality Research & Environmental Aspects
Mr. Kenji Hiramatsu	Institutional & Legislative Aspects
Mr. Yoshikazu Tsukide	Financial & Economic Aspects
Ms. Rimiko Kubota	Health & Hygiene Education

1.6.3 Implementation Set-up of Albanian Side

The implementation set-up of Albanian side consists of the MOPWT and its counterpart personnel, and the Steering Committee for the Study composed by representatives from authorities concerned. Overall coordination of the Steering Committee was handled by the MOPWT. The Steering Committee was organized by following representatives of relevant authorities.

Table 1.6.3 Composition of Steering Committee

Name of Authority & Representative	Official Position
Ministry of Public Works, Territorial Adjustment and Tourism	
Mr. Ernet Noka	Vice Minister
Mr. Stavri Ristani	General Director, Water Supply and Sewerage
Mr. Mirand Caushi	Chief of Sector (Sewerage)
Ms. Mariana Coku	Chief of Sector (Water Supply)
Mr. Arjan Jovani	Specialist for Water Supply
Mr. Shpresa Leka	Architect, Urban Planning
Department of Economic Development and Foreign Aid Coordination, Office of the President	
Mr. Kodora	Director of the Department
Mr. Marieta Koca	Specialist of the Department
Ministry of Health and Environmental Protection	
Mr. Bujar Reme	Specialist for Sanitation
Tirana Municipal Office	
Ms. Juli Shllaku	Director, Department of Urban Planning
Mr. Lulezim Qenami	Director, Department of Public Works
Ms. Luljeta Hoxha	Specialist for Water Supply & Sewerage, Department of Urban Planning
Mr. Xhemal Ceco	Specialist, Department of Road and Sewerage

Table 1.6.3 Composition of Steering Committee (cont'd)

Name of Authority & Representative	Official Position
Enterprise for Maintenance of Roads and Sewerage	
Ms. Merita Mullaj	Chief Engineer
Waterworks Enterprise of Tirana	
Mr. Faruk Toro	Director
Institute of Hydrogeology	
Mr. Nazmi Rudi	Director
Institute of Urban Planning	
Ms. Fatlinda Murthi	Specialist
University of Geology and Mining	
Mr. Thoma Korini	Director, Department of Mining

Counterpart personnel assigned by the MOPWT were shown below.

Table 1.6.4 Composition of MOPWT Counterpart Personnel

Name	Position in MOPWT
Mr. Fahri Maho	Specialist for Sewerage, Directorate of Water Supply and Sewerage
Ms. Etleva Milkani	Specialist for Sewerage, Directorate of Water Supply and Sewerage

1.7 Organization of the Study Report

The Report of the Study in English language was compiled the following three parts:

(1) Summary Report

(2) Main Report

(3) Supporting Report

The Summary Report was edited for the convenience to grasp overview of the major study results, while the Main Report presented the overall results of the Study. Detailed discussions and field data were contained in the Supporting Report.

CHAPTER 2

DESCRIPTION OF THE STUDY AREA

CHAPTER 2 DESCRIPTION OF THE STUDY AREA

2.1 Natural Conditions

2.1.1 General

The Republic of Albania locates western part of the Balkan Peninsula and is bordered by Montenegro and Serbia in the north and Northwest, by Macedonia (former Yugoslav Republic) in the east, and by Greece in the south and Southeast. The country also faces the Adriatic Sea and the Ionian Sea. More than 70 % of the land area belongs to mountainous area at an altitude of more than 300 m and the rest is mainly plain and gently rolling hills in the western part of the country. Only 17 % of the land is considered arable for agriculture.

The geographical position of the country is:

- Latitude 39°38'N to 42°39'N and
- Longitude 19°16'E to 21°40'E.

Albania belongs to the Mediterranean climate zone characterized by hot and dry summer and moderately mild winter with frequent precipitation. The western part of the country receives the warm wind coming from the sea and mountains protect coastal area from cold eastern winds. The average atmospheric temperature during the summer ranges from 24 to 27 °C, while in winter 12 to 14 °C. In winter, approximately 40 % of annual rainfall is observed. Snow falls are seen mostly in the inland area and over the mountains.

2.1.2 Topography, Geology and Hydrogeology

(1) Topography

Albania is mostly a mountainous country as mountains and hills cover approximately 77 % of the total land area (28,748 km^2). The medium altitude of the country is about 710m which is about two times higher than that of Europe. Albania is topographically characterized into four natural regions: the Albanian Alps, the central mountain region, the southern mountain region and the western plain. The low lying western plain leads to medium mountainous levels in the northeast. The southern coast (Vlora-Saranda) is also characterized by its steep slopes. The highest mountain seen in the northeast of the country is Mt. Korabi with the altitude of 2,751 m.

Tirana City is located half over the western plain next to the Adriatic Sea and the other half over the mountain and hilly area. The altitude of the study area ranges from 80 m to 130 m and the center of Tirana is situated at about 110 m. The ground surface gradient is ranging from 1 to 5 % declining to western direction. In the east of Tirana, hilly area is extended to Mt. Dajiti (1,612 m).

(2) Geology

In Albania, two distinct formation types are seen; the western domain consists of Monotonous Permian to Mesozoic Sediments, while the eastern domain is characterized by Paleozoic to Mesozoic basis, acidic volcanic rocks and ultramafic massifs.

The country has various mineral resources, namely chromium, copper, nickel and bauxite. Other minerals are kaolin, phosphotized limestone, rock salt, gypsum and stones (limestone dolomite and marble). Among others, concentration of Albanian chromium deposits is ranked at the first in the world by a substantial margin in terms of density as being ten times higher than South Africa and more than twenty times larger than Zimbabwean. Copper reserves in various sources are assumed to be some 50 million tons. Nickel and bauxite are also famous mineral resources of the country.

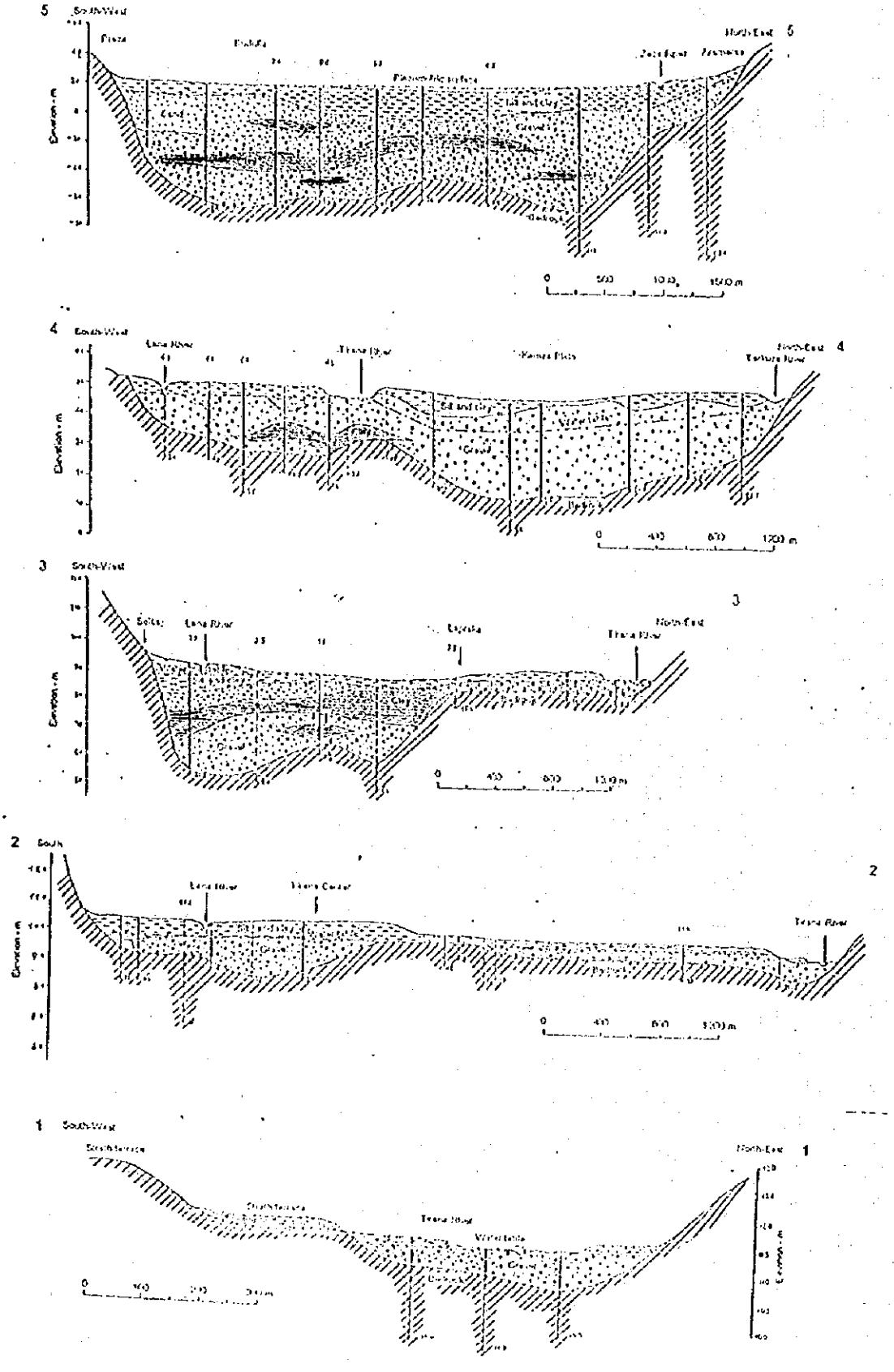
Tirana is made of big syncline dipping in north west direction toward the Adriatic Sea. The lower part of Tirana syncline is composed of Cretaceous and Palaeogene carbonate formations and Paleogene flysch formation, while the upper part of central area of this syncline, Tirana plain, is mostly filled with of Quaternary alluvial deposits formed by the Tirana and Lana Rivers. Geologic cross-sections of Tirana is shown in Figure 2.1.1.

Likewise, Tirana is categorized by the following two zones.

First Zone:

The first zone includes the field part of Tirana from hospital center in the west to Kombinat in the south and from Kamza in the north to Elbasan Road in the south. This zone is made of terrace deposits formed by the Tirana and Lana Rivers.

Figure 2.1.1 Geological Cross-Sections of Tirana



The Tirana River forms three terraces. The first terrace of the Tirana River, the lowest one is partially a strath terrace, in north-eastern periphery of Tirana City, and partially an accumulative terrace in north-western periphery of Tirana City. This terrace outcrops along the left bank of the Tirana River and has an elevation of about 6 to 8 m above the river.

The second terrace is of accumulative character, and above it, the central part of Tirana City is placed. This terrace has elevations of 20 to 30 m above the Tirana River.

The third terrace of the Tirana River, the upper one, is a strath terrace and outcrops only in the north-eastern corner of Tirana City. This terrace has elevations of about 60 to 70 m above the Tirana River.

The Lana River has two alluvial terraces placed over on the older alluvial deposits of the Tirana River. The largest part of this zone, beside areas nearby the Tirana and the Lana Rivers, is made of sandy clay with brown color having thickness varying from 4-6 m to 8-9 m. Beneath this layer, there are gravel deposits with sandy clay and clayey sand with thickness of up to 15 m. At the upper part of these deposits, there is groundwater table. And beneath the last layer, there are silt stones and clay stones.

At the beds and nearby two rivers, there are alluvial deposits made of gravel, clayey sand and sand with thickness of about 15 m.

Second Zone:

This zone is located in the west and south-west part of Tirana City. This zone is made of brown sandy clay with the thickness of 6 to 10 m. At the lower part, there are aeolian sand stones and clay stones with the thickness of 6 to 7 m.

In two zones of silt stones and clay stones, layers containing carbon are seen in Valias, Mezes, Myshqeta, Krrabe and Priske.

(3) Hydrogeology

Tirana region represents an intermountain syncline of Neogenic, mainly consisting of Tortonian and Quaternary sediments. These sediments are placed on Cretaceous and Paleogene carbonate formations, and on Paleogene flysch formation. This depression has about 10 to 12 km wide and about 70 to 80 km long, in the direction to northwest toward the Adriatic Sea. This depression represents an artesian basin in which Tortonian and Quater-

nary aquifer systems of Cretaceous-Paleogene age are present. The Quaternary deposits are mainly of alluvial origin, consisting mostly of gravely-sandy layers covered by silty and clayey layers. On the valley floor, the gravely sediments outcrop just partially, and only along the courses of the Tirana and other rivers in the north-east direction.

The most permeable layers of alluvial deposits, namely gravel and gravel-sand, are saturated mostly by the fresh water, and form an important aquifer system. This horizon is developed in central part of the Tirana valley. The permeable deposits, which partially outcrop along the river courses crossing the Tirana valley, are being progressively covered, in the western and north-western directions, by the clayey and silty deposits. The thickness of it increases up to the maximum of 60 to 70 m and can be seen in the cross sections.

This situation causes that the aquifer system is in confined conditions in most of the valley areas. Only in the areas where gravel deposits outcrop along the Tirana and other rivers in the west, the aquifer system can be found in unconfined conditions.

The thickness of the gravel layers varies from 5 to 20 m and increases generally from east to west. The largest thickness of the gravel deposits, about 15 to 25 m, is found along the axis of the Tirana syncline, in the western part of the Tirana valley.

Recharge of the aquifer system seems to occur mainly by infiltration of surface water of rivers crossing the Tirana valley, by direct infiltration of rainfall in the outcropping gravel areas, also to a lesser extent, by groundwater seepage from lateral outcrops of permeable rocks bordering the valley (sandstone).

The system discharges naturally into the Adriatic Sea, and as a drainage through point and diffuse springs in the lower parts of the main rivers crossing the valley, such as the Lana River springs in Laknas, the Tirana River springs in Gjec Fusha, and some other springs in north-east part of Tirana.

2.1.3 Meteorology

Albanian climate is characterized by hot and dry summer, whereas the months of winter tend to be mild and wet. Owing to distinguished diversity of inland topography, the climate varies by three main climatic zones.

Tirana area extends at the west part of Mt. Dajti nearly in the middle of Albania. This area consists of small rolling hills and also extends inside the border of the Fieldly Mediterranean Climatic Sub-zone and Hilly Mediterranean Climatic Sub-zone. A humid and soft winter as well as dry and hot summer are the typical characteristics of this area. The global radiation in Tirana is 4,100 calories/m^2/year.

Mean annual atmospheric temperature is 15.2 ℃. The coldest month in winter is January with the mean atmospheric temperature of 6.7 ℃, while the hottest month is July or August with the mean atmospheric temperature of 24 ℃. The highest atmospheric temperature was observed at 41.5 ℃ on July, while the lowest was -10.4 ℃ on February.

Mean annual soil temperature varies by depth; 16 ℃ at 5 cm, 15 ℃ at 20 cm, and 17 ℃ at 40 cm, respectively. The lowest soil temperatures at same depths were observed at 5.4 ℃, 6.0 ℃ and 7.4 ℃.

Mean annual rainfall is 1,270 mm with fluctuation ranging from 800 mm to 2,060 mm. Monthly rainfall in the year is not uniform. During the cold weather, approximately 60 % of the annual rainfall is observed. The largest monthly rainfall is seen on November at 1,774 mm, while the smallest monthly rainfall happens at 42 mm during July.

Contribution of snow fall to the total precipitation is scarce in Tirana. The annual average number of days with snow fall in Tirana is only at 0.9 and the maximum thickness of snow layer is about 15 cm.

As a whole, the relative humidity is not so high owing to its atmospheric temperature. The mean annual relative humidity is approximately 70 % with fluctuation of 60 % to 76 %, while the evapo-transpiration pressure is 12.5 hPa with fluctuation of 7.5 to 18 hPa.

The above mentioned meteorological data, such as atmospheric temperature, rainfall and relative humidity are summarized as shown in Table 2.1.1.

Table 2.1.1 Summary of Meteorological Data in Tirana City

Item	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Yearly
Temp (℃)	5.9	7.2	9.7	13.5	17.8	21.6	23.8	23.4	20.1	15.8	12.1	8.0	14.9
Rainfall (mm)	161	138	141	95	106	85	52	54	54	82	191	204	1,363
Humidity (%)	74	73	70	72	71	69	62	64	71	70	76	79	71

Note: Atmospheric Temperature & Rainfall, 1961-1970; Humidity, 1963-1967
Source: Scientific Statistics, 1995

2.1.4 Rivers, Canals and Ponds

(1) Rivers

There are two major river systems in the Study Area, namely the Tirana River and the Lana River.

The Tirana River:

The nearest gauging station of the Tirana River is located at Zall Dajti village with a catchment area of 70.8 kn^2. The annual average flow is approximately 88.27 million m^3. The monthly flow rate during the past ten year period was presented in Table 2.1.2.

Table 2.1.2 Monthly Flow Rate at the Tirana River

Unit: m^3/sec.

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Ave.
1976	3.46	2.84	3.13	3.64	2.66	1.05	3.72	1.99	2.75	1.06	1.25	2.44	2.50
1977	2.13	4.87	5.98	2.01	5.34	2.54	2.59	0.87	0.57	0.46	0.47	1.30	2.43
1978	1.00	4.10	2.64	3.26	8.27	8.70	3.38	6.41	1.94	8.68	0.69	2.15	3.60
1979	1.00	0.71	5.54	7.81	5.94	5.17	5.78	1.26	1.07	0.80	1.43	0.62	3.09
1980	0.61	5.88	5.11	4.78	2.36	2.84	1.74	5.03	0.90	0.22	0.18	0.22	2.49
1981	3.02	7.20	6.92	2.74	10.5	7.85	3.06	4.28	1.74	0.24	0.19	0.66	4.03
1982	2.70	2.47	15.3	3.16	0.94	3.01	1.55	1.51	0.30	0.15	0.11	0.24	2.62
1983	0.69	1.32	7.32	2.28	4.80	1.52	1.78	1.21	2.28	0.43	0.30	0.52	2.04
1984	0.48	3.13	4.63	5.82	4.32	6.26	3.73	2.22	1.40	1.07	3.16	1.54	3.15
1985	1.09	1.56	0.84	6.78	4.68	4.11	3.24	1.65	0.18	0.18	0.12	0.09	2.04

The Lana River:

The gauging station of the Lana River situates near Dajti Hotel with the catchment area of 20.1 km^2. The annual average flow rate is approximately 14 million m^3. The monthly flow rate measured during the past 20 years is shown in Table 2.1.3.

Table 2.1.3 Monthly Flow Rate at the Lana River

Unit: m^3/sec.

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Ave.
1966	0.06	0.44	1.06	1.31	0.45	0.35	0.31	0.20	0.18	0.20	0.15	0.16	0.41
1967	0.13	1.31	1.28	0.86	0.23	0.12	0.55	0.22	0.13	0.15	0.06	0.25	0.44
1968	0.20	0.30	0.61	1.15	0.83	0.70	0.47	0.54	0.78	0.46	0.38	0.35	0.56
1969	0.30	0.26	0.59	0.47	1.30	1.34	0.69	0.33	0.38	0.16	0.15	0.14	0.51
1970	0.14	0.24	1.03	0.81	1.25	0.41	0.33	0.35	0.12	0.30	0.52	0.06	0.46
1971	0.28	0.51	0.41	0.51	0.25	0.98	0.96	0.14	0.34	0.16	0.13	0.37	0.42
1972	0.18	0.26	0.26	0.43	0.40	0.33	0.66	0.26	0.16	0.26	0.25	0.50	0.33
1973	0.28	0.27	0.18	0.21	0.72	0.34	0.47	0.19	0.26	0.16	0.18	0.38	0.30
1974	0.18	0.18	0.63	0.26	0.29	0.22	0.54	1.25	0.28	0.14	0.12	0.23	0.36
1975	0.59	0.50	0.33	0.19	0.17	0.18	0.14	0.06	0.09	0.08	0.08	0.13	0.21
1976	0.43	0.49	0.37	0.54	0.63	0.33	0.45	0.25	0.42	0.19	0.19	0.19	0.37
1977	0.24	0.52	0.66	0.37	0.83	0.22	0.20	0.20	0.17	0.16	0.15	0.18	0.33
1978	0.18	0.39	0.49	0.56	0.92	0.98	0.74	0.85	0.39	0.23	0.20	0.40	0.53
1979	0.38	0.39	0.57	0.61	0.47	0.60	0.60	0.22	0.24	0.23	0.22	0.18	0.39
1980	0.20	1.00	0.54	0.47	0.39	0.38	0.28	0.59	0.26	0.21	0.20	0.21	0.39
1981	0.45	0.82	0.81	0.37	0.52	0.81	0.32	0.34	0.18	0.17	0.17	0.23	0.43
1982	0.24	0.31	0.66	0.32	0.27	0.28	0.22	0.20	0.19	0.28	0.14	0.20	0.28
1983	0.20	0.24	0.53	0.26	0.46	0.56	0.58	0.40	0.58	0.30	0.27	0.25	0.39
1984	0.26	0.43	0.48	1.16	1.25	1.00	0.74	0.63	0.64	0.70	0.66	0.82	0.73
1985	0.56	0.43	0.51	1.26	0.67	0.85	0.52	0.46	0.44	0.38	0.35	0.43	0.57
Ave.	0.27	0.46	0.60	0.61	0.62	0.55	0.49	0.38	0.31	0.25	0.23	0.28	0.42

(2) Brooks and Ponds

Brooks are located in the south-east and in the south part of the Tirana City and are discharging into the Lana River. Major brooks are as follows:

1) "Hastabaket" brook with two reinforced concrete section (2 m x 2 m) for 1 km length and open on the top.

2) "Pal Poci" brook, with two circular concrete pipes, 1,000 mm diameter for 800 m length and one circular concrete pipe, 1,500 mm diameter for 450 m length. The upper part if open.

3) "Goget" brook with two reinforced concrete section (2 m x 2 m) for 1.3 km length. The upper part is open.

4) "Selita 1" brook receives water from the overflow of artificial lake at Tirana park and from the south part of Tirana City. This brook starting from the said lake is with one reinforced concrete section (2 m x 2 m) for 600 m length. After this, 200 m length is

partially opened and then it continues with rectangular section (1.4 m x 2 m), followed by three circular concrete pipes, 1 m diameter for 500 m length. This brook finally discharges into the Lana River.

5) "Selita 2" brook is made with circular concrete pipe, 1 m diameter for 400 m length and the upper part is open.

6) "Selita 3" brook is made with circular concrete pipe, 1 m diameter for 300 m length and the upper part is open.

Although these brooks have been planned to be used for stormwater discharge, considerable volume of wastewater is currently discharged into these brooks.

There are several artificial lakes in the surrounding area of Tirana City. Among others, Lia Tiranes is concerned to the Study that it situates within the administrative boundary of Tirana City and adjoining to the existing sewer system. This lake constructed in 1950s for irrigation purpose is presently utilized as a part of the national park. The overflow from this lake flows into the Selita 1 brook.

2.2 Socio-Economic Conditions

2.2.1 Political and Social Condition

With the end of the World War II, Albania was proclaimed People's Republic (11 January 1946) which according to the organization of the political system it was "the dictatorship of the proletariat." In December 1976, a new Constitution was approved, which changed the name of the Albanian state, to People's Socialist Republic. However, the form of the political system was not change until 29 April 1991 when the People's Assembly changed the form of the regime to a Parliamentary Republic. Up to 1991, the only form of property in Albania was that of the public property on the means of production and the land.

The economic-cultural-educational activity was realized based on a general, centralized 5-years economic plans. The free initiative was prohibited by the law. The foreign investments were prohibited by law too.

According to the Article 2 of Law # 7491 of 29 April 1991, the People's Assembly proclaimed Albania as a Parliamentary Republic. The Republic of Albania is a juridical and democratic state[1]. The base of this state is the justice, social support, the equality before the law, and pluralism. In the economic aspect, the State is based on the diversity of properties, free initiative and on the role of the State as a regulator. All kinds of property that exist in the Republic of Albania , enjoy equal defense in front of the law.

In the Republic of Albania, the People's Assembly has the legal power. The head of state is the President of Republic, while the highest organ of the executive power is the Board of Ministers.
The administrative organization of the Republic of Albania consists of 12 prefectures, 36 cities , 62 municipalities and 300 communes.

With the new elections on 26 May 1996[2] for the People's Assembly, the main position was taken by the Democratic Party with 55.53 % of the votes and 122 deputies in the Parliament . In the second position is the Socialist Party with 5.74 % of the votes and 3 deputies, the Party Union for Human Rights with 4.04 % of the votes and 3 deputies and the Party of National Front with 4.97 % of the votes and deputies.

2.2.2 Economic Conditions and Policy of the Government

After the end of the Word War II, the administration of State in power in that time determined the policy of development with the orientation toward socialism, as Stalin had done before. First, it was done the reconstruction of economic objects destroyed by the war. Then, the socialist reforms began which consisted of the nationalization and collectivization of everything. The advantages of the heavy industry (of mines and metallurgic industry) formed the essence of the development program. These industries took the greatest part of the investments. This advantage removed the attention from the other industries and tourism, so that they were reflected in the living standard. All the economic branches were developed through the State plan which was totally centralized. In these conditions, the industry formed 58 % of social production, the agriculture gave 25 % and the other parts were transport, construction, services. Tourism had a low percentage in the national incomes.

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[1] For the Main Constitutional Dispositions, Tirana, 1991

Twenty-five percent (25 %) of national incomes were used for accumulation of fund and the rest were used for consumption. After 1985, as a result of the economic crises, the accumulation fund went toward the elimination, so that some reserve funds of the Government were used for consumption. So, in 1989-1990, the accumulation fund formed 100,6 % of national incomes.

After 1990, changes in the political system brought up changes of economic structures. The essence of development was a liberalized economy based on the private and public property. The economic collapse of 1991-1992 was the most critical years. The gross national product (GNP) fell down to 50 %[3]. The inflation rate was very high especially in 1992. Under these conditions, the transformation process began in July 1992. The program of the Government was based on the so called "stand by" agreement. This agreement was signed with the International Monetary Fund.

The main point of the reform was supported by three essential principles:

(1) The macro-economic stabilization which aimed at the decrease of the budget deficit, control of the inflation and at the prices liberalization.

(2) The reconstruction of the public sector.

(3)The privatization of the economy.

The prices liberalization began widely in October 1991, it was deepened during the 1992 and the picture was completed at the end of 1993. The prices liberalization caused an increase of total price index in 1992. The consumer price index also increased. During the subsequent years, the price index has continued to increase.

The privatization began with the approval of the Law on Land in July 1991. According to this law, the land of ex-agricultural cooperatives was given to the owner with no-right to sell the land. Until the end of 1994, over 97 % of the agricultural land was distributed. Later, during the 1993-1994, the agricultural lands of ex-public agricultural enterprises were distributed to the peasants as land in use.

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[2] Newspaper "Rilindja Demokratike", No. 140 (1283), 22 June 1996, Announcement of the Main Elections Commission

[3] The report for the Human Development Albania, 1995, p 9

Table 2.2.1 Major Macro-Economic Indices in 1992 - 1995:

Year	1990	1992	1993	1994
Gross domestic products (GDP)				
- in constant prices	16,813	10,974	12,182	13,086
- in current prices	16,813	49,518	113,041	166,283
Agricultural products				
- in constant prices	6,473	5,926	6,822	7,328
- in current prices	6,473	26,740	63,303	93,118
Industrial products				
- in constant prices	5,988	1,866	1,705	1,701
- in current prices	5,988	8,418	15,826	21,617
Services				
- in constant prices	3,722	3,182	3,655	4,057
- in current prices	3,722	14,360	33,912	51,548
Per capita GDP				
- in constant prices	4,930	3,440	3,846	4,087
- in current prices	4,930	15,523	35,772	51,963
GDP per employee				
- in constant prices	11,238	10,022	11,646	11,245
- in current prices	11,238	45,222	108,173	143,347
Foreign trade (in million US $)				
- Export	228	80	112	141
- Import	380	180	574	602
- Trade balance	-152	-100	-463	-461
Registered unemployment	150,000	394,000	301,289	261,850
Unemployment rate	10.0%	27.0%	22.0%	18.0%
Inflation rate:				
(Consumers' Price Index-Annual Change)				
- End of period	0.0%	236.6%	30.9%	15.8%

Source: Other than Inflation rate, UNDP "Albanian Human Development Report 1996" page 52, 56, 57. For inflation rate, Institute Statistics "Albania in Figures 1996" page 31.

During the 1995, it was proclaimed the right of the ownership on the land. As a result, in the country were created 492,298 private agricultural farms. Each farm owns a fertile land approximately of 1.4 hectare, but this index has considerable regional alterations. During 1991-1994, which was a transformation period, the general agriculture production varied from $646 million in 1991 to $972 millions in 1994[4].

In 1991, the law on privatization was passed and which became the privatization essence practiced in Albania. The performance of this process was assigned to the National Privatization Agency. This process includes the privatization of the houses and the privatization of the medium and small enterprises. At the end of 1995, there were about 56,000 private enterprises,

73.9 % of which were in cities and the rest, 26.1 % of them, were in countryside. According to the economic activity, 9 % of private enterprises were in industry, 53.5 % were commercial enterprises, and 16 % were services enterprises.

Table 2.2.2 Number of Private Firm by Sector

Name of Sector	Physical Person	Legal Persons			Total
		Albanian Firms	Joint Ventures	Foreign Firms	
Agriculture	1,194	283	26	7	1,510
Industry	3,255	1,394	292	123	5,064
Construction	152	961	71	53	1,237
Trade	24,762	3,665	1,002	592	30,021
Transport	8,654	280	64	48	9,046
Service	8,551	505	77	67	9,200
Total	46,568	7,088	1,532	890	56,078

Source: UNDP "Albanian Human Development Report 1996" page 50.

(1) Industry

Industry is publicly owned in the biggest part, especially the big objects like mines, hydro-power systems, etc. The gross production in this sector was $ 335 millions in 1994 where the food industry had 14.1 %, oil refining industry had 16.7 %, oil extraction industry had 12.1 %, the energy industry had 9.5 %, etc. The most important regions on the public industrial production are Fieri, Mallakastra, Shkodra , Tirana with 53.46 % in total[5].

(2) Foreign trade

During 1995, it was a turnover of $ 914 millions, where export had 22 %, import had 71 % and aid had 7 % of the foreign trade. The private sector gave 59 % of the value of exports, and 81 % of the value of imports.

(3) Investments

Investments realized during the 1995 reached over $177 millions[6]. Some 37 % of these investments were made in construction, 21 % of them were in transport, 18 % were in agricultural, 5.4 % in industry, and 18.6 % of the investments were in other areas.

About 59 % of all the investments made during the 1995 were realized by the governmental budget and the 41 % of them were realized by other governmental sources.

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[4] The repertory of the economic enterprises 1991 -1995, Tirana, 1996, p. 13
[5] The statistics 8 / 1994 Tirana , 1995 , p. 15 - 16
[6] The investments in leks are converted into USD, according to the annual average exchange rate in 1995

(4) Tourism

The tourism activity in Albania is new and it is not yet a considerable position. In 1994, the incomes from tourism were $5.2 millions in total. About 70 % of these incomes were profited from accommodation in tourist hotels and also from the nutrition .

There are 50 hotels which have 1,990 rooms and 3,785 beds. Thirty-two (32) of these hotels are private which have 1,598 beds. In 1995, Albania was visited by 141,285 tourists and 28 % of them were foreign tourists and remaining 72 % were aboriginal tourists. These tourists slept in public tourist hotels for 1.5 nights in average.

2.2.3 Historical and Projected Social Statistical Data

(1) Population

1) Past population development

After 1945 the population of Albania increased rapidly, which is supported by:

a- The natural reproduction, which is very extended.

b- The absence and prohibition of external emigration up to 1990.

During the 1945-1990 the population of Albania is increased with an average of 2 % per year. This caused an increase of the population of 1990 three times more than in 1945. After the 1990, the social-political changes brought a mass emigration. In consequence, at the end of 1995 the present population was 3,249,000 inhabitants, so smaller than the population of 1990. The number of inhabitants in Albania in 1995 was to be 3,700,000. The difference which is about 450,000 persons, comes from the number of the refugees who left the homeland from 1991 to 1995.

Table 2.2.3 Population by Sex[7]

Unit: Thousand persons

Year	Total	Male	Female
1945	1,122.0	570.3	551.7
1950	1,219.0	625.9	593.1
1960	1,607.3	827.8	779.5
1970	2,135.6	1,096.6	1,039.0
1980	2,670.5	1,378.0	1,292.5
1990	3,282.2	1,687.1	1,595.1
1995	3,249.0	1,608.0	1,641.0
2000	3,420.0	-	-

2) Population density

The change of the number of the population has gone along with the change of population density according to the administrative and geographical plan.

The average population density is 110 persons/km^2 (1995) oscillating from 31 persons/km^2 in Kolonja to 358 persons/km^2 in Durrsi and Kuçova. According to the geographical zones, the population density oscillates from 25 persons/km^2 in Albanian Alps, 80-100 persons/km^2 in internal regions to 150-500 persons/km^2 in west lowland. The population density goes up to 1,000 persons/km^2 in the urban and suburban locations of the main cities like Tirana, Durrsi, Fier, Lushnja, Vlora, Berat, Shkodra, Korça, Kavaja. The Population density according to the regions (persons/km^2)[8] is shown below:

Table 2.2.4 Population Density

Population Density (persons/km^2)	Name of Region
Up to 50	Kolanja, Përmet, Puka, Malësi e Madhe, Tropoja
51 - 75	Bulqiza, Gramsh, Gjirokastra, Has, Librazhd, Mat, Mirdita, Saranda, Skrapar, Tepelena
76 - 100	Korça, Devoll, Kuksi, Pogradec, Delvina
101 - 150	Berat, Dibra, Mallakastra, Lezha, Shkodra, Vlora
151 - 200	Elbasan, Peqin, Kruja, Lushnja
201 - 300	Kavaja, Fier, Kurbin
More than 300	Kuçova, Durrsi, Tirana

[7] Albania in numbers, INSTAT publications, 1996, p. 2
[8] Atlas of Albania's Geography, Tirana 1996, p.17

(2) Age groups of population

The high natural increase of the population is followed up by a relatively young average age of the Albanian population. The average age for the entire population in 1995 was 24.3 years old[9]. According to the location this index was: 26.8 year old for the urban area and 22.9 years old for the rural area.

Based on sex, the medium age of the whole population was: 24.4 years old for male and 25.2 years old for female. The differentiation in this sex index happens as a consequence of females' relative longevity and the phenomena of external emigration where the 24-44 years old males were mostly included.

The analysis of age pyramid according to the 5 years groupings shows that the population of Albania is still in the period of early transition of transitive stage of demographic evolution.

The population grouping according to three large age groups of population for the 1995 gave the following structure:

a. Under age of working (0-14 years old) = 32.9 %
b. The age of working (15-54 and 15-59 years old) = 56.1 %
c. Over age of working or old age (+55, +60 years old) = 11.0 %

The most vital working age, which makes up the biggest part of occupation market in Albania, is from 20 to 44 years old which is 36,3 % of the whole population. According to the forecasts, it is observed that Albania will go on in having a sensible human contingent that enters the labor market up to the end of this century . In 1995 the index of entrances and exits into the labor market was 3.4 : 1, while in 2000 this index might go to 3.2 : 1 having sensible increase in the urban area, because of the migration from countryside to cities.

A long term forecast of the tendency of the three biggest age groups can be:

- As a consequence of a light falling of fertility it will be a reduction on the weight of the group 0-14 years old and the children number of school age 6 - 13 years old.
- On the other hand, the number of the old age will increase a little but its weight will remain within the same limits.

[9] The average age is calculated based on the INSTANT data. The Demography Department - Population projection, p. 44, 1995

The population in the working age will be increase in number and in weight[10].

(3) Internal migration from rural to urban areas

An accurate evaluation of such index represents difficulties because the official data are not available. This happens because:

- At the respective offices are only the declared movements at the civil status offices.
- It is not reflected the clandestine migration from rural to urban areas which is a considerable number.
- The temporary human transfers is not reflected too.
- The existing data represent the migration as total of the population, which is not structured according to the age, social structures etc.

Referring to the above, this index was evaluated through comparative review of data from difference sources. Generally, approximately 13 % of internal migrant in each year are transferring from countryside to major towns. There are distinguished differences on the above ratio of internal migrant in different parts of the country, from 2.2 % of population of areas in south and south-east regions, to 15.8 % in central region, and 18.3 % in north-east and in the highland of Puka-Mirdita[11]. The regional differences in migration are also connected with some other phenomenon:

In south-east and south regions, the external temporary clandestine emigration to Greece happens mainly. Transfers to cities have to do mostly with the matrimonial process. The greatest flux of internal migrants is concentrated in central region. At the same time, some temporary movements are for emigration abroad, to Italy. In this case the report placing - removal is 6:1.

The north-east region and the highland of Puka-Mirdita is most characterized of the permanent internal migration.

Family

The general census of the population on 1989 indicated that the total number of families all over Albania was 675,456[12]. It was composed of about 4.7 members for each family.

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[10] Demographically Situation in Albania, Tirana, May 1993, p 15
[11] The results are extracted, according to the tests in respective regions
[12] The general census 1989, Tirana, 1991, page 89

There were 1.5 members up to 14 years old. The family registration showed the following family compositions:

- 12,5 % have up to 2 members;
- 38,8 % have 3-4 members;
- 31,5 % have 5-6 members;
- 17,2 % have more than 7 members.

The number of families in cities was 289,229 with almost 3.9 members. More than 1/2 of urban families had 3-4 members. The number of families in country was 386,227 with an average of 5.3 members, where over 54 % of families had 4-6 members in average. Difference between rural and urban families was seen in family composition on members up to 14 years old. For the cities the number of these members was 1 and for the country this number was 2.

According to the general census of the population on 1989[13], the number of families in 1995 was over 925,000 with 3.9 members in average. About 46 % of these families were in cities with 3.5 members in average, and the rest, 54 % were in countryside with 4.3 members in each family.

In urban areas, the number of families should be larger, but many of the families who are established in the suburbs have not the official approval. This phenomenon has happened especially in Tirana, Durrsi, Fier, Elbasan, Vlora, Berat, Lezha.

2.2.4 Education System

The education system in Albania consist in the following categories:

- Pre-elementary school system
- Elementary school system (8 years)
- High school system, general and professional
- University school system

[13] About the estimated inhabitable population, not including the emigration.

(1) Pre-elementary school system

This system of education includes kids from 3 to 6 years old. It is organized in kindergarten with meals included or not. In 1990, in Albania were 3,926 kindergartens, with a staff of 5,664 employees, who had to take care of 130,000 kids[14]. About 2/3 of these kindergartens were in rural zones and only 1/3 in urban zones. This fact was explained with the collectivization process of the economy, with the prohibit of the private entities and with the goal of political education of children in groups.

After 1991, the number of kindergartens is decreased by 32 %, especially in urban zones. The number of children registered in these institutions during this time is decreased in half (1/2) compared with 1990. This decrease is explained with the fact that now a considerable number of mothers are not occupied, being separated from the job in public or private enterprises (in cities). In the rural zones, parallel with the work in private farms mothers look after their children.

In 1995, there were a total of 2,668 kindergartens, of which 334 in cities and 2,334 in countryside. These institutions had registered 80,348 children in total, of which 32,614 in cities and 47,734 in villages[15].

(2) Elementary school system.

Up to 1990, the elementary school system was characterized by a contingent of 1,726 schools, wherein 557,000 pupils were registered and 28,798 teachers were working . Within the total number of schools, 14 % were in urban zones and 86 % in rural zones. According to the number of pupils, 31.4 % were in the cities.

Up to 1995, the number of schools reached to 1,782, in which 1,526 were schools with only four classes. These schools were concentrated in villages. During 1995, there was an increase of the number of pupils and teachers in this category, that were 558,101 pupils and 30,893 teachers, respectively. Of all the teachers, 51.3 % had graduated the university, 48.7 % had finished the high education and were assigned in lower classes (the first four classes). In the elementary education, there are in average 19 pupils for each class, in cities 30 and in countryside 16 pupils for each class.

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[14] Statistical Annual of Albania 1991, Tirane 1991, pp 90-91
[15] INSTAT: Statistics 4/1995, Tirane, April 1996, p 59

(3) High school system, general and professional

There are three types of high schools in Albania:

- General high school
- Professional high school
- Joint high schools, general and professional high schools.

The total number of high schools in 1995 was 472[16], of which 362 were general high school , 69 were professional high school and 41 were joint high school. This type is especially spread in rural zones where the preparation of middle personnel for agricultural economy (veterinarian, economist, middle agronomist) is necessary.

In the high schools, about 60 % or 89,000 pupils graduated from elementary school were registered every year (1995). About 22 % of pupils enrolled in high schools studied at the professional high schools of all types.

(4) University school system

This category of education system in Albania is represented by eight Universities, one Academy of Fine Arts and one Physical Institution. Five of them are located in Tirana and each one in Elbasan , Korça, Shkodra and Vlora.

In 1990, there were 6 Universities with 27,239 students. During the academic year 1995-1996, the number of students was 28,200 of which 52.6 % were females. Students in Universities are divided in part-time and full-time students. Full-time students are 37 % of the total number of students.

Every year, 4,436 students take the graduation, from which 58 % are female. The actual predominance of the females in the total number of the students who take the degree is related with the objective of males to get a work after finishing the secondary school and/or to emigrate.

According to statistical data, only 27 % of high school graduates are accepted in University in part- or full-time[17].

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[16] INSTAT: Statistics 4/1995, Tirane, April 1996, p 62
[17] Statistics 4/1995, Tirane, April 1996, pp 62-64

2.2.5 Employment

As a result of a very extended natural reproduction of population and the prohibition of the emigration up to 1990, the occupation reserves have been very sensible. In 1990, 57.8 %[18] of the total of the population was in the working age. Within the working age population, 83.2 % of them were capable to work and 90 % of this labor power were employed.

The unemployment formed a contingent of almost 150,000 persons, where the female population took the 52.3 %. Before 1990, about 2/3 of the occupied population was in the public sector and 525,000 persons (a little more than the 1/3) were employed on the cooperative sector, mainly on the agricultural sector. The private sector of occupation did not exist. When the privatization process started, the labor force market and the private sector of occupation started to increase. The narrowing of the public sector of employment and the decomposition of the ex-public-enterprises and agricultural cooperatives were followed by a rapid increase of unemployment. The unemployment of about 394,000 persons[19] was recorded at the end of the 1992 and in April 1993, the unemployment reached the maximum of 466,781 persons[20].

In 1995, 56 % of the total population were on the working age. This down-fall was a result of the mass emigration of the capable-for-work population toward Greece and Italy particularly during the 1991-1992. This year, the labor forces were 72 % of population in the working age, though 86,9 % of active population were engaged in jobs. At the end of 1995, the number of unemployed persons fell down to 171,000 persons. Table 2.2.5 shows the labor market in Albania.

Table 2.2.5 Labor Market[21]

Unit: 1,000 persons

Index	1990	1991	1992	1993	1994	1995
Population in Working Age	1,897	19,259	1,849	1,763	1,786	1,820
Labor forces	1,579	1,544	1,489	1,347	1,423	1,304
Employed	1,429	1,404	1,095	1,046	1,161	1,133
Unemployed	150	140	394	301	262	171
Unemployment Ratio	10 %	9 %	27 %	22 %	18 %	13,1 %

[18] Here is included the female population from 15 to 54 and the male population from 15 to 59 years old.
[19] Statistics Nr.1/1992, Tirane, May 1993, p..6
[20] INSTAT: The Albanian labor market in the transition period, Tirana 1995, p.30
[21] See: Albania in numbers. INSTAT publications, Tirana, 1996, p. 2

Up to 1991, the wage standard had not been changed and it was consisting of two sorts: the bottom wage of the public sector; and the wage which was determined according to the work done in the public sector and/or in agricultural cooperatives. In agricultural sector, the day/norm system was used for keeping track of the work. In 1990, the annual average wage was $767.8 for an employee, $727 for a worker, and for a person in an agricultural cooperative system in the countryside was $379[22]. The difference between the lowest and the highest wage was 1:4,7.

From the very beginning of 1992, the reform on the wage field started. The whole system of wages began to reconstruct the wage system of 22 categories, where the difference in the public sector was 1:10. The average wage of an employee was $ 828 in 1995, which showed for the difference between the different structures of employment. The annual wage of a worker in the state enterprises was $ 494 and the wage of an employee was $ 762. In the private sector, the annual wage for them were $ 744 and $ 1,051, respectively.

2.2.6 Social Infrastructure

(1) Houses - rooms, WC, kitchens, baths

The General Census of the Population in 1989[23] gives detailed data for this topic. According to this registration, there were 385,769 houses all over the country, of which 76,103 in the cities and 309,666 in the countryside. In all these houses, there were 674,636 apartments and their breakdown by number of rooms is shown below.

Table 2.2.6 Composition of Apartments by Number of Rooms

Total Number of Apartments	Studio	With One Room	With Two Rooms	With Three Rooms	With Four Rooms
674,633	32,827	293,025	241,949	79,614	27,218

Of all the apartments, 19.5 % have the living space up to 20 m^2; 40.5 % are up to 20-40 m^2; 29.2 % are 40-60 m^2, and only 10.8 % have a living space of more than 60 m^2.

[22] Converted into $ from the author according to the exchange value of the respective year.
[23] Total Registration of the Population and Houses, Trana, 1991

The 1989 Census indicated that about 5 % of all the apartments does not have the kitchen, 43.4 % of the apartments have kitchen which at the same time is used as bedrooms, because of the large number of members of each family. The remaining 51.6 % of the apartments have the kitchen as a separate space.

The Census also showed that 30.0 % of them have the toilet inside the house and 70 % doesn't have a toilet in the house. The number of the houses with a toilet vary from 65.5 % in the cities and 21 % in the countryside.

In the city, 71.5 % of the houses with a toilet pour the sewage to the sewerage, while the others into the septic holes. In the countryside, only 12.5 % of the houses with a toilet pour the sewage in the sewerage, while the others (87.5 %) into the septic holes.

(2) Water supply

The 1989 Census gives more detailed data on this topic, as well. In general, up to now there is not many significant changes. From this census, it is found out that all over the country, in 1989, 16.4 % of the houses had the running water installed inside the house; 28.2 % had the running water installed up to the garden of the house; 11 % had drinking water from a well in the garden, and 43.4 % of the houses had no water, being supplied far from the house. According to the classification city-village the numbers vary as follows:

Table 2.2.7 Number of Houses by Type of Water Supply

Area	Houses	Running Water Inside	Running Water in Garden	With Well in Garden	Without Water
Cities	76,103	47,944	22,576	1,242	4,341
Villages	309,666	15,267	86,171	41,418	166,810
Total	385,769	63,211	108,747	42,660	171,200

(3) Electricity

The capacity of electrical power is about 1.5 million kW. For the production of the electrical power, which by the end of 1995 was 4.5 million kW/h, there are six big hydro-power aggregates with a given capacity of 250,000 - 600,000 kW; a thermo-central with a capacity 160,000 kW; 80 small, local hydropower systems and some other small thermo-central. Some of these thermo-central and local hydropower systems are out of order be-

cause of the superannuation and unsuitable technology.

From the total electrical power produced in 1995, 93 % is produced by the hydropower aggregates. For the distribution of the electrical power a high voltage network of 35 kV, 110 kV, 220 kV and 400 kV, and a medium voltage network with 10 kV and 6 kV and a spread of 2,500 km had been built. The low voltage network has a spread of 1.5 million km. A high deprecation characterizes the machinery of production of the electric power and the distribution network of distribution. The medium and low voltage network cannot support electric power demand.

(4) Public transportation

Up to 1991, the public transportation of people was under the general policy of developments in Albania, and it was realized using mass means of transportation (buses, trains). Transportation of people was public property organized by urban and interurban transportation enterprise and railways enterprise. In this way was realized the transportation of goods as well.

In general, the number of vehicles and cars was limited, so it was not a serious danger for pollution and damage of geographical and social environment. After 1991 the privatization process started in the transportation industry. This brought up an increase in the number of the transportation means for goods and people. In 1992, a total of 93,137 automobiles was moving in the country, in which 34,213 were cars. In 1995, the total number of automobiles increased to 105,720 of which cars were 58,681[24]. Of the total number of automobiles, 94,665 were private ones of different kinds (cars, buses, trucks, etc.).

Transportation by train is still a public property, having in 81 locomotives, 158 passenger carriages and 2,119 freight cars. The railway is 720 km long and 90 km of which are ramifications.

Transportation through the sea is organized through private agencies and public marine transport companies, especially for freight transport. For people transportation, a lot of foreign companies exist in Albania (La Vikinga, Adriatica etc.). The total of marine transportation means consists of 29 ships with an overall payload of 676,500 tone-goods.

[24] INSTAT: Albania in Numbers, Tirane, 1996, p 21

Air transportation activity is realized by 14 airline companies, of which 12 are foreign companies and two of them are joint ventures. During 1995, these companies completed 2,817 flights carrying more than 21,300 passengers and 585 tones of goods. During 1995, in Albania are also realized transit flights of 11,698 passages of foreign airline companies.

(5) Roads

The total length of roads is 18,000 km. in 1995 and road density is 0.63 km per 1 km^2. Out of the total, 2,350 km are asphalt pavement roads as major roads. About 5,000 km are local streets and which are not always asphalt pavement.

The existing road system has some serious problems:

- The construction of these roads is calculated for a pressure of 50 t/km/min., in a time that the actual pressure is more than 2,500t/km/min.
- The national asphalt pavement network is wide 6 (8) m, 7 (9) m and rarely 8-10 m. Only 5.5 km (Tirane-Vore) is wide 12 m with two passages for each direction.
- The low quality and the lack of maintenance have brought a lot of problems.
- The lack of overpasses, narrow bridges, sharp curves, limit the speed of movement in 40-50 km/hr.

Because of the bad technical situation of automobiles, there are cases of fuel leaking. About 90 % of the automobiles coming last few years in Albania are used and deprecated ones.

The lack of secondary protections also limits and slows down the velocity of movements of the automobiles.

Owing to the above reasons and breaking of the rules of driving, the number of accidents has been increasing. During 1995 there were 399 accidents with 639 injured persons of which 306 were dead[25].

2.2.7 Problems and Condition of Cleaning

The cleaning is made in manual way or with simple tools for 9.5 million m^2 of streets and squares of all the districts in the country. Throughout the country, this activity is going to be

shifted to private undertaking. The current situation with cleaning asks for a lot of organizing work. By the expansion of the market-places in cities, urban refusals has been increased from construction works and traffics.

Presently, about 0.8 to 1.1 kg/person/day of garbage is discharged with the following composition:

- 37-39 % as decayed and organic refuses,
- 12 % as paper and card-paper refuses,
- 15 % as construction refuses,
- 3-4 % as metal, aluminum, and other iron refuses,
- 10 % as textile refuses,
- 12 % as plastic and glass refuses,
- 7.5 % as woods and bone refuses.

All cities have their damping fields for the urban refuses. These damping fields need an approval and a complete and a long time study according to the law and hygienic rules. The sewage, almost in all the cities, are not destined to be poured into these fields because of the investments and the studies needed.

The construction refuses are not in order disciplined with certain and approved places to be deposited and loaded, and not in all the cities. They, in general, are unloaded in different places, in the suburb area of the city, or in the edge of the street, spoiling the cities. The old parts of destroyed vehicles are a big problem for these towns. The washing of streets does not exist, except a few big towns which have some washing-vehicles in some particular days.

There are a lot of problems because of the bad situation of streets and squares. The reconstruction and maintenance of the streets have a great influence to the quality of cleaning. In the cities, inhabitants do not pay any attention to the cleaning of the territory around the buildings. Only in Tirana, an enterprise exists which maintain these places and which is under the control of municipality.

In every town, some organized sectors exist which process refuses remained by the cleaning activity. The most part of them are burnt every day. There is not any process for the selection and the division of residues into categories. Several year ago, these residues were decomposed

[25] INSTAT: Statistika 4/1995, Tirane, April 1996, p 29

creating a good fertilizer of a high quality. Recycling materials were collected for the paper factory and scrap metals for smelt iron works.

Nowadays these recycling are not practiced and there are a lot of these residues, which are of a great interest for the economy in different branches. An estimation shows that there exists about 6,000-7,000 tons of paper, about 15,000-20,000 tons of scrap metals and damaged machines, are of a great importance for the smelt industry as raw materials. For instance, in 1990, 4,200 tons of paper were gathered and delivered to the paper factory.

To handle the quantity of every day refuses, about 50 ha of damping fields are necessary in every city. In all over the country, about 1,350-1,400 tons of urban refuses are generated in a day and 495,000 tons of urban refuses have been accumulated in the damping fields. This quantity has not included the refuses distributed in other places.

The hospital refuses are forbidden by law being deposited in these fields. For the population, near their houses there are certain places for their daily garbage. But some of them do not leave their garbage in these places making dirty their residence and leaving so a bad impression. Because a lack of the garbage-vehicles, refuses are not all removed from these places within a day. About 15-20 % of them are not removed within a day.

2.2.8 Public Investment Programme 1996-1998

(1) General

To facilitate the reconstruction of the Albanian economy, Department of Economic Development and Aid Coordination (the "DEDAC") prepares annual Public Investments Programme ("PIP") which are series of three-year rolling investments programmes. The 1996-98 PIP was published in March 1996 from the DEDAC.

The PIP is intended to strengthen the management of economic resources in a number of ways:

- by ensuring that public investments is clearly linked to sectoral policies and priorities which in turn are consistent with national macro-economic objectives;
- by requiring that public investment projects are identified and planned within the framework of a realistic assessment of the available financing of PIP;

- by providing a basis for matching investment needs with aid allocations; and
- by facilitating a strong project planning and management cycle by providing a framework and schedule for the preparation, implementation and evaluation of investment projects.

The DEDAC divides public investments into following five main categories and sub-sectors:

- Natural Resources Management (sub-sector: Agriculture, Minerals, Water Resources, Environment)
- Private Sector Development (sub-sector: Enterprise Promotion, Tourism)
- Public Infrastructure & Utilities (sub-sector: Energy, Transport, Communications, Urban & Rural Infrastructure, Housing & Urban Development)
- Human Resources (sub-sector: Health, Education & Science, Social Safety Net & Labor Market Services, Culture)
- Government Services (Public Administration & Judiciary)

Sewerage project is classified in the "Urban & Rural Infrastructure" of main sector of "Public Infrastructure & Utilities".

Per 1996-98 PIP, current sectoral allocation strategies are consistent to that of previous one (1995-97 PIP), as follows;

QUOTE

An increased share of investment resources allocated to infrastructure and public utilities, reflecting the urgent need to rehabilitate and modernise infrastructure in order to support the rapid pace of economic restructuring and growth. The share of resources under the 1996-98 allocated to these sectors is projected to remain just over 60 %, as under the 1995-97 PIP.

A greater emphasis on private sector development. This will require investment in supporting the development of the institutional capacities to facilitate private sector investment and trade. In the short-term, the Government expects the provision of credit lines funded through the PIP to continue to play an important role in making available capital resources for investment by the private sector. The share resources under the 1996-98 PIP allocated to enterprise and private sector development activities is expected to be around 8 % of the total 1996-98 allocation. In addition, funding will also be made available

through credit lines in the agricultural sector.

Continued priority to investment in the human resources sectors, primarily health and education, reflecting the role of the government as the main provider of services in these sectors. Investment is expected to remain at around 18 % of the total PIP.

The restructuring of the investment programme is the agriculture sector, emphasising the Government's role in the provision of infrastructure, particularly in irrigation, and in the management of land and natural resources. Allocations to programmes in the sector amounted to 13.1 % of the 1996-98 PIP compared with 12.5 % in the 195-97 PIP.
UNQUOTE

Total investment expenditure under the 1996-98 PIP is projected at Lek 122.6 billion based on DEDAC's strategy to realize the national policies and strategies in the sector concerned.

Table 2.2.8 Sectoral 1996-98 PIP Resource Ceilings

Investmet Sector	PIP Allocation		Financing Status			Financing Gap
	1996-98	Share in Total PIP	Committed	Programmed	Financing GAP	Share in Sector PIP
NATURAL RESOURCE MANAGEMENT	**18.5**	**15%**	**10.8**	**2.7**	**5.1**	**27%**
Agriculture	16.0	13%	10.0	2.4	3.7	23%
Environment/Water Resources	1.2	1%	0.3	0.3	0.6	49%
Mineral Resources	1.4	1%	0.6	0.0	0.8	59%
PRIVATE SECTOR DEVELOPMT	**9.4**	**8%**	**6.9**	**1.4**	**1.0**	**11%**
PUBLIC INFRASTRUCTURE & UTILITIES	**75.3**	**61%**	**40.7**	**11.1**	**21.7**	**29%**
Energy	10.8	9%	6.9	2.0	1.9	18%
Transport	33.8	28%	21.8	6.8	5.4	16%
Communications	3.6	3%	1.2	0.0	2.4	67%
Urban & Rural Infrastructure	22.8	19%	8.8	2.2	11.8	52%
Housing & Urban Development	4.3	4%	2.0	0.2	2.1	48%
HUMAN RESOURCES	**15.7**	**13%**	**7.9**	**1.1**	**6.7**	**43%**
Eduction & Science	6.8	6%	3.0	0.3	3.4	51%
Health	8.0	7%	4.2	0.7	3.0	38%
Soc. Safety Net & LAB Market Service	0.6	1%	0.6	0.0	0.0	5%
Culture	0.4	0%	0.1	0.0	0.3	71%
GOVERNMENT SERVICES AND INSTITUTIONAL DEVELOPMENT	**3.7**	**3%**	**2.3**	**0.8**	**0.6**	**17%**
TOTAL PIP	**122.6**	**100%**	**68.6**	**17.1**	**35.1**	**29%**

Source: DEDAC "Public Investment Programme 1996-98", March 1996, page 31. Some subsidiary total column might not consistent , but quote without any alteration for our report purpose.

"Programmed financing" includes: (1) sector project financing allocations identified in multiyear aid programme agreements; and (2) projects for which aid agency supported preparation and appraisal exercises are under way.

(2) Public infrastructure and utilities

Public infrastructure and utilities sector's major projects will be undertaken in the roads, transportation, communications, energy, water supply and sanitation sub-sectors in order to establish a modern and efficient infrastructure that will be required to attract foreign investment and facilitate economic activity. Per the discussion as for this sector in 1996-98 PIP, rapid migration from rural to urban areas (especially in Tirana whereby the population doubling in just five years) intensified inadequate current infrastructure. However, PIP funding analysis denotes the serious funding gaps are found particularly in the areas of civil aviation, postal services and wastewater and sewerage treatment.

PIP analysis also suggest an existence of implementation delay in this sector. Investment support for public infrastructure and utilities under the PIP has been much less than anticipated and in 1994 was 39 % of the PIP allocation while in 1995 it was 53 %. PIP assumes that these figures reflected the slower disbursement of funds for major infrastructure projects as a result of the longer preparation time these projects require. Considering the continuing inflation in the country, special attention should be paid to long-term construction projects' vulnerability against inflation.

URBAN AND RURAL INFRASTRUCTURE

Per 1996-98 PIP, the main Government objectives for this sub-sector are:

- to improve the reliability, efficiency and coverage of services provided by urban and rural infrastructure through adequate maintenance, repair and expansion of the existing infrastructure; and
- to reduce the sector's demands on the Government's budget by commercializing and/or privatizing services, reducing technical and non-technical losses, and increasing cost-recovery.

To conform with the Government objectives, priorities for 1996-98 period is designed as follows:

QUOTE

Improvement of urban and rural infrastructure

The programme to rehabilitate water supplies and sewerage services in urban and rural areas will continue. During 1996-98 PIP investment will concentrate on improving systems in those towns and districts where the present situation is particularly severe. The rehabilitation of the water supply system in Tirana will be completed, and major rehabilitation of the system in Durres will begin. A start will also be made on the rehabilitation of sewerage systems and on the construction of two pilot sewerage treatment plants in areas where the existing situation poses the highest risks to health and of environmental damage.

Most urban areas also lack equipment and facilities for the collection and of disposal of household and commercial waste. The situation is particularly serious in Tirana, where it is proposed to establish a pilot waste collection and disposal operation during the 1996-98 period. (omitted hereafter)

Commercialisation of water supply and other services

The Government is committed to commercialising both water supply and sewerage services. With the assistance of the World Bank, it is examining various options for privatising selected water enterprises. This would require the introduction of an appropriate regulatory framework to regulate the operations of the privatised water companies. It would be accomplished by investments to rehabilitate the existing water supply infrastructure and pre-privatisation assistance to the water enterprises, including equipment and staff training.

One option currently examined is one that would maintain the State's involvement in the ownership of the enterprise in the medium (but not the long) term, with the management and daily operation of the enterprises contracted out to a foreign utility company. The Government is undertaking two studies to help it decide on the appropriate method of privatisation. These include a study to examine potential interest by investors and an examination of the capacity of users to pay for a privatised service. The privatisation of other service (both water supply and sewerage services) would depend on the experience of the first privatised water enterprises. In the meantime, increased cost recovery measures will be undertaken for water supply and sewerage services in all areas.

UNQUOTE

2.3 Land Use

2.3.1 Present Land Use

Present land use in the Study Area is conspicuously different between Tirana City and its surrounding areas. The land use in Tirana City shows a radial urbanization pattern along major roads, centering on the government office area, while residential suburbs in the Study Area are principally rural areas. After 1990, some parts of these areas have been rapidly developed as new suburban areas. The present land use is shown in Figure 2.3.1.

(1) Residential use

The residential areas in the city are densely populated. In general, these areas are filled by apartment-type buildings except in some areas of the old town and along the city boundary.

New apartments have been constructed rapidly after the change of socio-economic conditions in the post-1990 era, and also old houses were remodeled into apartment-type buildings with 4 or 5 floors. Recently, 4 apartments with 9 floors were built in the central area of the city. The construction boom of housings and commercial facilities being appeared in recent years is expected to be continued in response to the introduction of market economy.

The development of the city will be directed toward the northwest of the city, lying between Durresit Road and Kavajas Road. A new suburban area is being developed at the foots of Kafase and Kazazil hills located southwest of the city.

The north side of the Tirana River has a fine view with gentle slope, which is outside of Tirana City. Presently it is classified as rural area due to insufficient infrastructures, such as roads, bridges across the Tirana River to reach Tirana City and water supply services. This area is, however, designated as residential area in the future land use plan.

(2) Government offices

Around a spacious plaza in the core of Tirana City, most of government offices and public facilities are located. It is also major traffic terminal of the city. The National Historical Museum, the National Science Museum, the Archeological Museum and the National Theater are all located along Sheshi Skenderbej and Shetitorja Deshmoret e Kombit.

Figure 2.3.1

Present Land Use in the Study Area

The Tirana railway station is located at the north of the end of the Shetitorja Deshmoret e Kombit Avenue.

(3) Commercial use

Commercial areas have been developed in the central area of the city and along the major roads radially extended from the city center, such as Shetitorja Deshmoret e Kombit, Luigj Gurakuqi Road, Durresit Road and Kavajes Road. The road network of Tirana City is shown in Figure 2.3.2.

Currently, kiosks, kiosk-type beer and coffee shops and restaurants are competing with one another along the Lana River and other pedestrian paths in the city. A supermarket was opened fairly recently near the center of the city. A shopping plaza is now under construction.

(4) Industry and warehousing

Industry and warehousing, which are known as Kombinat, are located mainly along both sides of the Kavajes and Durresit Roads.

Factories to manufacture mobile telephone, construction materials and beverages, and some car service shops are located along Durresit Road. Factories for bread, general food processing, beverage, stationary, textile, glass, and bricks are located along Kavajes Road. Along Elbasan Street, there are two major factories for machinery and automobile spare parts.

(5) School and hospital

Locations of schools and hospitals in Tirana City are shown in Figure 2.3.3.

2.3.2 Development Plans and Projects

No basic development plan authorized for Metropolitan Tirana has been formulated since 1990 to meet with the drastic change of socio-economic conditions. However, several plans for urban development have been drawn, but are still under review and updating to reflect current socio-economic development in Metropolitan Tirana.

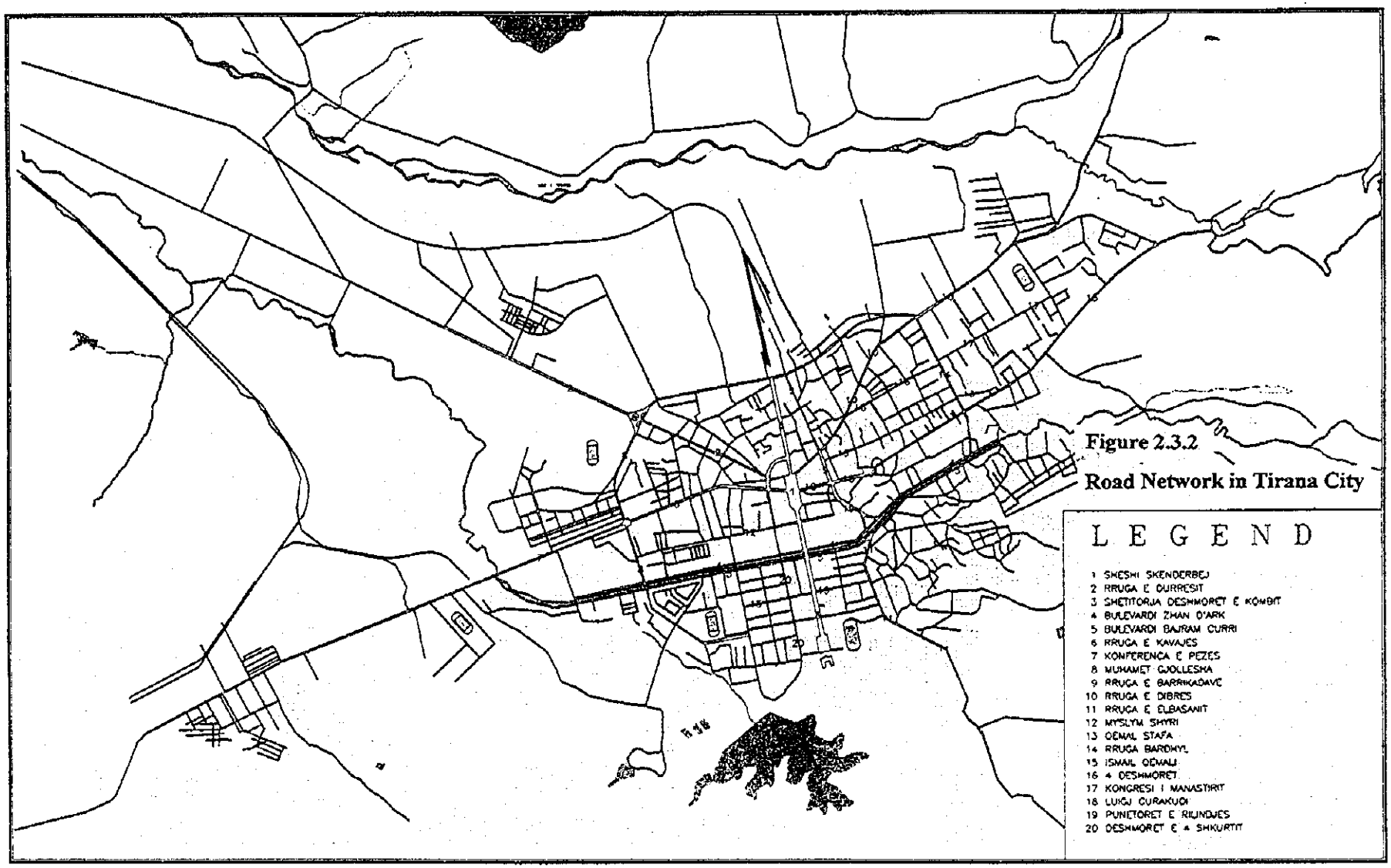

Figure 2.3.2

Road Network in Tirana City

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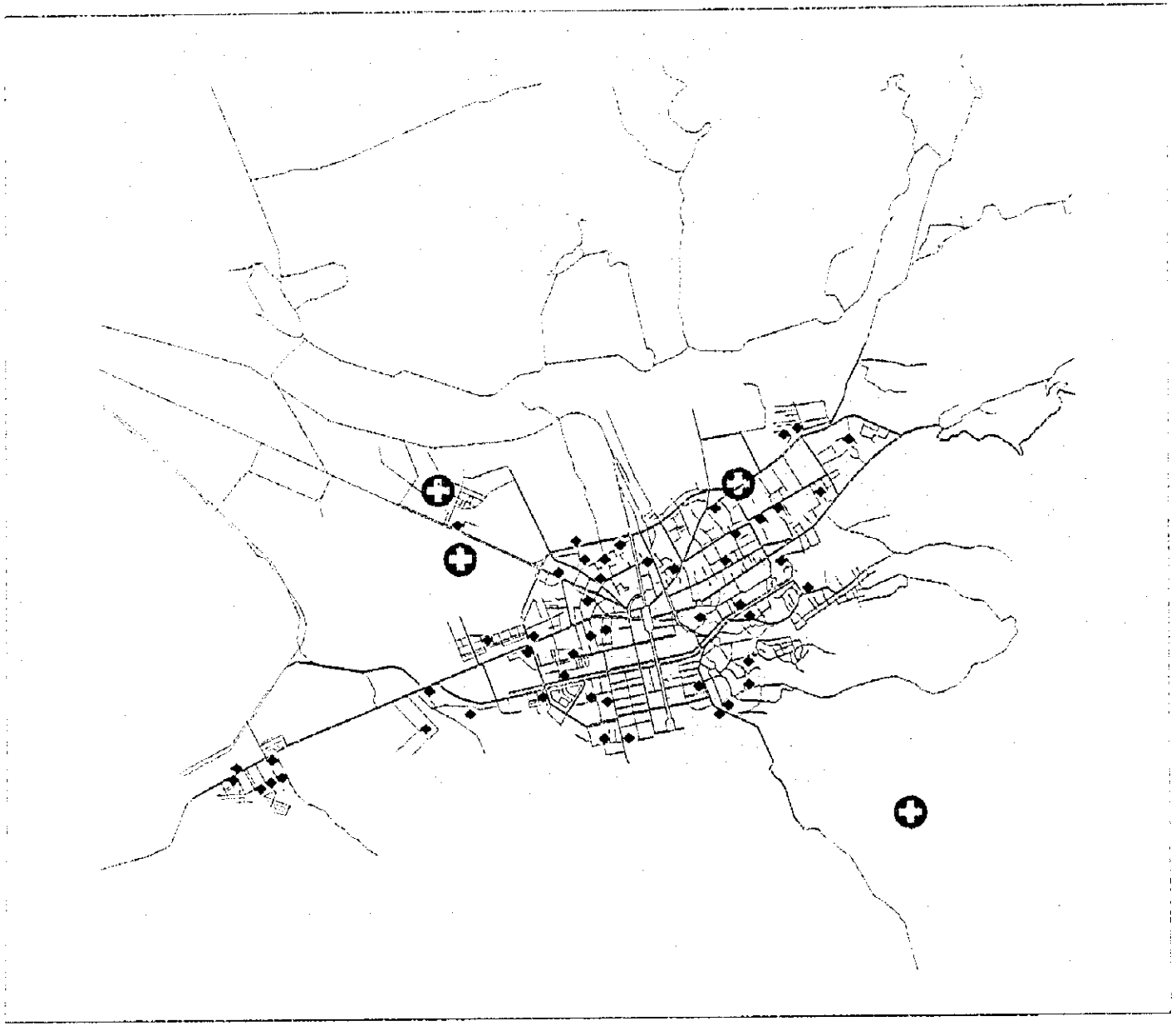

Figure 2.3.3

Location of Schools and Hospitals

The following are the existing development plans and the on-going projects which are concerned with the Study.

(1) General Plan for Tirana (2015) prepared by the National Planning Institute, MOPWT.
This general plan defining future land use by type of usage as shown in Figire 2.3.4 is prepared as a fundamental plan to discuss and draw the future of Metropolitan Tirana.

(2) General Plan of Suburban Zone, Tirana (1994-2015) prepared by the National Planning Institute, MOPWT.

On the basis of the General Plan for Tirana as mentioned above, this plan is prepared for the suburban zones of Metropolitan Tirana. The future land use of the general plan is shown in Figure 2.3.5 and Table 2.3.1, respectively.

Table 2.3.1 Future Land Use Plan for Metropolitan Tirana

Category	Area (ha)
1. National park zone	7,312
2. Forests	1,369
3. Existing rural residential zone	335
4. Intensive new residential zone	1,890
5. Semi-intensive new residential zone	1,290
6. Extensive new residential zone	1,130
7. Rural residential zone	1,088
8. Business zone	250
9. Green zone, isolated belt and river	2,190
10. Free zone	8,312
11. Tirana City	4,150
Total	29,316

Source : Regulation of Suburban Zone Plan prepared by the NPI.

As shown in the above table, the administrative boundary of Tirana City is proposed to be expand to 4,150 ha by 2015, which is an increase of approximately 435 ha over the existing area of 3,715 ha. The future land use of Tirana City is regulated as shown in the following table.

Figure 2.3.4 General Plan for Tirana

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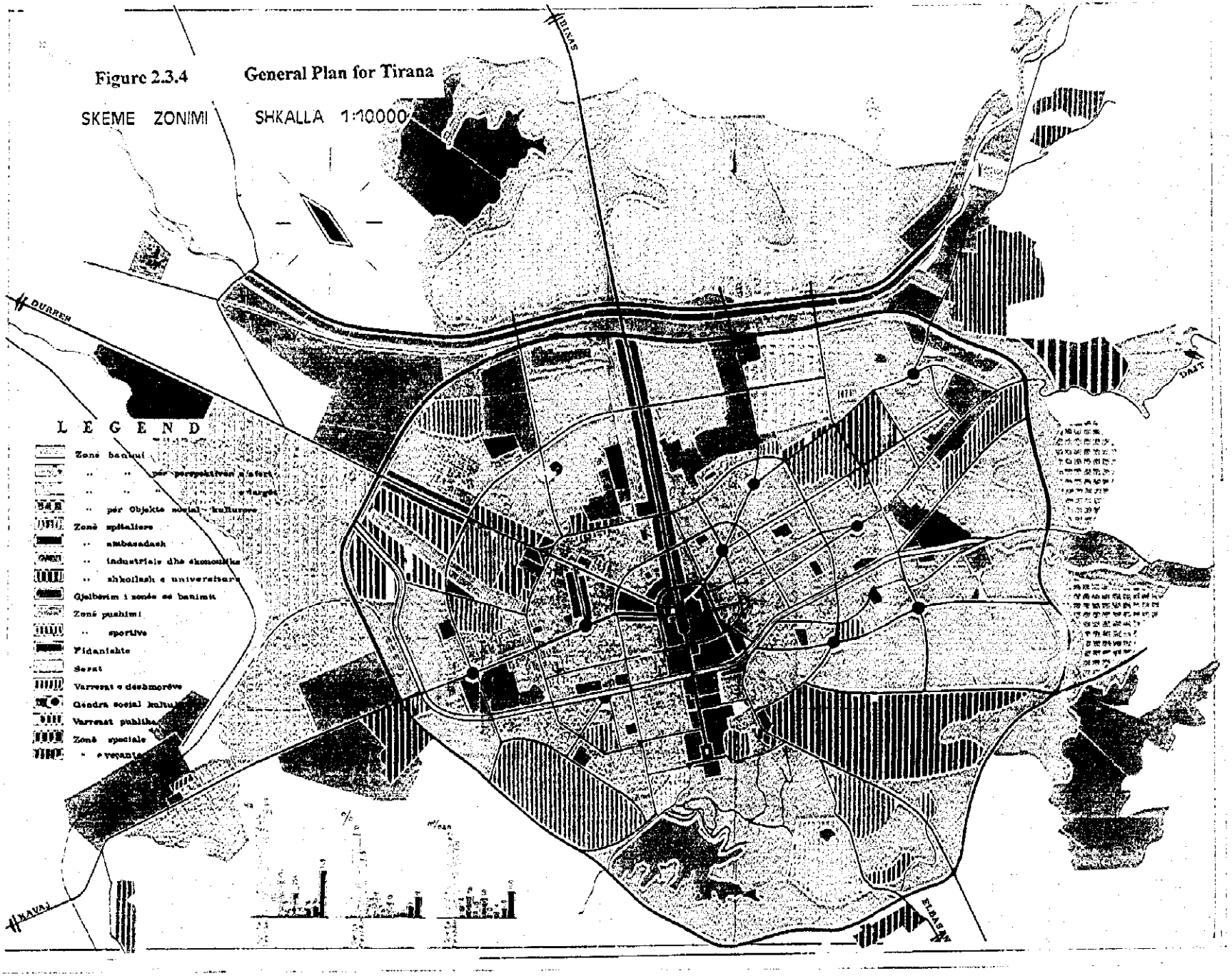


Figure 2.3.5 **Future Land Use Plan for Metropolitan Tirana**

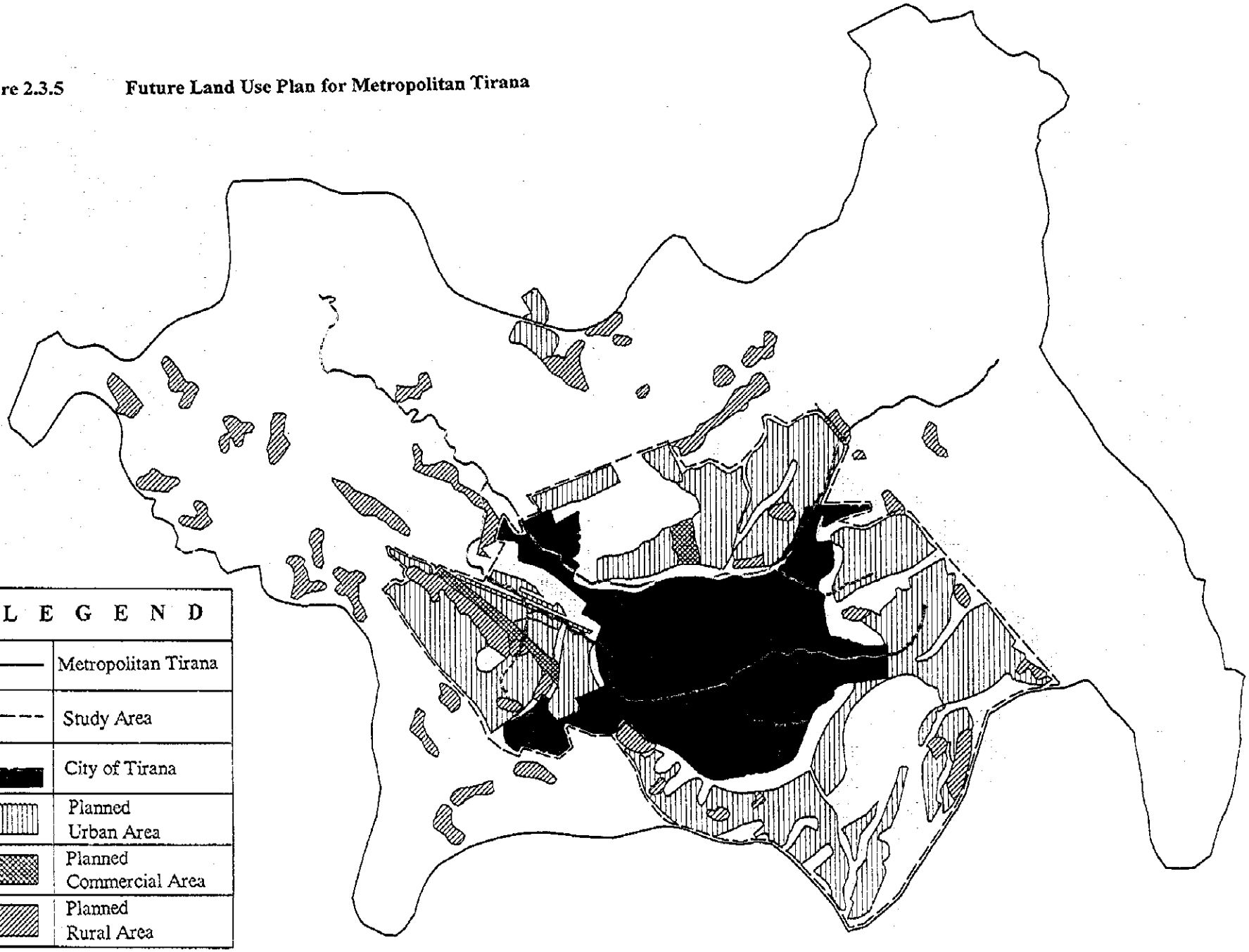


Table 2.3.2 Future Land Use Plan of Tirana City for 2015

Land Use Category	Area (ha)
Residential Zone	1,902
Non-Residential Use	
1. Industrial zone	525
2. Educational zone	116
3. Hospital/clinic zone	53
4. Diplomatic enclave zone	20
5. Special usage zone	18
6. Cemetery	50
7. Presidential area	35
Sub-Total	817
Total	2,719

Source : Regulation of Suburban Zone Plan prepared by NPI.

In the report, the future population of the city area is projected to be 500,000 to 600,000 persons in an area of 4,150 ha.

(3) The Development Plan of Tirana City prepared by Regional Consulting of Austria Environmental Expert Group, 1995.

This development plan of Tirana City delineated land use and roads. The draft report was submitted in March 1995 in which the future population of Tirana City was projected to be 850,000 persons including an additional 2,000 ha to the city's present administrative area by the year 2015. An annual growth rate of population at 5 % was adopted in this plan.

It was learned at the commencement of this Study that the said plan was under review so as to meet with the requirements of the Albanian Government, especially road plan, new residential areas and population projection.

(4) Tirana Land Management Program prepared by the Land Management Task Force under technical assistance by USAID, 1995.

The report was prepared by the land management task force comprised of the MOPWT, the NPI, the District of Tirana and the Municipality of Tirana, in which water supply, sewerage, stormwater drainage, solid waste management, road and transportation and power supply were discussed to adopt an all purpose policy. In this program, the future population of Metropolitan Tirana was estimated to increase 1,000,000 up to 1,250,000.

(5) A Pilot Project Pre-feasibility Study for Western Tirana implemented under technical assistance of USAID, 1995.

This pilot project was aimed to formulate an action project for new development of the residential area contained in the Tirana Land Management Program. The pilot site is located on the north side of Kavajas Road. Approximately 5 percent of the total lots are under construction at present.

The scope of pilot project is summarized below:

- Total area of pilot project : 70 ha
- Construction : 4,000 houses
- Projected population : 18,000 persons
- Population density : 257 persons/ha
- Household size : 4.5 persons/household

(6) A Preliminary Zone Action Plan for Western Tirana implemented under technical assistance of USAIID, 1996.

On the basis of the pilot project mentioned in the above, this Preliminary Zone Action Plan has been prepared and under review by the NPI.

The project site is shown in Figure 2.3.6 and its scope is summarized below:.

- Total area : 300 ha
- Projected population : 115,000 persons
- Population density : 380 persons/ha

(7) Tirana Neighborhood Improvement and Infrastructure Development Project prepared by W.B., 1996.

The project aims to improve the living conditions of the target area, taking the environmental aspects into account in the suburban development area. Five project areas were selected as pilot areas, namely Lapraka, Mihal Grameno, Selita, Kamza Bathore and Kombinat Tekstil, as shown in Figure 2.3.7.

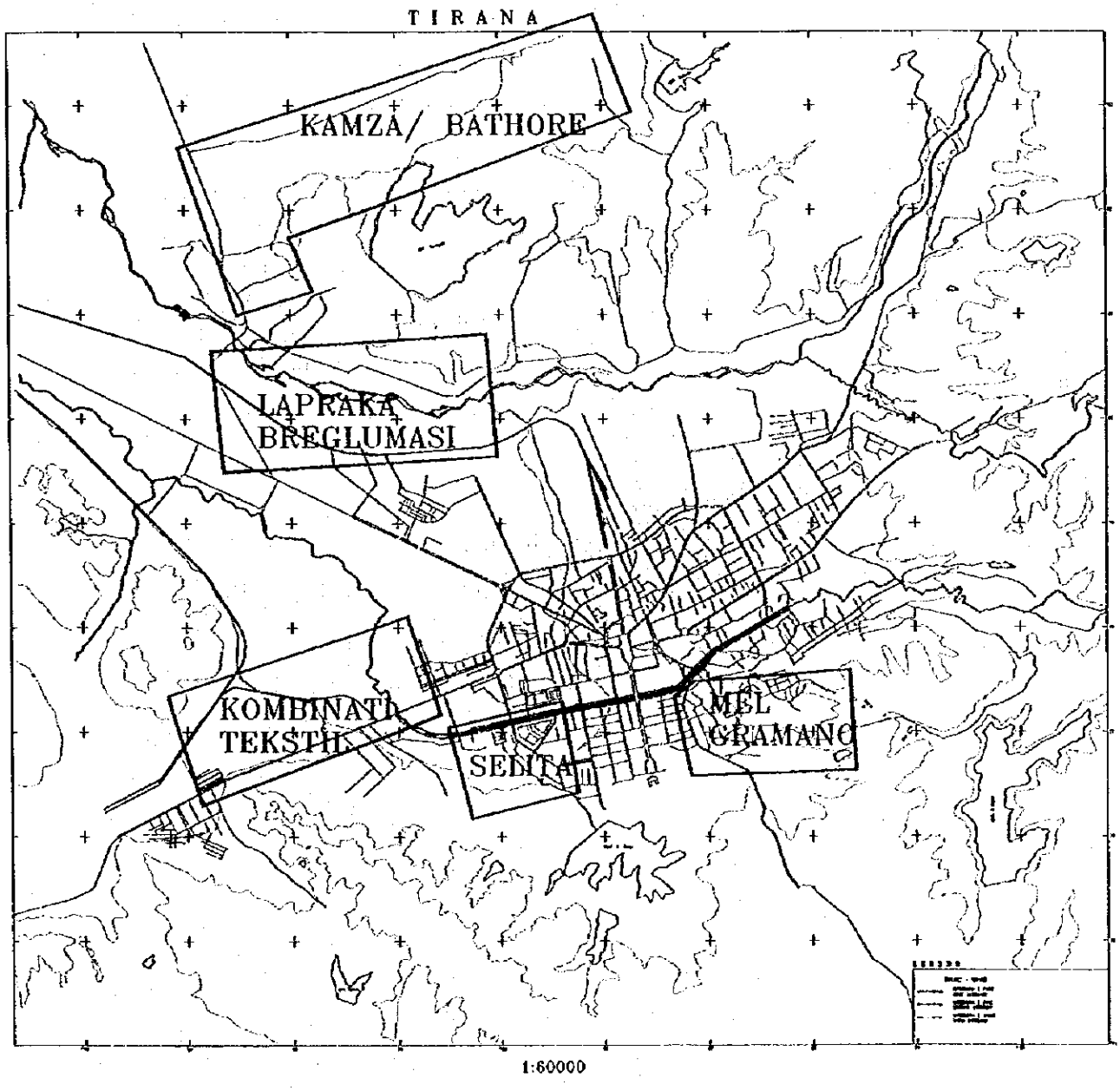
Under this project, approximately 1,000 houses will be constructed a year with total budget of US$ 10 to 15 million. With regard to Kamza Bathore, the largest target area, an independent sewerage system with a simple sedimentation basin will be provided since this area is located at outside of service area of the existing sewerage system.

Figure 2.3.6

Pilot Project and Preliminary Zone Action Plan Area

Figure 2.3.7 **Tirana Neighborhood Improvement and Infrastructure Upgrading Program**

A program prepared by the Tirana Land Management Task Force
Ministry of Construction and Tourism
Municipality of Tirana
District of Tirana



Implementation of the project will be started from the early 1998 or after.

2.3.3 Future Land Use to be Used for the Study

As mentioned in the preceding section of this report, there are several plans and projects for suburban development in Metropolitan Tirana. However, it was learned that there is no authorized official basic development plan for Metropolitan Tirana at the moment.

In addition to the above, it is learned that more than several months will be required by the Albanian authorities to reach the final conclusion on the plans being reviewed, since important political issues are being involved. Taking into account this situation and the time constraint of the Study, it was confirmed with MOPWT that the "General Plan of Suburban Zone for Tirana" prepared by the National Planning Institute be adopted as the land use framework in this Study.

The evaluation of future land use and population projection were likewise undertaken in this Study.

Referring to the above mentioned General Plan, the future land use in Tirana within the present administrative boundary is summarized as shown in Table 2.3.3. In addition, the expansion area from the present city boundary is considered as a part of new residential area in the Study Area.

Table 2.3.3 Future Land Use for Tirana City in 2010 for This Study

Category	Area (ha)		Regulation
1. Residential zone	1,902	53.5 %	44.2 %
2. Social/sport area	817	23.0 %	24.2 %
3. Road area	696	18.7 %	20.0 %
4. Green area	300	8.1 %	11.6 %
Total	3,715	100.0 %	100.0 %

Note: The figure of the Regulation is quoted for the city which has a population more than 20,000.

In the above table, the future land use of Tirana city is compared with the regulations for Urban Planning as approved by the Resolution of the Council of Ministers, No.593 (1993) for reference. These regulations are presented in Appendix 2.3.1.