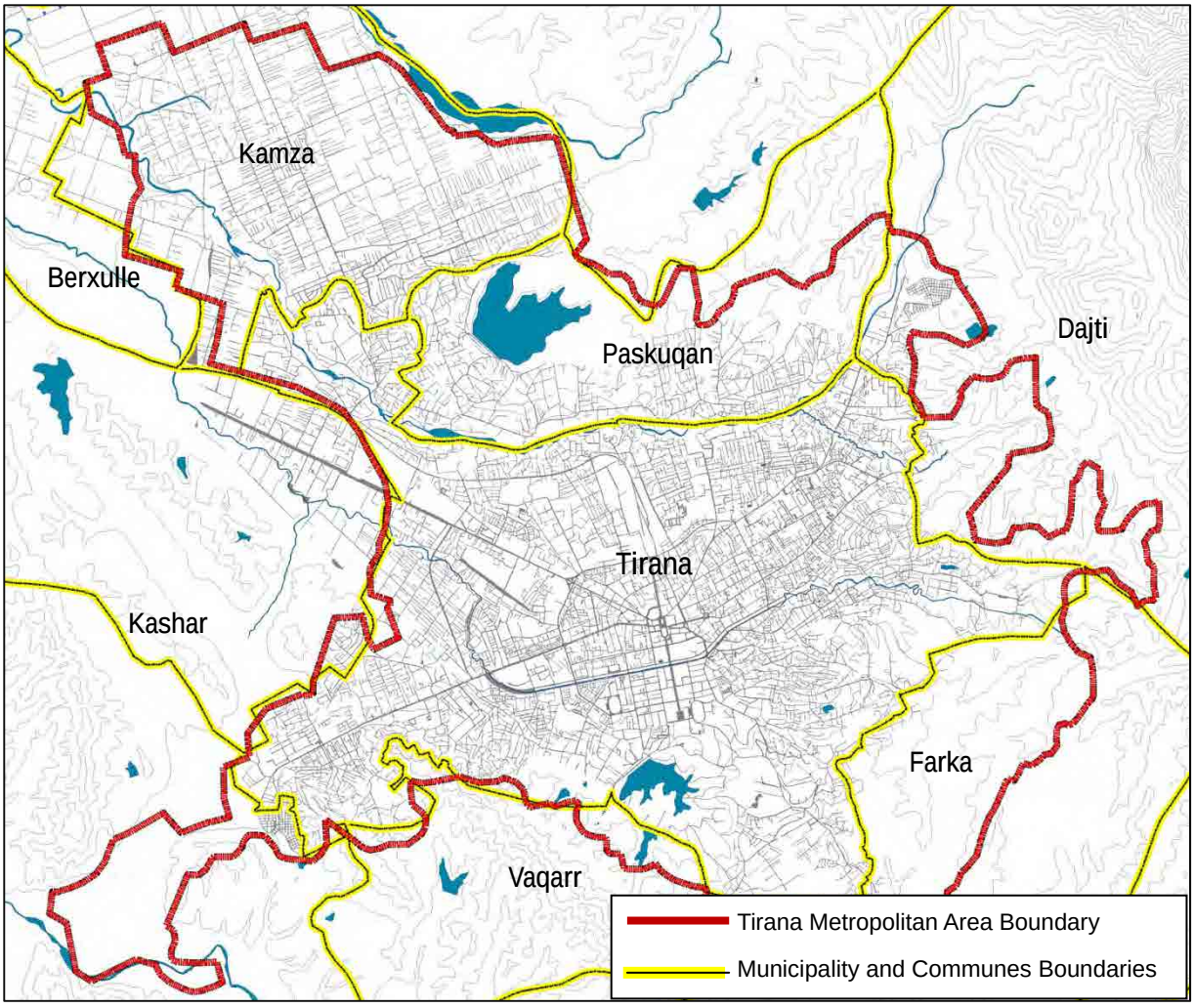
Municipality of Tirana, Government of Albania

Republic of Albania
The Project for Tirana Thematic Urban Planning

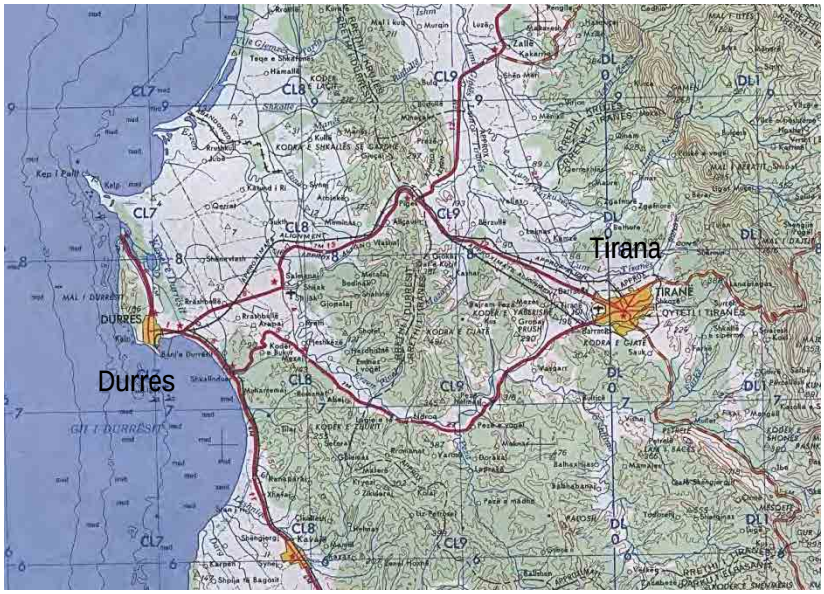
Final Report
Volume 1-1: Summary (English)

Japan International Cooperation Agency (JICA)

Value Planning International Inc., Tokyo Japan
NJS Consultants Co. Ltd., Tokyo Japan



Project Area Map (Tirana Metropolitan Area)



Preface

This present report is a summary of Final Report of "the Project for Tirana Thematic Urban Planning". This report proposes "Master Plans" on long-term perspectives targeting the year of 2027 and "Action Plans" for priority projects which have been identified in the master plans for thematic four (4) infrastructure sectors, namely, 1) Roads and Urban Transportation; 2) Solid Waste Management; 3) Water Supply; and 4) Sewerage and Drainage Systems. Environmental and institutional discussions are also included to seek for a rational way to the implementation of proposed plans.

This report was prepared under close coordination with the technical team working for Tirana Urban Regulatory Plan in terms of the population framework and economic activities in association with land use strategies to manage sustainable and balanced urban growth in the Tirana Metropolitan Area. Therefore, planning logics and concepts underlying these thematic plans have been coherent with the Regulatory Plan, because these plans are part of the Tirana Regulatory Plan.

Final Report consists of three (3) separate volumes:

- *Main Text (English, Albanian)*
- *Summary (English, Albanian, Japanese)*
- *General Profiles of Priority Projects (English)*

We, JICA Study Team, acknowledge all counterpart personnel of Municipality of Tirana, the members of the Steering Committee and those who kindly extended their supports in the course of this project, and hope Municipality of Tiran make use of this report for further development towards its committed vision, "Modern European City".

Tirana, December 2012

Katsuhide Nagayama, Ph.D.
Leader, JICA Study Team

The Project for Tirana Thematic Urban Planning

Final Report

Summary (English)

Table of Content

5 Solid Waste Management

6 Water Supply

7 Sewerage and Drainage

8 Strategic Environmental Assessment (SEA)

9 Institutional Systems for Development Coordination

10 Financial and Fiscal Management

Part 2: Sector Action Plans

11 Action Plan for Road and Urban Transportation

12 Action Plan for Solid Waste Management

13 Action Plan for Water Supply System Development

14 Action Plan for Sewerage and Drainage System Development

15 Step Forward

***

Part 1

Thematic Urban Master Plans

1. Outline of the Project

1.1 Introduction

In 2008, the Republic of Albania launched the National Development Strategies with targets to be achieved by 2013. These targets comprise the following: 1) accession to the European Union; 2) democratization based on the respect for basic civil and political rights; 3) more than 6% economic growth; and 4) poverty reduction. Since then, the government of the Republic of Albania (GOA) has carried out various measures to achieve these targets.

Along with democratization which started in 1991, urbanization has progressed in the capital city, Tirana, which has accommodated a rapid increase in migrants from rural and mountainous areas. In 2008, the population of Tirana reached 640,000, from 250,000 in 1989, or an increase of almost 270% in just nine years. Such an acute urbanization resulted in serious urban problems such as shortages in infrastructure, particularly in housing. Many rural migrants illegally settled in the surrounding areas of the urban center or in protected green areas where no sufficient water and power supply systems are provided, and where solid waste is managed poorly, resulting in significant degradation of the urban environment. Urbanization is still in progress, and it is predicted that the city's population will reach one million by 2025. It is thus urgent for urban developments in the transportation, water/sewerage, and solid waste management sectors, in particular, to keep up with the burgeoning urban population.

In order to respond to such a serious situation, the Municipality of Tirana (MOT), with support from the World Bank, prepared a comprehensive urban development plan entitled "Urban Regulatory Plan in Tirana Municipality" (URPTM) in 2009. URPTM has set the vision, directions, and outlines of future development based on a needs assessment and situation analyses of Tirana. However, no concrete action plans for urban utilities and infrastructure were included in the plan.

GOA, therefore, requested the Government of Japan for technical assistance to conduct a planning study. Given the name "The Project for Tirana Thematic Urban Planning," the Study is expected to formulate short- and medium-term projects and programs on urban infrastructure based on and in line with URPTM. In response to the request, the Japan International Cooperation Agency (JICA), the official implementing arm of Japan's official development assistance, dispatched a preparatory mission to conduct a preliminary survey in Tirana to prepare the scope of work for the Study in November and December 2010. On 9 December 2010, both sides signed the Study's Scope of Work (Appendix 1) which became the basis for JICA to select a consortium to carry out the Study. The consortium was composed of Value Planning International, Inc. and NJS Consultants Co. Ltd., whose headquarters are both located in Tokyo, Japan.

1.2 Objectives

The objectives of this study were as follows:

1. To develop thematic urban plans, based on the New Regulatory Plan which has been launched by the new municipal administration, and their implementation plans in the form of short- and medium term action plans, and
2. To transfer relevant skills to the Albanian counterpart personnel in the course of the Study to ensure the continuous implementation of the urban plans to be developed in the Study.

Technical transfer emphasized capacity building among the counterparts to enable them to develop multi-departmental urban infrastructure based on common design standards and carried out through a well-orchestrated coordination mechanism among sectors.

1.3 Study Area

The Study covered the entire Tirana Metropolitan Area (TMA), defined by the New Regulatory Plan, which encompasses urbanized and would-be-urbanized areas of about 88 km^2, including the Municipality of Tirana and seven (7) other municipalities and communes such as the Municipality of Kamza and the Communes of Dajti, Farka, Kashar, Paskuqan, Vaqarr and Berxulle. Those surrounding communes are partially included in the TMA, depending upon the urbanization progress.

1.4 Thematic Infrastructure Subsectors

The Study was focused on four key subsectors for the urban infrastructure development, as follows:

- Roads and Urban Transportation;
- Solid Waste Management;
- Water supply system and ;
- Sewerage/drainage system.

1.5 Expected Out comes

Through the Study, the following was achieved:

- Thematic urban infrastructure development plans in short-term (five years) and medium-term (10 years) perspectives;
- Short-term action plans to implement priority projects; and
- Stronger planning and coordinating capacity of the Tirana municipal government personnel through technical transfer.

1.6 Project Organizations and Counterparts

The Study was directed by the Steering Committee chaired by the Deputy Mayor of MOT. The Steering Committee was organized from the representatives of relevant agencies, as follows:

- Advisors to Territorial Planning;
- General Directorate of Territorial Planning and Development, MOT;
- General Directorate of Strategic Projects and Foreign Investment, MOT;

- General Directorate of Planning and Management of Services, MOT;
- Water Regulatory Authority of Albania, GOA;
- National Territorial Planning Agency, GOA;
- Ministry of Environment, Forests and Waters Administration, GOA;
- Ministry of Public Works and Transport, GOA;
- Experts from Civil Society; and
- JICA Balkan Office.

Under the Steering Committee, thematic technical working groups was formed with counterparts coming from relevant central and municipal government agencies/institutions to collaborate with the JICA Study Team.

2. Socioeconomic Framework and Growing Potentials

2.1 Population and Urbanization

(1) Present Population

It was believed that the population in Albania as of January 2011 was around 3.2 million, 1.6 million both for men and women, and that compared to the 2001 datum, the population was growing steadily from 3.06 million in 2001 with a total increase of around 140,000 in 10 years. However, the Population and Housing Census 2011 revealed a new fact that the Albanian population is 2.83 million, which means a decrease of 230,000 during the past decade. According to the INSTAT report, low population growth rate is caused by: 1) emigration; and 2) continuous decline of the number of live births. Fertility Rate also decline from 6.85 in 1960 to 1.4 in 2008.

While, it was also believed that the population of Tirana Municipality was **720,000** in 2010. Population of the municipality keeps around 20% of national population after 2005 and Tirana is the biggest city in Albania. However, the 2011 Population and Housing Census revealed a shocking fact that the population of Tirana Municipality is only **421,286,** which shows a difference of as much as 300,000 between two statistical sources, the registration record and the Census. As the result of clarification of those different statistical sources, it was estimated that the current population of Tirana Municipality is **622,575** at present as of 2011.

The population of the **Tirana Metropolitan Area** (TMA), defined as the integrated urban area with Tirana Municipality and its surrounding 7 communes, is also estimated to be **880,409** as a whole, out of which 622,575is that in Tirana Municipality and 265,834 in the neighboring communes.

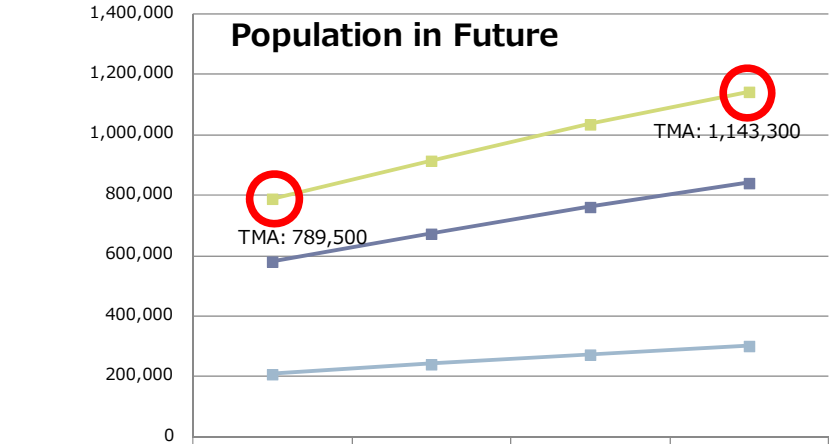
(2) Projection of Future Population

There exists a projection of the future population by INSTAT, based on the Population and Housing Census of 2001, taking into account three main assumptions: migration, fertility and mortality under three (3) scenarios of growth: high, middle and law cases. URPTM adopted the scenario of “middle case”, whose population is 735,000 in 2010, 888, 000 in 2015 and 1048,000 in 2020.

On the other hand, a new population project was made, based on the new figures of Tirana Metropolitan Area as discussed above, taking into account a scenario of urbanization pressure and its momentum, that is, the average annual growth rates are:

- 3.0% p.a. during the period between 2012 and 2017;
- 2.5% p.a. during the period between 2017 and 2022; and
- 2.0% p.a. during the period between 2022 and 2027.

The result of the projection is as shown Figure 2.1.1. In the long-term target year 2027, the population of the Tirana Metropolitan Area will be approximately 1,143,300 out which 841,400 is the population in Tirana Municipality and 301,900, that in the surrounding communes.



	2012	2017	2022	2027
Tirana Muncipality	581,000	673,538	762,047	841,361
Communes	208,500	241,709	273,471	301,934
TMA	789,500	915,247	1,035,518	1,143,295

Source: JICA Study Team

Figure 2.1.1 Population Projections of Tirana Metropolitan Area

2.2 Employments

(1) Labor Force

According to Labor Force Survey 2009, the total of labor force in Albania is 87.9 percent of total population aged 15 years and over. Labor force participation rate which includes working and those looking for work is 61.9 percent.

(2) Projection of Future Employments

The projection of future employments in the Tirana Metropolitan Area was made, taking into account the economic growth potential and average annual growth rates in the long-term.

As the result, a total of 465,500 employed people will live in the Tirana Metropolitan Area in 2027, which are 1.8 times as many as that at present. Meanwhile, the available number of employments will be 512,100 in the TMA in daytime, which is greater than the number of employed workers in night-time, because 46,600 workers, or the difference between those in night-time and day-time are regarded as workers commuting from outside the TMA.

Table 2.2.1 Projection of No. of Employments in Tirana Metropolitan Area

	2012	2017	2022	2027
No. of Employments				
Tirana Muncipality	189,782	238,900	290,200	342,600
Surrounding Communes	68,106	85,700	104,200	122,900
Tirana Metropolitan Area	257,888	324,600	394,400	465,500
Day-time Employments				
Tirana Muncipality	218,249	277,100	339,600	404,300
Surrounding Communes	57,691	73,500	90,300	107,800
Tirana Metropolitan Area	275,940	350,600	429,900	512,100

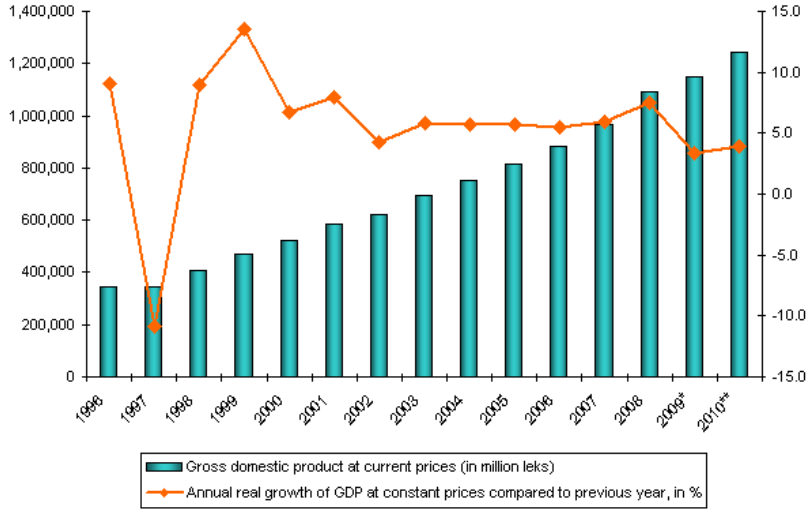
Source: JICA Study Team

2.3 Economic Growth and Industries

(1) Economic Growth

Albania had enjoyed a considerably high economic growth rate of 5 – 7 % p.a. since 2000, but her economic growth potential was depressed by the world recession due to the Lehman Shock in 2009. However, the economy has been recently recovered and growing at a moderate rate, more or less 4.0% p.a. Gross Domestic Product (GDP) in 2010 is 12.9 billion USD (or 1,242 billion ALL), and the per capita GDP in 2010 is **3,734** USD, as shown in Figure 2.3.1.

It is anticipated that the Albanian economy will be continuously potential enough to attain a 3.0 - 4.0% growth in long-run, and the Tirana Metropolitan Area shall be the leading engine for such sustainable economic growth, having higher growth than the national average.



Source: INSTAT

Figure 2.3.1 Changes of GDP and Per Capita GDP

(2) Major Industries

Major industries in GDP are Agriculture, Manufacturing, Construction and Communication. Among them, Trade and Service account for 51.0% of the total GDP in 2011 as shown in Table 2.3.1. Looking into changes in the industrial composition during past two decades (see Table

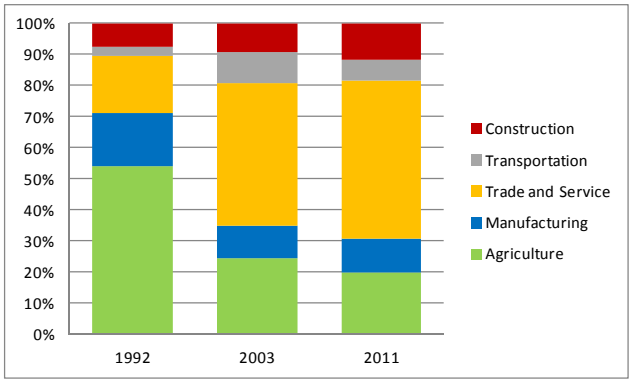
2.3.1 and Figure 2.3.2), the following are noted:

- Agriculture was the prime sector in 1992, sharing 54.2%, and has been losing its position to be 19.8% at present, 2011.
- Manufacturing cannot be the leading sector, sharing only more or less 10%. State-own factories have not been sufficiently renovated through their privatization process.
- The most predominant sector is "Trade and Service", whose share has drastically increased from 18.3% in 1992 to 51.0% in 2011. Retails, hotel and restaurant business has largely contributed to this growth.
- The construction sector is also potential and promising, increasing its share from 7.6% in 1992 to 11.7% in 2011. This sector, which is likely to be encouraged by money remitted from foreign countries, will be a leading sector for the time being.

Table 2.3.1 GDP Composition (%) of Industrial Sector in 1993, 2003 and 2011

Sector	1992	2003	2011
Agriculture	54.2	24.7	19.8
Manufacturing	16.9	10.2	10.9
Trade and Service	18.3	46.1	51.0
Transportation	3.0	10.0	6.6
Construction	7.6	9.1	11.7
Total	100.0%	100.0%	100.0%

Sourse : 1992, 2003, IMF; and 2011, Quarterly Gross Domestic Production, INSTAT



Sourse : 1992, 2003, IMF; and 2011, Quarterly Gross Domestic Production, INSTAT

Figure 2.3.2 Changes in Industrial Composition of Albania

2.4 Modernization of People's Living Conditions

(1) Poverty Reduction

According to Living Standard Measurement Survey which conducted in 2002, 2006 and 2008, poverty reduction in Albania was realized successfully. The percentage of absolute poverty decreased from 25.4% in 2002 to 12.4% in 2008 and population living in poverty has also decreased from 800,000 in 2002 to 370,000 in 2008. As for absolute poverty rate in Tirana Municipality, percentage decreased from 17.8 % in 2002 to 8.7 % in 2008. Though these indicators are declines both in urban and rural areas, regional divide between Tirana and the Northern mountain region still exists.

(2) Education

Education in Albania has achieved good results in the past 20 years. Literacy rate of 15-24 years old of both sexes were 99.4 % (United Nations Statics Division, 2007) and Gender parity Index in primary level enrolment (ratio of girls to boys) is 1.0 (United Nations Statics Division, 2003). In school year 2009-2010, more than 49 % of girls had graduated from basic 9-year education (INSTAT, 2011). Equal access to education is largely attributable to the policy conducted during communism regime until 1992.

(3) Social Housing Service and Rental Social Housing Service

MOT provides Social Housing where people who need assistance can avail low housing rental fees. Criteria for service provision differ according to annual income and family status. Directorate of Social Care decide service recipient in consideration of the criteria and this priority recipient list is submitted to Ministry of Labour, Social Affairs and Equal Opportunities (MOLSAEO). Two priority recipients are orphans and those who lived in the house owned by others during communist era. Grant for those who need the assistance are consist from 1) Pay for rent, 2) House rental, and 3) Housing loan at low interest. MOT supports citizens fifty percent of the housing loan from bank.

(4) Social Centers

There are 62 centers, 7 are public and 55 are private in 11 mini municipalities under MOT. These 7 centers provide services for elders, youth, children, Roma, People with disability, and mother and children. Services differ from each center because each was established based on the needs of the community where it is located. Private centers are funded by the donors such as UNICEF, UNDP and NGOs. In addition to these, assistance for funeral and scholarship for family in need are also provided. Social service reform of MOT is currently being conducted and this reform plan will start after getting the approval of the Council of Municipality.

2.5 Gender and Poverty Issues

(1) Gender Situation in Albania

From the view point of Gender equality, education in Albania has achieved good result in the past 20 years. Equal access to education is largely attributable to the policy conducted during communism regime until 1992.

On the other hand, major gender inequalities are shown in politics (leadership and decision making), Economics (employment and income), and Marital and family relations. According to the Labour Force Survey (2009), women's labor force participation rate in 2009 is 51.8 % while 73.3 % for men. The numbers of the women who take in leadership role or decision making position are not many. Albanian women spend much more time than men on productive activities, the sum of paid and unpaid work. This tendency is most obvious on the population aged 15-64 years old, 95 % of women and only 39 % of men are engaged in housework, child care, food preparation, shopping, and other activities related to unpaid work in the weekdays.

(2) Gender Equality Policy in Albania

In May 1994, the Government of Albania ratified the Convention for the Elimination of All

Forms of Discrimination Against Women (CEDAW) which is often described as an international bill of rights for women adopted in 1979 by the UN General Assembly. Additional Protocol of CEDAW was also ratified in 2002. By accepting this Convention, states commit themselves to undertake a series of measures to end discrimination against women in all forms.

National Strategy for Development and Integration (2007-2013) (NSDI) is a key strategy for development and integration for EU. Gender issue includes in the social policy part of this strategy and the progress is monitored by labor force participation rate of women. National Machinery which is the institution working for gender equality defined by the UN is the Department of Equal Opportunities Policies of Ministry of Labour; Social Affairs and Equal Opportunities (MOLSAEO).MOLSAEO is working for the strategies, National Strategy for GE and DV (2007-2013) and focusing on the increasing of the number of women who are in political leadership position.

Gender Balance Office is newly established in 2011 in order to address gender equality policy in Tirana Municipality.

(3) Poverty situation in Albania

MOLSAEO is in charge of poverty, ethnic minority and social inclusion issue in Albania. Poverty issues are included in NSDI. As for the ethnic minority such as Roma and Egyptian, there is a National Strategy for improving Roma Living Conditions.

Office for Social Discrimination and Protection is newly established in 2011 in order to work for social discrimination issue in Tirana Municipality. New strategy for poverty reduction in Tirana Municipality will be developed based on the result of Tirana City Development Strategy Project which is conducted under World Bank project,

(4) Ethnic Minority

Albania's population can be considered as very homogeneous with only 2 to 3% ethnic minorities. Greeks are the largest minorities group followed by Macedonians and Montenegrins in a very low number, while Roma, Egyptian and Arumanians are recognized as "ethno-linguistic" minorities. Roma and Egyptians are currently assumed as the poorest and the most marginalized ethno-linguistic groups. The majority of Roma work in the informal economy and collect herbs, sell blood to hospitals, or sell bottles and scrap metal.

2.6 Informal Settlement and Legalization Process

(1) Informal Settlement

The change of the system in Albania in the early 90s was accompanied by the birth and development of a series of complex mass phenomena, social and economical, which related in particular to the system of ownership, demographic concentration (80% of the country's population lived in rural areas), control over territory, etc.

In particular, the demographic migration from the disadvantaged areas of the country, towards the more developed areas and the trend of abandonment of rural areas to move to the developed urban centres, was associated with numerous economic and social consequences.

At the time, vacant land at the periphery of Tirana was mainly in state hands, or it was under the process of restitution to the original owners. Tirana's population grew at a rate of 5%-7% annually during the 1990s, reflecting also a high demand for housing. The formal housing sector was totally incapable of accommodating this massive demand for housing. Furthermore, formally built housing cost much more than informally produced housing. Finally, a necessary condition for the flourishing informal sector housing was the availability of land in spite of the absence of tenure. In fact, Government made vigorous efforts in the early 1990's to control informal development. However, these efforts proved quite ineffective; they were dropped after 1995 in the face of massive – and occasionally violent – public pressure.

Most immigrants squatted on previous state-owned agricultural lands on the urban periphery. The seemingly uncontrolled occupation process was, in fact, discretely organized on the basis of kinship relationships and through "middlemen" who often emerged from the first comers. Many new urban residents "purchased" the land from previous occupants. Access to essential services also required informal solutions – including improvised extensions of the available water supply and electricity networks.

(2) Legalization process

The law No. 9482, date 03.04.2006 On Legalization, Urbanization and Integration of Illegal Buildings, amended deals with the problematic of the informal settlements. The law tries to regularize all forms of informality. The law aims to regularize the tenure issue mainly setting the rules and the values to buy it from the actual legitimate owner.

The Law No. 9482, date 03.04.2006 On Legalization, Urbanization and Integration of Illegal Buildings, classified informal settlements on the basis of size, distinguishes:

- informal zones (areas of more than 5 hectares covered by illegal buildings)
- informal habitation blocks (1-5 hectares)
- isolated informal buildings (less than 1 hectare).

The objectives of this law are:

- The legalization of the informal settlements and of those construction based on a building permit, but subject to informal additions
- The transfer of the ownership of the parcel, where the illegal construction is settled, as defined in the Articles 19, 20, 21 and 22 of this law.
- The urbanization of informal zones, blocks and informal construction as well as their integration in the territorial and infrastructural development of the country, improving their living conditions.

In summary, the main steps in the legalization process are:

- Self-declaration by owners
- Identification of informal zones and illegal buildings by ALUIZNI
- Fulfillment of the criteria to be legalized
- Transfer of the ownership if the informal tenant is in third parts land or in state owned land
- Compensation of the original owners, whose property is occupied

- Payment for legalization according to a fixed level (up to 300 m2) or market rate (above 300 m2 plot size), within the yellow line.
- Registration of legalized properties in the Immovable Property Registration Office.
- "Urbanization" (i.e. up-grading and integration) of legalized informal zone based on partial urban planning studies completed by local government.

(3) Actual problems that slow the process and undermine the development

The law No. 9482, Date 03.04.2006 is based on legalization prior urbanization which has a higher cost on the public investments for the infrastructure in the informal areas. Also the land required for public facilities, actually missing in the informal areas, is more difficult to acquire.

Based on the law the legalization process was a temporary one, but this process is still on its beginning. Different amendments of the legalization framework has specify the time schedules for different steps of the process and had also incentivized the process lowering the taxes. However the legalization process is going with low pace.

As it is stated above the legalization process has time limits for the procedural steps and fines for the administration, but unfortunately there is no fine if the process is delayed by the informal tenants.

The main factor that slows the process continues to be the cost of legalization. For the majority of the people that lives in the informal settlement, the cost is more than they can afford. The informal tenants are hoping for a further amendment of the legalization law that will give the occupied land free of charge. The hope for another amnesty has made the informal tenant to continue building but the amount of new construction in these last years (2007-2012) is smaller compared with the previous years. The transfer of the construction police competences from the central government to the municipality (2007) and also the enforcement of the new planning law (2011) that has higher fines, have slower the developments of informal settlements.

Another possibility to cover the legalization costs, taken into account from the informal tenants, is to reach agreements with investors to develop their land. In that case the developer would pay the legalization costs. The legalization process is slowed also from the law suits of the legitimate owner, that according to this law are going to be compensated. There is no statistical data for the amount of such cases; anyhow those are not collective cases.

The legalization process has also a negative impact on the development of the areas if the developer previously had to deal with a single owner of a big property. The developer was just providing apartments for the informal tenants, whom occupied the land. After the legalization process the developer must deal with several owners that not always want to develop. These areas are characterized by high quality buildings but lack of infrastructure, lack of public spaces etc. In principle the zones need requalification, but it is not clear the role the community is willing to take. If there would not be interest for developers and the community does not contribute, the municipality finances wouldn't be sufficient to cover the upgrade of those informal areas.

3. Visions and Development Framework for Tirana Metropolitan Area

3.1 Time Framework and Defined Target Years

The regulatory plan of Tirana Municipality has a time framework for target years as follows:

- Urgent/Short-term Plan: 2012-2017
- Middle-term Plan: 2017-2022
- Long-term Plan: 2022-2027

This Thematic Planning follows the same target time-framework as above. This means that projects/programs to be identified as the highest priority ones are those whose implementation should be commenced till 2017 at latest, while, the long-term projects/programs are characterized as those that shall be materialized by 2027.

3.2 Visions for Tirana in Future

Visions for Tirana City have been elaborated by the Working Team for the regulatory planning under the Mayor's initiatives.

The Tirana Regulatory Plan was currently released by the Mayor of MOT on 18th May, 2012. The Plan has a subtitle of "**Modern European City**", showing a vision toward which Tirana City shall be developed or grow up. No other visions to imply basic polices on Tirana development have been presented in the Plan so far.

The Team accepted the visions and basic strategies to be delineated by them, which imply basic directions of sector planning for a sustainable growth.

3.3 SWOT Analysis for Tirana Urban Development

Based on the preliminary surveys, a SWOT analysis on urban development of Tirana as a whole is made as shown in Figure 3.3.1. The SWOT analysis implies significant potentials and opportunities which should be enhanced, and at the same time, negative factors and elements to be moved and/or solved for further development and/or improvement of Tirana towards the vision of "Modern European City, Tirana".

The urban management is an important tool to direct the urban development towards a proper orientation implied by the SWOT analysis. A number of critical weaknesses and shortcomings in Tirana's urban management system are as follows:

- The management approach is essentially passive; development is driven and shaped by the relatively short-term interest of private actors.
- Land use and development control functions are operating without the guidance of clear development policy objectives.
- Equipped with out-dated and inappropriate planning and regulatory instruments, Municipal authorities have inadequate capacity to manage the extraordinary development pressures facing Tirana.

- Urban policy formulation, management and regulatory functions suffer from insufficient coordination and collaboration between central and local government authorities.
- The increasingly urgent metropolitan dimension of urban development in the Greater Tirana region is not being adequately addressed.
- Incomplete fiscal decentralization and the absence of effective mechanisms for sharing the costs and benefits associated with urban development limit the potential for pro-active urban development planning and management.
- The way in which the specific – but very extensive – issue of informal settlements is being managed undermines potential development.

	Helpful In achieving progress	Harmful In achieving progress
Internal in Origin	**Strengths** • Accumulation and concentration of a wide variety of urban economic activities in the Tirana Municipality. • Economic growth at a considerably high rate, being led by the booming construction sector. • Well-developed road network consisting of ring roads and radial roads (if the current physical network extension is complete). • Tirana serving as part of Corridor VIII that links the Adriatic Sea with the western Balkan region. • Great potential to become a unique urban center in the Balkan Region and to attract tourists and investors from EU countries. • Availability of well-educated quality labor force.	**Weaknesses** • Traffic concentrations into the CBD and congestion on radial roads, thereby leading to increasing economic losses and external diseconomies. • Decreasing road capacity in the CBD, often caused by traffic disorder and/or illegal roadside parking, due to lack of functional traffic management system. • Lack of sufficient infrastructures and utility services to attract new investors for commercial, trading and industrial sectors. • Weak visions on land use management and urban development in the long-term. • Instability of Citizens' trust on the local government administration.
External in Origin	**Opportunities** • Increasing spatial potential to attract new investment opportunities alongside the Outer Ring Road. • Increasing population in and around Tirana, thereby activating the urban economy. • Development of new industrial estates around Tirana. • Close linkage with Durres Port and existence of an efficient port operator for future development • Increasing of the Municipal autonomy due to the decentralization in progress	**Threats** • Losing new business and commercial opportunities in the CBD, due to lack of sufficient infrastructures and utility services as well as congestions in traffics. • Degrading environmental conditions in and along rivers which are significant water resources. • Urban sprawl and deterioration of natural environment and living environment

Source: JICA Study Team

Figure 3.3.1 SWOT Analysis of Development of Tirana Metropolitan Area

3.4 Substantial Issues on Infrastructure Development

(1) Urban Growth Management

"Urban Growth Management" is the most vital issue to orderly accommodate a rapid increase of the urban population due to liberalization of land holding. Unmanageable increase in informal settlements should be strictly controlled and livable environment in those areas should be

promoted with a regulatory system for urban growth management.

The following are substantial issues for this purpose, or to achieve a sustainable city of the capital city, Tirana.

- Urbanization area, or the so-called "**Tirana Metropolitan Area** (TMA)", where intensive efforts to provide sufficient infrastructures are required, shall be rationally delineated, taking into account land use potentials and environmental preservation. The TMA encompasses potentially to-be-urbanized areas in the neighboring seven (7) communes.
- Functional and sustainable infrastructures meeting with the current and increasing demands for the focal subsectors such as: roads and urban transportation; solid waste management and water supply, and sewerage/drainage system shall be provided.
- Comprehensive environmental management policies and enforcement should be enhanced to stop on-going degradation of urban environment. Illegal dumping of solid wastes in rivers and open spaces, in particular, should immediately be controlled, providing a functional solid waste management system for the Tirana Metropolitan Area.
- A spatial structure, functional enough to accommodate all kinds of urban activities such as social, consumable, commercial, business and industrial activities by one million citizens shall be developed. The said structure should be organically composed of functional road and public transport networks, effective land use for urban activities, environmental facilities and open space/natural resources.

(2) Spatial Development Concept

The newly revealed regulatory plan envisions a spatial development concept with a "Five (5) Rings Structure", and has identified some strategic development areas for several purposes such as new settlement, accommodation of industrial/economic promotion, transport hubs, and green and recreation, so on. The Team basically appreciates such a spatial development concept, and follows it, as far as it is identified rational from an urban planning point of view. In this sense, the overall concept is evaluated to be appropriate some important elements for the spatial structure are reviewed as follows.

(3) Preservation of Urban Landscape with Rivers and Hills

The main idea is to preserve and strengthen the existing natural features as structuring elements of Tirana's urban landscape. The mountains that surround the City have in recent years become the target for residential development. The proximity of hills to the city centre, to the south in particular, makes them desirable and their elevated position provides attractive views over the city.

However, it is necessary to limit construction on high ground in order to preserve this natural profile and the olive tree orchards which are characteristics of the image of Tirana.

The Tirana and Lana Rivers running through the City are natural corridors of the geography in which the city of Tirana resides. It is planned to extend and strengthen the Lana River corridor upstream and downstream of the city centre, preserving the natural wooded character of the river, and reserving land adjacent to Tirana River for future development of a large uninterrupted east-west green belt in the northern part of the city.

(4) Strengthen the Main North-South Axis as Historical Spine of the City

The North-South Axis is a historical urban spine. It symbolizes the dimension of Tirana as a capital city, and offers a grand perspective. Strengthening the axis is a way to ensure the integration of the northern part of the City. In the first phase, the development of the southern portion of railway station area – which is the largest undeveloped area in the city – is one of the main issues for Tirana in the coming years. It will significantly strengthen the northern pole of the main urban axis.

The establishment of a major urban park at the northern end of the axis is a component of the dramatic city of Tirana. It is now considered that new development is focused on the axis links the two parks - one already existing in the South, and the other is the Paskuqan park to be established in the North. Thus, the North-South axis has been the main structuring element of Tirana's urban structure.

(5) Structured Balanced Urban Development Structure with/along the Outer Ring Road

As the national capital, Tirana needs to find new spaces to accommodate the activities accompanying its growth and development. The City outskirts are endowed with former industrial sites inherited from communist period. These "brown field" sites are still partially occupied by industrial buildings, but industrial activities have been down in most of the sites.

Today, these brown field sites represent an extremely important, but spatially limited, potential for new development. It is proposed to transform selected sites into sub-centers with concentrated development of new activities and places of work in fields such as industrial, commercial, services and leisure activities. These new sub-centers would play an important role in structuring the existing informal areas and integrating them to the City. Their situation along the Outer Ring Road presents valuable opportunities to re-balance the urban structure with/through future developments.

The importance of the Outer Ring Road is particularly apparent in the northern part as well as the south-eastern part of the City. By completion of the south-eastern apart, the regional trunk road smoothly connecting Tirana with Durres and Elbasan shall be structured, thereby contributing greatly economic integration in the capital region. On the other hand, the northern part of the Outer Ring Road along Tirana River would have considerable potential for development, but presently lack access or secured access to escape traffic congestion in the centre.

Construction of the Outer Ring Road is thus a major issue as to the accommodation of new activities in the city, as well as its evident importance with regard to the inadequacy of road network capacity. This strategic component, based on the ring road, would foster development along the lines of the "Amsterdam" scenario sketched of the preceding chapter, namely a poly-centric city.

(6) Strengthen the Tirana-Durrës Economic Corridor in the Greater Tirana Metropolis

Growth of the metropolitan axis along the Tirana-Durrës urban corridor is predestined by the

dynamism of the port city as well as the limited potential for urban expansion to the East because of the mountainous topography. It is further reinforced by the **Airport Link** and will again be strengthened by the new European Highway 8 linking Southern Europe to the Black Sea region through the Balkans. The availability of undeveloped land along the corridor allows an immediate response to the needs and potentials for new economic and industrial activities.

Taking into account these economically potential areas, a strategic planning concept of "**Greater Tirana Metropolis**" needs to be employed as spatial framework to be integrated with the Tirana economy and its influencing areas.

(7) Improve Public Transport Access

Access to public services and facilities is inadequate for most of Tirana's inhabitants, particularly those living in informal areas of the urban periphery. It is said that informal settlements account for about 70 % of urban residential areas.

One of the central objectives of urban planning must be to improve public transport access to quality services and good living conditions through the development of infrastructure and public transport access throughout the urban area, particularly in informal settlements where service is poorest.

(8) Urban Land Use and Development Directions

Analysis of urban development dynamics has revealed the following implications:

- The west of the City still offers good potentials for infilling and densification, particularly in the area of the old airport. Accessibility to these potential development areas is possible from the main network, but requires the creation of a secondary network structure.
- The south of the City offers little space for new development. Nevertheless, given the south section of the Outer Ring Road to be developed in the first stage, this area would have a great potential to locate industrial, commercial and housing investments. The priority of this section is justified by the need to divert traffic from Elbasan around the City to the south so that it does not pass through the city centre.
- The north of the City offers excellent development potential on the site of the station and adjacent areas, along the Tirana River, given good accessibility by the completion of the north section of the outer Ring Road.
- The east of the City still contains undeveloped space. However, given good transport access to the area, major development can be envisaged. Thus, the eastern part of City is regarded as the most potential to-be-urbanized space, and such an urbanization process will be further encouraged by the completion of the eastern part of the Outer Ring Road. Therefore, strong attention should be placed on growth management and/or land use control to ensure environmentally balanced urbanization.

(9) Five (5) Ring Structure

In this Study, a transport demand analysis has been made, based on a newly development transport simulation model in the Road and Urban Transport Sector. The result shows that Fifth Ring Road (the outer ring road) will be significantly important to structure the capable and sustainable urban growth for Tirana, whilst the anticipated traffic demand on Fourth Ring Road

will never be sufficient enough to justify the project investment economically. It is an insight into the concept of the Five (5) Ring Structure derived from such a transportation analysis that the implementation of the fourth ring shall be carefully deliberated in terms of its economic viability and its time-schedule beyond the target year 2026.

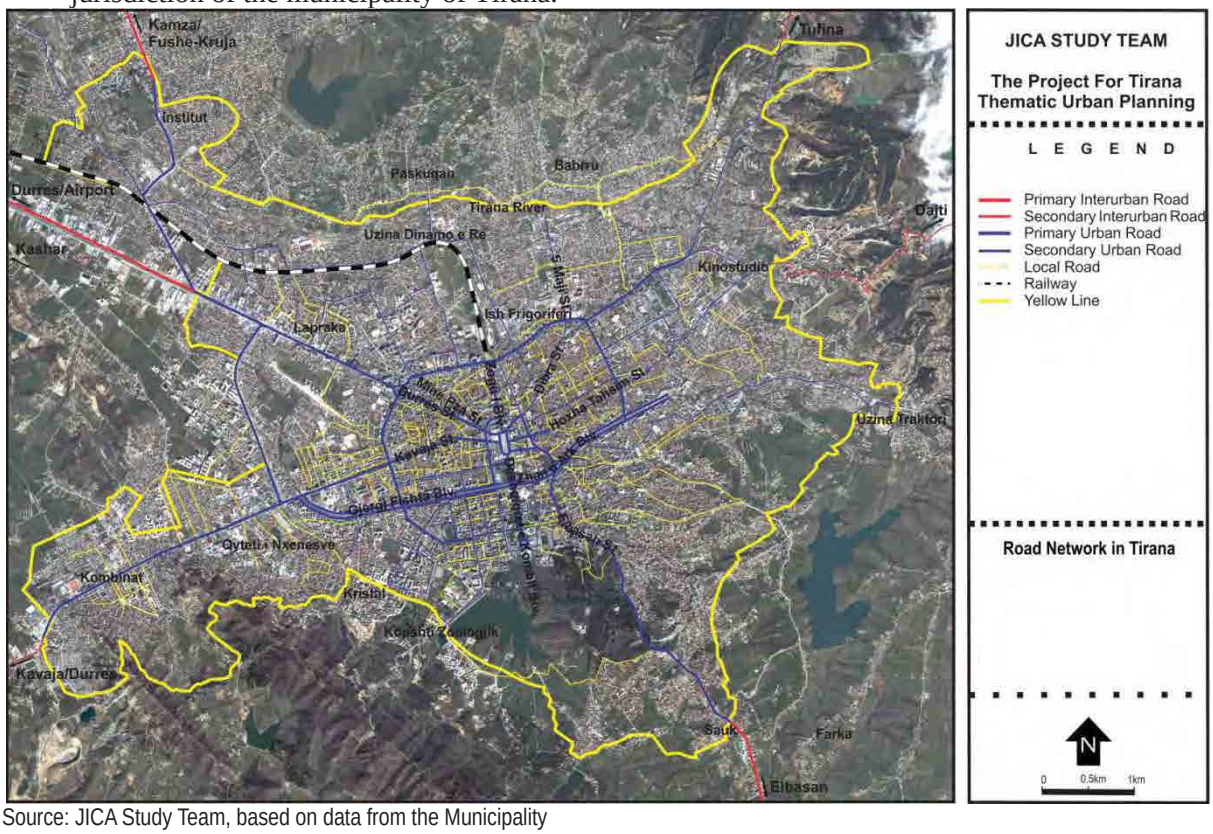
4. Road and Urban Transportation Systems

4.1 Current Status and Salient Findings

4.1.1 Road

(1) Road Network

Based on the latest data from the municipality, there are about 170 km of urban roads in Tirana, while the main roads outside Tirana connecting with other municipalities/communes are classified as interurban roads. The road network in Figure 4.1.1 shows that Tirana has three ring roads: namely, the Inner Ring Road, the Middle Ring Road, and the Outer Ring Road of which the west section is currently in service. The main radial roads of Tirana's road network extend from Tirana (the Inner Ring Road) west to Durres and the airport via Durres Highway, southwest to Kavaja/Durres, south to Elbasan, northeast to Dajti over the mountains, and northeast to Tufina. In addition to these five primary roads, there are several other radial roads most of which connect up to the construction limit of the municipality (i.e., yellow line). In the northwest of Tirana, there is also a primary road diverting from Durres Highway and extending to Kamza/Fushe-Kruja. There is no national road inside Tirana, and all the roads are under the jurisdiction of the municipality of Tirana.



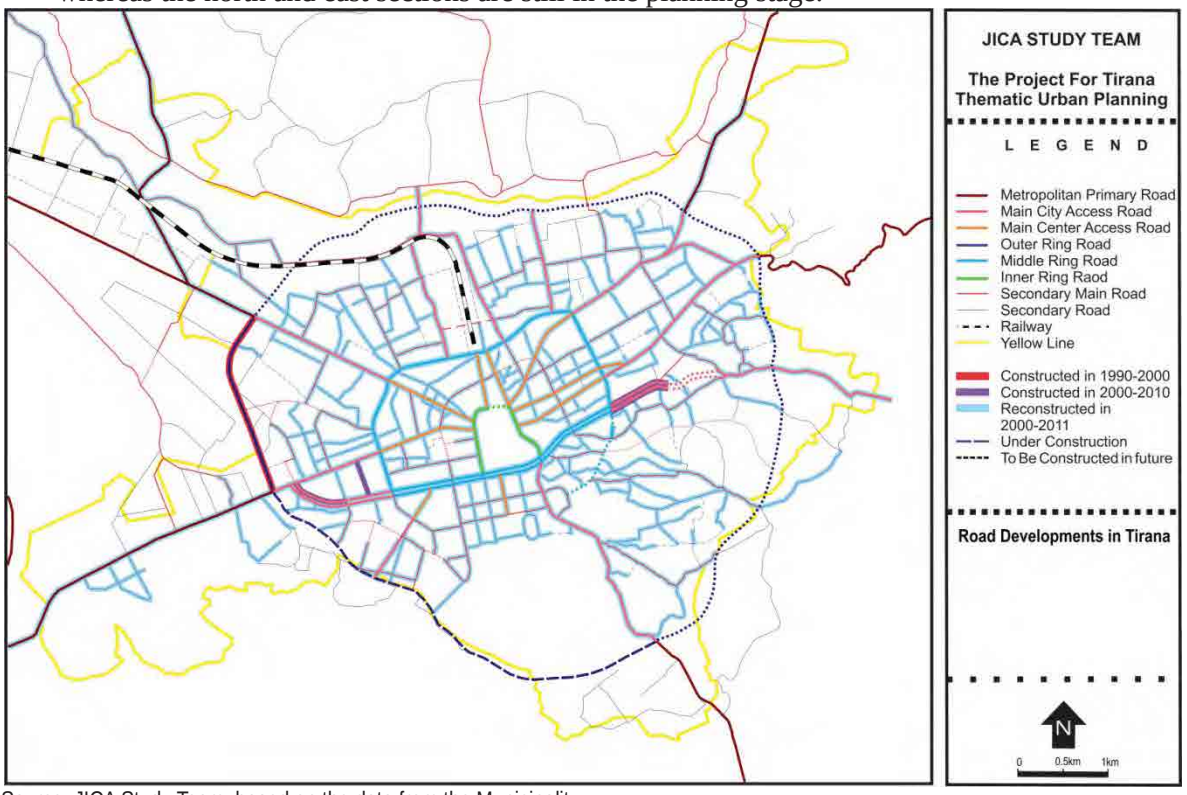
Source: JICA Study Team, based on data from the Municipality

Figure 4.1.1 Road Network in Tirana

Past and future road developments in Tirana are presented in Figure 4.1.2. While there were few road developments in the period 1990 – 2000 aside from the new construction of the 2-km west segment of the Outer Ring Road, the situation of the road network in Tirana has been improved and there were so many road developments in the period 2000 – 2010. Most of the

primary and secondary roads in Tirana have been reconstructed, and some of them have been widened simultaneously. Apparently there have been an improvement of the traffic and an increase of security for pedestrians as well as for vehicles. Furthermore, underground utilities such as water sewage, water drainage, telephone, and TV cables have also been laid for future development. In the reconstruction, road lighting system, traffic signal lights, and pedestrian sidewalks as well as green public spaces and decorative lining trees have also been provided on the roads.

At present, on the other hand, the south section of the Outer Ring Road is under construction, whereas the north and east sections are still in the planning stage.



Source: JICA Study Team, based on the data from the Municipality

Figure 4.1.2 Road Developments in Tirana

(2) Road Traffic

According to the Institute of Statistics, the number of registered vehicles in Tirana is about 120,000 as of 2010. About 40% of the vehicular traffic in Albania is concentrated in Tirana. Traffic loading is very high and the network is congested most of the day, especially inside the Middle Ring Road. However, the current rate of car ownership in Tirana, about 178 passenger cars per 1,000 inhabitants (as of 2009), is only less than half of the European average and may be expected to continue to increase rapidly in coming years.

This rapid motorization has brought the Tirana metropolitan area many urban problems such as traffic congestion and environmental pollution. Traffic congestion on the roads in the city and the roads connecting with the suburbs is becoming worse year by year. Since the capacity of the roads available to travel from the suburbs to the city center is very limited due to the legal/ illegal parking, there is traffic congestion especially on the radial roads during morning and evening peak hours. Thus, not only additional road space but also reliable public transport

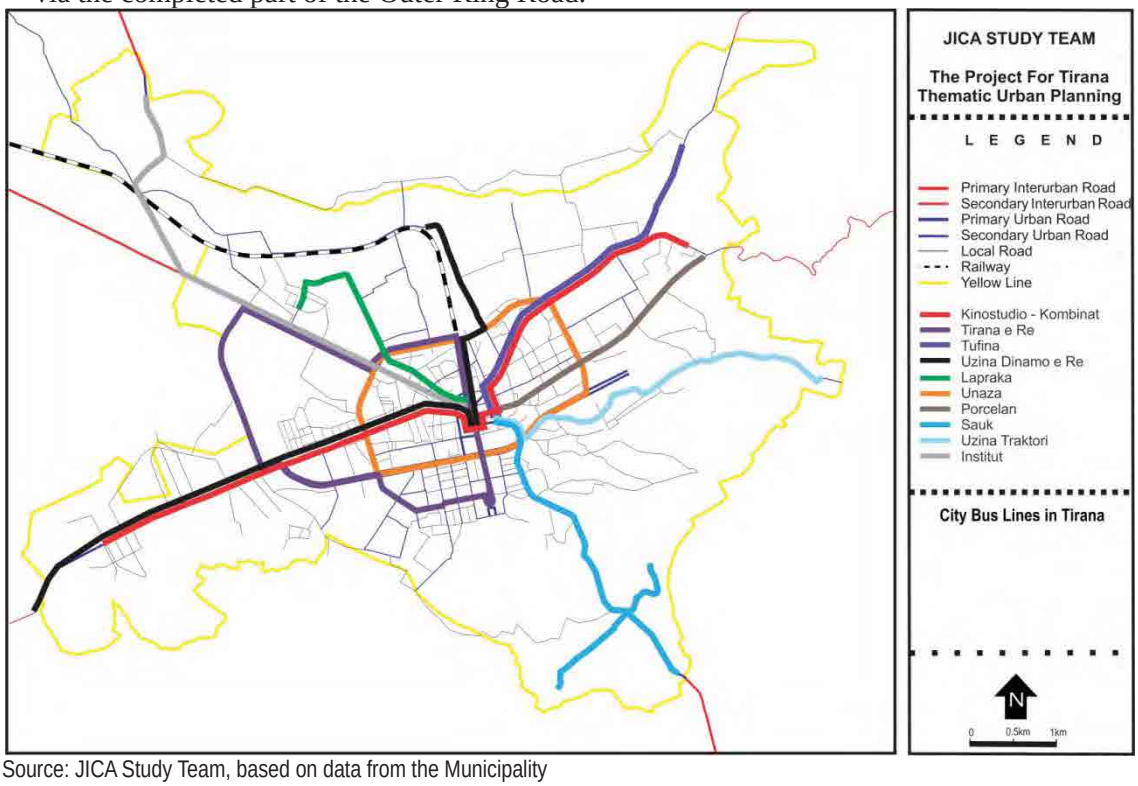
including bus rapid transit (BRT) and mass transit of a good level of service needs to be developed.

As for freight traffic, the largest freight traffic is generated at and around Durres Port, in which many cargos are transported by sea. In Tirana, there are no truck cargo terminals yet. Trucks (excluding vehicles with a 3.5-ton or lower loading capacity) are prohibited from entering the center of Tirana (i.e., inside the Middle Ring Road) except for nighttime (20:00 – 5:00).

4.1.2 Bus

(1) City Bus Transportation

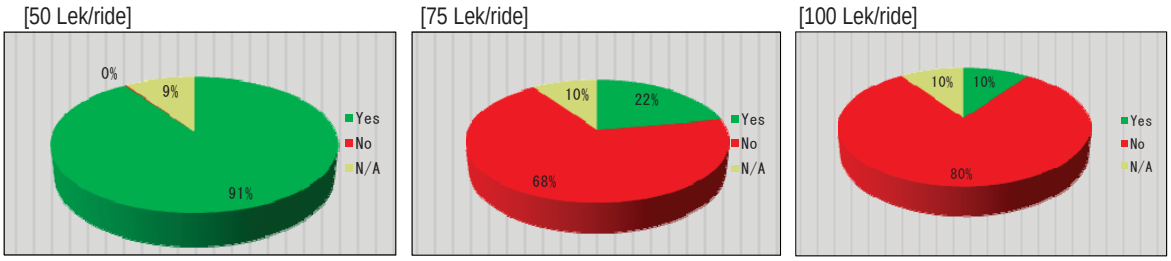
The map of Tirana city bus lines is presented in Figure 4.1.3. Tirana has total 10 city bus lines. Those existing city bus lines have been organized mainly based on a radial system, by means of which the lines go from the suburbs of the city to the city center. In addition, there are some "through center" lines, such as Kinostudio – Kombinat line and Uzina Dinamo e Re (or Sharra) line. Furthermore, there are two circular lines that do not follow the radial scheme: namely, Unaza line (Ring Road), which goes along the Middle Ring Road around the city center, and Tirana e Re line, which has a circular route passing the city center and the western part of Tirana via the completed part of the Outer Ring Road.



Source: JICA Study Team, based on data from the Municipality

Figure 4.1.3 City Bus Lines in Tirana

The fare of the city bus is 30 Lek per person per ride. City bus lines in Tirana are operated by five private companies based on a five-year contract with specified stops, schedule and fleet standards, except that a state enterprise runs one line, that is, Kinostudio – Kombinat line, of which the passenger demand is quite high as described below. Currently, raising the bus fare is being discussed among the bus operators. However, as shown in Figure 4.1.4, the citizens are opposed to paying 75 Lek or more even for a new mass transit.



Source: 2011 Transportation Survey, JICA Study Team

Figure 4.1.4 Willingness to Use New Mass Transit under Different Fare Levels

Daily passenger volume on each city bus line was surveyed in "Bus Travelers Monitoring" in 2007 by IST. Of the 10 existing city bus lines, Unaza (ring road) line is carrying the largest number of passengers (approx. 54,000 passengers/ day). While the number of boarding and alighting passengers is evenly distributed on the line, the railway station bus stop has a particularly large number of boarding and alighting passengers.

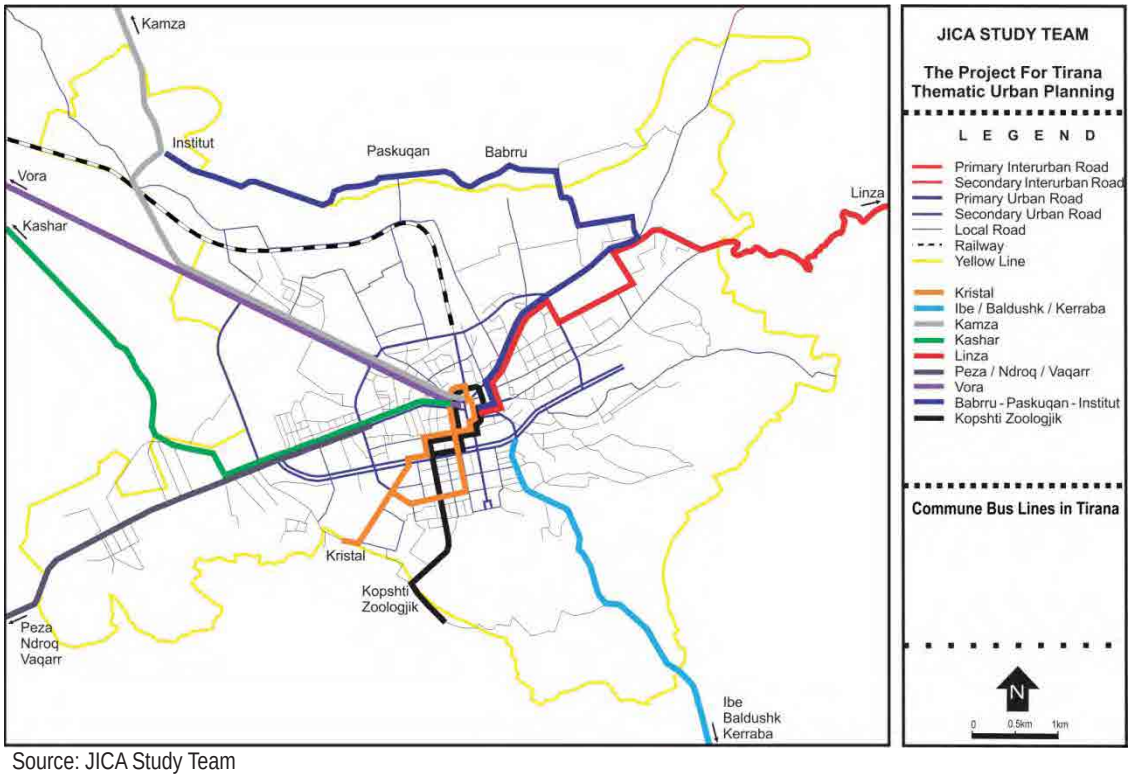
Kinostudio – Kombinat line, which constitutes the axis that links the northeastern and southwestern areas of the city through the center and can be considered a kind of a combination of Uzina Dinamo e Re line and Tufina line, has the second largest number of passengers (approx. 43,000 passengers/day). Then, Tirana e Re line, one of the two circlular lines, has the third largest number of passengers (approx. 36,000 passengers/day) in Tirana. The line starts from the railway station, crosses the center north-south until it reaches Polytechnic University, then serves the western part of Tirana, and goes back to the railway station.

In accordance with the drafted URPTM as well as some past studies for the city bus transportation, dedicated bus lanes have been constructed on some of the city bus lines. Some are with physical separators, while others are equipped with only road signs or markings. However, the dedicated bus lanes that are currently provided are limited in both length and in continuity. In some signalized intersections on the Middle Ring Road, just 20 or 30m long dedicated bus lanes have been constructed in order to give the priority to the city buses when the traffic light turns green. In reality, contrary to this expectation, it is often the case that such local dedicated bus lane sections are occupied by illegally parked vehicles and are thus not efficiently utilized.

The municipality of Tirana is planning to extend the dedicated bus lanes to 31 km in length including the existing ones (about 9 km). The TORs as well as the cost estimation have been prepared for this development.

(2) Commune Bus Transportation

In Tirana, in addition to the above-mentioned 10 city bus lines, there are 9 more commune bus lines that are operated by individual surrounding communes (but actually all by private operators) as presented in Figure 4.1.5. The service frequencies are not fixed, but they are operated at intervals of 3 – 30 minutes. Furthermore, most of the commune lines seem to overlap with the city bus lines. Though the commune bus operators are not officially allowed to transport passengers if both the boarding and alighting bus stops are inside the city of Tirana, it is quite common that passengers utilize the commune bus lines instead of the city bus lines to travel inside Tirana, paying the same fare (i.e., 30 Lek).



Source: JICA Study Team

Figure 4.1.5 Commune Bus Lines in and around Tirana

(3) Intercity Bus Transportation

In Tirana, there is no integrated intercity bus terminal yet. Instead, there are several bus and van stations though they are without toilets, ticket window, waiting room, etc. These bus and van stations are South Bus Station, North and West Bus Station, individual bus station, van stations, and international bus stations.

4.1.3 Railway

Albanian Railways (Hekurudha Shqiptare - HSH) is responsible for the railway system in Albania. It is supervised by the Railway Transport Directorate of the General Directorate of Land Transport in the Ministry of Public Works and Transport and is operated to provide a service for passengers and freight over the network. Although the system is capable of operating 24 hours a day, there are few trains running in the nighttime at present.

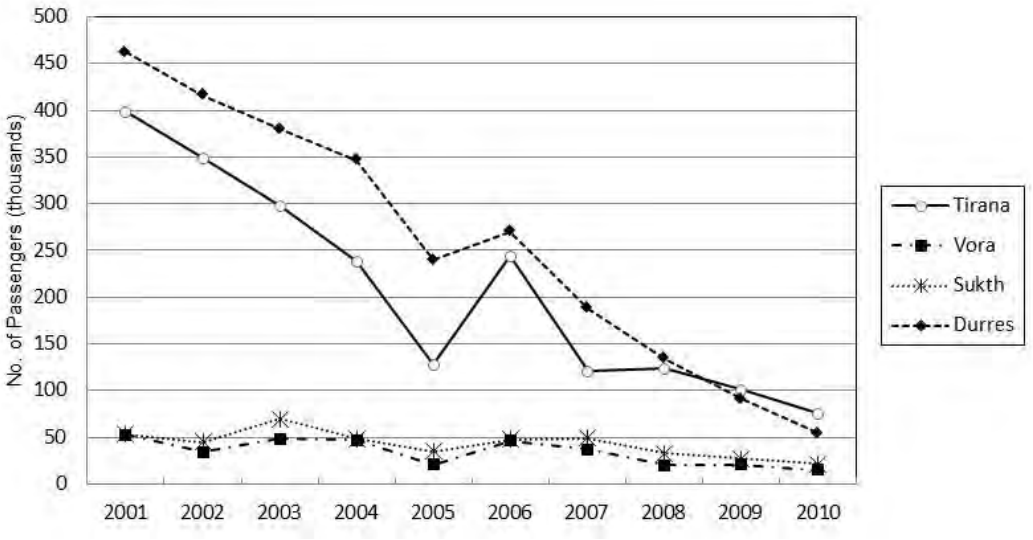
The track on Durres – Tirana was renewed in 1999, financed by an Italian loan. Secondhand Trains were purchased from Italy and refurbished in 2002. The station tracks were not improved at the time.

There has been a long period of low investment, and the maintenance work has been restricted. The track is in workable but poor condition. The structures are generally performing satisfactorily although some relatively minor repairs are required. Rolling stock (wagons, passenger coaches and locomotives) is old and in need of renewal. The core network may be refurbished with the introduction of a modern signaling and communications system to a standard that will permit a normal train service to operate for freight and passengers.

Currently the maximum speed is generally 40 km/hour, with a few sections at 20 km/hour. The

track is in poor condition and signaling is practically nonexistent. Trespass is common and many level crossings have been illegally constructed for both pedestrians and road traffic.

Durres – Tirana line has three stations on the way. Trend of annual total volume of boarding passengers by station between Durres and Tirana is presented in Figure 4.1.6. A large decrease in the number of railway passengers was observed at all the stations in the last decade due to the above-mentioned poor condition. Competition with intercity bus, minivan and van services (except for fare) may be another cause of the decreasing number of passengers. Great reductions in passenger volumes were observed especially at Durres and Tirana stations while the reductions at other intermediate stations were relatively moderate.



Source: Albanian Railways

Figure 4.1.6 Annual Total Railway Passengers by Station

4.2 Problems and Planning Issues

4.2.1 Road and Road Traffic

(1) Current Road Traffic

1) Need for Hierarchical Road Network

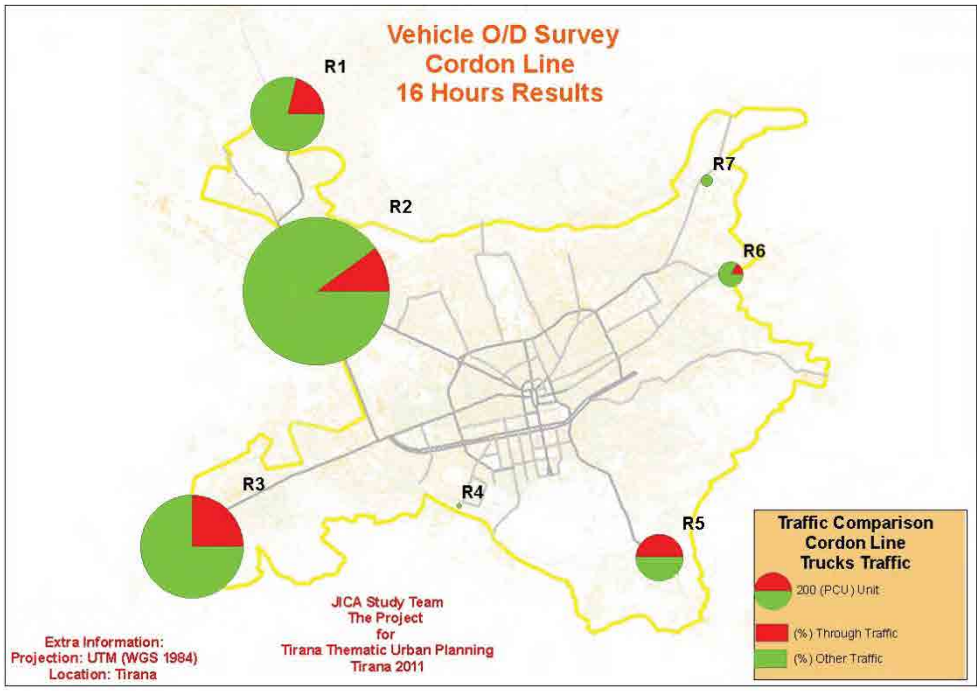
Tirana has a well-developed road network structure which consists of three ring roads with different functions and several radial roads, as long as the roads are to fully function and properly perform their parts. For this purpose, however, current road classification based on the Road Code of Albania may not be sufficient, and the classification defined by the Municipality of Tirana based on the actual hierarchical road functions would be more suitable. Moreover, as described in the following items, each Municipal road type does not seem to be performing its function to the full due to the lack of proper road layout and coherent traffic flow management. Official road reclassification and application of the design standard to each road type along with proper traffic management and enforcement of the regulations would be necessary to cater for the increasing motorized traffic.

From a more regional point of view, connectivity with the following three major directions outside the Tirana area should be focused on:

- Durres, Durres Port, Vlora, and south of Albania,

- Shkodra, Tirana International Airport (TIA), and north of Albania, and
- Elbasan, and east of Albania.

Furthermore, the linkage with Tirana Airport and Durres Port should also be improved and included in the above development directions. On the other hand, consideration of the traffic that bypasses Tirana is also important to reduce the traffic burden into the middle of the city. As shown in Figure 4.2.1, it is essential to give commercial traffic, especially trucks, alternative routes to bypass the center of the city.



Source: 2011 Transportation Survey, JICA Study Team

Figure 4.2.1 Volume of Trucks to/from Tirana and Trucks Passing through Tirana

2) Heavy Burden on Primary Urban Roads

As the main roads with a high capacity, many commuting vehicles take the primary urban roads. For freight trucks, under the situation that the Outer Ring Road has not been completed yet, there are virtually no other routes than to go into Tirana. Although they are banned from entering the central business district (CBD), which is the area inside the Middle Ring Road, except in the nighttime, these conditions result in high traffic generation and mix with many slow, heavy vehicles on the existing primary urban roads. Such a burden on the existing primary urban roads should be alleviated by providing alternative roads for both trucks and passenger vehicles.

3) Decreasing Road Capacity

For this Study, the CBD is defined as the area inside the Middle Ring Road. One of the key issues in urban transportation in Tirana is how to control and manage the traffic demand into the CBD especially during peak hours. There are some roads that are relatively small with mostly one lane for each direction but the traffic volume per lane is relatively large. On the other hand, there are other roads with multiple lanes for each direction but the traffic

volume per lane is very small. There seems to be an imbalance between the traffic demand and the road supply.

The more traffic enters the CBD, the longer the travel time and the lower the travel speed become. In terms of the V/C (volume to capacity) ratios of the radial roads to/from the CBD, they are much less than 1.0, indicating a "very good level of service." However, they are based on theoretical capacities under the ideal condition of the roads without any side frictions. In fact, the road lanes are often occupied by parking or stopping vehicles, seriously reducing the road capacity. Congestion in and around the CBD becomes severe especially during peak hours, as the traffic in Tirana increases and the major signalized intersections become more "saturated." Therefore, it is necessary to secure those ideal road capacities and provide smooth traffic flow especially on the radial roads to/from the CBD.

(2) Traffic Control and Management

1) Lack of Traffic Monitoring Systems

As the number of automobiles is rapidly increasing in Tirana, traffic congestion is also getting more and more serious. In light of this situation, it has become important to identify the bottlenecks responsible for traffic congestion using intelligent transportation systems (ITS) and to disperse traffic through optimal traffic signal control and the provision of traffic information. While the traffic management and control project is currently under way in Tirana, traffic conditions of the urban roads in Tirana should be comprehensively monitored as well. In addition to traffic monitoring, an efficient and inexpensive way of compiling data and disseminating traffic information through ITS will also be necessary for Tirana.

2) Traffic Regulation

From the viewpoint of a safer and more orderly traffic, current regulations to separate public transportation from other private vehicles need to be maintained. These regulations become more effective if the existing dedicated bus lanes are applied to longer and more continuous road sections. While it is difficult to enforce the regulation of separating public transportation from other private vehicles, extension and stricter implementation of the dedicated bus lanes need to be considered. Furthermore, if the public transportation demand is high enough and there are many buses that need the dedicated bus lanes for smoother public transportation services, it may also be more efficient to provide a rail-based public transport such as trams or Light Rail Transit (LRT) that are more physically separated within the right-of-way (ROW) of the roads and can carry more passengers.

The current truck regulation which is applied to the CBD of Tirana may also need to be reviewed as to whether the area should be expanded to the area inside the Outer Ring Road to prevent the mixed traffic with trucks, especially when the planned Outer Ring Road has been completed.

3) Parking Problems

Under the situation of increasing automobiles and continuing reliance on private vehicles in Tirana, it is essential to increase the parking capacity in Tirana, especially in the CBD (inside the Middle Ring Road). Problems of overflowing parking vehicles are observed

everywhere in the CBD. On-street public parking rules such as authorized parking time, parking fees are determined and enforced by the Municipality of Tirana, but parking is not efficiently managed. Illegal on-street parking outside the designated parking area is reducing the number of available driving lanes. This causes traffic disorder, consequently reducing the road capacity and increasing the travel time and eventually the traffic pollution.

According to the Parking Survey result, the current ratio of the demand to the supply is below 1.0, based on the assumption of 12-hour operation (e.g., 8:00-20:00). However, the parking demand often concentrates causing oversaturation for a certain period of the day. Such an oversaturation period is generally observed from 9:00 to 14:00 in office buildings, from 11:00 to 14:00 in commercial buildings, and from 8:00 to 16:00 in on-street parking.

Thus, parking regulations, especially on on-street parking, need to be reassessed to guarantee a more efficient use of roads and to secure the rightful capacity. Meanwhile, construction of additional parking facilities for 3,200 vehicles at the minimum is urgently necessary in the CBD to clear away the current on-street parking from the primary and secondary roads to utilize the road space for public transport and bicycles while maintaining the same traffic capacity. For this, however, consideration must be given to the fact that business and commercial activities along the roads, especially in the CBD, may also benefit or suffer from any action or decision. It should also be noted that charging higher parking fees will eventually deter private vehicles from entering the CBD and shift them to public transportation.

Construction of parking facilities is also critical for facilitating intermodality between private vehicles and public transit systems throughout the Tirana metropolitan area. Thus, new parking facilities should be developed at the major intermodal nodes (transfer points between primary roads and public transit (bus or a new mass transit such as tram) stops.

4) Traffic Safety for Pedestrians and Bicycles

Walk takes about 30% of all the trips in Tirana. According to URPTM, the most preferred mode of transport by Tirana citizens is “on foot.” However, pedestrian facilities, especially along the busy main roads in the CBD, are insufficient in number. In order to reduce accidents involving pedestrians, more pedestrian facilities such as crosswalks, pelican crossings, and pedestrian bridges should be provided. In addition, narrow or poorly maintained sidewalks along the urban roads need to be improved, since sidewalks of good quality will enhance not only pedestrian safety but also the urban amenity and environment.

As for bicycle lanes, though they have been developed to a certain extent in Tirana, it is often the case that these bicycle lanes are occupied by illegal parking and stopping of private vehicles. Overall, in Tirana, there is a lack of consideration for road user needs of non-motorized transport. Currently underused and fragmented bicycle lanes need to be extended.

4.2.2 Urban Transportation

(1) Bus Transportation

1) Reconsideration of Bus Route Structure

Current bus services in Tirana, especially line-haul bus services connecting the suburban areas and central Tirana are provided not only by the city buses but also by some commune buses connecting Tirana and the surrounding communes. Though the commune buses are not supposed to pick up passengers traveling within Tirana, the commune buses are also serving passengers in Tirana.

Bus routes are generally categorized into three types from a planning point of view, namely, line-haul bus services, CBD circulating bus services, and suburban feeder bus services. As clear demarcation of serving passengers in Tirana and those in the surrounding communes is becoming more complex and difficult, it is necessary to reconsider and rationalize the existing bus route structure, including the possibility of suburban feeder bus services as well as the possibility of a regional transportation management authority which covers the whole Tirana metropolitan area including the surrounding communes.

The existing bus route structure should also be reconsidered in light of existing and future travel demand, trunk public transportation of the city, and coverage of population of the Tirana metropolitan area.

2) Provision of More Dedicated Bus Lanes

In the context of urban transportation, public transportation should be given priority over private vehicles to secure smoother travel for those who use public transportation. Hence, the current partial dedicated bus lanes should be maintained. Moreover, as mentioned in the previous section, the possibility of extension of the dedicated bus lanes more continuously to the main urban roads should be promoted to form a continuous, smooth network for buses, thereby serving as a BRT. It should be noted that the dedicated bus lane development is mainly for the line-haul type bus lines connecting the city center to the suburbs through the radial roads. By securing a relatively high operating speed, time schedule can also be foreseen, consequently reducing the wait time and attracting more passengers.

3) Need for Intercity Bus Terminals and New Transit Terminals

Since there is no integrated intercity bus terminal yet in Tirana, integration of the intercity and international bus and van lines into one terminal with proper facilities such as toilets, ticket windows, waiting rooms, shops, restaurants, taxi stands, and parking facilities is highly necessary. A new “Tirana Intercity Bus Terminal” should be located somewhere on the Outer Ring Road to secure enough land and facilitate the vehicular access to/from outside Tirana. It will also help to prevent large vehicles from entering the CBD of Tirana. More importantly, the new terminal needs to be connected to several city bus and other public transportation lines for smooth transfer to central Tirana or to other destinations.

Furthermore, introduction of new transit terminals where many city bus lines as well as intercity bus lines and other public transportation lines meet and passengers can transfer or

access by private vehicles should be realized. In the case of a new transit terminal located in the city center, a transit mall could be developed by converting some section of a street to an automobile-free area, allowing only pedestrians and cyclists as well as public transportation vehicles to move more freely, thereby attracting more passengers.

(2) Rail-Based Transportation

Rail-based transportation has a great potential for fast, reliable, and comfortable transportation services regardless of road traffic congestion. Though the existing railway is supposed to serve a relatively longer distance to/from Tirana, rail-based transportation should serve as the core mode of the public transportation system to attract more commuters that are about to shift to private vehicles. To this end, there are two major development projects in the rail sector. One is the renovation of the existing railway system which aims to provide new commuter railway services, and the other is the development of a new rail-based mass transit system such as trams or LRT.

1) Improvement of Existing Railway

As explained earlier, there is still room for improvement in the existing railway system including its infrastructure and facilities such as rolling stock, tracks, signaling/ telecommunication, grade crossings, and electrification. Improving the existing railway has a great advantage in that new land acquisition is not required.

After improving the existing railway system, commuter trains and inter-city trains can be provided more effectively especially during peak hours. In order to increase the existing railway passenger demand, it is necessary to provide enough attractive services in terms of frequency, compatibility, comfort, accessibility to stations, and intermodality with bus and private vehicles.

2) Development of a New Rail-based Mass Transit System

After investigating the commuters' travel demand and its forecast, land use plans, and development directions in the Tirana metropolitan area, a new rail-based mass transit system may be recommended to supplement the existing railway system. Whether to develop the new mass transit system as a rail- or a bus-based transportation, such as BRT, will depend on the demand forecast and the service distances on the corresponding transportation corridors. However, it should be noted that the future passenger demand will also vary depending on the attractiveness and convenience of the new mass transit system including its accessibility and intermodality with other transportation modes.

(3) Integration of Public Transportation

The integration of public transportation should be discussed in the following two aspects.

1) Integration of Rail and Bus Transportation

Even if the existing railway system is renovated and the planned rail-based mass transit system is developed, the rail-based transportation network will not be enough to cover all the travel demand in Tirana. Hence, bus transportation is expected to supplement and complement the rail-based transportation system, especially in areas beyond walking distances from the rail stations. In this case, a reorganization of the bus line structure will

be required to provide feeder bus services to provide convenience to potential rail-based transportation users. Above all, sufficient intermodal facilities should be provided at stations where the rail-based mass transit system meets the existing city bus line(s).

In addition, introduction of a common fare system would be convenient to public transportation passengers because they can utilize one ticket for several modes. At present, common fare is not applied even for transfers between the city bus lines. Free, or at least discounted transfers should be realized between different modes of public transportation. Moreover, it would be another incentive for current private vehicle users to shift to public transportation.

2) Integration of Public Transportation and Land Use

While at present, many large business, commercial, and housing development projects are sprouting all over Tirana and its vicinity, it is of great importance to make the urban structure convenient for public transportation users through appropriate land-use plans. That is, since office buildings and shopping malls are large trip generators, they should not only be provided with enough parking space but also be located within walking distances from rail-based stations or bus stops. Setting high floor area ratios in areas around existing and planned stations will also induce a large amount of generated trips which can easily be served by rail-based transportation systems. After all, both public transportation and land use should be integrated under a concept of transit-oriented development (TOD).

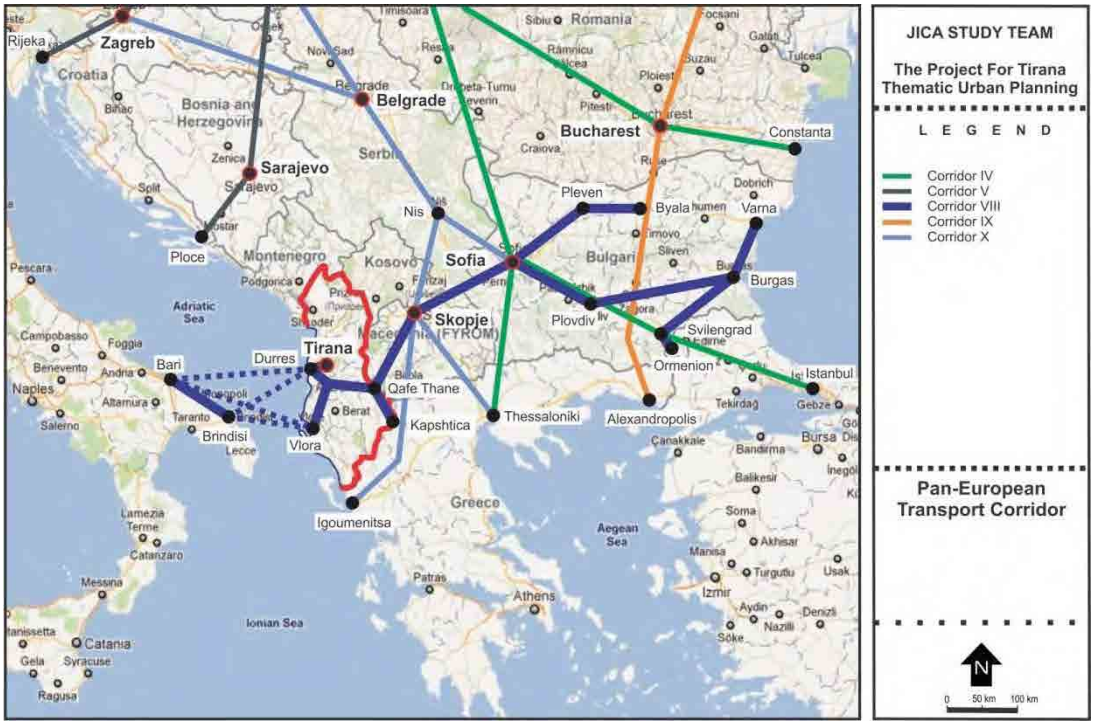
4.3 Review of Existing Policies and Previous Studies

4.3.1 First Five-Year Review of Albanian National Transport Plan (ANTP) (2010)

(1) Background

The objective of this study (or ANTP2), funded by EU (European Union) and conducted by Louis Berger, was to update the first Albania National Transport Plan (ANTP1), which was made in 2004 for the purpose of providing a safe, reliable, efficient and fully integrated transport system and infrastructure in Albania, which would best meet the needs of freight and passenger customers, whilst being environmentally and economically sustainable. This study aimed at sub-sector development for the next 20 years.

In ANTP2, a strategy for development and coordination of the transport sub-sectors was provided along with investment and action plans. Specifically, it was ensured that the Albanian transport network should be integrated into the Balkan region and the Pan-European network (Figure 4.3.1), reflecting economic development and traffic forecasts. Above all, Corridor VIII is of utmost importance for Albania as it links the following main cities: Durres - Tirana - Skopje - Sofia - Plovdiv - Burgas - Varna- Constanta over a total length of 1,500 km, increasingly extending industrial and commercial cooperation in South Eastern Europe.



Source: JICA Study Team, based on Pan-European Corridor VIII Secretariat

Figure 4.3.1 Pan-European Transport Corridor in Balkan Region

(2) Major Output

While a number of reforms were undertaken in the road sub-sector since completion of ANTP1 in 2005 such as the establishment of the Albania Roads Authority (ARA) and the introduction of the Road Asset Management System (RAMS), ANTP2 recommends that the classification of the roads in the road code be revised with some minor modifications of the road design standards and road design manual. It also recommends that the master plan be prepared in accordance with the national port strategy.

In the context of Tirana, congested roads and air pollution were becoming common elements of urban life in this city. Tirana's needs for transport and other infrastructure were intensely studied over the past years in order to meet the rapidly growing demand for urban services. After reviewing a recent transport study, the "Municipal Roads Sustainable Transport Strategy," completed in June 2009, and the new "Urban Regulatory Plan of Tirana Municipality" (URPTM) for 2021, also completed in 2009, ANTP2 proposed Investment Plan for 2021, which amounts to 383 million Euros consisting of:

- Fleet renewal: 95 million Euros;
- Bus land implementation: 150 million Euros at 2.5 million Euros/km with a bus lane length of 53.2 km;
- Construction of new rail urban links: 100 million Euros at 20 million Euros/km with a length of 4.4 km and additional tram stations; and
- Rolling stock for train-tram service: 38 million Euros at 2.5 million Euros per unit for 15 units.

4.3.2 Urban Regulatory Plan of Tirana Municipality (URPTM) (2009)

(1) Background

The purpose of the Urban Regulatory Plan is to support the realization of the urban development policy objectives and the concept of spatial development for Tirana. Specifically, URPTM aims at facilitating improvement of the existing urban structure and development to a polycentric city.

In the previous Regulatory Plan of 1989, the industrial sites were originally located along the planned Outer Ring Road, which would ensure their accessibility. While these sites became extremely important, the urban area of Tirana expanded and became spatially limited; hence, the municipality was seeking potential for new development.

Among others, access to public services and facilities became inadequate for most of Tirana's inhabitants, particularly for those living in informal areas of the urban periphery. Informal settlements accounted for about 70% of the urban residential areas. Thus, one of the main objectives of urban planning was to improve transport access to services and living conditions through the development of infrastructure and service facilities throughout the urban area, particularly in the informal settlements in which the service was the poorest. Though planning was not only for new inhabitants, the first task was to improve the conditions for the existing population.

Another main objective of URPTM was to organize the urban corridor that would focus on the creation of sub-centers located at existing and emerging nodes: the airport, the port of Durres, and crossroads and interchanges of the transportation systems. Mobility in the urban corridor should be based on the railway and highway networks.

(2) Major Output

1) Transportation Network

Transportation network includes major road and rail connections at international, regional, and local scales. Road networks refer to major highways and main roads as well as public and private bus services, minibus services, and private automobile traffic. Railway network should include railroad, tram, and regional mass transit links.

a) Road Network

- Highway from Montenegro to Greece
- Major roads to connect Tirana to Shkodra, Elbasan, Durres, etc.
- Ring roads to bypass Tirana (outer, inner, and central ring roads)

b) Railway

- Railway line from Durres to Tirana Station
- Railway line from Berxull Hub to Kombinat Hub
- Railway line from Berxull Hub to the airport (TIA)
- Public transport line from Nene Teresa Square University to Paskuqan City Park
- Tramway line from Kamza University to Tufina University

2) Transportation Hubs

A hub may be defined as an intermodal node which is a strategic point for transport

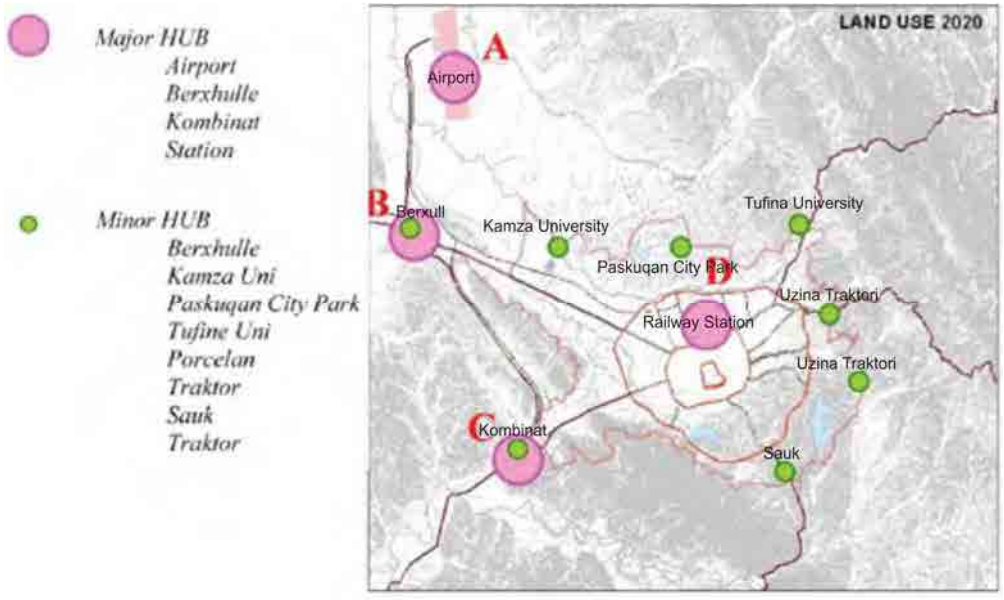
organization and comprises favorable conditions for high density urban development with a high level of centrality. As shown in Figure 4.3.2, Land Use 2020 locates several major transportation hubs which also will structure the Tirana - Durres urban region.

a) Major Hubs

- TIA Hub, encompassing important air, rail and road networks.
- Berxull Crossroads Hub: encompassing rail and road networks
- Kombinat Crossroad Hub: encompassing rail and road networks
- Tirana Railway Station Hub: a major inner-city rail and road crossroads.

b) Minor Hubs

Minor hubs comprise all important metropolitan and municipal level rail and road crossroads and terminals. They would include public transport facilities of Municipal and national level services.



Source: General Land Use 2020

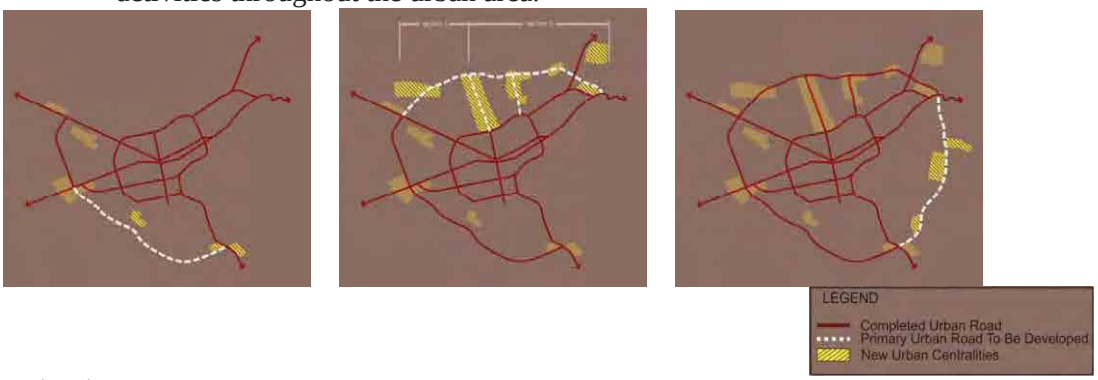
Figure 4.3.2 Location of Main Transportation Hubs and Networks

3) Outer Ring Road Development

The Outer Ring Road was proposed as strategic vector for developing new areas for the city. Construction of the western section of the Outer Ring Road, which is a logical step that reduces transit traffic in central Tirana, has already reinforced the existing development potentials in the western part of the city, i.e., the former airport area and the informal settlements of Kashar. The remaining sections are to be developed as follows (Figure 4.3.3).

- Construction of the southern section of the ring road has already been decided and programmed; it will assure the connection from the West to Farka while fostering and structuring development of this area.

- Construction of the northern section of the ring road would bring an opportunity to develop the northern part of the city along the Tirana River, enhancing its image and integration into the urban structure, while significantly expanding the supply of land that is suitable for development.
- The third step would promote upgrading of the eastern part of the city, partially re-balancing urban development and promoting a better mix of residential and other activities throughout the urban area.



Source: URPTM (2009)

Figure 4.3.3 Outer Ring Road Development

4) Sustainable Mobility

The proposed strategic aims for sustainable mobility were as follows:

- To reinforce public transport by bus while holding the existing rail right-of-way from central Tirana to Durres in reserve,
- To promote "soft" mobility, which is particularly appropriate for a city of Tirana's size,
- To develop strategically placed public parking facilities and establish regulations that limit the number of parking places to be provided by apartments or places of work in order to control the growth of automobile traffic in the center of the city, and
- To manage traffic through the definition of a hierarchical road network with clearly defined functions for each road link.

Even in the absence of an explicit policy decision, URPTM regarded this general transport strategy as inevitable for Tirana for the following two main reasons: 1) because the alternative of considerably expanding the road network is simply not feasible due to the shortage of space in the city; and 2) because the international institutions with which Albania is collaborating for the funding of essential investments will inevitably insist on broadly accepted standards of sustainable development, which, in turn, imply the outlined transport policies.

4.3.3 Strategic Projects by the Municipality

The following strategic projects have been implemented by the Municipality of Tirana. Though the details are not clear yet, those projects need to be treated as given for planning the public transport development in this Study.

- Development of an intermodal transportation terminal along with relocation of Tirana railway station
- Extension to the north of Tirana Main Boulevard and rehabilitation of Tirana River
- Development of two tramlines: east-west (Kinostudio – Kombinat) and north-south (Intermodal Transportation Terminal – Student City)
- Development of Urban Traffic Control (UTC)
- Industrial Development and Research Park (Tirana Techno - Park)

4.3.4 Activities of Other Donors for Roads and Urban Transportation

(1) World Bank

The Strategic Plan for Greater Tirana (2002) was prepared in Urban Land Management Project (ULMP), which was financed by the World Bank.

Furthermore, the World Bank will invest 20 million dollars in the expansion of the port of Durres to modernize handling capacities and introduce new types of transport which would shorten the handling time.

(2) EBRD

Parts of the Middle Ring Road, in a total length of 3.3 km, were reconstructed with an EBRD (European Bank for Reconstruction and Development) loan in the period of 2000 – 2010.

The "Tirana Municipal Sustainable Transport Strategy" (2009), which was funded by EBRD, was an important study which helped to make URPTM (2009). In this study, a prototype tender dossier for a full-option Urban Traffic Control (UTC) was also prepared, and Tirana is now developing the first traffic management control room in Albania.

The study on Tirana Outer Ring Road, the south section of which is currently under construction, was also funded by EBRD in 2009.

(3) EU

Since 1991 the EU has committed, through various assistance programs, 6.8 billion Euros to the Western Balkans. In 2000 aid to the region was streamlined through a new program called Community Assistance for Reconstruction, Development and Stabilization (CARDS) adopted with the Council Regulation (EC) No. 2666/2000 of 5 December 2000.

The CARDS program's wider objective is to support the participation of the countries of the Western Balkans (Albania, Bosnia and Herzegovina, Croatia, Serbia, Kosovo, Montenegro, and the former Yugoslav Republic of Macedonia) in the Stabilization and Association Process (SAP).

In the transportation sector, under the CARDS program for Albania, there was a study called "Albanian Railway Network: Infrastructure and Signaling Improvement Project" in 2009. In addition, specifically for Tirana, an extensive study of the Tirana - Durres region has recently been completed ("Sustainable and Integrated development of the Tirana - Durres Region," 2008), which intends to assist authorities to achieve "sustainable and integrated" development of the urban region.

Besides the CARDS program, SUSTRAFFTIA (2007) was conducted for Tirana and funded by the EU. Furthermore, at the national level, recent First Five-Year Review of ANTP 1, (ANTP 2) in 2010 was also funded by the EU.

4.4 Demand Forecast

To develop the demand forecast models for Tirana, the Household Survey conducted from the end of September to October 2008, which includes both trip and socioeconomic information of 7,000 persons taken from 75 TAZs, has been utilized as the only dataset that is available. Basically, forecasting the future travel demand is done by applying the conventional four-step methodology, namely trip generation and attraction model, trip distribution model, modal split model, and trip assignment model. These steps can be grouped into two, steps to build models for estimating future OD matrix and for estimating traffic volumes on the network. The former step comprises the trip generation and attraction model, trip distribution model, and modal split model; and the other step is the trip assignment model.

Since the survey asked the interviewees about their trips made only for three hours between 6:00 and 9:00 a.m., the demand forecast models have also been developed for the morning peak hours only. Furthermore, because it is modeled only for the morning peak hours, it has been assumed that all purposes of the generated trips are from home to work, school, and other places only. Hence, non-home based trips such as business trips which normally take a considerable share were not included in the demand forecast models.

4.4.1 Estimation of Future Total Trips

As a result of the first step of demand forecasting, total present and future trips in the morning peak have been forecast. Overall, the total number of trips in Tirana in the morning peak hours (6:00-9:00 a.m.) will significantly increase in future. The growth from 2008 to 2027 is estimated to be about 2.4 times, as presented in Table 4.4.1. In terms of mode shares, both auto and transit modes will gain shares, and the walk mode will be losing its share while the total number itself will be increasing. This may be because the average travel distance is expected to be longer as the Tirana metropolitan area will expand along with additional surrounding development zones in future. Additional trips will be made either by auto or by transit. Thus, significant increase in both auto and transit trips is expected in future, and the growth is estimated to be nearly three times.

Table 4.4.1 Forecast of Total Present and Future Trips in Morning Peak (6-9 a.m.)

Trip Purpose	Present Person Trips (2008)				Future Person Trips (2027): Do Nothing Case			
	Auto	Transit	Walk	All Modes	Auto	Transit	Walk	All Modes
Home-To-Work	97,000 (37%)	103,500 (40%)	60,400 (23%)	260,900 (100%)	295,300 (47%)	265,300 (42%)	72,900 (12%)	633,600 (100%)
Home-To-School	5,600 (8%)	39,900 (55%)	27,000 (37%)	72,500 (100%)	20,900 (11%)	119,300 (64%)	45,900 (25%)	186,100 (100%)
Home-To-Other	4,800 (10%)	11,300 (24%)	30,200 (65%)	46,300 (100%)	4,900 (5%)	59,500 (66%)	25,600 (28%)	89,900 (100%)
Total	107,400 (28%)	154,700 (41%)	117,500 (31%)	379,700 (100%)	321,100 (35%)	444,100 (49%)	144,400 (16%)	909,600 (100%)

Source: JICA Study Team

4.4.2 Increase in Traffic Congestion on the Network

The network database developed for this Study consists of two categories: a highway network and a public transportation network (transit network). A highway network comprises nodes representing intersections or junctions and links which have nodes at both ends, representing road segments. Each link should have attributes, such as travel speed, link length, and possible capacity, which will be used for searching the minimum-cost route in the network. The attributes are specified according to functional classes of road: primary road, secondary road, and local road.

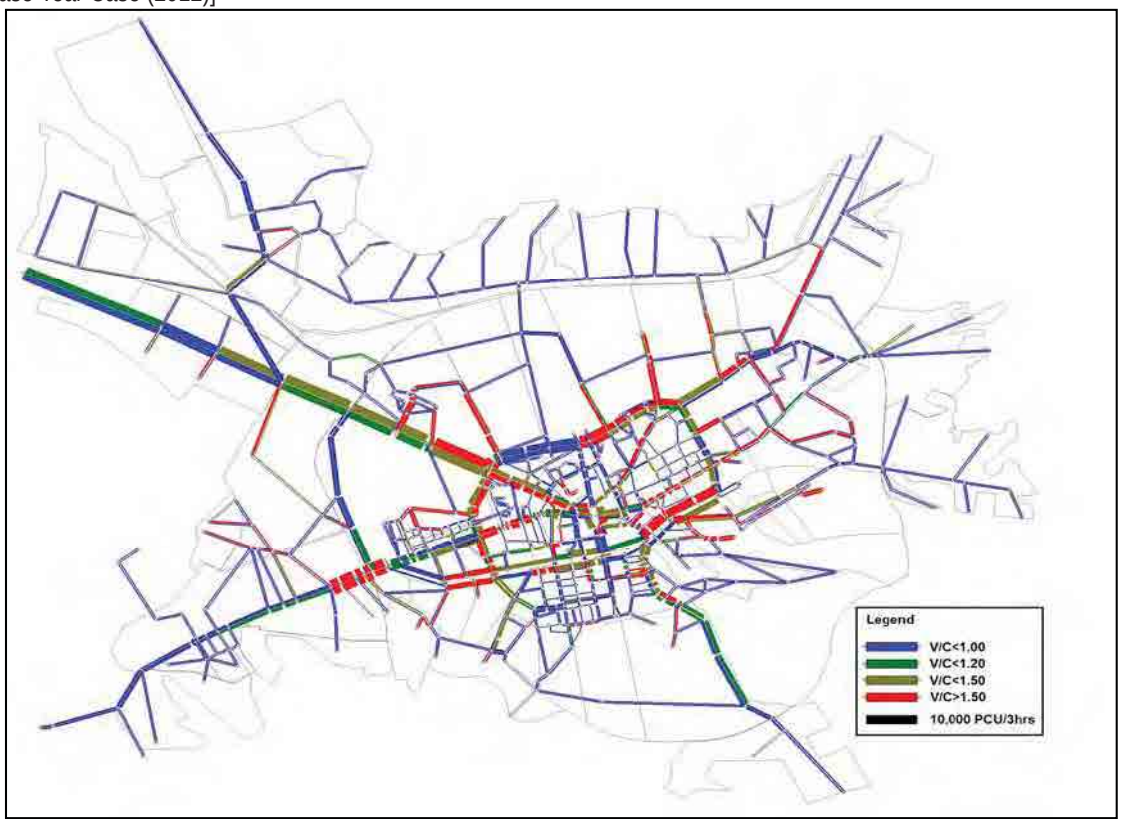
When travel demand, which is called an OD matrix, is estimated and a network is developed, the traffic demand on the network can be forecast. This section shows the results of an estimation of the following cases:

- Base Year Case: Assigns the current travel demand on the base year (i.e., 2012) highway network. This will be the basis for evaluating alternatives.
- Do-nothing Case: Assigns the future travel demand on the base year highway network. This is an imaginary case and it can reveal the necessity of road construction and improvement to meet the future demand.

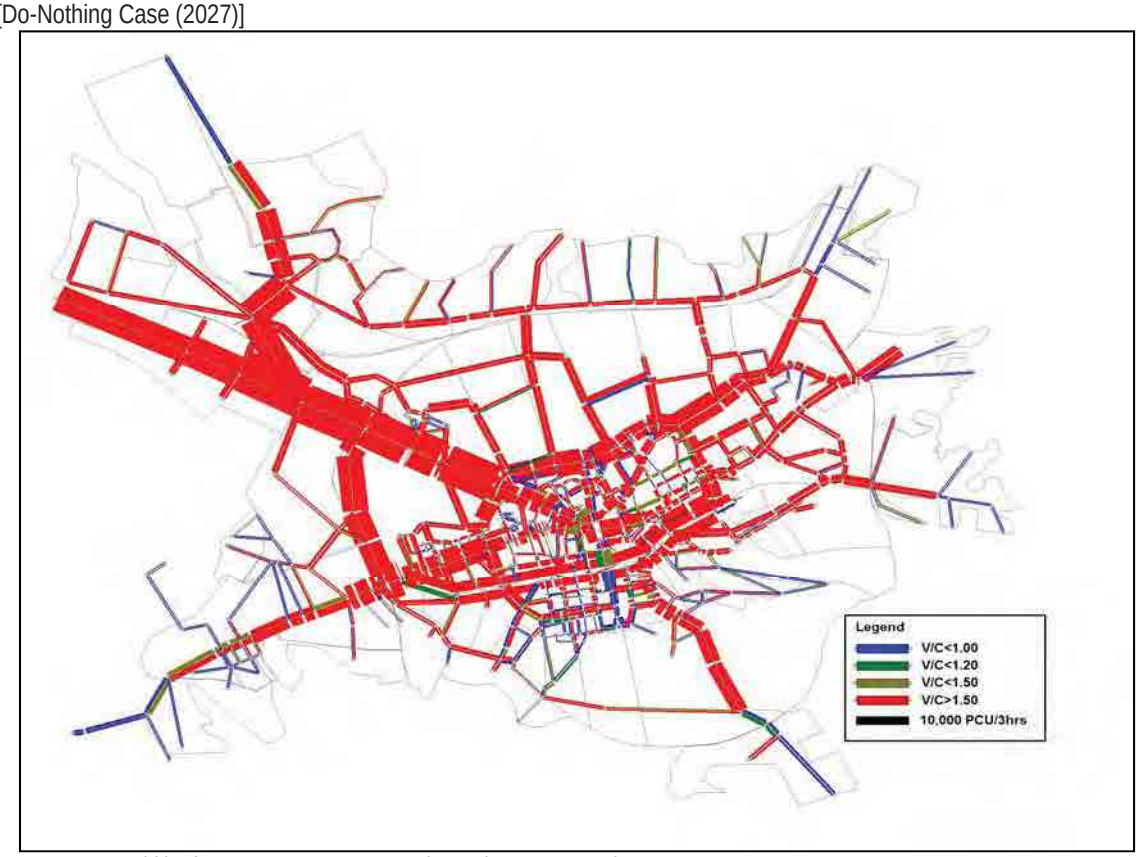
As for development of the base year case, the OD matrices from the Household Survey in 2008 have been updated to 2012 based on the observation data from Traffic Count Survey, Vehicle OD Survey, and Bus Passenger OD Survey conducted in 2011. Furthermore, additional TAZs around the city of Tirana have been added in the network, which now consists of 93 TAZs in total. Travel cost information from Transport Opinion Survey has also become an input to the highway and transit network parameters in JICA STRADA, which is an integrated software developed by JICA as a tool for transportation demand forecast model development based on the four-step methodology.

The result of the trip assignment in the above two cases are presented in Figure 4.4.1. If no action is taken, traffic concentration with a V/C ratio over 1.5 is forecast to occur on so many roads connecting the center and the suburban areas. This “do-nothing” case scenario may be an extreme case; hence, in reality, many private car users may shift to transit due to this severe traffic congestion. In any case, it implies that significant improvement on the road network capacity will be necessary to accommodate the increasing vehicular traffic in future.

[Base Year Case (2012)]



[Do-Nothing Case (2027)]



Note: Width of 1 mm = 2,500 PCU per 3 hours (6:00-9:00 a.m.).
Source: JICA Study Team

Figure 4.4.1 Estimated Traffic Volume in Present and Future

4.5 Planning Objectives and Strategies

4.5.1 Planning Objectives

In order to achieve the three main goals of transportation system development in Tirana, namely, efficiency, equity, and better environment, four major urban transportation objectives have been listed as described below along with more specific policies.

(1) Enhancement of Road Network Capacity that Supports Economic Activities

- To structure a hierarchical road network to support multi-core, integrated urban sub-centers and to meet the growing future travel demand
- To increase road capacity through development and improvement of road network
- To make the most of the existing capacity through efficient TCMs and avoid excessive traffic concentration through TDM
- To structure a functional goods distribution system

(2) Promotion of Public Transport Use

- To improve the route structure and the level of service of the existing bus transport
- To introduce new mass transit systems, preferably tram systems
- To facilitate more effective dedicated bus lanes as a base of BRT (bus rapid transit) and organize intercity bus terminals
- To keep the affordable public transport fare under supervision of one managerial body

(3) Intermodal Development/Transit Oriented Development

- To enhance intermodality through development and improvement of transfer facilities
- To apply functional transit-oriented development for major public transport corridors with a balanced urban spatial structure

(4) Realization of An Environmentally Sound Transportation System

- To apply TCMs to reduce air pollution
- To enhance traffic safety and environment through law enforcement and public campaigns as well as through user-friendly transportation facilities for all travel modes

4.5.2 Road Development Corridors

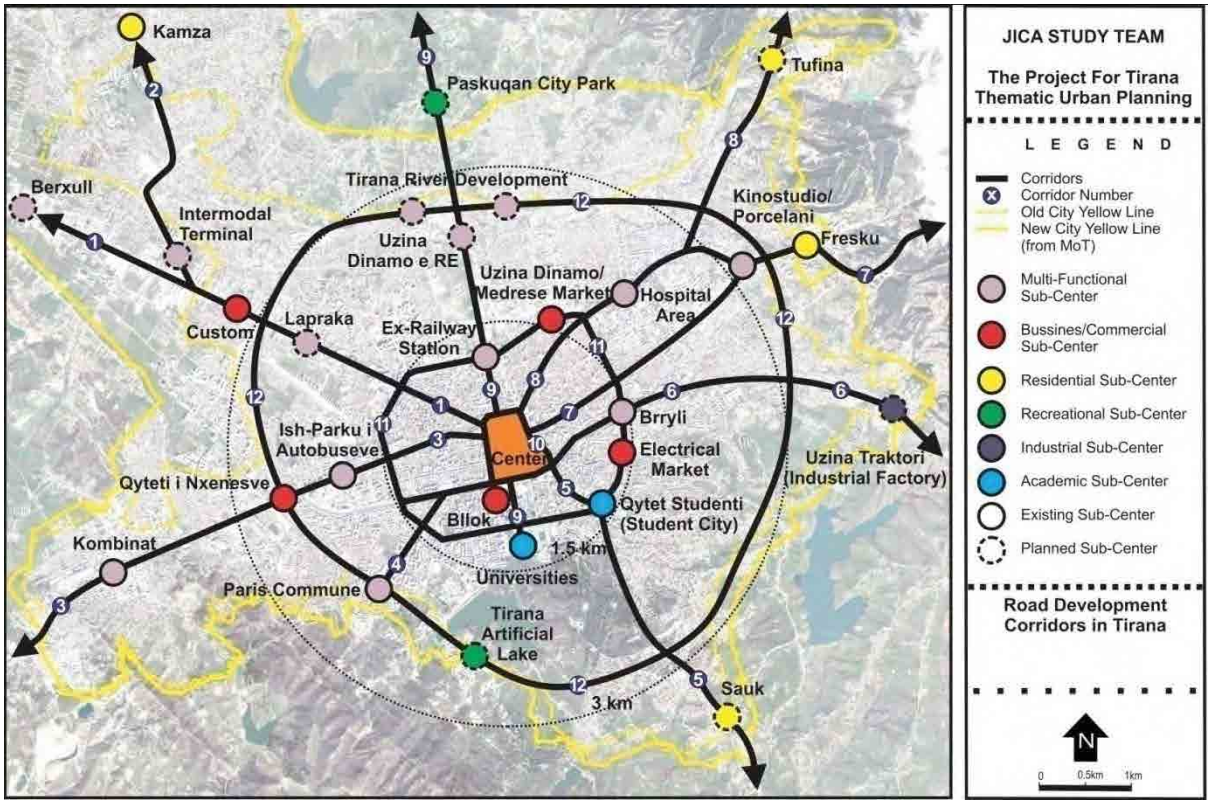
Historically, radial roads were first developed in Tirana, while ring roads were then constructed as the city expanded outwards. Since the pattern indicates a concentric development, traffic concentrates in the city center. It is necessary, therefore, to disperse traffic demands in the city center by providing sub-centers around it.

Metropolitan spatial structures in Tirana are formed through major road corridors that have formed radials and rings. Ring and radial corridors should be composed of primary roads in which the capacity should be secured to the maximum while the right-of-way (ROW) should be provided for public transport. A proposal for a future road development network in Tirana is shown in this section.

(1) Radial Corridors

As shown in Figure 4.5.1, the road network in Tirana will have nine radial corridors: (1) Durres

Corridor; (2) Kamza Corridor; (3) Kavaja Corridor; (4) Paris Commune Corridor; (5) Elbasan Corridor; (6) Uzina Traktori Corridor; (7) Dajti Corridor; (8) Tufina Corridor; and (9) Paskuqan Corridor. Each corridor is served by at least one primary road. Ideally, fundamental ring roads and radial roads are composed of primary roads, serving major existing and planned sub-centers in Tirana. In addition, secondary roads, which complement the fundamental road network, should also be constructed.



Source: JICA Study Team

Figure 4.5.1 Road Development Corridors in Tirana

Among the nine radial corridors, (9) Paskuqan Corridor, which runs straight to the north from the center along the existing boulevard (Zogu I Boulevard), should be extended north toward Paskuqan as a major road network corridor. Large housing and other developments are planned on this corridor, which will match with the development directions of the Municipality of Tirana.

(2) Ring Corridors

A ring road system has a variety of functions which are roughly classified into those for handling traffic flow and for supporting urban structures. Though it depends on the topography and conditions of the city, generally speaking, the scale of a city which needs a ring road system to handle increasing traffic volume is considered to be a city with a population of 200,000 or more. It should also be noted that a (primary) ring road system becomes the most effective only after the road becomes fully available for service.

If a new ring road is to be constructed in an already developed urban area, it will be subject to many social restrictions such as environmental factors and land uses. Hence, due consideration should be given to these factors in planning the ring road system so that it would become more

practical. The following table indicates the standards of locations and structural requirements of ring roads by scales of cities.

Table 4.5.1 Locations and Structural Requirements of Ring Roads by Scale of Cities

Location	Metropolitan City (Population: 2 million or more)	Regional Core City (Population: 500,000 to 2 million)	Local Main City (Population: Less than 500,000)
Internal Ring Road	Highway with partial grade separation or at-grade road	At-grade road	(no definite ring roads required)
External Ring Road	Expressway	Expressway or highway with partial grade separation	Highway with partial grade separation or at-grade road

Source: "Road Network Planning," JICA Highway Seminar, 1993-1996.

In the case of Tirana, while it is classified as a "regional core city" from a viewpoint of the population scale, it should have a road network that could support many more functions as a "metropolitan city." Hence, following the ongoing ring road and multi-core urban developments, a structure of three major ring corridors has been proposed: (10) Inner Ring Corridor; (11) Middle Ring Corridor; and (12) Outer Ring Corridor.

(3) Priority of Transportation Modes by Zone

1) Zone inside Inner Ring Corridor

In the zone inside the inner ring corridor, pedestrians should be given priority, and thus, through a concept of "traffic cell" system, the private vehicle traffic should be greatly reduced in order to realize a public transport user-friendly environment and to introduce transit malls as a center of the city. Thus, several roads in this zone should be converted to pedestrian streets that are closed to private vehicles except for public transport.

2) Zone inside Middle Ring Corridor

In the zone inside the middle ring corridor, which is also defined as the CBD, public transport and bicycles should be prioritized over private vehicles. On-street parking should be basically prohibited especially on the primary roads inside this zone to secure enough space for ROW of public transport (i.e., dedicated bus lanes or tramlines) and bicycles (i.e., bicycle lanes). Though on-street parking could remain on some secondary and local roads, efficient TDM such as a parking pricing scheme along its enforcement should be applied in this zone to restrict the vehicular traffic. Needless to say, provision of enough off-street parking facilities in this zone is essential for this purpose.

3) Zone inside Outer Ring Corridor

In the zone outside the outer ring corridor, which covers most of the city of Tirana, both public transport/bicycles and private vehicles should be equally prioritized. For this, the road capacity in this zone should be secured with controlled on-street parking. Furthermore, the area where trucks (excluding vehicles with a 3.5-ton or lower loading capacity) should be banned from passing should be expanded from the current zone inside the middle ring corridor to the zone inside the outer ring corridor in order to ensure a better living environment for the citizens.

4.6 Road Development Plan

4.6.1 Road Network Hierarchies

There is no national road inside Tirana, and all the roads are under the jurisdiction of the municipality of Tirana. Based on the Road Code of the Republic of Albania (Law No. 8378, dated 22.7.1998), urban roads are classified into primary roads, secondary roads, and local roads. Other minor roads are not classified at all because they serve only for parking or interconnection between a few buildings in the residential blocks.

Urban road function definitions in the context of Tirana are presented in Table 4.6.1. The primary road system mainly serves traffic between urban sub-centers. In effect, the primary system has relatively longer distance trips. It also should serve the public transport (i.e., bus or tram), and hence should reserve the ROW on the road especially in the CBD.

Table 4.6.1 Definition of Urban Road Functions

Road Type	Function	Trip Distance	Access Control	ROW for Public Transport	On-Street Parking	Standard Capacity (4 lanes)	Required Road Width
Primary Road	Linking the center with interurban roads outside Tirana Bypassing the center/CBD Linking urban sub-centers	Longer	Partial access control with traffic separators	Reserved in CBD	Prohibited	5,300 (pcu/hour)	Minimum 25m
Secondary Road	Collecting/dispersing traffic between primary roads and other roads Interconnection between blocks	Medium	No access control	Not reserved	Controlled	3,500 (pcu/hour)	Minimum 17m
Local Road	Local entrances of blocks	Shorter	No access control	Not reserved	Controlled	2,200 (pcu/hour)	Minimum 12m

Source: JICA Study Team, based on the Road Code of the Republic of Albania (Law No. 8378, dated 22.7.1998).

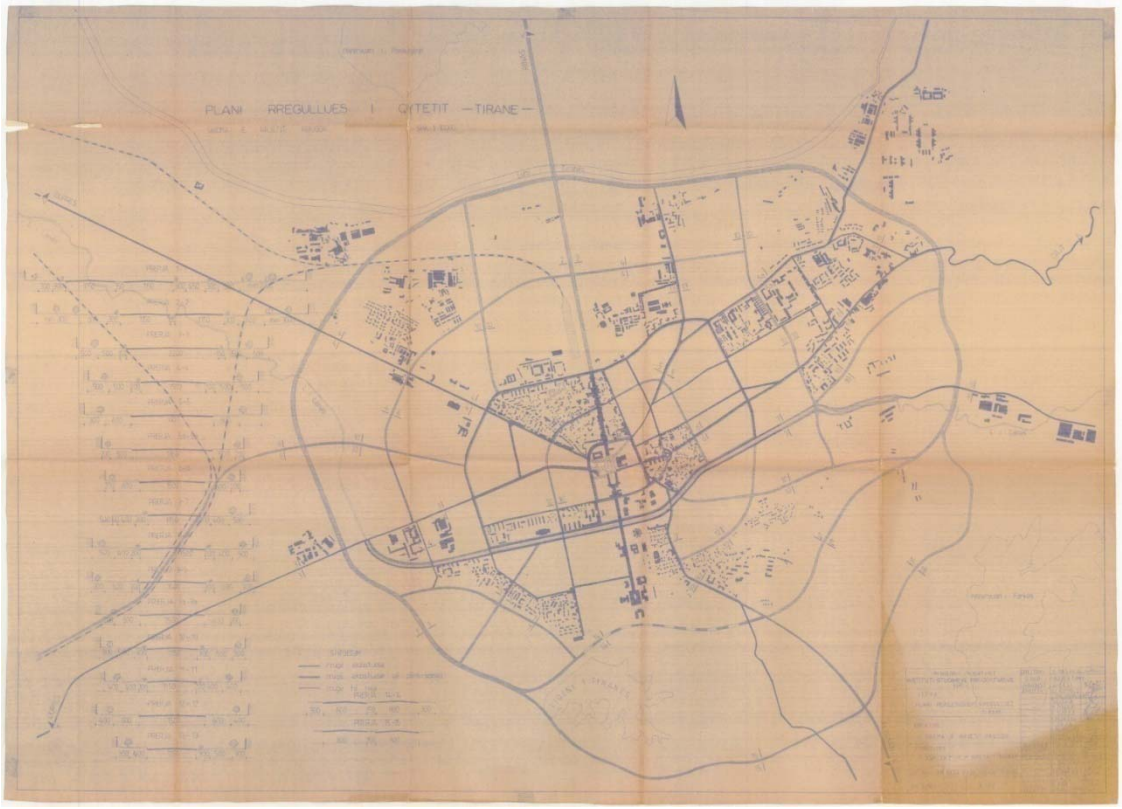
4.6.2 Road Development Projects

Taking the road development corridors explained in the previous section into account, the principal policy measures for road network development and public transport prioritization are described below:

- Formulation of road network through proper classes of roads so that the whole network will function efficiently and effectively. This includes developing new roads that will especially complete the current missing links, reconstructing existing roads that will often involve road widening, improving the current bottleneck intersections that may involve grade separation, developing full or partial access control that will physically separate through-traffic from local traffic, etc;
- Increasing road capacities to fulfill the traffic demands and to minimize the demand and capacity gap especially in the CBD, while reserving the ROW for public transport and bicycles through efficient TCMs;
- Road development should aim not only to cope with the traffic congestion issues but also to lead to a desirable multi-core urban structure;
- Following the general city planning, primary and secondary roads should be placed at intervals of 400 to 700 m in the CBD, while, for other residential areas, they should be

placed at intervals of 700 to 900 m, which will also enable easy access to the public transport lines; and

- As mentioned earlier, the proposed road development should follow the road alignments in the previous Regulatory Plan of 1989 as much as possible.
- In order to minimize the difficulties of land acquisitions and to make the plans more realistic, the proposed road development should follow the road alignments in the previous Regulatory Plan of 1989 (Figure 4.6.1) as much as possible for better and more realistic implementation of the plans, because those road alignments have already been widely recognized by the public and thus have been the only base for development control such as building permission by the Municipality of Tirana even though the roads have not been constructed yet.



Source: Regulatory Plan (1989)

Figure 4.6.1 Previous Regulatory Plan of 1989

The road development projects proposed by the Study Team are shown in Figure 4.6.2.

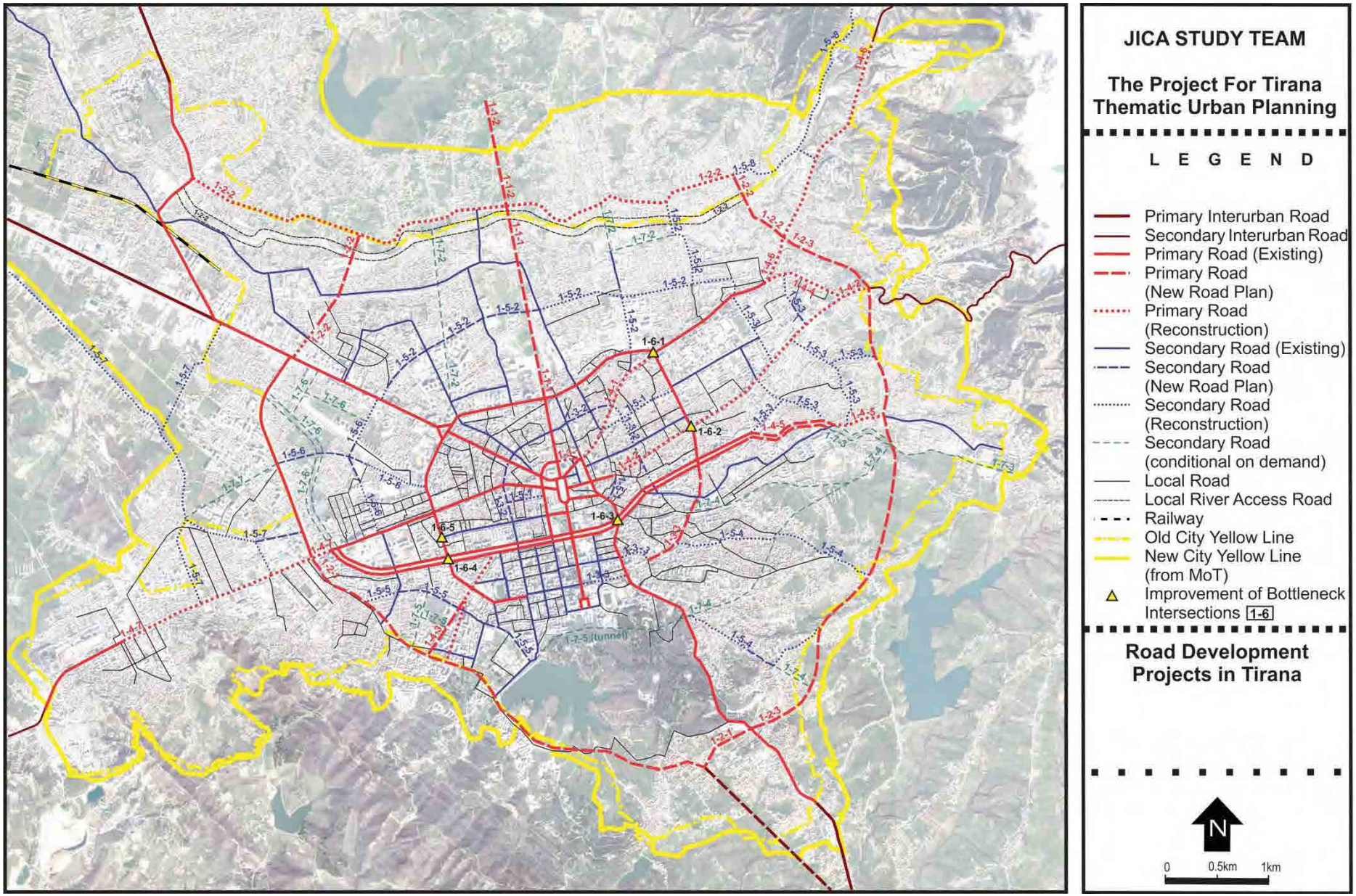


Figure 4.6.2 Road Development Projects in Tirana

4.7 Transportation Control Measures (TCMs)

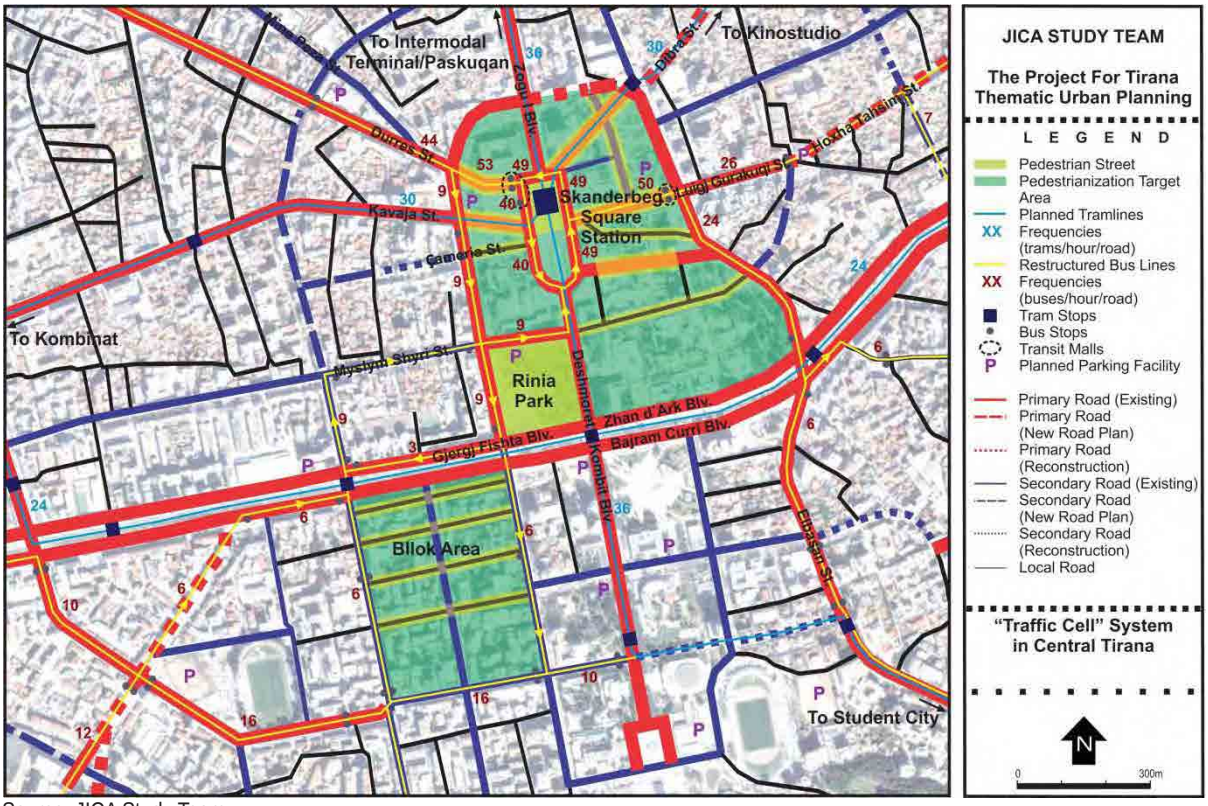
In order to make the most of the existing capacity of the transport infrastructure as well as to achieve a better transportation environment in Tirana, the following TCMs have been proposed:

1. Development of pedestrian facilities,
2. Development of bus/bicycle priority system,
3. Parking system development, and
4. Development of UTC Center.

4.7.1 Development of Pedestrian Facilities

As mentioned earlier, in the zone inside the inner ring corridor, pedestrians should be given priority, and thus the private vehicle traffic should be greatly reduced in order to realize a public transport user-friendly environment and to introduce transit malls as a center of the city. Thus, several roads in this zone should be converted to pedestrian streets that are closed to private vehicles except for public transport.

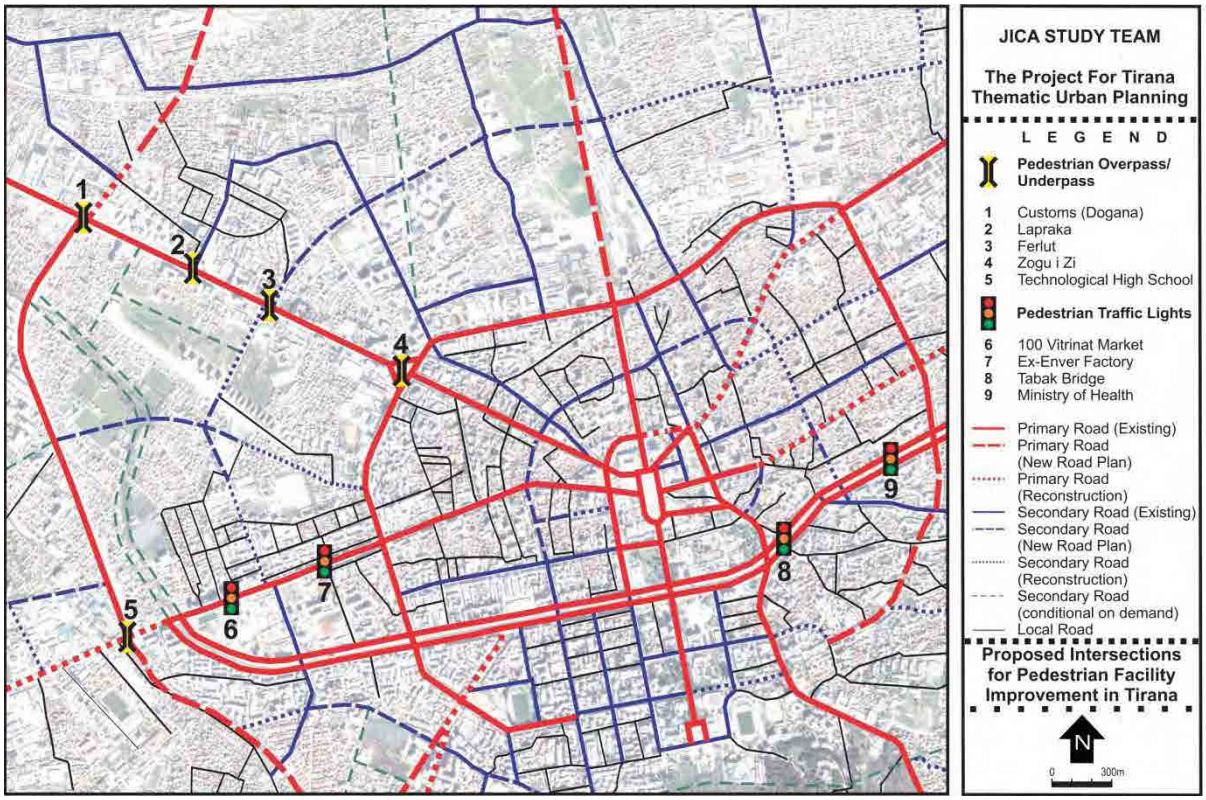
An example of the "traffic cell" system for this zone is illustrated in Figure 4.7.1. While only pedestrians, bicycles, and selected public transport vehicles are allowed to enter the pedestrian streets, all the blocks (traffic cells) that are divided by the pedestrian streets can still be accessed by private and commercial vehicles from the peripheral roads. Only the main north-south boulevard (Zogu I Boulevard) and Myslym Shyri Road may remain as ordinary roads as an exception to serve the through traffic. Meanwhile, some pedestrian streets could be developed as "transit malls" to make an easy access to buses, taxis, or trams. Furthermore, another "traffic cell" system has also been proposed in Bllok district, in which the east-west roads are to be converted into pedestrian streets while the north-south roads are to be left accessible for private and commercial vehicles. It should also be noted that parking facilities should be provided at nearby places around these areas.



Source: JICA Study Team

Figure 4.7.1 Example of a "Traffic Cell" System in Central Tirana

Furthermore, in order to reduce accidents involving pedestrians and to ensure safety, more pedestrian facilities such as crosswalks, pelican crossings, and pedestrian bridges/underpasses should be provided. Proposed intersections that need improvement for pedestrians especially for safe crossing are presented in Figure 4.7.2.

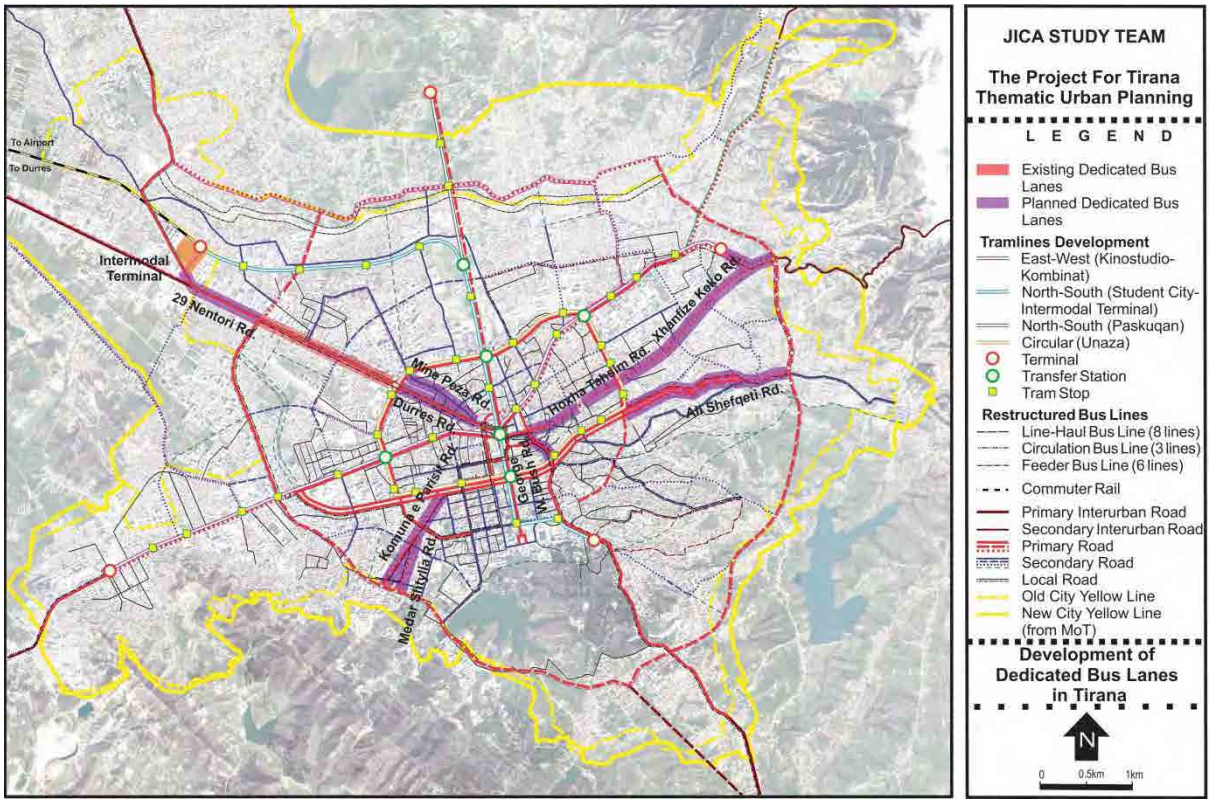


Source: JICA Study Team

Figure 4.7.2 Proposed Intersections for Pedestrian Facility Improvement

4.7.2 Bus and Bicycle Lanes

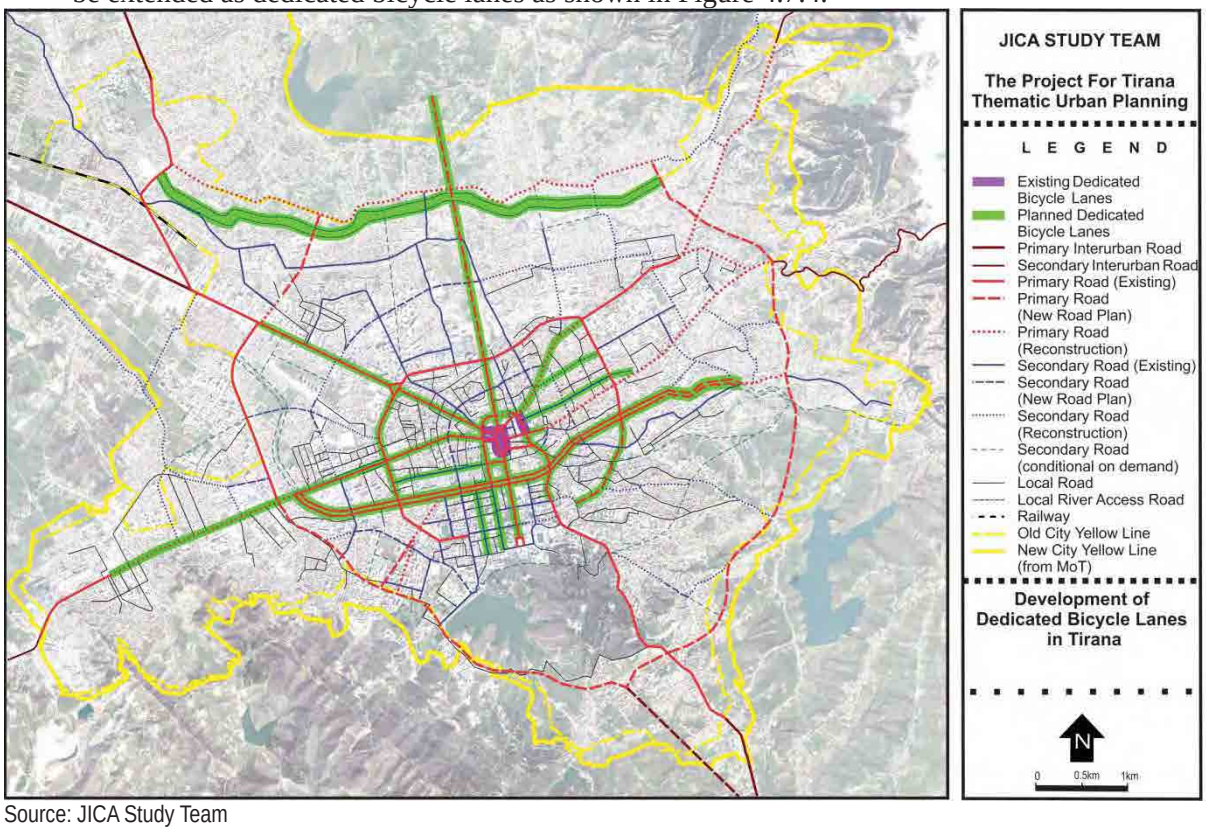
The current partial dedicated bus lanes should be extended more continuously on the urban primary roads to form a continuous, smooth network for buses, thereby serving as a BRT, as presented in Figure 4.7.3. By securing a relatively high operating speed, time schedule can also be foreseen, consequently reducing the waiting time, thereby attracting more passengers. It should also be noted that the dedicated bus line network will be a prototype of rail-based mass transit such as tramlines by converting the dedicated bus lanes to rail tracks when the demand grows in a longer term.



Source: JICA Study Team

Figure 4.7.3 Development of Dedicated Bus Lanes in Tirana

In addition, currently underused and fragmented bicycle lanes with physical separators need to be extended as dedicated bicycle lanes as shown in Figure 4.7.4.



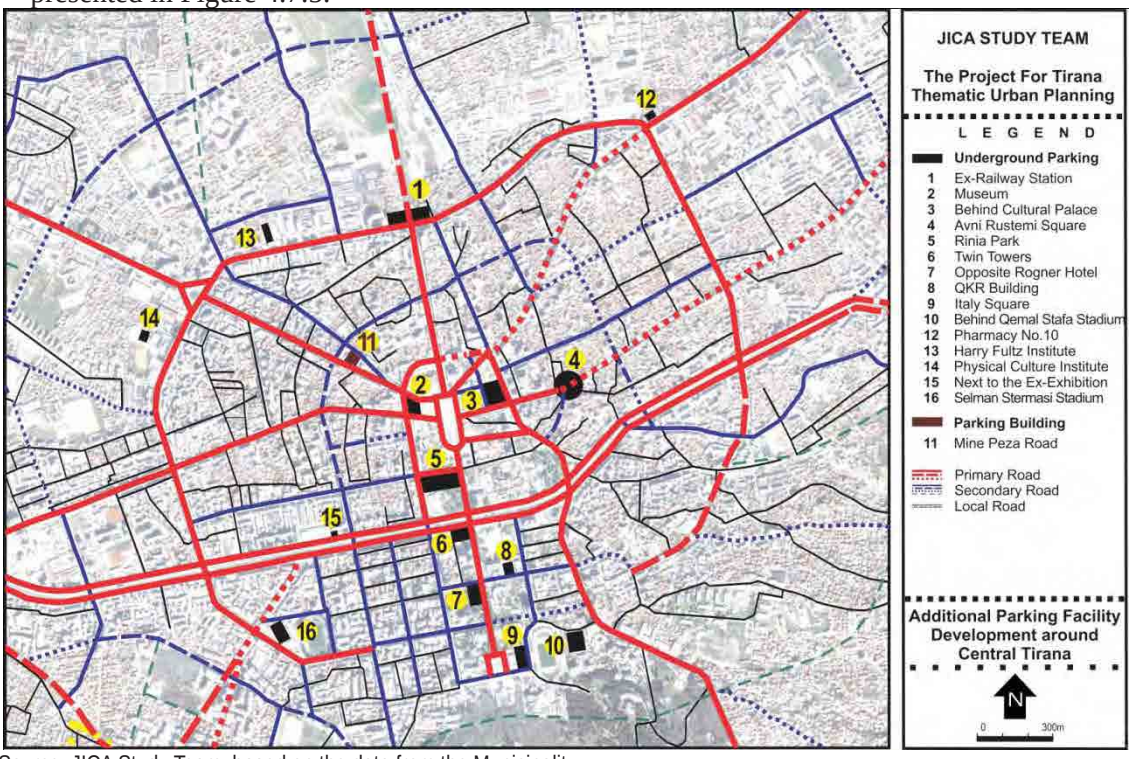
Source: JICA Study Team

Figure 4.7.4 Development of Dedicated Bicycle Lanes in Tirana

4.7.3 Parking System Development

(1) Additional Parking Facilities/Parking Information System

Under the situation of increasing automobiles and continuing reliance on private vehicles in Tirana, it is essential to increase the parking capacity in Tirana, especially in the CBD (inside the Middle Ring Road). Meanwhile, it is estimated that construction of additional parking facilities for 3,200 vehicles at the minimum is urgently necessary in the CBD to clear away the current on-street parking from the primary and secondary roads to utilize the road space for public transport and bicycles while maintaining the same traffic capacity. Particularly around the inner ring corridor area in which most of the roads are proposed to be pedestrian streets, additional parking facilities are proposed as underground parking and the locations are presented in Figure 4.7.5.



Source: JICA Study Team, based on the data from the Municipality

Figure 4.7.5 Additional Parking Facility Development around Central Tirana

When those additional parking facilities have been developed, a parking information system will be necessary, guiding car users to the most appropriate public and private parking lots along with parking availability information through information devices such as parking information signboards. It will also help to reduce on-street parking vehicles and queues waiting to enter parking facilities in the central area.

(2) Parking Pricing System

Current parking regulations, especially on on-street parking, need to be reassessed more drastically to guarantee a more efficient use of roads and to secure the rightful capacity of the proposed road network. Parking vehicles, whether they may be located on or off street, should be charged a fee, which is also expected to bring about considerable revenue for infrastructure investment. Furthermore, as the parking fees become higher, it will eventually deter private

vehicles from entering the CBD and shift to public transportation, and this situation can be relatively easily controlled. This concept is called parking pricing and is often utilized as an effective TDM policy. However, consideration must be given to the fact that business and commercial activities along the roads, especially in the CBD, may also benefit or suffer from any action or decision. Providing sufficient nearby off-street parking facilities (as mentioned above) as well as common on-street loading/unloading zones (to be explained later) should be the basis for this system.

4.7.4 Urban Traffic Control (UTC) Center

As the number of automobiles is rapidly increasing in Tirana, tit has become important to identify the bottlenecks responsible for traffic congestion using intelligent transportation systems (ITS), and to disperse traffic through optimal traffic signal control and the provision of traffic information.

For traffic management and control, Tirana is now proceeding with the "Tirana Operational Control Center (TOCC)" project financed by EBRD. The first step, which is currently under way, includes installation of closed-circuit television (CCTV) cameras at 23 locations and variable message signboards (VMS) at 6 locations as well as development of a traffic management control room (TOCC). Meanwhile, the second step is planned to include development of an Area Traffic Control System (ATCS) and installation of signals with vehicle detectors/sensors. Traffic conditions of the urban roads in Tirana should be comprehensively monitored as well.

4.8 Public Transport Development Plan

The growth of urbanization tends to change urban lifestyles and people's values for goods and services. In this context, public transport services should satisfy various types of demands in the city. For planning the public transport development in this Study, there are two major strategic projects that have been given by the Municipality of Tirana:

- Development of an intermodal transportation terminal along with relocation of Tirana railway station, and
- Development of two tramlines: east-west (Kinostudio – Kombinat) and north-south (Intermodal Transportation Terminal – Student City).

The public transport development is proposed to support the above core projects and to further expand the public transport network from aspects of tramlines development, bus transportation development, intermodal development, and commuter rail development. It is presented in Figure 4.8.1.

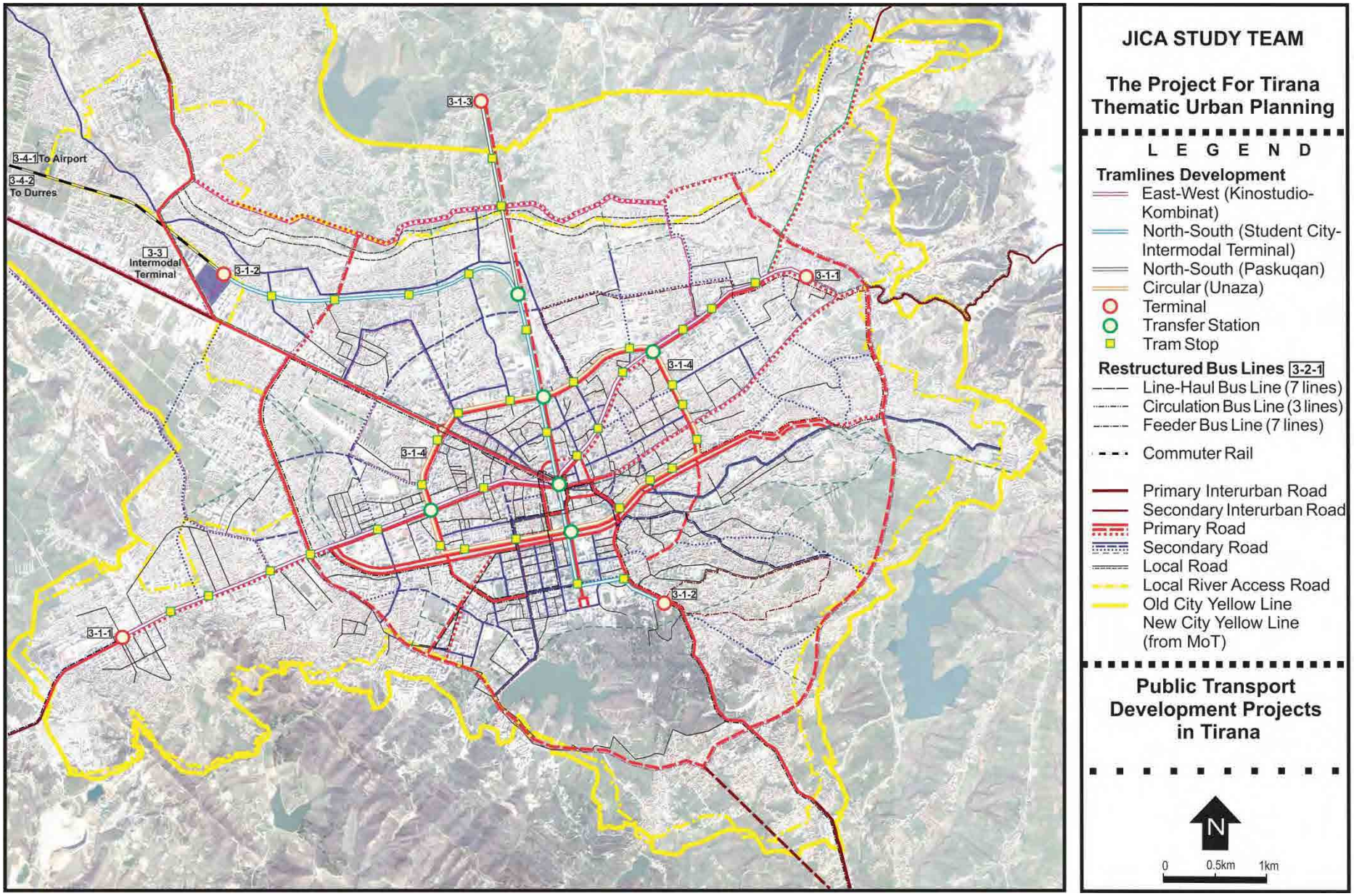


Figure 4.8.1 Public Transport Development Projects in Tirana

4.8.1 Tramlines Development

The Municipality of Tirana is planning to develop the above-mentioned tramlines as the core of the public transport network. High service frequency, punctuality, speed, comfort, affordability, consistent fare system, and intermodality of the tramlines are essential elements that attract not only the commuters who take the bus but also those who use private modes of transportation. Including the two aforementioned lines, the following four tramlines have been listed for public transport development to enhance the network utility:

- North-South Tramline (Intermodal Transportation Terminal – Student City): It is to support the new business and commercial activities along the north-south boulevard (Zogu I Boulevard) as well as to transport passengers between the planned Intermodal Transportation Terminal and the city center. This tramline should be connected at the center of Tirana (Skanderbeg Square) to the east-west tramline by taking over the existing passengers of the whole Uzina Dinamo e Re line.
- East-West Tramline (Kinostudio – Kombinat): It is to replace the existing line-haul bus line, namely Kinostudio – Kombinat line, which constitutes the axis that links the northeastern and southwestern areas of the city through the center with the second largest number of passengers (approx. 43,000 passengers/day).
- Extension of North-South Tramline (Paskuqan direction): Extension of the above north-south tramline matches with the new road development corridor with large-scale residential, industrial, commercial, and recreational developments planned by the Municipality. ROW of this line has been reserved in the staged north-south boulevard development though the details are not clear yet. The passenger demand volume on this line may be uncertain while it has the greatest potential to serve as the core of the transit-oriented development (TOD), which will allow high floor area ratios around the tram stations to induce intensive land use and development.
- Circular Tramline (Unaza): It is to replace the existing circular bus line, namely Unaza line, which is currently carrying the largest number of passengers (approx. 54,000 passengers/ day). Hence, a large passenger demand can be expected, bringing about an integrated effect with other north-south and east-west tramlines and resulting in formulation of a more comprehensive network.

New, comfortable, safe, and air-conditioned trams should be operated at least at the same intervals as the currently operated bus lines, namely, 4-7 minutes to avoid excessive, or long, waiting periods.

Furthermore, attention should also be paid to intermodal transfer functions between different transport modes, that is, between connecting (feeder) bus lines and tramlines, and between private transport modes and tramlines (i.e., Park & Ride system). For this, it is highly necessary to improve the transfer convenience levels of transport facilities by providing pedestrian walks, car and bicycle parking facilities, and station squares. Thus, the tramline terminal stations should serve as gateway stations to the CBD, and such intermodal developments should also be included in the cost for those tramline development projects to increase the ridership.

4.8.2 Bus Transportation Development

While the number of private vehicles has been rapidly increasing in Tirana, the improvement of the current level of bus services is urgently needed.

As mentioned earlier, the current on-street parking should be removed and the partial dedicated bus lanes should be extended more continuously on the urban primary roads to form a continuous, smooth network for buses, thereby serving as a BRT. By keeping stable bus operating speeds from heavy traffic, time schedule can also be foreseen, consequently reducing the waiting time and attracting more passengers. It should also be noted that the dedicated bus line network will be a prototype of rail-based mass transit such as tramlines by converting the dedicated bus lanes to rail tracks when the demand grows in a longer term.

As clear demarcation of serving passengers in Tirana and in the surrounding communes is becoming more complex and difficult, it is necessary to reconsider and rationalize the existing bus route structure, including the possibility of suburban feeder bus services as well as the possibility of a regional transportation management authority which covers the whole Tirana metropolitan area and the surrounding communes.

The bus routes should be categorized into three types from a planning point of view, namely: (1) line-haul bus services, (2) circulation bus services, and (3) feeder bus services. The existing bus route structure should be reconsidered in light of existing and future passenger demand patterns, core public transport system of the city, and coverage of population of the Tirana metropolitan area. New bus lines of type (3) should serve the planned tram stations to increase the ridership of the tramlines, thus enhancing the usage of the core public transport system. Meanwhile, it is recommended that new types of bus lines (i.e., (1) and (2)) should be introduced providing speedy, comfortable transport services with limited stops especially for corridors that are not served by rail-based transport.

Furthermore, for efficiently monitoring the bus services, the Study also proposes a bus location system where buses should be equipped with Global Positioning System (GPS) equipment so that the regulatory agency (operation center) can know the bus location and its operation speed based on the location of buses on routes. The system also provides bus operation information for bus operators and bus passengers. Particularly for bus passengers, the following guidance information should be provided at bus stops, on board the bus, via the internet, etc.:

- Static information: bus route map, time table, fare system; and
- Dynamic information: real-time bus location and operation information.

On the other hand, one aspect in public transport that discourages commuters from using the public transport system is the cumulative cost of the aggregate transfers, such as bus fares, which often negatively burdens especially low- and middle-income commuters. Reduction of the total public transport cost will lead to an increase in ridership. One possible way of reducing cost is by introducing a transfer discount ticket system between different bus (and future tram) operators. Applying a common ticket (or a smart card) system will greatly improve users' utility, as well.

4.8.3 Intermodal Transportation Terminal Development

As mentioned earlier, attention should also be paid to intermodal transfer functions between different transport modes, that is, between connecting (feeder) bus lines and tramlines, and between private transport modes and tramlines (i.e., Park & Ride system).

Since the tramlines are to serve as the core public transport network, intermodal transfer functions at tram stations should be improved to enhance transfer convenience for passengers from one public transport mode to another. The following measures deserve to be implemented for this purpose:

- Improve the user-friendliness of transport facilities by providing pedestrian walks, car and bicycle parking facilities, and other transport services;
- Enhance transfer convenience levels by improving physical conditions, such as shortening walking distances from tram to another mode, providing information on timetables and operational conditions, and providing station squares;
- Create safe and comfortable waiting spaces for transferring passengers; and
- Integrate the transportation fare system by introducing a transfer discount ticket system between tram and bus for convenient use of public transportation.

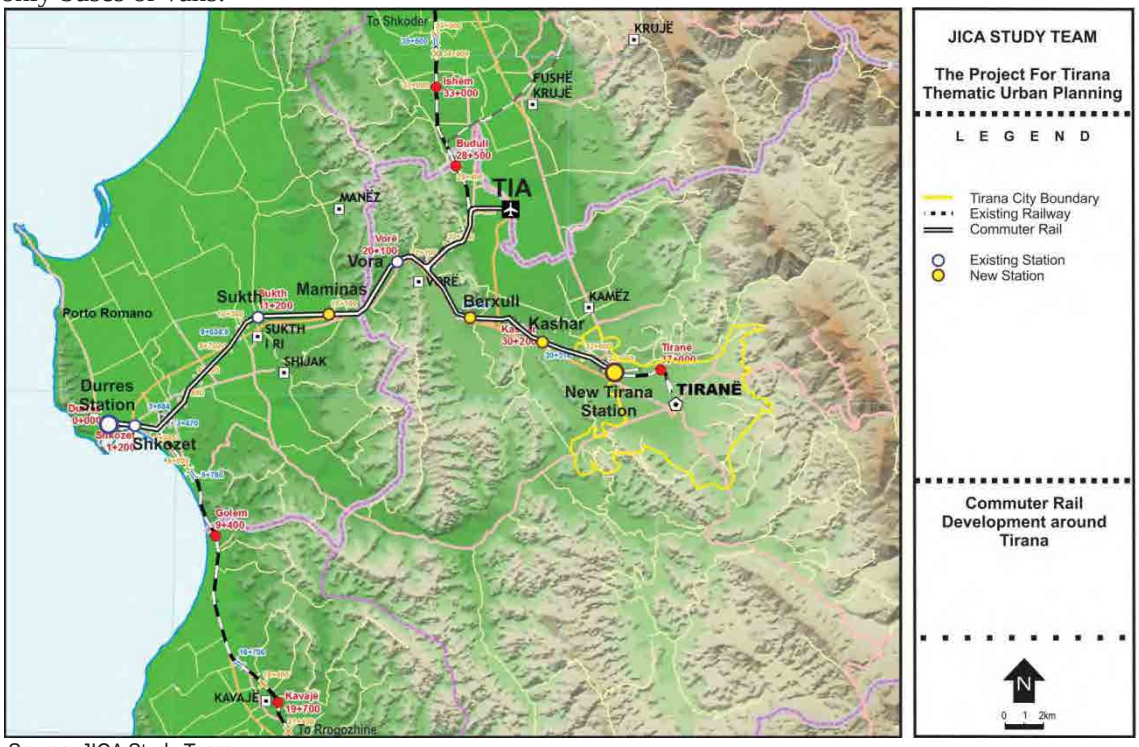
As an alternative to the feeder bus lines, a Park & Ride system could be used for station access. This is important especially where feeder bus services are not available due to distance or in thinly populated areas. This underscores the necessity of providing parking facilities near tram stations, especially at the tramline terminals. The major candidate stations with large-scale parking facilities are: Intermodal Transportation Terminal, Student City, Kinostudio, Kombinat, and Paskuqan Park, as indicated earlier in Figure 4.8.1. These stations will serve as gateway stations to the CBD, in which car or bicycle users can park their vehicles and take the commuter train to go to work, or for other trip purposes to the city center.

Since there is no integrated intercity bus terminal yet in Tirana, integration of the intercity and international bus and van lines into one terminal with proper facilities such as toilets, ticket windows, waiting rooms, shops, restaurants, taxi stands, and parking facilities is highly necessary, though it would be more practical to gradually shift vans to new, larger, air-conditioned buses. Thus, the new Intermodal Transportation Terminal should be developed in the location where the existing Tirana railway station is to be relocated (approx. 85,000m^2), as planned by the Municipality. All the intercity and international bus and van lines to the northern, western, and southwestern directions should be integrated into this terminal in order to help to prevent large vehicles from entering the CBD of Tirana. More importantly, the new terminal needs to be connected to the tramline and several city bus lines for smooth transfer to central Tirana or to other destinations.

Furthermore, introduction of new transit terminals where some city bus lines as well as other public transport meet and passengers can transfer or access by private vehicles should be realized. Among others, in the city center, a transit mall could be developed in the pedestrian streets inside the inner ring corridor, allowing only pedestrians and bicycles as well as public transportation vehicles to move more freely, attracting more passengers.

4.8.4 Commuter Rail Development

Rail-based transportation has a great potential for fast, reliable, and comfortable transportation services regardless of road traffic congestion. In accordance with the relocation of Tirana station to the Intermodal Transportation Terminal planned by the Municipality, this Study also proposes the improvement of the existing railway network to attract people who currently use private modes of transportation for intercity travel around Tirana and who are about to shift to private vehicles. As proposed in the Urban Regulatory Plan (2009), the improvement of existing railway lines up to Durres and the construction of new airport lines (Figure 4.8.2) will significantly enhance the usage of intercity passenger transportation which currently consists of only buses or vans.



Source: JICA Study Team

Figure 4.8.2 Proposed Commuter Rail Development around Tirana

The existing Tirana station is to be relocated to a New Tirana station for better operation of the commuter, long-distance, and freight trains. The existing Tirana station area will be redeveloped as part of the Tirana Main Boulevard extension (and Tirana River rehabilitation) project. On the other hand, the New Tirana station is to be integrated into the Intermodal Transportation Terminal, which will serve as a new multimodal hub including intercity bus and van services, city bus lines, and a tramline as well as taxis and parking facilities.

In addition, there is still room for improvement in the existing railway system including its infrastructure and facilities such as rolling stock, tracks, signaling/telecommunications, grade crossings, and electrification. In order to increase the existing railway passenger demand, it is necessary to provide enough attractive services in terms of frequency, compatibility, comfort, accessibility to stations, and intermodality with feeder bus and private vehicles. Improving the existing railway has a great advantage since new land acquisition is not much required. The necessary key improvements are as follows:

- Elevating part of the existing railway sections in Tirana to avoid grade crossings;
- Double-tracking and electrification of the existing railway for commuting services between Tirana and Durres;
- Increasing the maximum running speed to 120 km/h by replacing manual spacing of trains with an automatic block system and signaling system that can space the trains three minutes apart with a better level of safety for Tirana – Durres line. A centralized signal substation should also be developed in Tirana or in Durres to manage all the lines;
- Developing new commuter rail stations on the existing railway lines between Tirana and Vora/Durres;
- Improving/developing station squares and approach roads to provide easier access to the stations for all modes of transportation;
- Modernizing the train stations, especially the New Tirana station, as part of intermodality consisting of more appropriate track layouts and improvements of station facilities for better passenger services (e.g., information system, length, width and height of platforms);
- Constructing a railway link (approx. 2 km) between Vora – Shkodra line and TIA which will enable the direct operation from the New Tirana or Durres stations using the renovated existing line;
- Constructing a shortcut at Vora to directly connect Tirana and Shkodra (i.e., TIA) directions for continuous commuter train operation; and
- Purchasing high-performance electrified, self-propelled trains (EMU: Electrified Multiple Units) for the regular "commuter" services on the New Tirana – Durres and TIA lines.

The modernization of the infrastructure, improvement of operational conditions, along with investments in modern, high-performance trains will improve regular "commuter" services to/from Tirana, especially between Tirana and Durres and between Tirana/Durres and TIA. Significant travel time can be saved for passengers on this corridor.

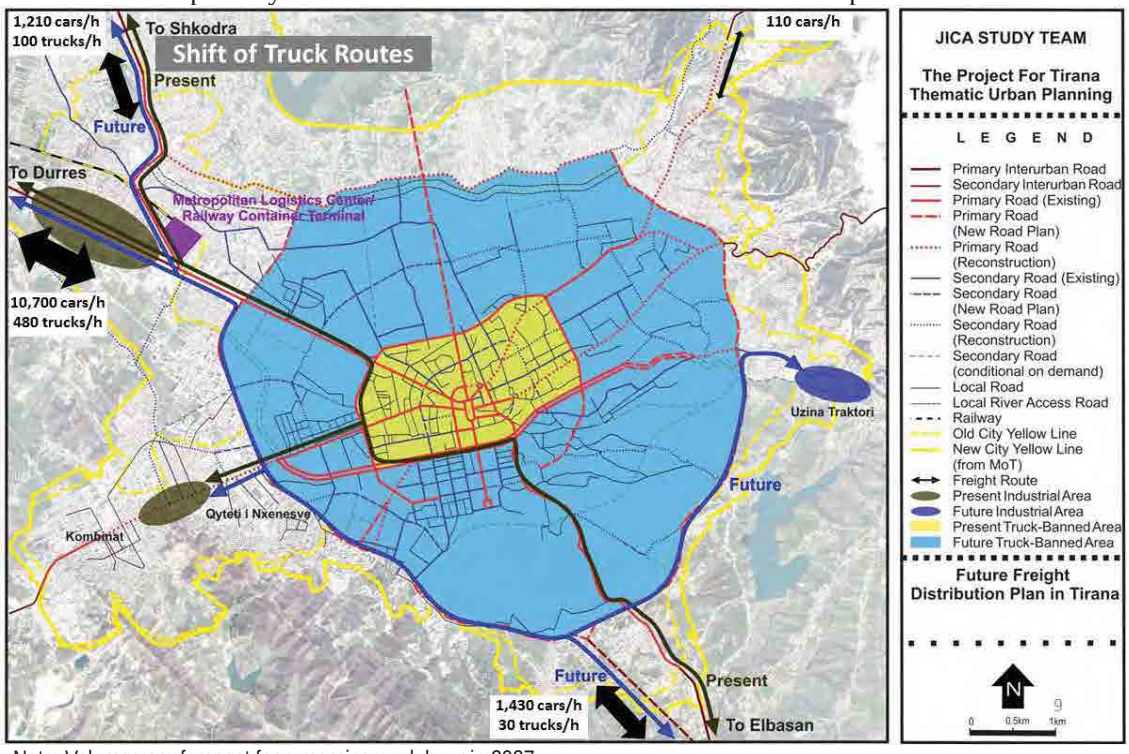
Enhancement of the overall public transport system entails not only improving the rail-based system but also ensuring that the surrounding land is used in such a way as to encourage the railway use. Both land use and transport infrastructures should be integrated under the Transit Oriented Development (TOD) concept, and the promotion of high-density commercial land use around stations will benefit both urban economy and business of the railway operator.

4.9 Freight Transportation System

To ensure smoother freight distribution and truck traffic, future truck routes in Tirana are proposed in light of the existing and planned industrial estates and the road developments, as seen in Figure 4.9.1. Future car and truck volumes that will pass the major boundaries of the Tirana metropolitan area are also projected for 2027 and shown in the figure. While Tirana Bypass is planned outside the study area in ANTP2, those volumes basically match with the traffic volume projections in ANTP2.

The future truck network will be based on the primary roads, which will also serve nearby industrial estates. It will also provide an alternative truck route which will skirt around central Tirana and prevent mixing of freight with other vehicles on other roads.

It should be noted that the Outer Ring Road will serve not only the industrial estates but also freight traffic between Durres and Elbasan. Though the current volume is small, in near future, more and more trucks transporting between Durres and direction of Elbasan and eastwards on the Pan-European Transport Corridor VIII are expected to shift to a faster route through Tirana after the new primary interurban road/tunnel to Elbasan has been completed.



Note: Volumes are forecast for a morning peak hour in 2027.
Source: JICA Study Team

Figure 4.9.1 Future Freight Distribution Plan in Tirana

Thus, after the Outer Ring Road has been completed, it is better to expand the current truck-banned area (excluding vehicles with a 3.5-ton or lower loading capacity) inside the middle corridor to the area inside the outer ring corridor by designating the Outer Ring Road as a freight route. In the daytime, it could be served by smaller trucks dispatched from a "metropolitan logistic center" that is described below. Even if smaller trucks are allowed to enter the truck-banned area in the daytime, reduction of those goods distributing trucks should be minimized by providing common goods disposal facilities on/off the streets.

Furthermore, a truck terminal, as a "metropolitan logistic center" to distribute goods to many places in Tirana, should be developed somewhere along the primary road, especially on the freight transport (Durres-Elbasan) corridor. For this, since the development of an intermodal transportation terminal along with relocation of Tirana railway station has already been planned by the Municipality with approximately 85,000 m^2 of available land, it could be integrated with the railway infrastructure and developed in this location.

Thus, New Tirana station should also be reformed as a container terminal, since it has enough land space for a new railway marshaling yard. In this project, the New Tirana station also needs to be equipped with freight handling facilities. All containers designated to be transported to Durres Port or other destinations in Albania by railway should be brought to this terminal by

truck and then arranged for long-haul trips using container handling equipment such as stacker or a rubber-tired gantry crane (RTG crane). This space should be enough to arrange trains with freight wagons designed to carry 40-ft containers.

4.10 Organizational and Institutional Arrangements

4.10.1 Establishment of a Transportation Authority

Establishment of a new agency, such as a transportation authority, is strongly recommended to make consistent a metropolitan-wide transportation system development plan and to manage transportation demand in the Tirana metropolitan area. However, if it needs time to establish such a new agency, a planning commission is to be established to pursue the tasks in short term. The Study recommends establishing a transportation authority for the Tirana metropolitan area in the short term and to envisage the next step to be the establishment of an urban development authority.

(1) Tirana Transportation Planning Commission

The Tirana Transportation Planning Commission is set up under the direction of the central ministries, consisting of transport-related personnel from local governments including the Municipality of Tirana. This executive body shall consist of heads of respective local governments, as well as representatives from the ministries, such as the Ministry of Public Works and Transport and the National Territorial Planning Agency. Its main functions are:

- To coordinate respective transportation planning and studies at local governments into an integrated metropolitan transportation plan;
- To conduct research and survey, among others, a more comprehensive household travel survey which will collect information of all trips on a weekday in the metropolitan Tirana area, for transportation planning; and
- To review and update the integrated metropolitan transportation plan including this Study and manage the data and the planning methodology acquired through the Study.

A permanent secretariat including technical experts should be set up to support the commission and carry out daily operations. Funding for the commission and the personnel shall be in the form of contribution by the commission members.

(2) Metropolitan Tirana Transportation Authority

A Metropolitan Tirana Transportation Authority is established as an independent public corporation which has main accountability to the public, not only to the central or local governments. The authority would be endorsed by government law to stand as an independent public corporation. It oversees all land transportation issues and has main responsibilities for the following:

- To formulate metropolitan transportation policies;
- To formulate integrated transportation planning, including road network development, public transport development, TCMs, and urban transportation system management;
- To implement the integrated transportation planning and programs especially to realize the bus route restructuring for the Tirana metropolitan area;
- To issue licenses and control public transportation with bus operation license, public

transport business license, terminal or station development permission, and so on;

- To regulate public transport services such as tram, bus, and so on;
- To support development of interurban road network; and
- To carry out TDMs such as parking pricing.

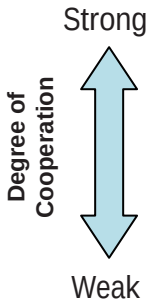
The Transportation Authority would be operated by the revenue from transportation business such as public transport fares and parking charges or subsidy from the central and local governments. As an independent corporation, however, its primary task is to achieve and maintain financial sustainability, and it should be underlined that a disclosure of financial status is one of the most important aspects to secure its position as a public corporation offering public services to users in the Tirana metropolitan area. As a public corporation, it could also raise fund from the capital market by issuing corporate bonds.

(3) Cooperation between Public Transport Operators

The establishment of such a metropolitan transportation authority may be difficult for various reasons. However, for coordination of different city and commune bus lines for the Tirana metropolitan area and for an integrated fare system, examples that are often applied in the cities of Germany may be useful. Examples of cooperation between public transport operators in the metropolitan regions in Germany are presented in Table 4.10.1.

Examples of transport federation (*Verkehrsverbund*), which is the strongest in the degree of cooperation, are observed in Hamburg, Berlin, etc. It is one form of transportation authority that focuses only on cooperation in public transport operation and its planning. It aims at realizing comprehensive public transportation systems that the citizens are attracted to by forming an alliance among transport operators. Its main task is to work cooperatively on route planning, common fare system, timetable scheduling, service level, marketing, financing, etc. based on the citizens' needs. Thus, a number of public transportation issues shall be resolved based on consensus with stakeholders including the citizens.

Table 4.10.1 Examples of Cooperation between Public Transport Operators in Germany



Type of Cooperation	Common Tariff	Bus Line Planning	Schedule Planning	Remarks
Transport Federation	Yes	Yes	Yes	Legally independent body with revenue
Transport Alliance	Yes	Yes	Yes	Managed by transport operators
Tariff Alliance	Yes	No	Cooperation	Sharing revenues based on prior agreement
Partial Cooperation	No	No	Cooperation	Various cooperation as the need arises

Source: JICA Study Team, based on (Knieps, 2009) and (Krause, 2009)

4.10.2 Private Sector Involvement in Transportation Development

Public transportation enterprises such as Albanian Railways (HSH: Hekurudha Shqiptare), a state-owned railway company, should be rationalized. Particularly, if the aforementioned commuter rail development is to be implemented, an independent enterprise should be established for the commuter rail operation. Although privatization is yet to be discussed

further, the rationalization and efficiency of the railway business are the conditions for the private-sector participation.

Furthermore, regulations on private investment in transportation sector should be reviewed and modified to provide a sound investment environment for the private sector in transportation business. This also includes provision of development rights to private investors in the surrounding area of railway or tram stations, making it possible to internalize the development benefits of transportation system development. This may relieve the financial burden of the investors, and could promote the transportation business with a view to overcoming financial problems. However, it should be done in a well-planned and controlled manner consistent with the land use plan. The role and responsibility sharing system between the public and private sectors should also be clearly determined.

4.11 Listing of Priority Actions/Projects

Although the most crucial criterion is economic feasibility of the investment, it is not an easy task to economically evaluate all the projects over different sub-sectors. Thus, the projects are evaluated by quantitative and qualitative measures through a multi-criteria analysis. The evaluation criteria are set forth in Table 4.11.1.

Table 4.11.1 Evaluation Criteria

Evaluation Criteria	Note
Coherence with Visions	Although all proposed projects must be relevant to the visions and planning objectives for developing Tirana, the current strategic project designated by the Municipality to achieve the visions should be given a priority.
Urgency	Projects that are expected to contribute to the urgent transportation issues should be given a priority.
Necessity	All proposed projects are considered based on needs of the citizens. However, projects that can more widely and more greatly respond to people's needs may be given a priority. As a proxy for the population of beneficiaries, future transportation demand for each project may be used.
Implicit Feasibility	Socioeconomic, technical, and institutional feasibilities need to be considered for prioritization, because these factors are closely related to the implementability and sustainability of a project. This criterion is not necessarily tangible but implicit. For roads, projects that are expected to greatly relieve the present/future traffic congestion may be given a priority.
Social Acceptance	Projects which are accepted by all people may be given a priority. However, there are some projects that are highly necessary for the society, but not welcomed by citizens, for example, restructuring of tariff structure for public services such as bus fare. A priority shall be considered in balance between both sides of needs. Plans that have been widely recognized in the previous Regulatory Plan of 1989 are given a priority.

Source: JICA Study Team

Each project is evaluated with a scoring method, referring to these five criteria explained above, as shown in Table 4.11.2. A plus sign (+) is marked for a criterion that is met by a project, and it is equivalent to one point. Thus, the total score of each project is calculated. No weighted point system is applied at this stage. Basically, road or tramline development projects with three points or more and other projects with two points or more are prioritized as short-term projects.

Thus, phasing of the projects has been made based on the scores, as shown in the right columns

of Table 4.11.2. Development terms (i.e., short, medium, and long terms) indicate the starting period of projects. Prospective priority projects and action plans in the road and urban transportation sector are also listed as short-term projects. Furthermore, considering the cost, necessary work period, and sequences of the projects, a realistic implementation schedule of the projects has been studied and presented in Table 4.11.3.

Table 4.11.2 Scoring Priority Evaluation for Proposed Projects

Proposed Projects			Coherence with Visions		Urgency		Necessity (Future Demand*)		Implicit Feasibility		Social Acceptance		Total score	Project Schedule		
														Short	Medium	Long
RUT-1	Road Development Plan															
RUT-1-1	Northern Extension of the Main Boulevard															
RUT-1-1-1	Northern Extension of the Main Boulevard - Part 1		+	Ongoing			+	6,100	+	0.59			3	●		
RUT-1-1-2	Northern Extension of the Main Boulevard - Part 2		+	Strategic				900		0.09			1		●	
RUT-1-2	Development of Outer Ring Road															
RUT-1-2-1	Development of Outer Ring Road - South Section		+	Ongoing	+	Priority zoning	+	2,500		0.25			3	●		
RUT-1-2-2	Development of Outer Ring Road - North Section (with River Access Road)		+	Strategic	+	Priority zoning	+	6,200	+	0.60			4	●		
RUT-1-2-3	Development of Outer Ring Road - East Section				+	Priority zoning		1,100		0.11			1		●	
RUT-1-3	Development of Inner/Middle Ring Roads															
RUT-1-3-1	Development of Inner Ring Road				+	Priority zoning	+	18,100		1.31	+		3	●		
RUT-1-3-2	Development of Intermediate Ring Road						+	4,000		0.89	+		2		●	
RUT-1-3-3	Development of Middle Ring Road				+	Priority zoning	+	3,300		0.65	+		3	●		
RUT-1-4	Development of Radial Roads															
RUT-1-4-1	Development of Radial Road: Dibra Road		+	Strategic	+	Tramway	+	3,400		0.49	+		4	●		
RUT-1-4-2	Development of Radial Road: Hoxha Tahsim & Xhanfize Keko Road				+	Bus lane	+	4,500	+	0.66	+		4	●		
RUT-1-4-3	Development of Radial Road: Komuna e Parisit & Medar Shtylla Road				+	Bus lane	+	2,100	+	0.31	+		4	●		
RUT-1-4-4	Development of Radial Road: Aleksander Moisiu Road		+	Strategic	+	Tramway	+	3,100		0.46	+		4	●		
RUT-1-4-5	Development of Radial Road: Ali Shefqeti Road						+	3,200		0.76	+		2		●	
RUT-1-4-6	Development of Radial Road: Myslym Keta Road							1,900	+	0.33	+		2		●	
RUT-1-4-7	Development of Radial Road: Kavaja Road		+	Strategic	+	Tramway	+	12,700		1.42	+		4	●		
RUT-1-5	Development of Other Secondary Roads															
RUT-1-5-1	Development of Secondary Roads: CBD Area							1,200	+	0.52	+		2		●	
RUT-1-5-2	Development of Secondary Roads: Northern Area						+	3,000	+	0.71	+		3	●		
RUT-1-5-3	Development of Secondary Roads: Eastern Area						+	2,700		0.63			1		●	
RUT-1-5-4	Development of Secondary Roads: Southeastern Area						+	2,100		0.47			1		●	
RUT-1-5-5	Development of Secondary Roads: Southwestern Area						+	2,000		0.54	+		2		●	
RUT-1-5-6	Development of Secondary Roads: Western Area						+	4,100		0.91	+		2		●	
RUT-1-5-7	Development of Secondary Roads: Outer Western Area						+	3,300		0.73	+		2		●	
RUT-1-5-8	Development of Secondary Roads: Northeastern Area							700		0.22			0			●
RUT-1-6	Improvement of Bottleneck Intersections															
RUT-1-6-1	Improvement of Bottleneck Intersection: Dibra Road				+	Bottleneck	+	4,000	+	1.18	+		4	●		
RUT-1-6-2	Improvement of Bottleneck Intersection: Hoxha Tahsim Road				+	Bottleneck	+	3,000	+	0.88	+		4	●		
RUT-1-6-3	Improvement of Bottleneck Intersection: Elbasan Bridge				+	Bottleneck	+	5,400	+	1.04	+		4	●		
RUT-1-6-4	Improvement of Bottleneck Intersection: Vasil Shanto Bridge				+	Bottleneck	+	6,200	+	1.22	+		4	●		
RUT-1-6-5	Improvement of Bottleneck Intersection: Myslym Shyri Road				+	Bottleneck	+	3,200	+	0.93	+		4	●		
RUT-2	Transportation Control Measures (TCM)															
RUT-2-1	Development of Pedestrian Streets/Traffic Cell System															
RUT-2-1-1	Pedestrian Streets/"Traffic Cell System" inside Inner Ring Road								+				1		●	
RUT-2-1-2	Pedestrian Streets/"Traffic Cell System" in Blok District								+		+		2	●		
RUT-2-1-3	Pedestrian Facility Development for Better Environment				+	Pedestrian Safety			+		+		3	●		
RUT-2-2	Development of Bus/Bicycle Priority System															
RUT-2-2-1	Development of Dedicated Bus Lanes								+		+		2	●		
RUT-2-2-2	Development of Bicycle Lanes								+		+		2	●		
RUT-2-3	Parking System Development															
RUT-2-3-1	Development of Parking Facilities/Parking Information System				+	Parking problems			+		+		3	●		
RUT-2-3-2	Parking Pricing System in CBD				+	Parking problems			+				2	●		
RUT-2-4	Development of Urban Traffic Control (UTC) Center		+	Ongoing					+		+		3	●		
RUT-3	Public Transport Development Plan															
RUT-3-1	Tramlines Development															
RUT-3-1-1	East-West (Kinostudio-Kombinat) Tramline Development		+	Strategic			+	16,100			+		3	●		
RUT-3-1-2	North-South (Student City-Intermodal Terminal) Tramline Development		+	Strategic			+	15,000			+		3	●		
RUT-3-1-3	North-South (Paskuqan) Tramline Development							3,700					0			●
RUT-3-1-4	Unaza (Circular) Tramline Development						+	10,700			+		2		●	
RUT-3-2	Bus Transportation Development															
RUT-3-2-1	Restructruring City/Commune Bus Lines				+	Bus lane			+		+		3	●		
RUT-3-2-2	Transit Mall Development in the Center								+				1		●	
RUT-3-2-3	Bus Location System Development								+		+		2	●		
RUT-3-3	Intermodal Transportation Terminal Development															
RUT-3-3-1	Relocation of Tirana Railway Station		+	Strategic							+		2	●		
RUT-3-3-2	Intercity Bus Terminal Development		+	Strategic					+		+		3	●		
RUT-3-4	Commuter Rail Development															
RUT-3-4-1	Airport Rail Link Development										+		1		●	
RUT-3-4-2	Tirana-Durres Commuter Railway Development										+		1		●	
RUT-4	Freight Transportation System															
RUT-4-1	Truck Ban Expansion/Truck Unloading Area										+		1		●	
RUT-4-2	Metropolitan Logistic Center Development										+		1		●	
RUT-4-3	Railway Container Terminal Development										+		1		●	
RUT-5	Organizational and Institutional Arrangements															
RUT-5-1	Establishment of Metropolitan Tirana Transportation Authority															
RUT-5-1-1	Establishment of Tirana Transportation Planning Commission								+		+		2	●		
RUT-5-1-2	Household Travel Survey for Tirana Metropolitan Area								+		+		2	●		
RUT-5-1-3	Review and Update of Integrated Transportation Master Plan								+		+		2	●		
RUT-5-1-4	Shift to Metropolitan Tirana Transportation Authority								+		+		2	●		
RUT-5-2	Institutional Setup															
RUT-5-2-1	Study on Private Sector Involvement in Transportation								+		+		2	●		
RUT-5-2-2	Preparation of Laws, Bylaws, Regulations, etc., for Private Sector Involvement								+		+		2	●		

Note: * For road, unit is PCU/3 hours/direction in 2027, and projects of which volume is over 2,000 are given a point.
For tram, unit is persons/hour/2 directions, and projects of which volume is over 10,000 are given a point.

Source: JICA Study Team

Table 4.11.3 Implementation Schedule for Road and Urban Transportation Sector

Proposed Projects			Short-term					Mid-term					Long-term				
			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
RUT-1	Road Development Plan																
	RUT-1-1	Northern Extension of the Main Boulevard															
		RUT-1-1-1 Northern Extension of the Main Boulevard - Part 1		■	■												
		RUT-1-1-2 Northern Extension of the Main Boulevard - Part 2							■	■							
	RUT-1-2	Development of Outer Ring Road															
		RUT-1-2-1 Development of Outer Ring Road - South Section	■	■	■												
		RUT-1-2-2 Development of Outer Ring Road - North Section (with River Access Local Road)			■	■	■	■									
		RUT-1-2-3 Development of Outer Ring Road - East Section						■	■	■	■	■					
	RUT-1-3	Development of Inner/Middle Ring Roads															
		RUT-1-3-1 Development of Inner Ring Road	■	■													
		RUT-1-3-2 Development of Intermediate Ring Road						■	■	■							
		RUT-1-3-3 Development of Middle Ring Road		■	■												
	RUT-1-4	Development of Radial Roads															
		RUT-1-4-1 Development of Radial Road: Dibra Road	■	■	■												
		RUT-1-4-2 Development of Radial Road: Hoxha Tahsim & Xhanfize Keko Road			■	■	■										
		RUT-1-4-3 Development of Radial Road: Komuna e Parisit & Medar Shtylla Road		■	■	■											
		RUT-1-4-4 Development of Radial Road: Aleksander Moisiu Road				■	■										
		RUT-1-4-5 Development of Radial Road: Ali Shefqeti Road							■	■							
		RUT-1-4-6 Development of Radial Road: Myslym Keta Road							■	■							
		RUT-1-4-7 Development of Radial Road: Kavaja Road	■	■	■												
	RUT-1-5	Development of Other Secondary Roads															
		RUT-1-5-1 Development of Secondary Roads: CBD Area						■	■	■	■	■					
		RUT-1-5-2 Development of Secondary Roads: Northern Area		■	■	■											
		RUT-1-5-3 Development of Secondary Roads: Eastern Area						■	■	■	■	■					
		RUT-1-5-4 Development of Secondary Roads: Southeastern Area										■	■	■			
		RUT-1-5-5 Development of Secondary Roads: Southwestern Area						■	■	■	■	■					
		RUT-1-5-6 Development of Secondary Roads: Western Area						■	■	■	■	■					
		RUT-1-5-7 Development of Secondary Roads: Outer Western Area						■	■	■							
		RUT-1-5-8 Development of Secondary Roads: Northeastern Area											■	■	■	■	■
	RUT-1-6	Improvement of Bottleneck Intersections															
		RUT-1-6-1 Improvement of Bottleneck Intersection: Dibra Road	■														
		RUT-1-6-2 Improvement of Bottleneck Intersection: Hoxha Tahsim Road	■														
		RUT-1-6-3 Improvement of Bottleneck Intersection: Elbasan Bridge	■														
		RUT-1-6-4 Improvement of Bottleneck Intersection: Vasil Shanto Bridge		■													
		RUT-1-6-5 Improvement of Bottleneck Intersection: Myslym Shyri Road		■													
RUT-2	Transportation Control Measures (TCM)																
	RUT-2-1	Development of Pedestrian Streets/Traffic Cell System															
		RUT-2-1-1 Pedestrian Streets/"Traffic Cell System" inside Inner Ring Road							■	■	■						
		RUT-2-1-2 Pedestrian Streets/"Traffic Cell System" in Bllok District			■	■											
		RUT-2-1-3 Pedestrian Facility Development for Better Environment		■	■	■											
	RUT-2-2	Development of Bus/Bicycle Priority System															
		RUT-2-2-1 Development of Dedicated Bus Lanes		■	■	■	■	■	■	■							
		RUT-2-2-2 Development of Bicycle Lanes		■	■	■	■	■	■	■	■	■					
	RUT-2-3	Parking System Development															
		RUT-2-3-1 Development of Parking Facilities/Parking Information System	■	■	■	■	■	■	■	■	■						
		RUT-2-3-2 Parking Pricing System in CBD		■	■	■											
	RUT-2-4	Development of Urban Traffic Control (UTC) Center	■	■	■												
RUT-3	Public Transport Development Plan																
	RUT-3-1	Tramlines Development															
		RUT-3-1-1 East-West (Kinostudio-Kombinat) Tramline Development		■	■	■	■										
		RUT-3-1-2 North-South (Student City-Intermodal Terminal) Tramline Development					■	■	■	■							
		RUT-3-1-3 North-South (Paskuqan) Tramline Development											■	■	■		
		RUT-3-1-4 Unaza (Circular) Tramline Development							■	■	■	■					
	RUT-3-2	Bus Transportation Development															
		RUT-3-2-1 Restructruring City/Commune Bus Lines	■	■				■	■		■	■	■	■			
		RUT-3-2-2 Transit Mall Development in the Center							■	■	■						
		RUT-3-2-3 Bus Location System Development		■	■												
	RUT-3-3	Intermodal Transportation Terminal Development															
		RUT-3-3-1 Relocation of Tirana Railway Station		■	■												
		RUT-3-3-2 Intercity Bus Terminal Development	■	■	■												
	RUT-3-4	Commuter Rail Development															
		RUT-3-4-1 Airport Rail Link Development						■	■	■	■	■					
		RUT-3-4-2 Tirana-Durres Commuter Railway Development						■	■	■	■	■					
RUT-4	Freight Transportation System																
	RUT-4-1	Truck Ban Expansion/Truck Unloading Area								■	■						
	RUT-4-2	Metropolitan Logistic Center Development						■	■								
	RUT-4-3	Railway Container Terminal Development							■	■	■						
RUT-5	Organizational and Institutional Arrangements																
	RUT-5-1	Establishment of Metropolitan Tirana Transportation Authority															
		RUT-5-1-1 Establishment of Tirana Transportation Planning Commission		■	■	■											
		RUT-5-1-2 Household Travel Survey for Tirana Metropolitan Area		■													
		RUT-5-1-3 Review and Update of Integrated Transportation Master Plan			■	■											
		RUT-5-1-4 Shift to Metropolitan Tirana Transportation Authority			■	■	■										
	RUT-5-2	Institutional Setup															
		RUT-5-2-1 Study on Private Sector Involvement in Transportation			■	■											
		RUT-5-2-2 Preparation of Laws, Bylaws, Regulations, etc., for Private Sector Involvement			■	■	■										

Source: JICA Study Team

4.12 Master Plan Costs

4.12.1 Cost Estimate

The preliminary cost of the Master Plan for the road and urban transportation sector has been estimated taking into account the above-mentioned implementation schedule of the proposed projects.

Fund requirement for the Master Plan is summarized in Table 4.12.1 and Figure 4.12.1, including capital investment costs and operation and maintenance costs during the period from 2013 to 2027. An amount of 197 billion ALL is required for the period between 2013 and 2027 in market prices of May 2012 excluding inflation, of which 178 billion ALL and 20 billion ALL are required for the investment and for the operation and maintenance, respectively. The road development requires the highest cost amounting to 90 billion ALL, or 45% of the total cost. The public transport development including the tramlines development and the intermodal transportation terminal development requires 79 billion ALL. Road and public transport developments including TCMs account for 97% of the total cost.

From the viewpoint of the timing of cost distribution, 32%, 57% and 11% of the total cost need to be allocated in the short-term period until 2017, the intermediate period (2018-2022) and the long-term period (2023-2027), respectively, as shown Table 4.12.2. Annual distribution of the Master Plan cost is indicated in Figure 4.12.1.

The share of the Master Plan cost accounts for 2.0% of the GRDP of the Tirana region[1] throughout the period from 2013 to 2027. The cumulative GRDP is estimated at 9,697 billion ALL at 2012 constant prices for the period from 2013 to 2027 based on the socioeconomic framework assumed in this Study.

Table 4.12.1 Road and Urban Transportation Master Plan Cost (2013-2027)

[Unit: million ALL]

Sub-Sector	Investment Cost	Operation and Maintenance Cost	Total	Share
Road Development	87,620	2,090	89,711	45%
Transportation Control Measures (TCMs)	14,901	8,571	23,472	12%
Public Transport Development	71,726	7,235	78,961	40%
Freight Transportation Development	2,590	295	2,885	1%
Organizational and Institutional Arrangements	1,006	1,407	2,413	1%
Total	177,843	19,599	197,442	100%

Note: The cost is estimated at 2012 market prices, and price escalation is not included.
Source: JICA Study Team

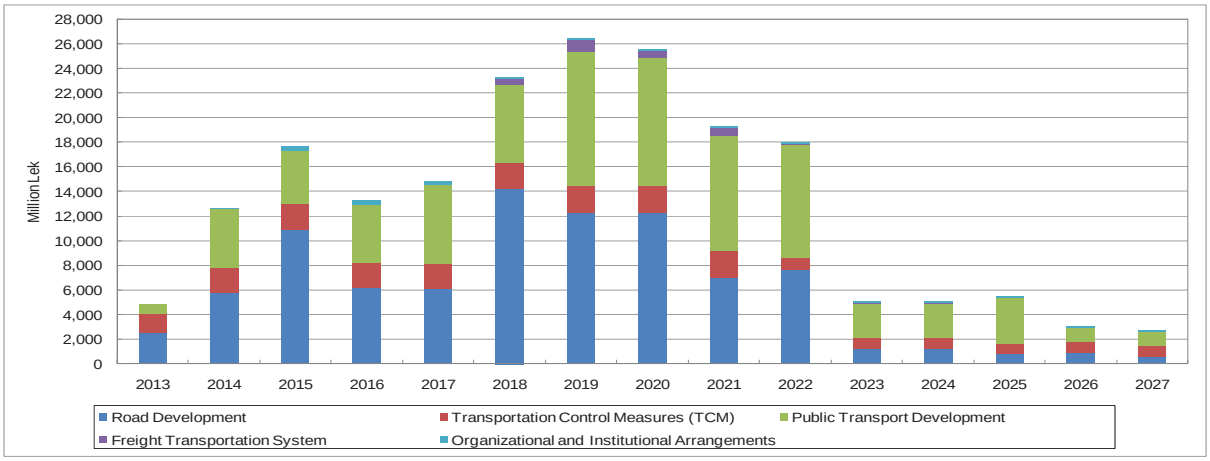
[1] Source: Institute of Statistics

Table 4.12.2 Road and Urban Transportation Master Plan Cost by Development Term

[Unit: million ALL]

Sub-Sector	Development Term			
	Short Term (2013-2017)	Medium Term (2018-2022)	Long Term (2023-2027)	Total
Road Development	31,494	53,322	4,894	89,711
Transportation Control Measures (TCMs)	9,692	9,697	4,083	23,472
Public Transport Development	21,048	46,316	11,596	78,961
Freight Transportation Development	0	2,683	202	2,885
Organizational and Institutional Arrangements	1,044	684	684	2,413
Total (%)	63,279 32%	112,703 57%	21,459 11%	197,442 100%

Source: JICA Study Team



Source: JICA Study Team

Figure 4.12.1 Annual Cost of Master Plan (2013-2027)

4.12.2 Funding Allocation

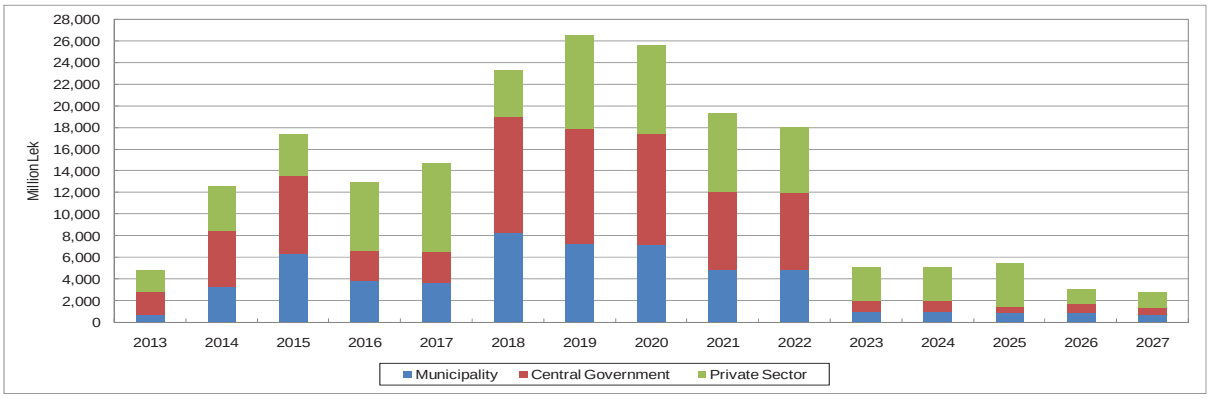
Taking into consideration the private sector involvement, the funding allocation for the Master Plan is estimated by public/private sector as shown in Table 4.12.3. Annual funding allocation by public/private sector is presented in Figure 4.12.2. Total Master Plan cost amounts to 197 billion ALL, of which 72 billion ALL, or 36% of the total cost, could be reduced from the total cost burden with the introduction of private initiative development. Consequently, the funding requirement of the public sector for the implementation of the Master Plan is estimated at 126 billion ALL at 2012 market prices excluding inflation for the period 2013-2027. The funding requirement of the Municipality for the Master Plan is estimated at 55 billion ALL, or 28% of the total cost.

Table 4.12.3 Cost Allocation for Master Plan by Public/Private Sector (2013-2027)

[Unit: million ALL]

Sub-Sector	Public Sector (Municipality)	Public Sector (Central Gov't)	Private Sector	Total MP Cost
Road Development	46,839	42,872	0	89,711
Transportation Control Measures (TCMs)	4,114	0	19,358	23,472
Public Transport Development	2,580	24,015	52,366	78,961
Freight Transportation Development	859	2,026	0	2,885
Organizational and Institutional Arrangements	165	2,248	0	2,413
Total (%)	54,556 28%	71,162 36%	71,724 36%	197,442 100%

Source: JICA Study Team



Source: JICA Study Team

Figure 4.12.2 Annual Cost Allocation for Master Plan by Public/Private Sector (2013-2027)

5. Solid Waste Management Plan

5.1 Present Status of Waste Management in MOT

5.1.1 Current activities of waste management in MOT are summarized in the following paragraphs.

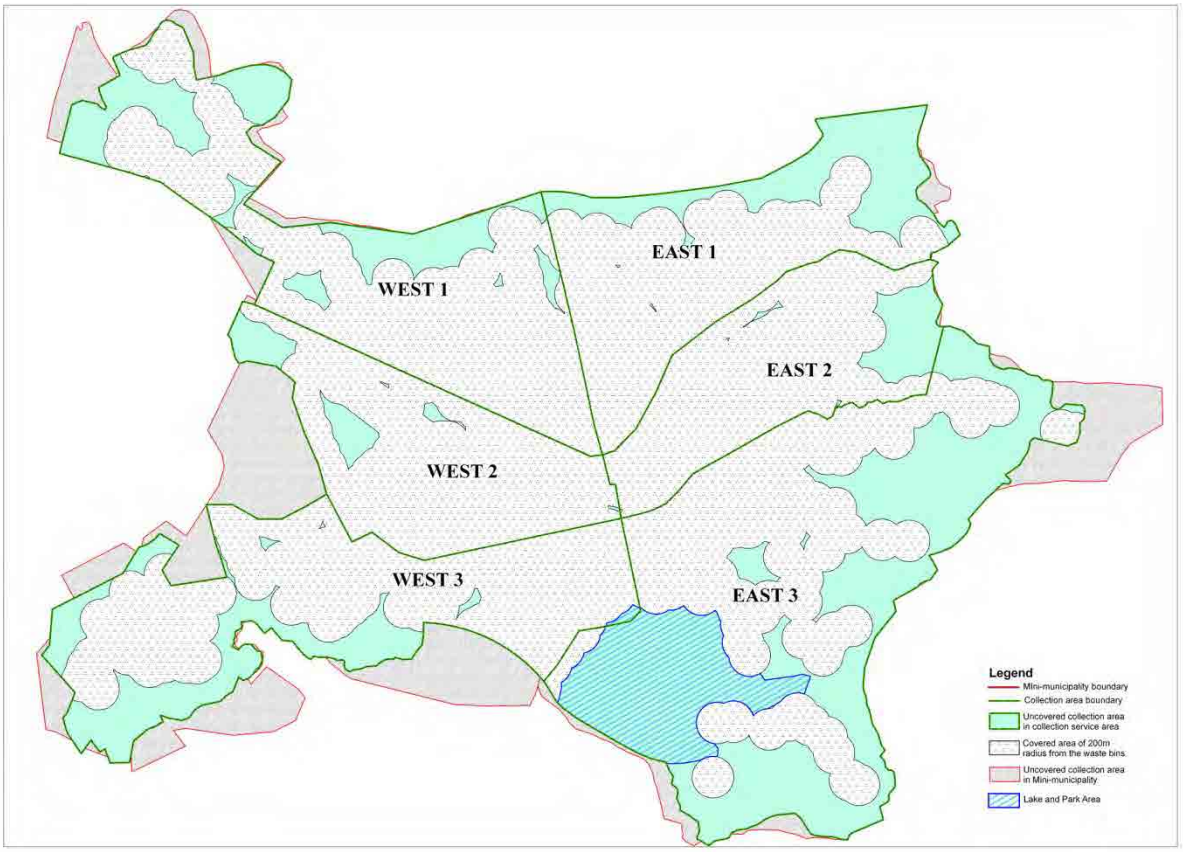
(1) Tirana Municipality Waste Management Plan

Municipality of Tirana (MOT) has not yet started preparation of municipality waste management plan. The waste management plan of respective local government unit including Tirana Municipality need to formulate in accordance with the Waste Area Management Plan and the National Waste Management Plan. Accordingly, the Tirana Municipality Waste Management Plan shall be prepared to comply with the plans and the timeframe formulated under the said superordinate plans. The Tirana Waste Area Management Plan including Tirana Municipality, Kamez Municipality, Vore Municipality and the area of 16 communes was prepared by the assistance of European Union (EU) in 2010, however, the Plan has not yet approved by the Government.

(2) Waste Collection and Transportation

Municipality of Tirana is divided into six (6) waste collection areas and waste collection service of respective collection area is carried out by the private service provider under the contract with the municipality. The present contract is concluded for 5 years contract started in 2008 and to be terminated in 2013. The contract includes the services to collect all the waste bins in the collection area once in a day and twice in a day for the area where more waste amount is discharged and transport to Sharra Disposal Site. The contract also includes street sweeping. The total of 3,500 waste bins of 1.7 m3 each are placed in 6 collection areas. One of the collection area used different size of waste bins but the waste bins have replaced to 1.7 m3 since February 2012. Waste bins are no not always placed in the entire area of each waste collection areas and the residents discharge waste illegally or discharge into the rivers where the waste bins are placed far from the house. Uncovered area of waste bins, assuming the outer area of 200m radius from each waste bins, is drawn as shown in Figure 5.1.1. The map shows the open space where are not covered by the waste bins in the peripheral area of the municipality especially in the upper stream of the Lana River and the area along the Tirana River.

In September 2011, the six waste collection service providers collect municipal waste approximately 670 ton per day as shown in Table 5.1.1. In addition to this waste amount, Tirana Waste Management Enterprise collects wastes from the parks and public areas and several private operators collect from large waste generators on contract. Accordingly, the total collection amount of municipal waste exceed a little more than 700-900 ton per day.



Source: Directorate of Territorial Planning, MOT, JICA Study Team

Figure 5.1.1 Uncovered Waste Collection Service Area

Table 5.1.1 Estimated Waste Collection Amount by Waste Collection Service Providers (September, 2011)

Waste Collection and Transportation Company	Waste bin volume (m3)	Monthly contract no. of bins (unit)	Collected no. of bins (unit)	Estimated net waste amount per bin (ton)	Estimated Waste Collection Amount	
					(ton/month)	(ton/day)
Infinit (East 1)	1.7	18,270	17,547	0.149	2,610	87
TTA Alba-Lam (East 2)	1.7	26,010	25,638	0.149	3,814	127
TTA Alba-Lam (East 3)	3.2		1,388	0.280	389	13
	2.4		7,577	0.210	1,591	53
Korsel sh.p.k (West 1)	1.7	26,700	26,319	0.149	3,915	130
Fusha (West 2)	1.7	22,260	22,128	0.149	3,292	110
Ecologica Albania sh.p.k (West 3)	1.7	30,180	29,562	0.149	4,397	147
Total					18,661	667

Source: Directorate of Waste Management, MOT, JICA Study Team

(3) 3R Activity

Waste sorting is not carried out at present and mixed waste is discharged into the waste bins. There are waste pickers recovering recyclable materials from the waste bins placed in the town. Most of the waste pickers are Roma people and they collects mainly metals such as aluminum cans, steel cans, plastics, reusable ornaments & dolls, etc. Normally about 60-70 waste pickers are also collecting recyclable materials at Sharra Disposal Site. Recyclable materials recovered

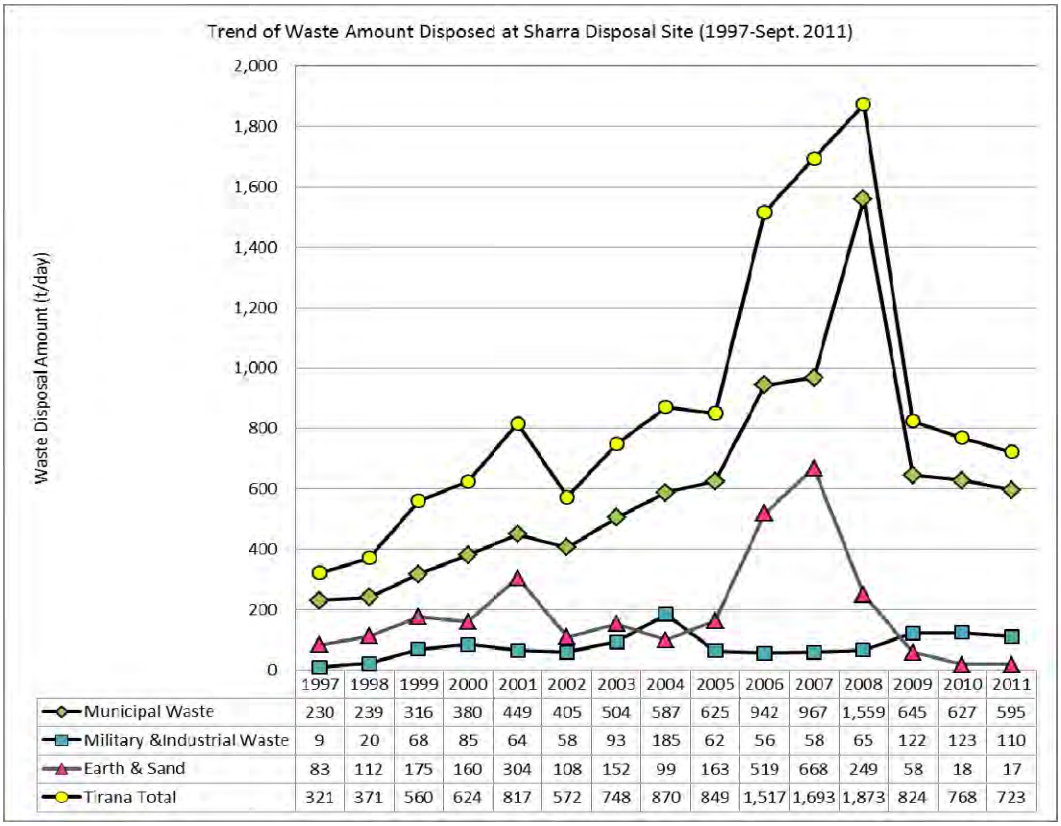
at the disposal site include paper, cardboard, glass in addition to the said materials and the total recovery amount can be estimated about 42 tons per day. Recycling factories use recovered materials organized Albania Recycling Association. The member factories are 34 companies but the information indicates that only 8 factories are operating actively and the large factories are few or most of the factories are small scale. Analyzing the data of these recycling factories, the total waste recycling ratio is estimated at 6-7% approximately to the total municipal waste collected.

(4) Intermediate Treatment

Intermediate treatment is not introduced at present. Also there is no information that the composting groups exist in the area of MOT.

(5) Final Disposal

Closure work of old dumpsite of Sharra finished and new landfill site has expanded to the adjacent area although some of the associated facilities including truck scale are under construction. These works is implemented by the loan at 6 Million EURO from the financing of Italian Cooperation. The new landfill site is constructed by 3 phase construction work. The first phase work completed in 2008 and landfill work started in September 2008. The third phase construction is now implemented. After completion of all the works, the volume of 2.45 million cubic meters is secured for the planned landfill capacity. Mixed waste before sorting is carried in to the disposal site. Since the start of operation 3 years ago, estimated volume of 1.5 million cubic meters has filled. Accordingly, it is estimated that the landfill site will be full in 3 years with the remaining volume of one million cubic meters. Incoming waste amount at Sharra Waste Disposal site in the period from 1997 to September 2011 are plotted by the daily incoming waste amount as shown in Figure 5.1.2. Incoming waste amount jumped up in the years from 2005 to 2008 when the construction works were boomed but the waste amount has decreased to the normal level since 2009. As of September 2011, the incoming waste amount for disposal is computed at 720 ton per day approximately.



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Municipal Waste	230	239	316	380	449	405	504	587	625	942	967	1,559	645	627	595
Military &Industrial Waste	9	20	68	85	64	58	93	185	62	56	58	65	122	123	110
Earth & Sand	83	112	175	160	304	108	152	99	163	519	668	249	58	18	17
Tirana Total	321	371	560	624	817	572	748	870	849	1,517	1,693	1,873	824	768	723

Source: Directorate of Waste Management, MOT, JICA Study Team

Figure 5.1.2 Trend of Waste Disposal Amount at Sharra Disposal Site (1997-Sept. 2011)

5.2 Issues of Waste Management of Tirana Municipality

Based on the identification of the problems on waste management activities of MOT, the following discussion points are clarified for the issues towards improvement. It is required to study the issues for searching the solutions and implementation in early time.

(1) General

Legal framework has established by the Integrated Solid Waste Management Law approved in November 2011. However, the detail rules, regulations, standards, criteria, etc. has not yet prepared for practicing the activities. Meanwhile, Tirana Municipality has no master plan for municipal waste management. Appropriate development of the facilities, procurement and the solid waste management service will not be carried out without the master plan. Accordingly, MOT shall;

- formulate detail rules, regulations, standards, criteria for implementing the solid waste management activities in MOT to comply with the requirements of the Law,
- formulate the integrate solid waste management plan and implement the action plans and the priority projects to be formulated in the master plan

(2) Waste Collection and Transportation

Wastes are discarded in the peripheral area of the municipality especially in the areas along the banks of Tirana River and up-stream and down-stream sections of the Lana River. These areas

are not placed with waste bins or the waste bins are very far for the users. Considering the situation, MOT shall;

- study the required number of waste bins and the location to place the waste bins convenient for the users, in addition, study the 3 bins system to comply with the super-ordinate plans to separate dry recyclable materials, wet recyclable materials (biodegradable waste) and other residual mixed wastes,
- study alteration for implementing of the current waste collection services for collection of the new waste bins,
- instruct the residents to discharge waste properly to the waste bins and prohibit to discharge waste to the public area,
- survey and formulate the urgent implementation plan to remove the illegal dump sites

(3) 3R and Intermediate Treatment

Until now, MOT does not take initiatives for 3R activities. Waste reduction has not yet promoted in the society although reuse and recycling activities are implemented by the activities of the private sector. In order to comply with the Law and super-ordinate plans to reduce the waste volume for landfill, MOT shall;

- prepare the plans and programs for education and public information to the waste generators to raise awareness for waste reduction and sorting of recyclable waste at source and implement the plans and programs immediately,
- study the measures for fulfil the target level of 25% recycle ratio by 2015 through recycling and composting of biodegradable waste,
- organize composting activity groups for education and instruction for composting at the pilot study area in the town area and/or through collaboration with the farms in the neighboring area of Tirana,
- establish the links of MOT with the recycling industry, dealers, waste pickers, and residents to support and assist recovery of more recyclable materials and recycling.

(4) Final Disposal

The life of existing waste landfill site, Sharra Disposal Site, is estimated to end in 2013-2015 depending on the conditions of waste diversion from final disposal through waste reduction and recycling. Considering the time to be spent for siting, design, construction work till the start of operation at new landfill site, MOT shall;

- start siting the new landfill site, planning, design, construction of new disposal facilities after the end-life of current Sharra disposal site,
- study the measures to reduce the ration of organic waste for landfill less than 35 % by 2016 to comply with Landfill Directive 1999/31/EC.

(5) Waste Fee

Collection of waste fee started in 2002 and the collection ratio of the fee was good in the initial stage. However, the collection ratio is falling down in the recent years and dropped at 43% in 2010. The Beneficiary Pay Principle (BPP) is a principle in public services nowadays in the world. Accordingly, MOT shall;

- implement the survey why the waste generators, especially the households, are declining to pay the waste fee and study to the measures to satisfy the claims of the waste generators through improvement of the quality of the services,
- increase and/or establish the transparency of waste management account including the waste fee, waste collection contract, waste disposal expenditure,
- establish the accounting system available to compute the unit cost for waste collection and waste disposal operations.

(6) Basic Approaches to Formulate ISWMP

MOT has not yet formulated the local solid waste management plan. MOT shall study the issues mentioned above and commence formulation of the Tirana Municipality Integrated Solid Waste Management Plan (ISWMP) in consideration of the following basic approaches.

- Participation of stakeholders in overall solid waste management activities,
- Introduction of separate collection through maximizing the activities of private waste collection operators,
- Minimizing the scale of intermediate treatment and waste disposal facilities through the activities of 3R,
- Lessening the financial burden of MOT on solid waste management, and
- Securing human resources and capacity development of the staff of MOT for upgrading the Solid Waste Management (SWM) services

5.3 Superordinate Plan and Strategy on SWM

(1) General

Albania applied for EU membership and the compliance of EU Directives in national laws, regulations, standards, etc. is a pressing need for the government. The Law on Integrated Waste Management has enforced in December 2011, which complies most of the requirements of EU Directives. Accordingly, the framework of the administration system on solid waste management for municipal waste, hazardous waste and non-hazardous waste has completed and the preparation is being put in place toward implementation. The administrative system in waste management is also being prepared and the national strategies and national waste management plan have completed. The waste area management plan and waste management plan of local government units are now in preparation by the relevant authorities concerned to comply with the Laws and the requirements of EU Directives. The present status of preparation of the said documents related with MOT is summarized as follows.

- Albania National Waste Strategy-Approved by the Government in June 2011

- National Waste Management Plan-Approved by the Government in January 2011
- Tirana Waste Area Management Plan-Plan was formulated and applied for approval
- Tirana Municipality Waste Management Plan-Preparation has not yet started.

(2) Prioritization of Waste Management Policies

Article 6 of the Law on Integrated Waste Management stipulate the prioritization of the policies for waste management administration as shown below and contribute for the environmental protection through implementation of the plans and programs.

- Promotion of waste reduction/reduce;
- Promotion of reuse;
- Promotion of recycling;
- Promotion of method of other recovery of resources, e.g., recovery of energy ;
- Final disposal

The respective municipality is required to tackle with the formulation and implementation of waste management plan based on the hierarchy along with the enforcement of the Law and the recent years worldwide 3R activities shall be set in the main stream for implementation of waste management.

(3) Target Level of National Waste Management Plan

The National Waste Management Plan state the baseline for implementation of the plan by the following 4 items; 1) planning, 2) education, 3) resourcing, and 4) legislation to divide the implementation with 3 phases as Phase-1: 2010-2015, Phase-2: 2016-2020. The target level of each phase is determined to comply with the EU Directives as shown in the following main items.

- to stop growth in the amount of municipal waste produced by 2020;
- achieve 25% recycling and composting of municipal waste by 2015, 55% by 2020 and 75% by 2025;
- recover energy from 15% of municipal waste;
- reduce land-filling of municipal waste from around the present 90% to around 30%;
- provide widespread waste minimization advice to businesses; and
- develop markets for recycled material to help recycling become viable and reduce costs

(4) Time Frame of National Waste Management Plan

The local government units as well as Tirana need to implement good governance in waste management in accordance with the Law on Integrated Waste Management, Albania Waste Management Strategy, National Waste Management Plan for the superordinate plans to comply with the EU directives. The National Waste Management Plan lay down the following timeframe to the regional administration of waste management area and the local government units including Tirana Municipality for implementing the plans and programs.

Table 5.3.1 Timeframe of Main Action Plans of National Waste Management Plan

Main Action Plans	Time Limit
Formulation of Waste Area Management Plan for Tirana, Durres and Elbasan	End 2011
Feasibility study into the concept of a three bin system being implemented in all waste areas to separately collect: 1. Dry Recyclables; 2. Wet Recyclables and 3. Other Wastes	Mid. 2011
Develop a waste awareness campaign program of activities related to actual time lines of infrastructure development and waste management operations on the ground	Mid. 2011
Establish Composting facilities at both municipal (central) and communal (home) level.	End 2012
Identification and development of priority projects by Qark and municipality to comply with the National Waste Management Plan	End 2013
Public information and awareness campaign in all waste areas	End 2015
Introduction of full cost recovery approach	End 2015
Implementation of the three bins collection system in all waste areas （12 waste areas）	End 2018
Upgrade of the waste collection system in all waste areas	End 2018
Implementation of project for segregation of compostable waste in all waste areas	End 2018

Source: National Waste Management Plan, JICA Study Team

5.4 Activities of Other Donors in Solid Waste Management

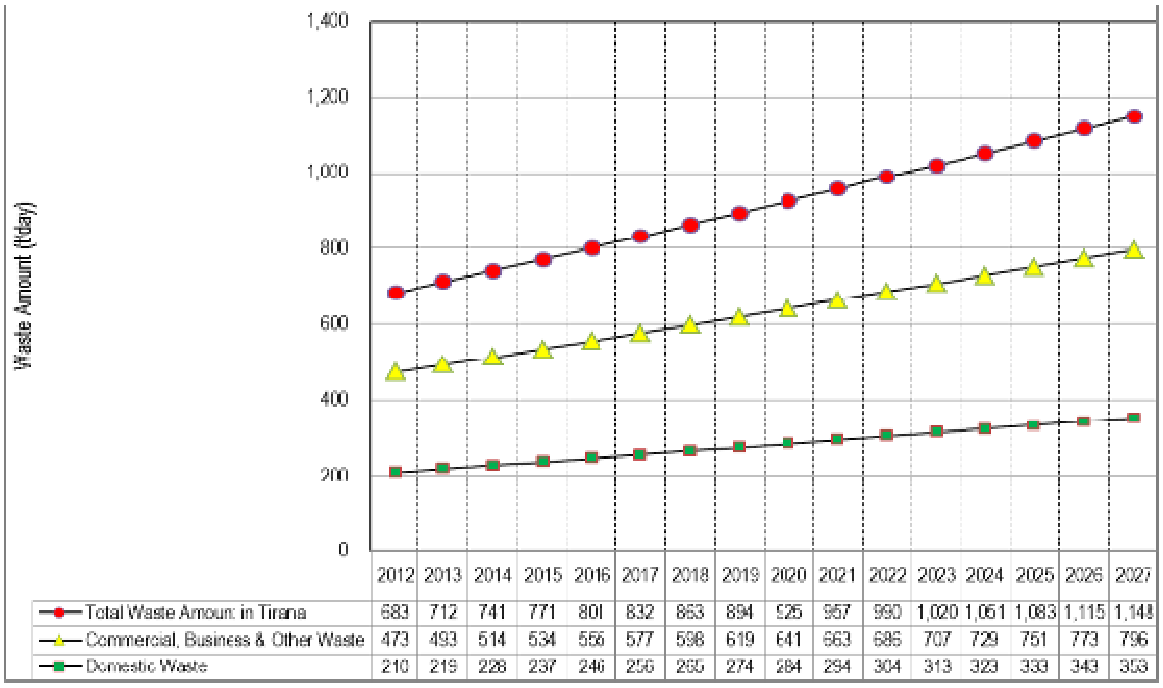
International donor agencies including EU, KfW (Kreditanstalt für Wiederaufbau), IFC (International Finance Company) and Italian Cooperation are assisting the Albania government in the field of waste management. Especially, EU assists the field of implementation of the national plan for approximation of environmental legislation in Albania to comply with the EU Directives and prepared Albania National Waste Strategies and National Waste Management Plan. As of March 2012, there is no donor agencies assist MOT for preparation of ISWM Plan.

5.5 Estimation of Scale of SWM Facilities

The planning scale of SWM activities and the facilities are estimated based on the factors including the population of urban planning, records of waste collection amount and incoming waste amount at the disposal site, the results of waste amount and composition survey conducted by JICA Study Team, and the target levels and year of each SWM activities. The result of estimation of the planning scale in terms of solid waste amount is shown in the following paragraphs.

(1) Planned Potential Waste Collection Amount

Planned potential waste collection amount or municipal waste discharge amount is estimated for domestic waste, commercial, business and institutional wastes and indicated the result in Figure 5.5.1. The total daily municipal waste discharge amount increase from 683 ton in 2012 to 1,148 ton in 2027, which shows the increase ratio at 70% in 15 years. In conversion of the discharged waste amount into per capita waste discharge rate, the waste discharge rate per capita per day increase from 1,176 grams in 2012 to 1,365 grams in 2027.



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Total Waste Amount in Tirana	683	712	741	771	801	832	863	894	925	957	990	1,020	1,051	1,083	1,115	1,148
Commercial, Business & Other Waste	473	493	514	534	556	577	598	619	641	663	685	707	729	751	773	796
Domestic Waste	210	219	228	237	246	256	265	274	284	294	304	313	323	333	343	353

Source: JICA Study Team

Figure 5.5.1 Trend of Planned Municipal Waste Discharge Amount

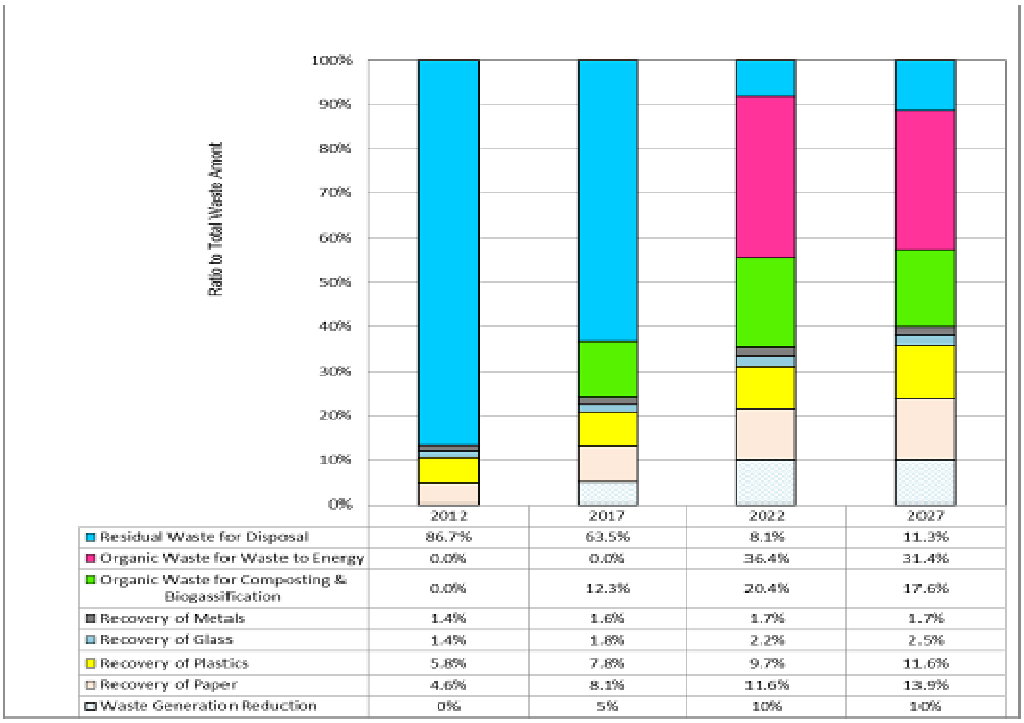
(2) Planned Waste Amount of 3R Plan

Planned target recovery ration and recycle amount based on the 3R plan is summarized in Table 5.5.2 and Figure 5.5.2. The waste minimization ratio by the current activities of recovery of recyclable materials will reach at 13% to the total waste discharge amount or 91 ton per day in 2012. In 2027, the planned total waste minimization ratio calculated by the target waste generation reduction, waste recovery and recycling ratio of each recyclable materials reach at 89% or 1,018 ton per day including the planned intermediate treatment amount.

Table 5.5.2 Planned Target Recovery & Recycling Amount and Ration to Each Component

Item	2012	2017	2022	2027
Waste Reduction (t/d)	0	42	99	115
Recyclable Materials (t/d)	91	160	249	342
Waste to Energy (t/d)	0	102	562	562
Residual Potential Recyclable Waste (t/d)	573	506	53	99
In-organic Waste & Hazardous Waste (t/d)	18	22	27	31
Total Waste Amount	683	832	990	1,148
Total of Waste Minimization Amount (t/d)	91	304	910	1,018
Waste Reduction Ratio (%)	0%	5%	10%	10%
Recovery Ratio of Recyclable Materials (%)	13%	19%	25%	30%
Recovery Ratio by Waste to Energy (%)	0%	12%	57%	49%
Waste Minimization Ratio to Total Waste Amount (%)	13%	36%	92%	89%

Source: JICA Study Team



	2012	2017	2022	2027
Residual Waste for Disposal	86.7%	63.5%	8.1%	11.3%
Organic Waste for Waste to Energy	0.0%	0.0%	36.4%	31.4%
Organic Waste for Composting & Biogassification	0.0%	12.3%	20.4%	17.6%
Recovery of Metals	1.4%	1.6%	1.7%	1.7%
Recovery of Glass	1.4%	1.8%	2.2%	2.5%
Recovery of Plastics	5.8%	7.8%	9.7%	11.6%
Recovery of Paper	4.6%	8.1%	11.6%	13.9%
Waste Generation Reduction	0%	5%	10%	10%

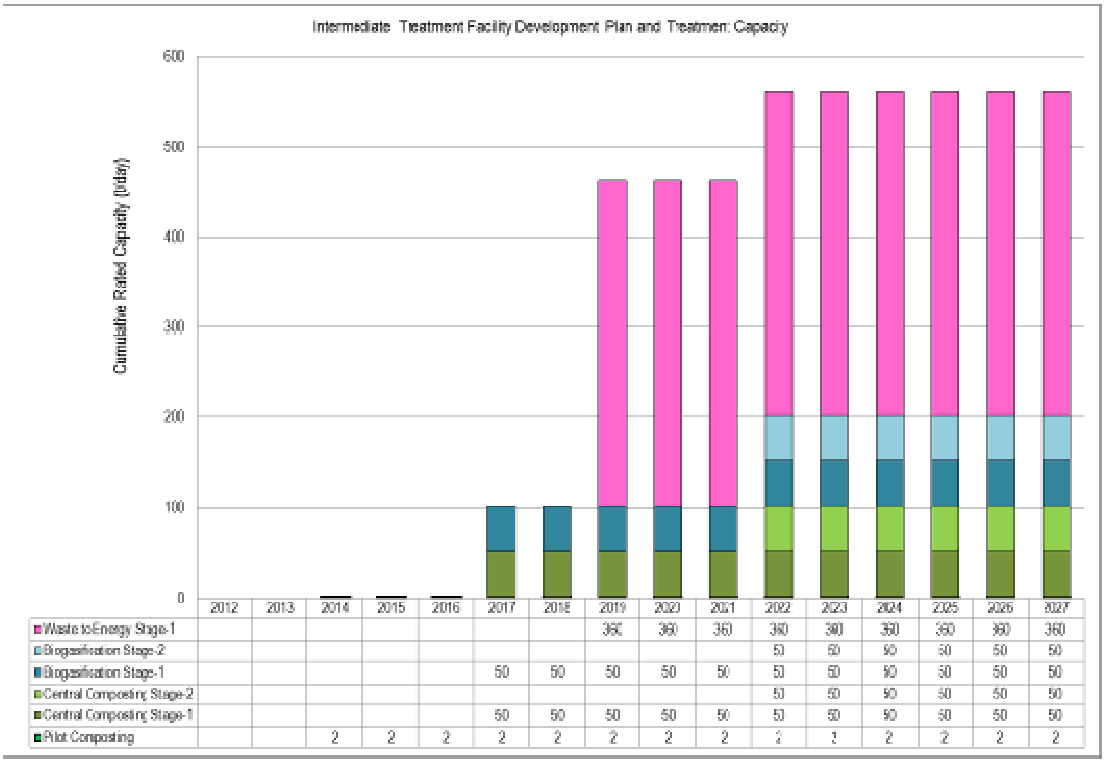
Source: JICA Study Team

Figure 5.5.2 Planned Recycle Ratio to Total Municipal Waste Amount

(3) Planned Intermediate Treatment Waste Amount

Intermediate treatment effective for inactivation of waste, stabilization and reduction of final disposal volume is executed for organic waste/biodegradable waste through composting, biogasification and waste to energy by phased development. The total intermediate treatment waste amount reach at 562 ton per day according to the final configuration of the proposed plan in 2027. The following table shows the commencement year of operation of each facilities and Figure 5.5.3 shows the phased development scale of intermediate treatment facilities.

Intermediate Treatment Facilities	Scale of Facilities	Operation Start Year
Pilot Compost Plant	1 t/day x 2plants	2014
Central Compost Plant (Stage-1)	50 t/day	2017
Central Compost Plant (Stage-2)	50 t/day	2022
Biogasification Plant (Stage-1)	50 t/day	2017
Biogasification Plant (Stage-2)	50 t/day	2022
Waste to Energy Plant	360 t/day	2019
Total	562t/day	



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Waste to Energy Stage-1								360	360	360	360	360	360	360	360	360
Biogasification Stage-2											50	50	90	50	50	50
Biogasification Stage-1						50	50	50	50	50	50	50	90	50	50	50
Central Composting Stage-2											50	50	90	50	50	50
Central Composting Stage-1						50	50	50	50	50	50	50	90	50	50	50
Pilot Composting			2	2	2	2	2	2	2	2	2	2	2	2	2	2

Source: JICA Study Team

Figure 5.5.3 Phased Development Scale of Intermediate Treatment Facilities

(4) Planned Final Waste Disposal Amount

As shown in Table 5.5.2, the planned final waste disposal amount is estimated by two cases for with/without 3R and intermediate treatment plans. In case the plans are implemented, the final waste disposal amount is estimated at 174 ton per day. While the plans are not implemented, the final waste disposal amount become 993 ton per day. Figure 5.5.4 shows the cumulated landfill volume. The cumulated landfill volume is estimated on the condition that the existing Sharra disposal site is operated up to the end of 2014 and the landfill operation at new landfill site start in the beginning of 2016. The cumulative landfill volume is estimated at 1.4 Million cubic meter for the case with implementation of the plans while the plans are not implemented, the cumulative landfill volume become 5.7 Million cubic meters.

Table 5.5.2 Final Waste Amount with/without 3R and Intermediate Plans

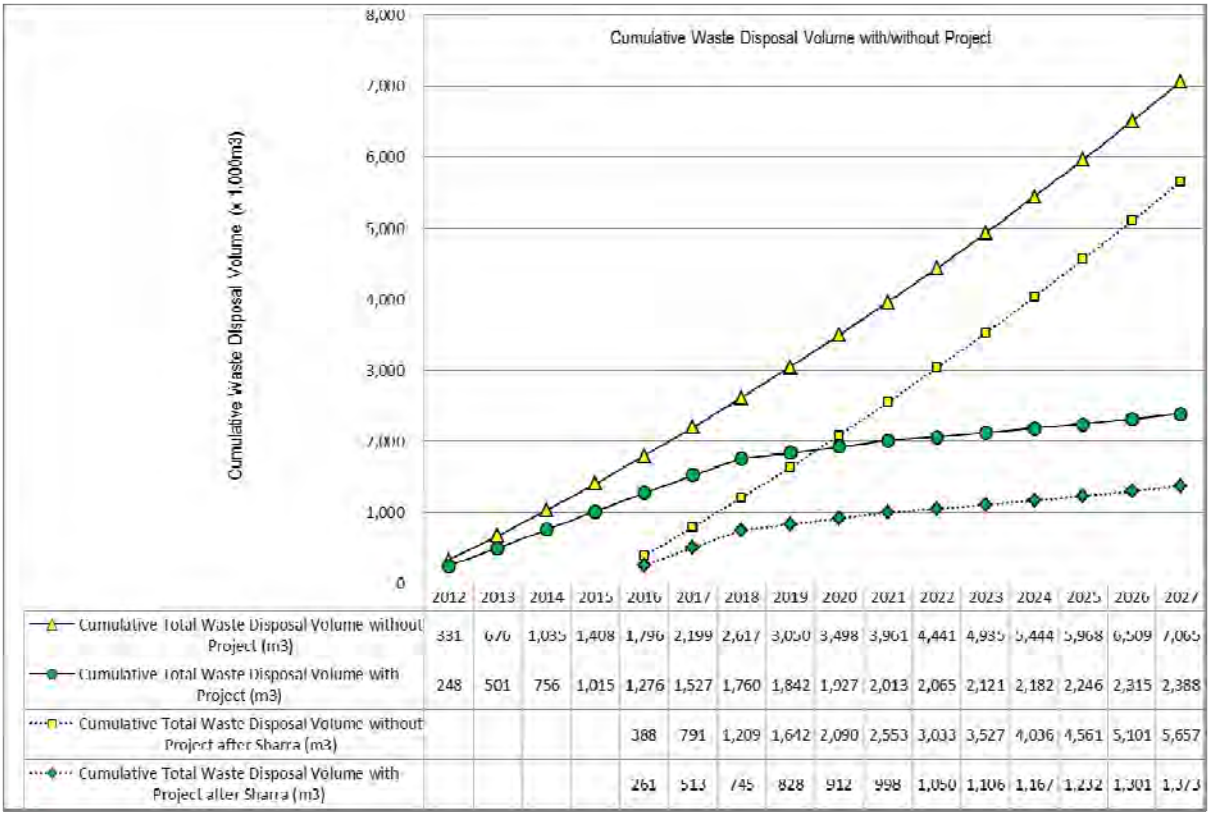
Waste Disposal Amount without Project (t/day)

Item	2012	2017	2022	2027
In-organic Waste & Hazardous Waste	18	22	27	31
Potential Recyclable Resources & Residual Waste	573	698	830	962
Waste Disposal Amount	591	720	857	993
Total Potential Waste Amount	683	832	990	1,148
Waste Disposal Ration to the Total Waste Amount (%)	87%	87%	87%	87%

Waste Disposal Amount with Project (t/day)

Item	2012	2017	2022	2027
In-organic Waste & Hazardous Waste	18	22	27	31
Residual Potential Recyclable Waste	573	556	53	99
Rejects from Composting & Biogasification Plant	0	20	40	40
Ash from Waste to Energy Plant	0	0	4	4
Total Waste Disposal Amount including Ash & Rejects	592	599	124	174
Total Waste Amount	683	832	990	1,148
Waste Disposal Ration to the Total Waste Amount (%)	87%	72%	13%	15%

Source: JICA Stud Team



Source: JICA Study Team

Figure 5.5.4 Cumulative Landfill Volume with/without 3R and Intermediate Treatment Plans

5.6 Planning Objectives and Strategies of Tirana Municipality ISWM Plan

(1) General

The Tirana Municipality ISWM Plan is proposed to comprise the following four technical approaches and three institutional & financial approaches for improvement and strengthen the SWM services of MOT.

Technical Approach

- Waste Collection and Transport Plan
- Waste Minimization Plan (3R Plan)
- Intermediate Treatment Plan
- Final Waste Disposal Plan

Institutional and Financial Approach

- Institutional Capacity Development Plan
- Financial Strengthening Plan
- Raising Public Awareness Plan

In formulation and implementation of the plans presented above, the objective and strategy of the respective plan is defined as shown in the following subsections. In addition, the comprehensive waste streams to realize the technical approaches are shown in Figure 5.6.1.

(2) Waste Collection and Transport Plan

1) Planning Objectives

- The primary objective of waste collection is to maintain cleanliness of the entire administrative jurisdiction area so as to improve public sanitation and health and to protect the environment in addition to stop illegal dumping in the public areas; and
- The objective of separate waste collection service is to enhance recovery of resource materials in waste to contribute for establishment of sound resource recycling society.

2) Planning Strategies

- Municipality of Tirana is firstly maintain the waste collection service areas provided at present;
- Secondarily, the Municipality of Tirana shall provide the service areas in the peripheral areas where waste discharge density is higher and waste bins are not placed at present;
- Waste collection service shall be provided to the remote areas where/ when the waste discharge density become higher;
- As requested by waste generators, Municipality of Tirana shall provide waste collection services for the bulky municipal wastes and other types of waste regarded as municipal waste on charging special waste fee;

- Municipality of Tirana shall restructure, upgrade and maintain the waste collection service by the private waste collection service providers towards establishment of separate waste collection and transportation under full control by Municipality of Tirana; and
- Separate waste collection shall be introduced initially with 3 bin system and shift to 4 bin system prior to the introduction of waste to energy system in in the future.

(3) Waste Minimization Plan (3R Plan)

1) Planning Objectives

- Overriding objective of waste minimization including waste reduction, reuse and recycling is to minimize the discharge of possible pollutants (waste) to the environment and reduce the cost burden to the environmental conservation in addition to lighten the cost burden to the Municipality of Tirana by reducing the solid waste amount for collection, intermediate treatment and disposal; and
- The objective of resource recovery, reuse and recycling is to use recyclable resource materials in waste for saving finite natural resources for next generation

2) Planning Strategies

- The waste reduction, resource recovery and recycling shall be carried out initially with the 3 bin system and commence waste segregation at sources as a basic system under the conditions to perform the responsibilities and the roles of all the stakeholders including the government sectors, Municipality of Tirana, residents and establishments;
- Recovery of recyclables shall be shifted to 4 bin system as the waste to energy system is operational in the future;
- The functions of community groups such as mosque/church groups, schools, organization for youth, etc. shall be facilitated to the maximum extent for the activities of waste reduction, resource recovery and recycling;
- Strengthen the function of resource collection stations or establish the material recovery centres such as material recovery facilities, waste bank, redemption centres, etc. situated at several locations in the town area; and
- Assist/ Support the activities of the waste pickers, dealers and recycling industries to link with the 3R activities of Municipality of Tirana,

(4) Intermediate Treatment Plan

1) Planning Objectives

- The objectives of intermediate treatment is to stabilize and decompose wastes and reduce residual volume of wastes in addition to transform/ convert wastes for recovery of resources

2) Planning Strategies

- Segregation at source, material recovery and separate collection systems shall be furnished before the waste enter to the intermediate treatment processes;

- Intermediate treatment processes shall be a waste for resource recovery as a base including the options for incineration, electricity generation, composting, biogasification, etc. to convert waste to energy and/or recycling products;
- Introduction of composting shall be initiated with home composting, community composting, pilot central composting and finally the development of large scale central compost plant; and
- Introduction of composting shall be collaborated with the groups of farming, nursery, parks, forestation, etc. for appropriate use and distribution of final products.

(5) Final Waste Disposal Plan

1) Planning Objectives

- Waste disposal shall be the last process of waste management to deposit and store eternally the waste of no value for recovery of resources and/or waste conversion for further use and protect the surround area from secondary pollution.

2) Planning Strategies

- Treated or residual non-hazardous waste and inert waste are the objective waste for development of Final Waste Disposal facilities for Municipality of Tirana;
- Final Waste Disposal facilities shall be developed in consideration of the waste diversion amount in accordance with the planned waste disposal amount derived from the step-wise implementation of recovery of resources and/or intermediate treatment;
- The sanitary landfill is evaluated to be the most appropriate disposal method from both economic and environmental point of view for development of non-hazardous waste landfill and MOT shall develop the Final Waste Disposal facilities before the end-of life of Sharra disposal site;
- Development of new landfill facilities shall be carried out more than one candidate disposal site and propose the future development area based on the result of clear siting study;
- Possible secondary pollution of the disposal site shall be mitigated to meet with the standard practices complied with the EU guideline or other international standards; and
- Development of landfill area shall be made stage-wise and the adjacent area shall be procured for future expansion of considerably long-term period and/or development of intermediate facilities to continue the overall waste treatment and disposal operation at the new site.

(6) Institutional Capacity Development Plan

1) Planning Objectives

- The objective of institutional capacity development is to establish the most suitable institutional and organizational arrangements to enable the Municipality of Tirana to effectively and efficiently execute the solid waste management formulated with Tirana Municipality Integrated Solid Waste Management Plan and to define the implementing actions over the long-term planning period.

2) Planning Strategies

- Institutional capacity development shall be focused on strengthening of the organizational structure, managerial and technical practices for sustainable operation and maintenance of the proposed SWM system; and
- Institutional capacity development is carried out mainly for the Task Team proposed to establish under the Directorate of Solid Waste Management in MOT for strengthening the capacity to implement the Tirana Municipality ISWM Plan.

(7) Financial Strengthening Plan

1) Planning Objectives

- The objective of financial strengthening is to secure initially the budget for the required operation and maintenance cost of the proposed ISWM plan and to materialize an independent financing for the establishment of cost recoverable SWM in the final stage for implementation of future projects.

2) Planning Strategies

- Current waste tariff shall be reviewed in consideration of unit cost to be estimated respectively for waste collection, intermediate treatment and waste disposal and the willingness to pay and the total expenditure for public service fees with reference to the result of social awareness survey on waste management;
- Optimum charging system of waste fee shall be introduced for the financial resources of SWM to cover at least the operation and maintenance costs in the initial stage, add the personnel expenditure in the second phase and finally impose the waste charge for full cost recovery including depreciation cost of the capital investment costs; and
- Transparency of solid waste management account shall be established to disclose all the expenditure and revenue for the base to determine the waste charging rate

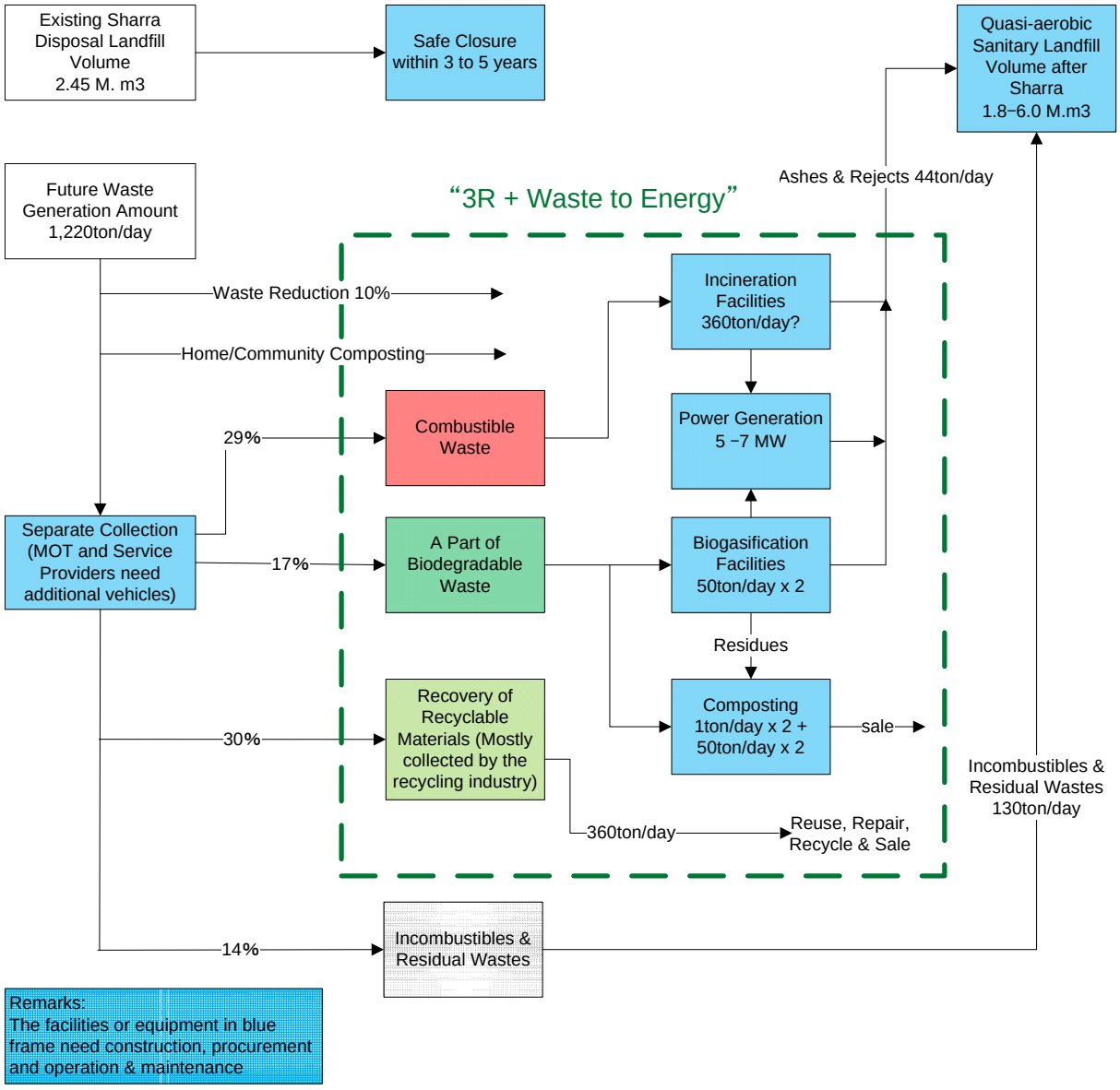
(8) Raising Public Awareness Plan

1) Planning Objectives

- The objective is defined to raise awareness of the citizens and all the stakeholders for participation by the actors fulfilling their roles in the SWM activities proposed in the Tirana Municipality ISWM Plan to be carried out under the primary responsibilities of Municipality of Tirana.

2) Planning Strategies

- To make fully understanding of the Tirana Municipality ISWM Plan by the staff of implementing body of action plans and the managerial staff of Municipality of Tirana will be required to have a clear idea to which points are important to ask for cooperation to the society for successful implementation of the action plans and programs; and
- Implementation of education programs to promote a better understanding of citizens, community groups and all the stakeholders involved in SWM activities through public & school educations and public campaign by introducing a workable regular education programs including site visit of actual operation of SWM services,



Source: JICA Study Team

Figure 5.6.1 Proposed Waste Streams of ISWM for the Planned Target Year 2027

5.7 Components and Time Schedule of Tirana Municipality ISWM Plan

The Tirana Municipality ISWM Plan is comprised of the plans and programs summarized in the following Table 5.7.1, and a implementation schedule of the plans and programs listed above is shown in Table 5.7.2 and 5.7.3.

Table 5.7.1 Components of Tirana Municipality ISWM Plan

Plan	Components of Plans and Programs
Waste Collection and Transportation Plan	- Formulation of Implementation Plan for Waste Collection and Transportation - Survey of Illegal Dump site and Preparation of Lean-up Project - Implementation of Illegal Sump Site Clean-up Project through Contract - Implementation of Pilot Study for Improvement of Waste Collection Service - Operation of Separate Waste Collection by 3-bins System - Monitoring of Separate Collection Activities - Evaluation of Performance and Target Level of Waste Collection Plan
Waste Minimization Plan (3R Plan)	- Formulation of Implementation Plan for 3R Activities - Implementation of 3R Activities - Monitoring for Implementation of 3R Activities - Evaluation of Performance and Target Level of Waste Minimization Plan
Intermediate Treatment Plan	- Formulation of Implementation Pan for Intermediate Treatment Plan - Implementation of Organic Waste Treatment Plan - Evaluation of Performance and Target Level of Organci Waste Treatment Plan - Implementation of Waste to Energy Plan - Evaluation of Performance and Target Level of Waste Energy Plan
Waste Disposal Plan	- Formulation of Implementation Plan for Waste Disposal - Coordination with Regional Waste Disposal Plan - Selection of Construction Site and Procurement - Implementation of Waste Disposal Project - Evaluation of Performance and Target Level of waste Disposal Plan
Institutional Capacity Development Plan	- Establishment of a SWM Project Task Team - Formulation of Implementation Plan for Institutional Capacity Development - Setup Additional Institutional System - Formulation and Approval of ISWM Plan - Survey of Baseline Data for Performance Indicators and Reporting - Evaluation of Performance and Target Level of Institutional Capacity Development Plan
Financial Strengthening Plan	- Formulation of Implementation Plan for Financial Strengthening - Study on SUM Unit Cost and Review of Waste Tariff - Implementation of Financial Strengthening Plan - Evaluation of Performance and Target Level of Financial Strengthening Plan
Raising Public Awareness Plan	- Formulation of Implementation Plan for Raising Public Awareness - Implementation of Raising Awareness Plan - Evaluation of Performance and Target Levele of Raising Public Awareness Plan

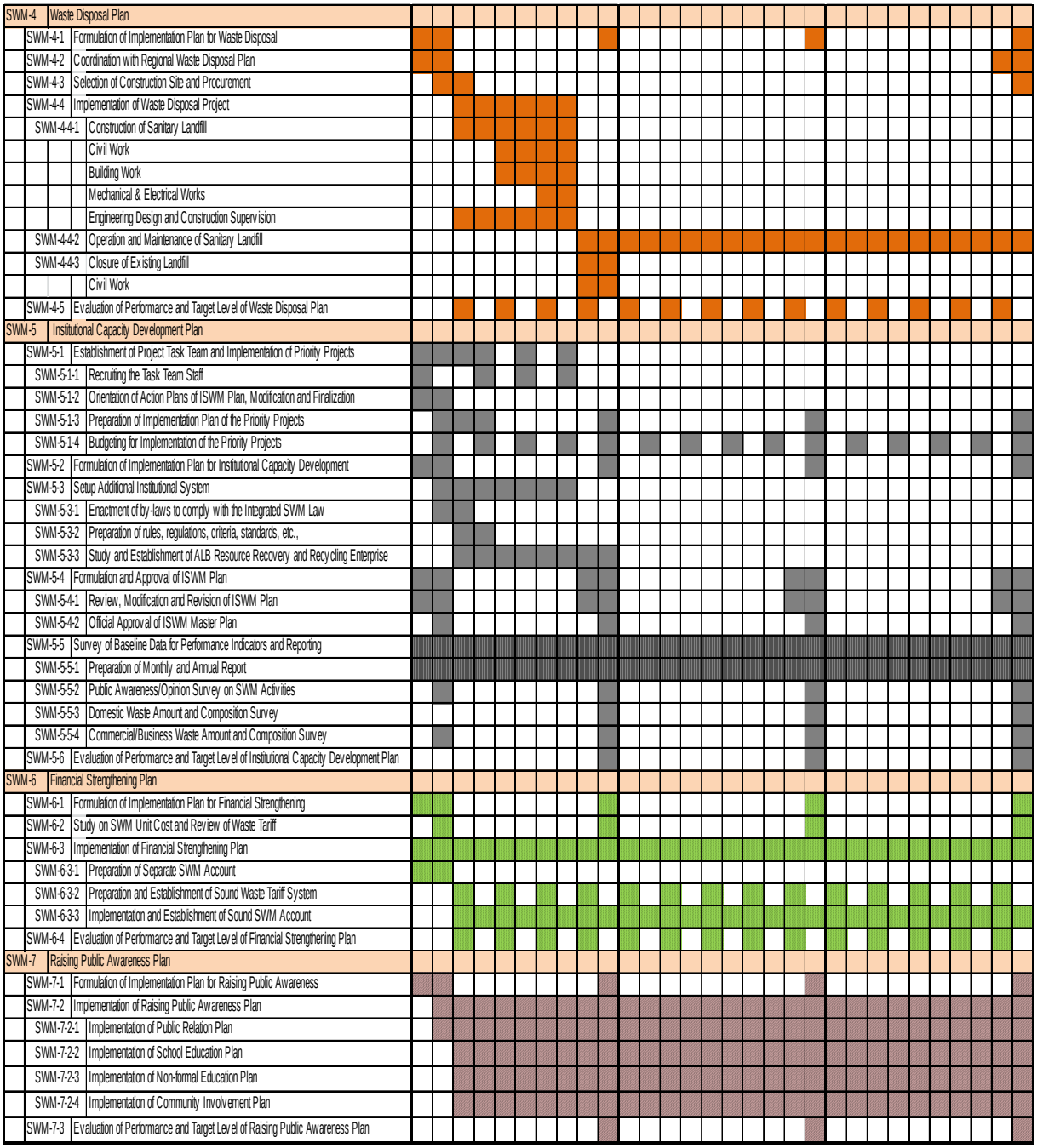
Source: JICA Study Team

Table 5.7.2 Implementation Time Schedule of Tirana Municipality ISWM Plan (2/1)

Action Plans	Urgent and Short-term Period					Mid-term Period					Long-term Period				
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
SWM-1 Waste Collection and Transportation Plan															
SWM-1-1 Formulation of Implementation Plan for Waste Collection and Transportation															
SWM-1-2 Survey of Illegal Dump Site and Preparation of Clean-up project															
SWM-1-3 Implementation of Illegal Dump Site Clean-up Project through Contract															
SWM-1-4 Implementation of Pilot Study for Improvement of Waste Collection Service															
SWM-1-4-1 Study for Expansion of Service area by 3-bins System															
SWM-1-4-2 Study of Separate Waste Collection for Special Wastes															
SWM-1-4-3 Implementation of Separate Collection at the Pilot Study Areas															
SWM-1-5 Operation of Separate Collection by 3-bins System															
SWM-1-6 Monitoring/Inspection of Waste Collection Activities															
SWM-1-7 Evaluation of Performance and Target Level of Waste Collection Plan															
SWM-2 Waste Minimization Plan (3R Plan)															
SWM-2-1 Formulation of Implementation Plan for 3R Activities															
SWM-2-1-1 Formulation of Waste Reduction Implementation Plan															
SWM-2-1-2 Formulation of Waste Recovery, Reuse and Recycling Implementation Plan															
SWM-2-2 Implementation of 3R Activities															
SWM-2-2-1 Promotion of Waste Generation Source Control															
SWM-2-2-2 Promotion of Waste Discharge Control															
SWM-2-2-3 Promotion of Recovery of Recyclable Materials															
SWM-2-2-4 Promotion of Reuse and Recycling of Recyclable Materials															
SWM-2-2-5 Construction of Central Material Recovery Facilities at Sharra															
Civil Work															
Building Work															
Mechanical & Electrical Works															
Engineering Design and Construction Supervision															
SWM-2-2-6 Operation of Central Material Recovery Facilities at Sharra															
SWM-2-3 Monitoring for Implementation of 3R Activities															
SWM-2-4 Evaluation of Performance and Target Level of Waste Minimization Plan															
SWM-3 Intermediate Treatment Plan															
SWM-3-1 Formulation of Implementation Plan for Intermediate Treatment Plan															
SWM-3-1-1 Formulation of Implementation Plan for Organic Waste Treatment															
SWM-3-1-2 Formulation of Implementation Plan for Waste to Energy															
SWM-3-2 Implementation of Organic Waste Treatment Plan															
SWM-3-2-1 Organizing Home Composting and Community Composting Groups															
SWM-3-2-2 Implementation of Pilot Project of Home and Community Composting															
SWM-3-2-3 Expansion of Home Composting and Community Composting															
SWM-3-2-4 Selection of Large Waste Generation Source of Biodegradable Waste															
SWM-3-2-5 Construction of Pilot Scale Compost Plant															
Civil Work															
Building Work															
Mechanical & Electrical Works															
Engineering Design and Construction Supervision															
SWM-3-2-6 Operation and Maintenance of Pilot Scale Compost Plant															
SWM-3-2-7 Construction of Central Compost and/or Biogasification Plant															
Civil Work															
Building Work															
Mechanical & Electrical Works															
Engineering Design and Construction Supervision															
SWM-3-2-8 Operation and Maintenance of Central Compost and/or Biogasification Plant															
SWM-3-3 Evaluation of Performance and Target Level of Organic Waste Treatment Plan															
SWM-3-4 Implementation of Waste to Energy Plan															
SWM-3-4-1 Selection of Construction Site and Procurement															
SWM-3-4-2 Construction of Waste to Energy Plant															
Civil Work															
Building Work															
Mechanical & Electrical Works															
Engineering Design and Construction Supervision															
SWM-3-4-3 Operation and Maintenance of Waste to Energy Plant															
SWM-3-5 Evaluation of Performance and Target Level of Waste to Energy Plan															

Source: JICA Study Team

Table 5.7.3 Implementation Time Schedule of Tirana Municipality ISWM Plan (2/1)



Source: JICA Study Team

6. Water Supply System

6.1 Issues on Water Supply System

(1) Low Revenue Water Ratio

Billed volume recorded a 21% increase in 2010, while that of 2011 remained on almost the same level (it actually decreased 0.5%). Revenue water ratio also indicated an increase to 43.7% in 2011, a marginal 1.1 points up from the previous year, compared with the 15% increase recorded in 2010. More than half of production volume has been wasted due to water leakage and/or illegal connections.

Billing of water charge is based on the meter reading, while a constant tariff is charged regardless of actual usage, whether or not there is a water meter or the meter is out of order. According to the date of Ministry of Public Works and Transport, General Directorate of Water Supply and Sewerage **(**DPUK), nearly 40% of household have non-metered water connections as of 2011. Since 24-hour water service is not available within all the service areas, the actual water consumption is deemed different from the potential water demand in case of full-time supply service. Repair and new installation of the water meters are also the urgent issues.

As to the flow control of the water supply system, Tirana Water Supply and Sewerage Company (UKT) had already installed flow meters at the outlet point of each reservoir in 2011 to record the effluent water volume from each reservoir. Data from these meters enables UKT to manage the distribution of water, meeting the required demand of each distribution block. The difference between distribution volume and metered consumption volume presents clear figures of unaccounted water volume as a result of leakage or water theft in the network and it can be dealt with by efficient pipeline repair works. Introduction of network management system using hydraulic analysis software like Water Cad or a similar mapping system helps reconstruct an efficient network system and sustainable O&M works.

For the financial sustainability of UKT, further reduction of maintenance cost shall be promoted together with reduction of non-revenue water and increase of collection rate. For example, power cost, which covered almost a quarter of total maintenance cost in 2011, shall be investigated more in detail.

(2) Unstable Water Supply System in Tirana

Based on the UKT data, daily average consumption volume per capita in billed water basis was 82,354 m^3 in 2011. Daily maximum volume, the basis for configuring the water supply facilities, is estimated to be 228,700 m^3 assuming 43.7% of revenue water ratio and 82.4% of peak factor of daily average volume against the daily maximum volume. The ratio of 82.4% was applied to the daily average flow based on the records in the past three years.

Daily Maximum Supply Volume = Daily average supply volume ÷ Revenue water ratio ÷ Peak factor

$$= 82,354 \div 0.437 \div 0.824$$

$$= 228,700\ m^3/day$$

On the other hand, total capacity of main reservoirs within UKT service area is 86,300 m^3, equivalent to 9.1 hours of daily maximum flow (9.1=86,300/228,700 x 24). More than 12 hour-equivalent volume of daily maximum flow is required for the reservoir capacity to correspond to the hourly fluctuation, thus expansion of the reservoir capacity is desirable.

While non-revenue water ratio can be improved by reducing leakage and eliminating illegal connections, water demand per capita is likely to increase due to the increase of service populations and upgrading of life style. For this reason, production capacity of water source shall be reviewed.

Some of the water source wells located in the non-sewered areas are contaminated by ammonia or coliform attributed to sewage, and those wells are exposed to the risk of future closure.

Low water pressure area and low residual chlorine area are others issues to be tackled by UKT to improve the water supply service.

6.2 National Policy and Strategy on Water Works and Sewerage Sector

Water supply and sewerage (WSS) goes hand in hand. This section therefore deals with national policy and strategy on not only waterworks but also sewerage sector. An outline of the National Water Supply and Sewerage Services Sector Strategy 2011-2017, the latest national sector strategy plan, released in May 2011, is summarized below.

(1) Sector Strategy and Objectives

This national strategy is based on the assumption that the 3.4 million population in 2010, base year, will continue to increase with a moderate annual growth rate of 0.4% and considering internal migration from rural to urban area. A social program for the poor will be introduced in the sector.

In order to comply with the EU Directives, the River Basin Management shall be executed by revising the relevant laws. The General Directorate of Water Supply and Sewerage, under the Ministry of Public Works and Transport, has started a monitoring and benchmarking program (M&B Unit) since 2002, applying mainly six performance indicators, shown below, for 58 domestic water supply utilities.

1. Water Supply Service Coverage
2. Sewerage Service Coverage
3. Water Supply Demand Ratio (Non-Revenue Ratio)
4. Continuity of Water Supply Service
5. Safety of Water Supply (Water Quality)
6. Sewage Treatment Ratio

Improvement of operating efficiency of the utilities transferred to the local government units (LGUs) by appropriate assets management and cost recovery policy is necessary. Consolidation of the utilities shall be promoted to strengthen operating efficiency and Private Sector Participation (PSP) shall be promoted under the guidance of the central government.

(2) Vision, Mission Objectives and Priority Actions

Strategic goal of performance indicators from the year 2011 to 2017 is shown in Table 6.2.1.

(3) Policies

Following 9 policy statements are described

- Jurisdiction of Tariff Policies
- Tariff Differentiation and Structure
- Cross-subsidy between Customer Category
- Cost Recovery for Service Providers
- Introduction of Targeted Subsidy
- Asset Inventory and Valuation of Water Supply and Sewerage Systems
- Consider and Draft a Special Water Supply and Sewerage Service Law
- Licensing of Water Supply and Sewerage Service Providers
- Authorization to Replace a Failing Operator

Table 6.2.1 Strategic Goals and Performance Indicators (1/2)

No.	Performance Indicators	Ind. Fact 2010	Strategic Goals for Year-End			
			2011	2013	2015	2017
1	Expand and improve the quality of water supply and sewerage services.					
1.a.1	Water Coverage for the urban area.	90.7%	91%	93%	95%	98%
1.a.2	Water Coverage for the rural area.	57.0%	60%	70%	79%	85%
1.b.1	Sewerage Coverage for the urban area.	83.0%	83%	85%	86%	87%
1.b.2	Sewerage Coverage for the rural area.	10.9%	11%	15%	25%	45%
1.c.1	Continuity of Service for Water Supply	11.1hrs	12hrs	14hrs	16hrs	20hrs
1.d.1	Sewer Treatment Coverage from treatment plants.	4.0%	7%	20%	30%	40%
1.e.1	Develop and routinely maintain a national needs survey that will prioritize projects for investment				100%	100%
2	Orient the water utilities toward principles of cost control and full cost recovery.					
2.a.1	Direct Operational Costs (DOC) Coverage with Revenue.	93.4%	95%	100%	100%	100%
2.a.2	Direct Operational Costs (DOC) Coverage with Collections.	78.6%	80%	90%	100%	100%
2.a.3	Total Operational Costs (TOC) Coverage with Revenues.	66.6%	68%	72%	76%	80%
2.a.4	Total Operational Costs (TOC) Coverage with Collections.	56.1%	58.5%	64.8%	71.4%	78.4%
2.a.5	Coverage of capital reserve funds (repair/ replacement and new capital) with revenues.	0%	0%	10%	30%	50%
2.a.6	Overall Collection Rate.	84.2%	86%	90%	94%	98%
2.b.1	Reduction of Non- Revenue Water.	63.2%	60%	54%	48%	40%

No.	Performance Indicators	Ind. Fact 2010	Strategic Goals for Year-End			
			2011	2013	2015	2017
2.b.2	Metering Level for water consumption expressed in number of connections.	44.6%	48%	60%	72%	85%
2.b.3	Metering Level for water production expressed in number of meters.	16.0%	30%	90%	100%	100%
2.b.4	Metering Level for water distribution expressed in number of meters.	12.0%	13%	60%	100%	100%
2.c.1	Initiate a program to require all licensed water utilities to have a fully documented asset management system.			100%	100%	100%
2.d.1	Require all licensed water utilities to develop and annually update a five-year business plan.			100%	100%	100%
2.e.1	Develop and implement a targeted subsidy program for poor households.			100%	100%	100%

Source: National water supply and sewerage services sector strategy 2011-2017

Table 6.2.1 Strategic Goals and Performance Indicators (2/2)

No.	Performance Indicators	Ind. Fact 2010	Strategic Goals for Year-End			
			2011	2013	2015	2017
3	Improve governance and regulation in the sector.					
3.a.1	Continue to strengthen the role and function of the water regulatory entity.		50%	100%	100%	100%
3.b.1	Expand the licensing activities of the water regulatory entity to achieve licensing of all water systems .se			100%	100%	100%
3.c.1	Develop and disseminate a Model Service Delivery Agreement		50%	100%	100$	100%
3.d.1	Strengthen new General Directorate in role of Technical Secretariat of National Water Council and the River Basin Agencies.			75%	100%	100%
4	Invest in enhancing the capacities of the sector work force.					
4.a.1	Hours of staff training per year (hours/year/person).		1	8	24	40
4.a.2	Number of Trained and Certified Managerial Staff for their working positions.		0	25	150	150
4.b.1	Require all Supervisory Council members of licensed water utilities to attend and complete a training course on their roles, duties, authorities and responsibilities.			100%	100%	100%
5	Move toward convergence of Albanian law with EU Water Directives.					
5.a.1	Propose water related legislation for Parliamentary approval that supports convergence with EU Water Directives.			100%	100%	100%
5.b.1	Consider and develop a new sector specific law for water supply and sewerage services.		50%	100%	100%	100%
5.c.1	Regional Water Supply and Wastewater Utilities.	57	57	45	35	26

Source: National water supply and sewerage services sector strategy 2011-2017

6.3 Findings from Previous Studies

The following four studies, among others, have a big impact on the water supply for Tirana Municipality and surrounding LGUs.

(1) Urban Regulatory Plan in Tirana Municipality (URPTM: 2009)

This World Bank funded plan was prepared in 2009 to cope with the future urbanization of Tirana Municipality caused by the rapid increase of population; a review of the plan is in progress. Waterworks master plan and action plan shall be in compliance with the urban planning and land use planning described in this URPTM report.

(2) Master Plan –Technical and Financial Assistance to the Greater TWS&SE (December 2002)

This plan was prepared by Consortium Tirana Acque with financial aid of the Italian

Government. It is aimed at improving operational conditions, restructuring of the organization, capacity building, and sustainability of UKT.

(3) Master Plan –Technical and Financial Assistance to the Greater TWS&SE First Update (September 2003)

2002 Report was updated expanding study area up to the surrounding communes connected to UKT supply water, and also independent water supply system outside of UKT jurisdiction. Detailed survey of the existing facilities was done and improvement plan including expansion of reservoir capacity, renovation of pumping facilities and enforcement of pipe network was proposed.

(4) Water Supply and Sewerage Master Plan for Albania

This national plan has just started from this year by the aid of German KfW (Kreditanstalt für Wiederaufbau) covering nationwide existing 58 water supply and sewerage companies. In accordance with the National Policy and Strategy released this year by the governing ministry, MOPWT, this plan aims for elaborating master plan and action plan of 58 companies. Consolidated regional company may be introduced to stabilize their operational and financial conditions.

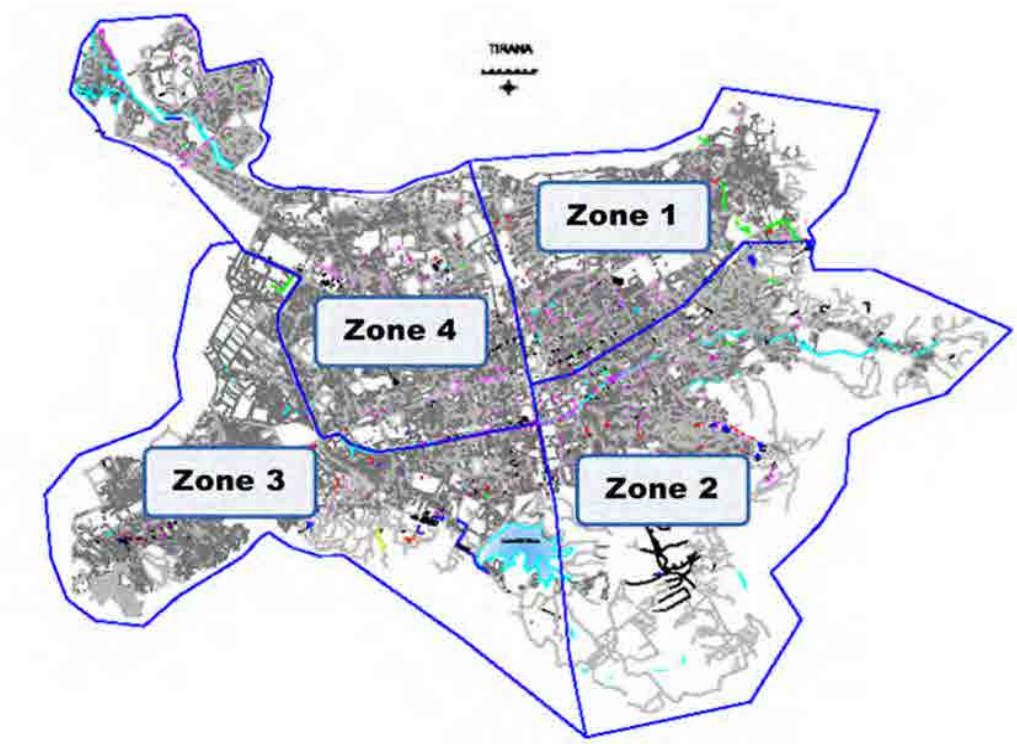
6.4 Implementing Agency of Water Supply and Sewerage Sector

(1) Organization

The existing implementing agency of the WSS sector is Tirana Water Supply and Sewerage Company, or UKT. As of end 2011, the total number of people working at UKT is 1,154 including 116 full-time outsourced contract employees. The Engineering department has three divisions, namely, Distribution Division, Technical Division and Sewerage Division.

The Technical Division deals with the study and design of projects needed for expansion and improvement of the transmission pipe and distribution networks. The Distribution Division manages maintenance and control of the distribution networks now limited within Tirana Municipality through four regional units shown in Figre6.4.1. The Sewerage Division manages and maintains all the sewer networks through four units same as waterworks.

The Production Division is in charge of the water source, treatment plant and transmission line up to the distribution reservoir which is overseen by a vice general director since its water source spreads outside of Tirana Municipality and coordination between LGUs is required. The organizational chart with staff number is shown in Figure 6.4.2.



Source: UKT

Figure 6.4.1 The Division of Tirana City in Four Management Zones

(2) Performance Record

In 2011, UKT's total production volume was 105,029,200 ㎥ of which 84% is produced from gravity-based source, which means Bovilla Lake and other springs, while the remaining 16% comes from an underground well using pump facilities. As to the billed water, 45,917,800 ㎥ was consumed as revenue water of which 43% was consumed for residential use, 7% for private entity, 6% for institutional use, and the rest, amounting to 44%, for wholesale to the municipality/commune other than Tirana Municipality. Main performance indicators of UKT in 2011 are shown in Table 6.4.1.

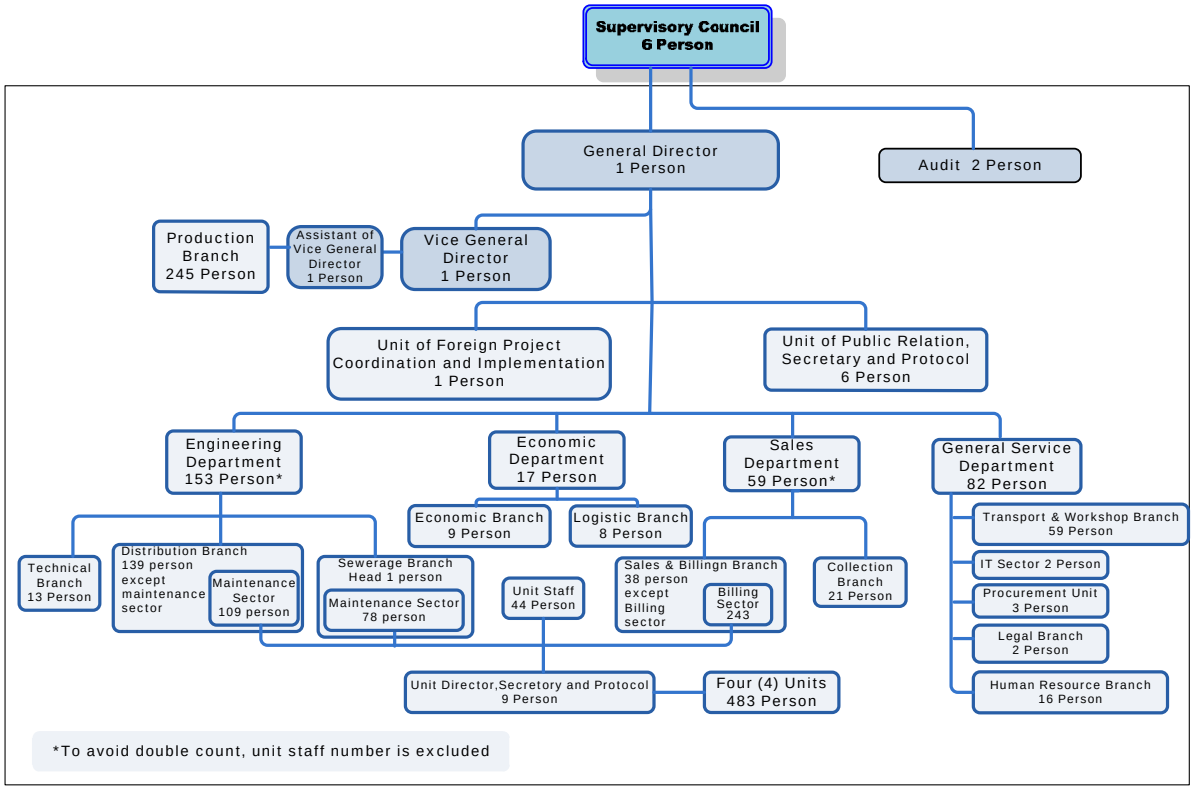
(3) Financial conditions of UKT

From the revenue-expenditure sheet, the net income of 2010 has remarkably increased from that of 2009, due to the tariff hike, increase of metered collections and removal of illegal connections.

Table 6.4.1 Outcome of UKT Main Indicators in 2011

Item		Performance	Remarks
Coverage	Water supply (%)	91.74 %	Urban area 100% Rural Area 59.90%
	Sewerage (%)	79.40 %	
Non-Revenue Rate (%)		56.28 %	Production per capita per day 342.78 litter Water Sale per capita per day 145.87 liter
Service Hour per day		11.13 hrs.	
Water Quality Compliance Rate	Residual Chlorine (%)	100 %	
	Coliform (%)	99.44%	
Sewage Treatment Ratio		-	On-going JICA Project will contribute.
Staff Number per Connection		3.72	

Source: UKT



Source: UKT

Figure 6.4.2 Organization Chart of UKT

6.5 Existing Conditions of Water Supply System

Findings on the water supply system within UKT jurisdiction, Tirana Municipality and surrounding area, acquired through the collection of the data, discussion with the UKT staff and site survey are summarized below.

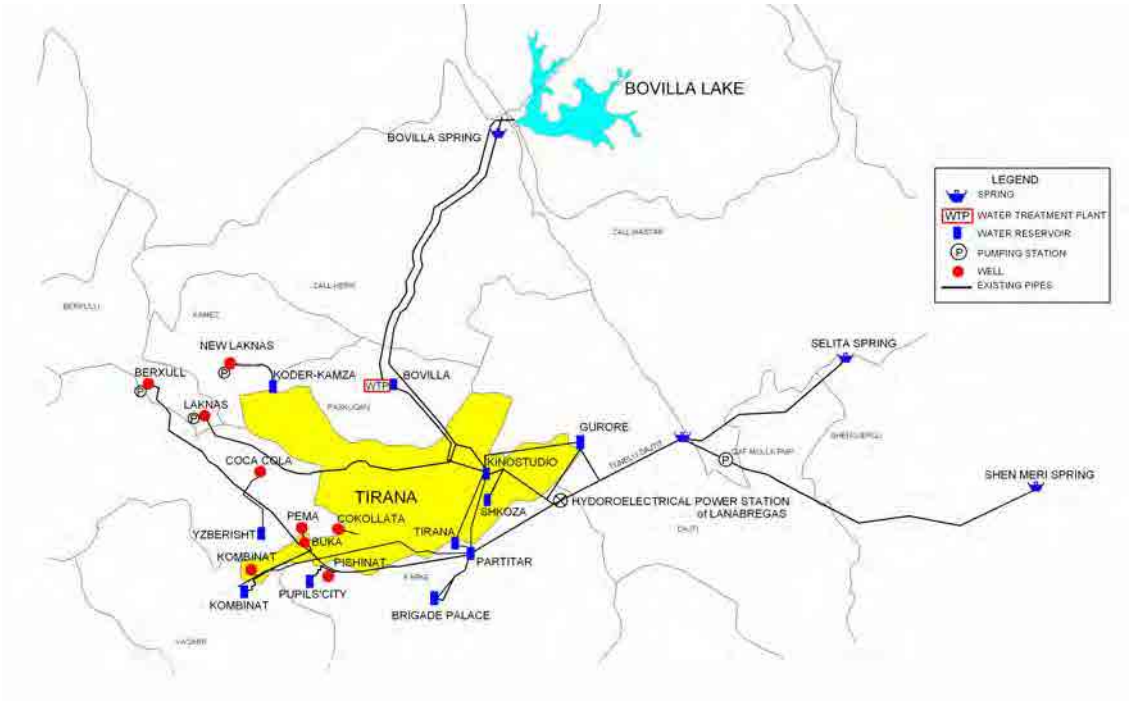
(1) Water Demand Projection

Based on URPTM projection, UKT will serve 1,290,000 water consumers, supplying a daily maximu m³ 63,740 m^3 to 472,600 m^3 (4,210L/sec to 5,479 L/sec) in the year 2020.

(2) Current Water Supply System

Outline of the Current System

As of 2011, Tirana Municipality sources its water from 1) Surface water from Bovilla Lake, 2) 3 springs, and 3) Groundwater from 9 well fields. Surface water is treated at Bovilla Water Treatment Plant and then conveyed to the distribution network and distribution reservoirs. Spring water and ground water are also conveyed directly to the network or to the reservoirs after chlorination. Location of each source is shown in Figure 6.5.1 together with main reservoirs. Note that there are many reservoirs outside of Tirana Municipality for the water supply to surrounding area.



Source: UKT

Figure 6.5.1 Water Source and Reservoir Location

Water Resources

Total intake capacity from various kinds of water sources (Bovilla Lake, 3 springs and 9 well fields) is 3.450 m^3/sec (≒ 298,000 m^3/day), which is enough to cover the service area of UKT. Especially, Bovilla Lake is reserving abundant water for the future demand.

Bovilla Lake has good water quality and is categorized in Class A in the environmental water quality standard, while some of the well fields are exposed to the risk of pollution and eventual closure due to the lack of appropriate wastewater treatment system in the area of well fields.

Water Treatment Plant (WTP)

Bovilla WTP is the only treatment plant operated by UKT. Water from the two other sources, spring and underground, is supplied to the distribution network only after chlorination.

The treatment capacity of Bovilla WTP is 6,500 m^3/hr. (=156,000 m^3/day). Rapid sand filtration method after coagulation/sedimentation is applied for the water treatment, and powdered activated carbon is injected into the filter system to eliminate the stagnant smell of the Lake

water during October to January.

Once water is treated, it is stored in the purified water reservoir located within the plant site and distributed to the network or other distribution reservoirs by gravity after post chlorination. Residual chlorine concentration at the outlet point is kept at 0.8~1.0 mg/L as of December 2011. Sludge from the sedimentation tanks and backwashed water flow into the sludge storage tank. Overflow from the tank is returned to the inlet receiving well, while sludge is discharged to Tirana River.

A total of 30 plant personnel divided into 4 teams and 3 teams with one standby team operate the plant every 8 hours by three shifts. Influent and effluent water quality is analyzed for 17 parameters two times a day, at 8 a.m. and 2 p.m.

Transmission Pipe

One of the urgent issues for UKT is the illegal connection, specifically the illegal abstraction from the transmission pipe. Work is now underway to install large transmission pipes of 700 mm diameter together with the removal work since the large pipe is difficult to connect to the branch pipe.

Reservoirs

Eighteen reservoirs are located in and around Tirana City as of 2011, and a total capacity of 86,300 m^3, equivalent to 9.1 hours volume of the 228,700 m^3/d daily maximum supply volume in 2011.

Distribution Network

There exist areas where water pressure is under 2.0 MPa in the eastern hilly and southwestern area. Residual chlorine concentration measurements at 21 points in the water supply area, shown in Figure 6.1.5, conducted by the Study Team in July 2012, indicated values ranging from 0.0 mg/L and 1.8 mg/L. The point with a 0.0 mg/L value is the result of being directly tapped from the raw water main without chlorination. And there were 10 points recording more than 1.0 mg/L of concentration. The high concentration of chlorine injection by UKT explains this fact, especially in summer season as the higher water temperature rise, the more rapidly water consumes chlorine. UKT injects more chlorine considering that majority of the consumers use water reserved in private storage tanks while UKT water is cut off. Although this level of concentration does not pose danger to human health, a lower concentration of chlorine injection is better for the taste of water. At least 0.3 mg/L of residual chlorine concentration is necessary based on the drinkable water quality standard in Albania.

(3) Activities of Other Donors on WSS Sector

Many donors have provided technical or institutional support toward the WSS sector in Albania. Recently, the German consultants, with funding from the German development bank KfW, have started the "Water Supply and Sewerage Master Plan for Albania." They have just submitted a draft inception report screening and verifying existing documentation, defining voids and proposing remedies. The target year of the Master Plan is set for 2040. The plan can be a big

driving force for the development of WSS sector in Albania. As to Tirana-related information, no project except JICA's Sewerage Project is on-going.

6.6 Improvement Plan for Water Supply System

(1) Objectives and Strategies of the Water Supply Plan

Objectives

Overall planning objectives are as follows:

- To balance the supply and demand volume up to the target year 2027 within UKT's jurisdiction area;
- To supply safe water without allocation; and
- To construct the framework for the sustainable water supply system.

Strategy

Strategies for accomplishing the above-mentioned objectives are as follows:

- Set up an efficient and practical plan for the solution of existing problems and achievement of the goal;
- To comply with the staged goal described in "National Water Supply and Sewerage Services Sector Strategy 2011-2017"; and
- To follow the short and middle-term action plan prepared by UKT based on the national policy.

Target Area

The existing service area of UKT covers not only Tirana Municipality but also the surrounding municipalities and communes. Therefore, in discussing and investigating the water supply system in Tirana Municipality, the total area should always be taken into consideration. Although effective and practical action plans are focused on the "yellow line area," some proposals related to the water sources, treatment plant, reservoirs, raw water pipeline and water transmission pipeline cover areas beyond the yellow line.

Target year

As the staged target year up to 2027, short term target year is set up at 2017, while middle term target year is 2022. Goal at each stage is clearly figured in this study.

Methodology of the Study

The first step of the work is future demand projection based on future population by distribution blocks under which flow control shall be conducted. One distribution block is the area covered and supplied by one reservoir or several reservoirs located nearby. Next comes the balancing of the gap between total water supply and total demand.

Based on the balanced figure, the following improvement plan shall be elaborated.

- Additional water source development;
- Water flow/quality control;
- Peak demand control;
- Inter distribution block (DB) volume control;
- Energy saving plan; and
- Capacity building.

(2) Water Balance between Supply and Demand

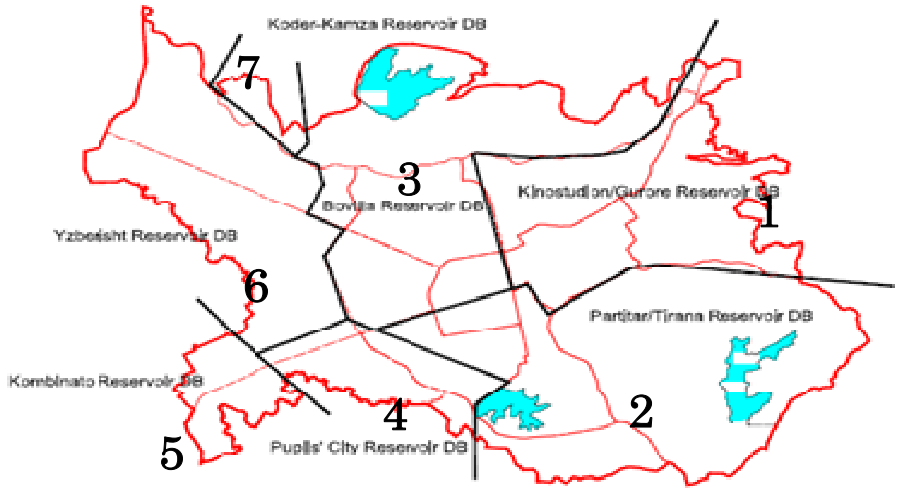
Water Demand Projection

Water demand in 2027 is the basic figure for the facility planning and is calculated by each distribution block multiplying unit water consumption volume per capita by the service population. This daily average demand is converted to the daily maximum supply volume considering the peak factor between daily average flow and daily maximum flow and also revenue water rate. Unit consumption volume is 200 lpcd. Revenue water ratio is 80% and peak factor is 0.85 in 2027 based on the UKT past performance indicator. Then, water demand in daily maximum base is calculated as follows:

Daily maximum water demand = Daily average consumption volume / peak factor /revenue rate.

Water demand in Tirana Municipality is calculated by seven distribution blocks shown in Figure 6.6.1.distributing service population of mini-municipality into each block.

For the LGU other than Tirana municipality with future population projection data, water demand is calculated based on the service population within each LGU in the same way as Tirana Municipality. For the LGU without future population projection, 1.5 times of existing wholesale volume is estimated to be water demand in 2027. Total water demand is estimated to be 303,000 m^3/d, as is shown in Table 6.6.1.



Source: UKT

Figure 6.6.1 Distribution Block

Demand and Supply Balance

It is requested that the daily maximum demand be satisfied by the constant water supply all year round. Corresponding to the water demand of 303,000 m^3/d in 2027, an additional water supply capacity of approximately 20,000 m^3/d is required according to the following calculations:

Demand-supply gap in 2027 is
303,000 - 283,100 m^3/d = 19,900 ≒20,000 m^3/d

(3) Water Resource Development

According to the URPTM 2009 report, the potential intake volume of existing water sources will not be able to cover the future water demand of the service area, while UKT staff believes the potential volume is enough for future demand as long as the produced water reaches the distribution reservoirs with minimum leakage and illegal connection losses.

From the projection of the Study Team, approximately 20,000 m^3/d additional water supply capacity is required and this volume can be covered by the overflow water of Bovilla dam now amounting to 20,000,000 m^3/year (= 54,800 m^3/d).

In case of closure of groundwater wells that are probably contaminated, sourcing of the 20,000 m^3/d of water elsewhere is necessary. In total, an additional 40,000 m^3/d has to be sourced and developed before the target year. The Study Team assumes groundwater will be used continuously up to the target year.

For the continuous use of the existing wells, installation of sewers in the area of well fields is recommended to prevent groundwater contamination.

(4) Raw Water Main

Water conveyance of additional 54,800 m^3/d from Bovilla dam to Bovilla WTP requires laying more pipelines with a diameter of 800 mm and length of 10.5 km.

Table 6.6.1 Water Demand Projection

Tirana Municipality

mini-municipality / Distribution Block	Tirana 1	Tirana 2	Tirana 3	Tirana 4	Tirana 5	Tirana 6	Tirana 7	Tirana 8	Tirana 9	Tirana 10	Tirana 11	Total	Unit volume(lpcd)	Daily maximum volume
	54,464	122,181	54,540	65,489	100,403	92,987	97,503	54,935	84,461	31,320	83,078	841,361	200	
Gurore/Kinostudio	21,782	12,217	54,540	65,489				54,935	16,890			225,853	45,171	66,430
Partitar/Tirana	32,682	109,964			40,159		19,497			20,360		222,662	44,530	65,490
Bovilla Reservoir						4,648	68,250		67,571	10,960	37,390	188,819	37,760	55,530
Pupils' City					60,244	18,601						78,845	15,770	23,190
Kombinat						41,841						41,841	8,370	12,310
Yzberisht						27,897	9,756				24,918	62,571	12,510	18,400
Koder-Kamza											20,770	20,770	4,150	6,100
SUM	54,464	122,181	54,540	65,489	100,403	92,987	97,503	54,935	84,461	31,320	83,078	841,361	168,261	247,450

Other than Tirana municipality (1)

	2027 population		Total Demand (m3/d)		2011billed volume (m^3/d)		Daily maximum volume 2027 volun	Coverage at 2027	
Kamza Municipality	108,610		21,722		3,220		9,580	30%	(UKK 70%)
Paskuqan Commune	65,166		13,033		2,880		13,420	70%	
Kashar Commune	50,684		10,137		1,450		10,430	70%	
Farka Commune	36,203		7,241		2,372		7,450	70%	
Dajt Commune	14,481		2,896		3,280		2,980	70%	
Berxulle Commune	11,585		2,317		366		2,390	70%	
Vaqarr Commune	15,205		3,041		451		3,130	70%	
SUM	301,934		60,387		14,019		49,380		

Other than Tirana municipality (2)

	2011 billed volume (m^3/d)		Daily maximum volume
Zall Herr Commune	1,125		2,480
Berzhit Commune	1,250		2,760
Petrele Commune	157		350
Peze Commune	140		310
Krrabe Commune	126		280
SUM			6,180

(*) Daily Maximum Volume = Daily Average Volume/0.8(Revenue water ratio)/ 0.85(peak factor)

Total Maximum Volume = 247,450 + 49,380 + 6,180 = 303,010 ⇒ 303,000m3/day

Source: JICA Study Team

(5) Water Treatment Plant (WTP)

The Bovilla WTP capacity is increased by 50,000 m^3/d, from the existing 156,000 m^3/d to 206,000 m^3/d, using the overflow water from the Bovilla dam.

Proposed daily maximum water demand in 2027 is estimated at 303,000 m^3/day. Meanwhile, the existing water supply capacity is 283,100 m^3/d. Although the balance explained earlier at the additional capacity of 20,000 m^3/d is enough to meet the daily maximum water demand in 2027, the total water supply capacity falls short against the demand in just five years considering the construction work of the expansion facilities of 20,000 m^3/d is scheduled to be completed in 2022.

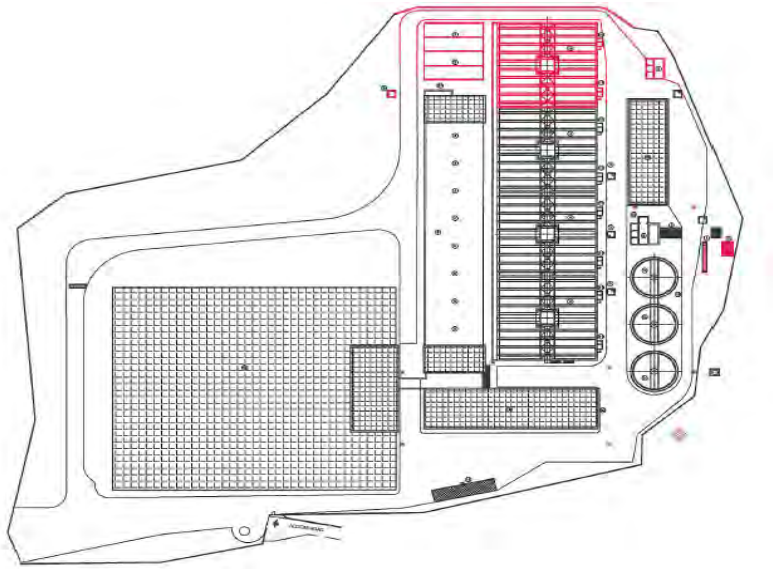
It is necessary to decide the increase capacity of the Bovilla WTP considering the extension of water supply hours, in view of increased water demand in Tirana and the surrounding area through the improvement of the water supply system, and the possibility of closure of contaminated groundwater wells.

Furthermore, the amount of overflow volume of 20,000,000 m^3/year (54,800 m^3/d) from the Bovilla Dam may fluctuate owing to seasonal changes.

In conclusion, the increase capacity of the Bovilla WTP is decided at 50,000 m^3/d considering unpredictable factors and expansion of the existing capacity from 156,000 m^3/d to 206,000 m^3/d.

Treatment method of expansion facility is selected from two options. First option is to adopt the same treatment method as the existing facilities – flocculation/sedimentation and rapid sand

filtration method. Second option is to adopt membrane filtration method, which has become a popular method in Japan. An advantage of membrane filtration method is its space saving characters, while its disadvantage is power cost and complex maintenance procedure. The membrane has to be cleaned with chemicals regularly, once or twice a year, at the manufacturer's designated plant. Since the latter is not convenient in Albania, the Study Team recommends the first option. Even in this case, the required area for the adopted method, flocculation/sedimentation and rapid sand filtration, can be secured within the existing plant site, as shown in Figure 6.6.2, without area expansion.



Source: UKT

Figure 6.6.2 Expansion Plan of Bovilla WTP

(6) Reservoirs

Water allocation to each water distribution reservoir is mainly caused by the shortage of water storage capacity of the reservoirs. Increasing reservoir capacity is an essential measure to enable 24-hour water supply.

The seven water distribution blocks cover water supply for the entire area of Tirana Municipality. Some reservoirs are supplied from another reservoir to adjust the water balance for the service blocks. The required water storage capacity of each reservoir is decided considering the water demand of the service covering area and also the water transmission capacity. Basically, the required capacity is one hour volume equivalent to the daily maximum water demand. Table 6.6.2 shows the required volume of each water distribution reservoir. Many water distribution reservoirs need expansion of the water storage volume.

Table 6.6.2 Improvement Plan of Reservoirs

Nr.	Distribution block	Maximum daily demand(m^3/d) in 2027 Ⓐ	Volume required for 12hours of detension (m^3) Ⓑ=Ⓐ×12/24	Volume required for transmission adjustment (m^3) Ⓒ	Required volume of proposed reservoir (m^3) Ⓓ=Ⓑ+Ⓒ	Volume of existing reservoir (m^3) Ⓔ	Volume of reservoir planned or under construction (m^3) Ⓕ	Required volume of necessaary to increase (m^3) Ⓖ	Proposed
Ⅰ	Gurore／Kinostudio	Gurore 31,620 Kinostudio 34,810 66,430	33,215	1,728	34,943	21,000	8,000 (2013)	5,943 ⇒6,000	**15,000m3 of additional water reservoir (including 1,000m3 of Shkoze reservoir) is necessary to construct.**
Ⅱ	Partitar／Tirana	Partitar 24,030 Tirana 41,460 65,490	32,745	—	32,745	22,900	15,000 (start 2012)	—	**No increasing of reservoir is necessary after complition of 15,000m3 reservoir construction.**
Ⅲ	Bovilla	55,530	27,765	5,678(*)	33,443	30,000		3,443	**Transmission to Kombinat, Pupil's city, Yzberisht and Koder–Kamza block is considered in the future.**
Ⅳ	Pupil's City (Qyteti Nxenesve)	23,190	11,595	—	11,595	4,000	6,500 (2014)	1,095	**8,000m3 of additional water reservoir is proposed (planned volume + required volume)**
Ⅴ	Kombinat	12,310	6,155	—	6,155	5,000	5,000 (2015)	—	**3,000m3 of additional water reservoir is proposed instead of 5,000m3 construction planned**
Ⅵ	Yzberisht	18,400	9,200	—	9,200	1,400	6,500 (2015)	1,300	**8,000m3 of additional water reservoir is proposed (planned volume + required volume)**
Ⅶ	Koder–Kamza	6,100	3,050	—	3,050	2,000	—	1,050	**2,000m3 of additional water reservoir is proposed**
	計	247,450	123,725			86,300			

(*) Break down of required transmission adjustment volume of Bovilla block

- One hour volume of Kinostudio water supply
  $34,810m^3/d \times 1/24=1,450m^3$
- One hour volume of Tirana water supply
  $41,460m^3/d \times 1/24=1,728m^3$
- One hour volume of Kombnat water supply
  $12,310m^3/d \times 1/24=513m^3$
- One hour volume of Pupil's City water supply
  $23,190m^3/d \times 1/24=966m^3$
- One hour volume of Yzberisht water supply
  $18,400m^3/d \times 1/24=767m^3$
- One hour volume of Koder–Kamza water supply
  $6,100m^3/d \times 1/24=254m^3$

Total $5,678m^3$

Source: JICA Study Team

(7) Transmission Pipe and Distribution Network

New water transmission pipes of ductile cast iron shall be installed between the WTP and the distribution reservoirs to establish a stable water transmission system and to prevent illegal connections.

Additional connection pipe(s) between the water distribution blocks shall be installed to mitigate the low water pressure problem in the eastern hilly area and the southwest area of Tirana Municipality. Those service areas will be supplied by new reservoir(s).

To check the residual chlorine concentration within the water distribution network, an automatic measurement system shall be installed at the point where the low residual chlorine concentration is anticipated. Fifteen points or so shall be selected as the water sampling points.

A pipe mapping system having also the function to carry out hydraulic analysis shall be introduced to prepare the expansion, repair and replacement plan corresponding to the increase of the water demand and urbanization of the area. Assigned personnel have to master the know-how of the system through classroom or on-the-job training.

(8) Reduction of Non-Revenue Water (NRW)

Reduction of non-revenue water is one of the urgent issues to stabilize the financial condition of UKT. UKT assumes that water losses due to illegal connections account for 30 to 35% of NRW and 20 to 25% of NRW volume is wasted from the deteriorated old pipeline mostly made of steel pipes. Although the replacement of water transmission pipe to prevent illegal connections is undertaken by UKT, non-revenue water rate still remains high. Planned water leakage surveys and repair work shall be scheduled setting up the special task force team with appropriate water leakage detection devices.

For the reduction of NRW, flow control or measurement based on the District Metering Area (DMA) is one of the useful methods. Block (shut) valve(s) and flow meter(s) shall be inserted to structure the DMA within the network to measure the daytime/night time water flow at the pending points to determine the leakage point.

(9) Energy Saving Consideration

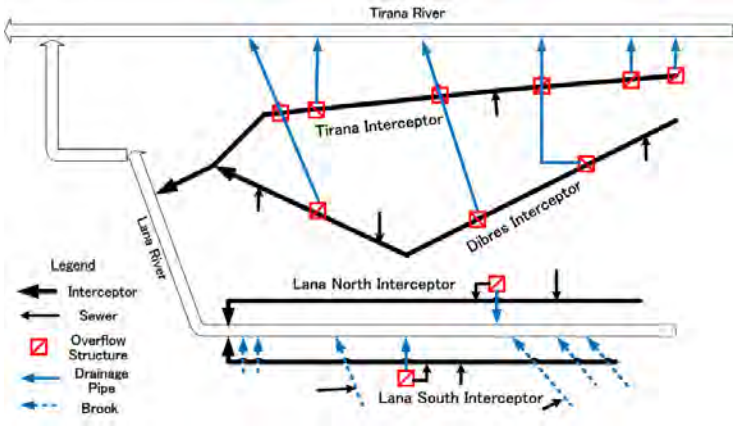
Reduction of power cost, which accounts for nearly one-fourth of total Operation and Maintenance (O&M) cost of UKT, is one big issue to ensure a stable management of the water supply system. Power cost reduction by utilization of renewable energy, hydro-power and solar power etc., can be appealing countermeasures.

7. Sewerage and Drainage

7.1 Existing Conditions and Issues on Sewerage/Drainage System

(1) Existing Conditions of Sewer System

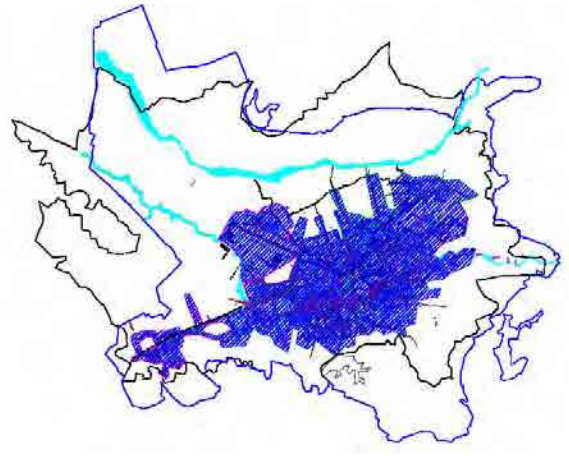
Existing sewerage system of Tirana municipality is a combined collection system without treatment facility, then, sewer pipes and drainage (storm water) pipes are not clearly demarcated. Almost all the sewage collected through combined sewer pipe is introduced to the interceptor sewer up to the discharge point located downstream of Lana river. Four (4) interceptors are installed as is shown in Figure 7.1.1. Via overflow structure on the way of interceptor, storm water is discharged to Tirana or Lana River through drainage pipe.



Source: JICA Study Team

Figure 7.1.1 Schematic Sewer System

Based on the the date of Ministry of Public Works and Transport, General Directorate of Water Supply and Sewerage **(**DPUK), total length of sewer pipes has amounted to 559 km including interceptors, main sewers and branch sewers as of end of 2011. Material of the existing pipe is mainly concrete, while polyethylene or plastic pipe is very few, less than 1.0 percentage. Tirana Water Supply and Sewerage Company (UKT) invested to the installation of sewers and main interceptors including revitalization of sewers in the urban blocks in the past years. The pipelines are still in service although most of those pipes were installed during 1930's and 1970's. UKT report says population accessible to the sewer network is 787,500.



Source: JICA Study Team

Figure 7.1.2 Sewer Coverage

According to the previous JICA study, existing sewer pipes have not sufficient capacity to accommodate both domestic wastewater and storm water while they have enough capacity to serve as the separate wastewater sewer.

As to the drainage pipe, there are two types of drainage pipes, one is pipes constructed at natural water courses bed and the other is the pipes constructed under the roads and under terrene. Former one is called" Brook" and there are six brooks along the south side of Lana River although they play a big role for collection and transport of not only storm water but also wastewater. Drainage pipe not in the natural water course has also same function as the combined sewer and also as the overflow pipe of the storm water from the overflow structure. . Although it is desirable to separate storm water pipe from sewage pipe, separation requires much volume of new pipe installation. 2007 JICA Study recommended efficient sewage collection system utilizing existing combined interceptor system.

(2) Maintenance of the Sewer Pipe

Sewerage branch staffs distributed to four units corresponding to four blocks within Tirana Municipality are engaged mainly in the maintenance work of the sewer network based on the annually scheduled plan. Sewerage branch is also in charge of a new construction of sewer pipe, replacement of deteriorated sewers and supervision of sewer pipe construction. Some 2.0 km of sewer construction is scheduled in 2012.

7.2 Review of Available Master Plan and On-going Project

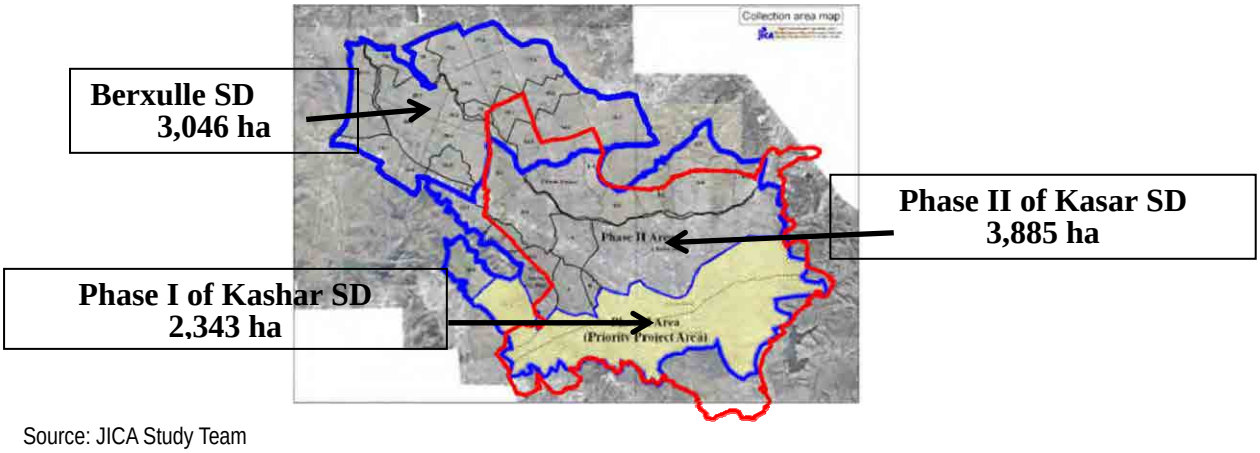
Available master plan was prepared in the 2007 JICA Study Report together with feasibility study of the priority project. Loan Agreement on the priority project was made in June 2008 between Albania and Japan, and consulting service by the contracted consultant commenced in February 2010. Through the consulting service, master plan was once reviewed and detailed design for priority project has been developed. This section focuses on the reviewed master plan of the ODA loan tem as the basic data to be carefully checked. URPTM plan once completed in 2009 by Tirana Municipality was not officially approved, so discussion on the report is not described in this paper.

(1) Outline of Reviewed Master Plan

Target Year

Target year of the Master Plan in 2007 JICA Study was 2022. Study area was covered by two Sewer District, Kashar Sewer District and Berxulle Sewer District. Kashar Sewer District was scheduled to be developed in two phases. Phase I (priority project) covers mainly north and south side of Lana River where two interceptors along the Lana River are covering, and Kombinat area along the trunk main sewer line. Cover area is shown in Figure 7..2.1.

Phase I project was supposed to complete in 2013, phase II is 2017, while Berxulle Sewer District would finish at 2021.



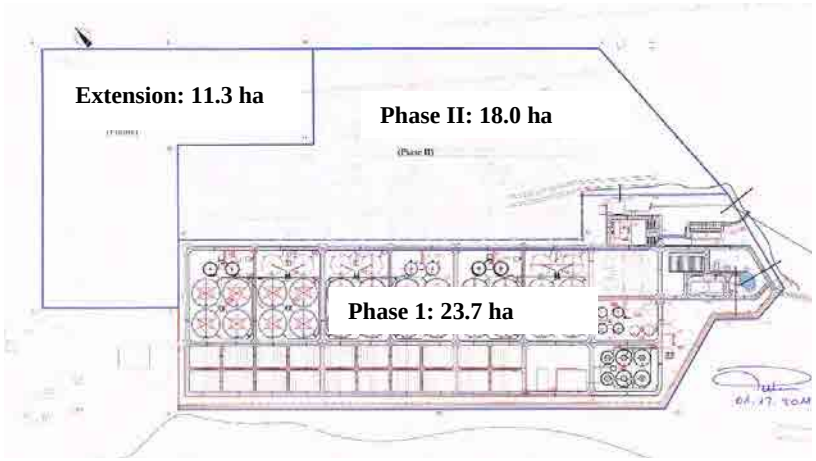
Source: JICA Study Team

Figure 7.2.1 Master Plan Area

In the revised plan by ODA loan project team, three staged development plan was set up for Kashar Sewer District and Berxulle Sewer District, that is

2013 for the Phase I project, 2022 for the Phase II project and 2030 for the Sewerage Treatment Plant (STP) expansion project. Development of Berxulle Sewer District was postponed to the period after 2022 aiming for the completion of the development before 2030

Kashar STP site was divided into each phase as is shown in Figure 7.2.2.



Source: JICA Study Team

Figure 7.2.2 Staged Construction Plan of Kashar STP

Target Flow

Service population and sewage flow was also reviewed as shown in Table 7.2.1 and Table 7.2.2. Daily maximum sewage volume per capita is 310 lpcd same as master plan in 2007 JICA Study.

From the table, inflow volume to Kashar STP in 2022 was 1.5 % downward revised from 2007 plan, while 26.5 % increase is projected from 2022 to 2030 mainly due to Kashar Development. As to the Berxulle Sewer District which is postponed after 2022 is designed based on the flow in 2030, which is reduced by 8.5 % from original 2007 plan.

Table 7.2.1 Service Population（person）

	2013		2022		2030	Remarks (Completion Year)
	JICA Study	B/D Review	JICA Study	B/D Review	B/D Review	
Kashar STP (Phase Ⅰ)	342,475	335,880	353,537	357,845	361,073	2013
Kashar STP (Phase Ⅱ)	0	0	475,961	458,927	673,311	2022
Kashar STP Total	342,475	335,880	829,498	816,772	1,034,384	
Berxulle STP			(170,500)		155,917	2030
Total	342,475	335,880	829,498	816,772	1,190,301	

Source: JICA Study Team

Table 7.2.2 Daily Maximum Sewage Flow（m^3/day）

	2013		2022		2030	Remarks (Completion Year)
	JICA Study	B/D Review	JICA Study	B/D Review	B/D Review	
Kashar STP (Phase Ⅰ)	95,893	94,046	109,596	110,933	111,933	2013
Kashar STP (Phase Ⅱ)	0	0	147,548	142,269	208,727	2022
Kashar STP Total	95,893	94,046	257,144	253,202	320,660	
Berxulle STP			(52,855)		48,334	2030
Total	95,893	94,046	257,144	253,202	368,994	

Source: JICA Study Team

7.3 Review of Sewerage Master Plan

(1) Planning Concept and Outline of Reviewed Master Plan

Population projection done by Japanese ODA loan consultant was compared with the projection data newly supplied from Municipality counterpart. From the comparison, it is revealed that 2022 population is almost same in both projection and 2030 population by Japanese ODA loan consultant is reasonable considering the target year difference of 3 years. And then, target year of Master Plan is set at 2030 and population projection by the consultant is adopted. Comparison table is shown in Table 7.3.1.

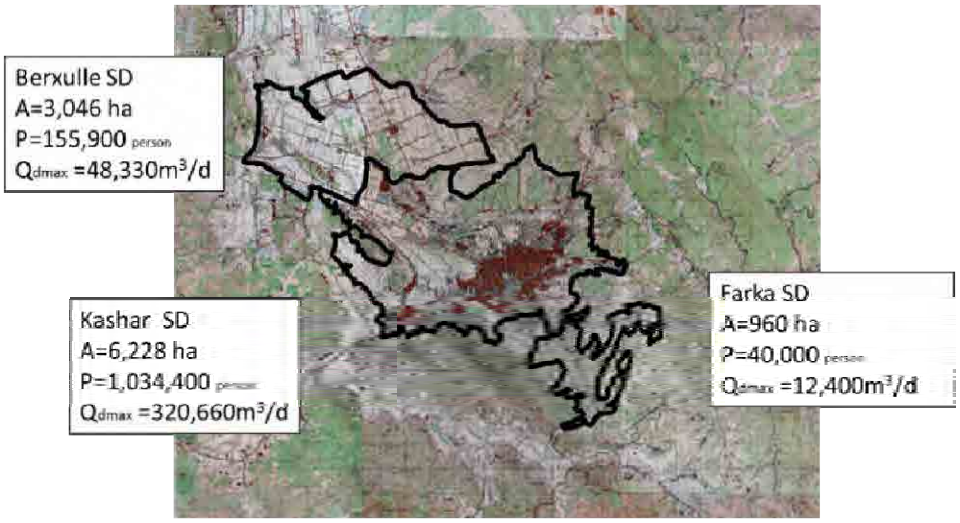
Table 7.3.1 Outline of Option 1 Plan

	Projection Data from Municipality				Japanese ODA Loan Consultants projection			
Target year / Administration area	2012	2017	2022	2027	2013	2022 (in 2007 JICA Study)	2022 (revised)	2030
Tirana	581,000	673,538	762,047	841,361	684,313	724,400	724,400	724,400
Kamza	75,000	86,946	98,371	108,610	111,300	150,000	125,142	137,447
Paskuqan	45,000	52,167	59,023	65,166	43,628	89,800	54,830	64,788
Kashar	35,000	40,575	45,906	50,684	21,339	25,670	24,913	28,090
Kashar (Development)					13,800	25,000	25,000	225,000
Dajt	10,000	11,593	13,116	14,481	12,438	-	16,952	22,322
Berxulle	8,000	9,274	10,493	11,585	11,233	16,500	14,683	17,749
Sum	754,000	874,093	988,956	1,091,887	898,051	1,031,370	985,920	1,219,795
Vaqarr	10,500	12,172	13,772	15,205	-	-	-	-
Farka	25,000	28,982	32,790	36,203	-	-	-	-
Plan area	789,500	915,247	1,035,518	1,143,295				

Source: JICA Study Team

In the course of investigation of Sauk area, where is ignored in former master plan, new Farka Sewer District is established as shown in Figure 7.3.1 in addition to existing two sewer districts.

Like phase I project, existing interceptor is efficiently utilized collecting and sending only sewage not combined volume of sewage.

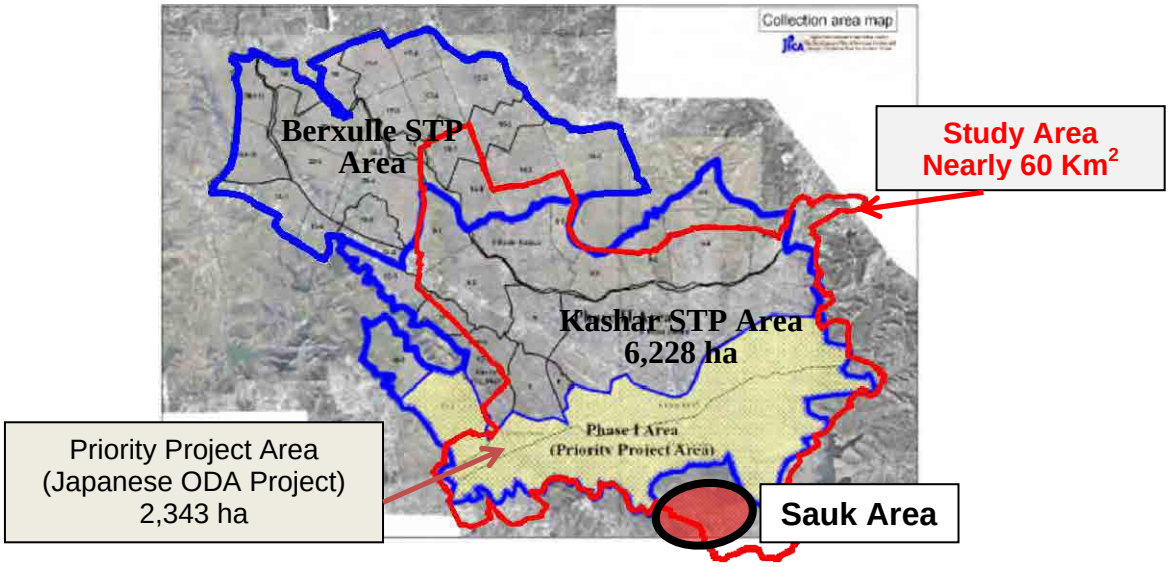


Source: JICA Study Team

Figure 7.3.1 Sewer District in Master Plan (2030)

(2) Detailed Survey for New Sewer District

As is shown in Figure 7.3.2 Sauk Area is omitted from study area in 2007 JICA Study. This is because Sauk area belongs to topographically not Tirana/Lana River watershed but southern Erzen River basin. Sauk area is now rapid growing area together with south Farka area as the south-east entrance of Greater Tirana region and the study team investigates sewage treatment of Sauk area.



Source: JICA Study Team

Figure 7.3.2 Location of the Sauk Area

Two options were set up and compared, that is, (1) establish a new sewer district along the branch River of Erzen River and (2) pump up sewage of Sauk area to the Kashar Sewer District.

Option 1	Sauk sewage is conveyed toward Erzen River by gravity and treated at the newly proposed STP together with sewage from neighbouring Farka Commune
Option 2	Sauk sewage is once collected to the pump station located south end of Sauk area and, from there, pumped up to Kashar Sewer District. Discharging point is the head point of Trunk Main No.3 designed in the priority project. To compare with Option 1, new treatment plant treating only sewage from Fark Commune

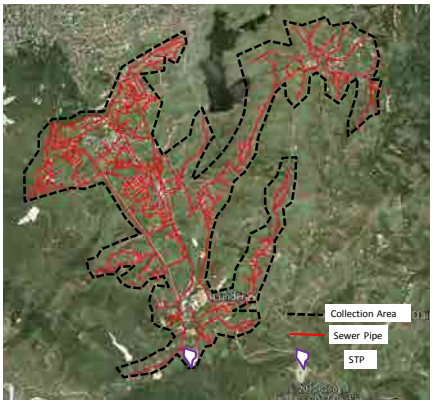
Plan of Option 1 is shown in Figure 7.3.3, while Figure 7.3.4 represents Option 2 plan and pressure pipe rough section. Outline of Option 1 is described in Table 7.3.2 and that of Option 2 is shown in Table 7.3.3

Comparison table is shown in Table 7.3.4. Advantage of Option 1 is (1) it is in compliance with river basin management and (2) Sauk sewage put no impact on the Kashar Sewer District development. For the early coverage and treatment of Sauk area sewage, however, option 2 is a better plan because (1) framework for Farka Commune sewerage development plan is not yet clear and (2) it takes long time to get approval of EIA and permission of land acquisition and construction of new STP.

As a conclusion, compromise plan is applied. That is;

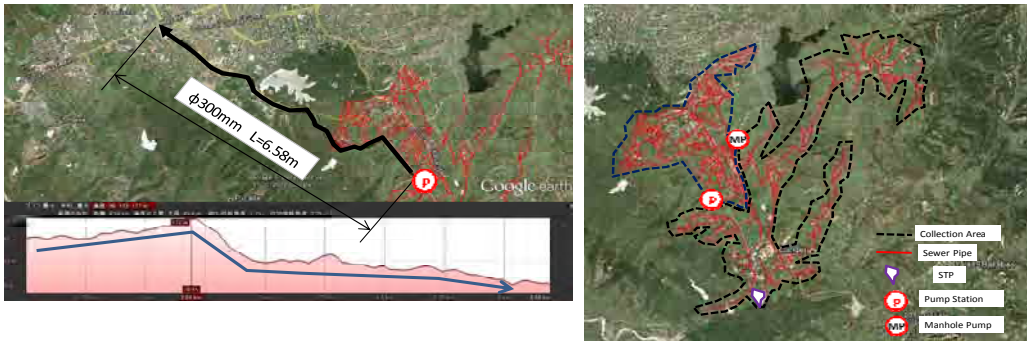
(1) In the master plan whose target year is 2030, new Farka Sewer District including Sauk area is recommended and

(2) In the tentative action plan around year 2022, Sauk sewage is transferred to Kashar Sewer District. On completion of Farka STP with enough capacity, Sauk pump station is abolished and converted to the gravity sewer pipe going toward Farka STP



Source: JICA Study Team

Figure 7.3.3 Plan of "Option 1



Source: JICA Study Team

Figure 7.3.4 Plan of "Option 2" and Pressure Pipe Section

Table 7.3.2 Outline of Option 1 Plan

Farka Sewer District		
Service Area (ha)	960 ha	
Service Population (person)	Sauk area 20,000*1 Farka Commune 20,000*2 Total 40,000	Projection by study team
Sewage Flow		
Daily average	40,000×0.25=10,000m³/d	Unit volume is same as 2007 JICA report
Daily Maximum	40,000×0.31=12,400m³/d	
Hourly Maximum	40,000×0.44=17,600m³/d	
Main Facility		
Sewer Pipe	L=73.6 km	200mm～600mm
Farka STP	Q_{dave}=10,000m³/d Q_{dmax}=12,400m³/d Sewage Treatment Method ; Trickling filter (Conventional activated sludge method, if enough area is not secured) Sludge Treatment Method; Drying Bed Treated Water Discharge Point; Erzen River branch	Site Area 3.2 ha

*1In 2009 JICA Report said Tirana Municipality population out of sewerage master plan service area is 24,400 in 2022. Assuming 80% of that population stay in Sauk area, 20,000 is assumed.

*2Although existing population of Farka Commune in 2009 is nearly 10,000, Tirana Municipality Technical team predicts its population will increase to 41,700 in 2026 assuming 2011 population as 28,800 persons. Future development within Farka Sewer District is not projected clearly, but Service population within the area is assumed as 28,800×0.7≒20,000 person

Source: JICA Study Team

Table 7.3.3 Outline of Option 2 Plan

Farka Sewer District		
Service Area (ha)	635 ha	
Service Population (person)	Farka Commune 20,000	Projection by study team
Sewage Flow		
Daily average	20,000×0.25=5,000m³/d	Unit volume is same as 2007 JICA report
Daily Maximum	20,000×0.31=6,200m³/d	
Hourly Maximum	20,000×0.44=8,800m³/d	
Main Facility		
Sewer Pipe	L=35.4 km	200mm～450mm
Farka STP	Q_{dave}=5,000m³/d Q_{dave}=6,200m³/d Sewage Treatment Method; Trickling filter Sludge Treatment Method; Drying Bed Treated Water Discharge Point; Erzen River branch	
Sauk Pump Station area (Additional Kashar Sewer District)		
Service Area (ha)	325 ha	
Service Population (person)	Sauk area 20,000	
Sewage Flow		
Daily average	20,000×0.25=5,000m³/d	
Daily Maximum	20,000×0.31=6,200m³/d	
Hourly Maximum	20,000×0.44=8,800m³/d	
Main Facilities		
Sewer Pipe	Gravity Flow L=37.2 km Pressure Pipe 150mm L=0.5km Pressure Pipe 300mm L=6.58km	200mm～450mm
Pump Station	Manhole Pump 1 unit Sauk Pump Station Q_{hmax}=8,800 m³/d =6.2 m³/min Pump facility Q=3.1m³/min×H=40m×2sets (plus standby 1sets) Pump Discharge Point: Trunk Main No.3 Pipe	

Source: JICA Study Team

Table 7.3.4 Comparison of Alternative Plans for the Coverage of Sauk Area

Option	Outline	Advantage	Disadvantage	Construction/O&M cost	Evaluation
1	Construction of a new STP in Farka Commune near the discharging point to Erzen River.	Basically, it plan is in compliance with River basin water management. New treatment plant could cover not only Sauk area but also neighboring Farka village. This plan has no impact on the neighboring Kashar Sewer District.	It takes long time to start construction of the treatment plant since it requires environmental Impact Assessment permission and negotiation for land acquisition Sauk is the upper area of the sewer district and its development depends on the lower main sewer and construction of new treatment plant Planning framework is not yet fully surveyed since this commune is basically out of study area.	(Construction Cost) Farka STP 744x10^6 Lek Sewer Pipe 1,619x10^6 Lek 2,363x10^6 Lek (O&M Cost) Farka STP 5x10^6 Lek/yr	Development of Sauk area depends on the construction of Farka STP. ○
2	Transmission of Sauk sewage to the Proposed Trunk Main No.3. New STP treats sewage only from Farka village	Capacity of new STP can be reduced Since sewage is conveyed and treated at already designed STP, f Sauk area sewer system can be developed earlier than Option 1	This plan conveys sewage from one watershed to another watershed and some environmental consideration can be required. Safety factor (free board ratio) of Trunk Main No.3 Sewer pipe decreases in comparison with original design, but has enough capacity even in case of accepting Sauk sewage. Transmission pressure pipe length reaches as much as 6.6km. Long pressure pipe with many up-downs requires troublesome O&M work, like H_2S, air valve and drainage of the pipe sediments.	(Construction Cost) Farka STP 372x10^6 Lek Sauk PS 93x10^6 Lek Sewer Pipe 1,772x10^6 Lek 2,237x10^6 Lek (O&M Cost) Farka STP 2.5x10^6 Lek/yr Sauk PS 0.5x10^6 Lek/yr 3.0x10^6Lek/yr	Development of Sauk area is independent from the Farka STP plan.. △

Source: JICA Study Team

7.4 Enhancement of On-going Project and Expansion of Sewerage

Following 11 points are reviewed and recommended over on-going project and promising next project, Kashar Phase II project.

- Of the project components, main and branch sewer installation was limited within three blocks. To secure the inflow volume at the Phase I stage, it seems branch sewer installation in another area is necessary and UKT is required to develop self-financed construction of the branch sewer in the area defined as out of scope of the loan project.
- Feasibility study of the Phase II stage of the Kashar Sewer District is included in the loan project components and this report is useful data for feasibility study.
- Institutional Capacity Building of not DPUK but UKT is necessary and is described in **7.6**
- House connections work is not included in the loan project. To raise the connection rate, it is necessary to appeal the importance of sewerage system development
- Demarcation of drainage pipe and sewer pipe in Area A, one of selected branch sewer installation area is necessary since new separate sewage pipe will be installed and existing pipe will be used as storm water pipe. Misconnection shall be checked carefully
- Locating the existing main interceptor especially the route of Tirana Interceptor is difficult since most of the Tirana Interceptor is not installed along the public roads but installed in the premises of public or private properties. The route and location of interceptor shall be made clear for the periodical maintenance.
- Whole picture of Kashar Development is not yet clearly described. It is recommended to collect more detailed data of development schedule.
- Since the boundary line of collection area, especially north part of Paskuqan Commune, is not so clear in the master plan of the 2007 JICA report, more detailed demarcation of the area shall be requested. Low-lying land of Paskuqan Commune along the Tirana River requires pumping station for its development since ground level descends steeply toward the river. Main paskuqan road, Rruga Demokracia, has much up-down and these conditions require deep tunnelling construction method or pump stations.
- Location of vertical shaft for the pipe jacking construction for the Tirana River crossing of the trunk main is difficult to find along the river and crossing point shall be carefully considered.
- The Kashar Pump Station is a big pump station and it shall be developed as an environmentally low-impact facility. Recent site inspection reveals some new buildings exist in surrounding area, where no building existed before. Site procurement is demanded as soon as possible
- Interception from Tirana Interceptor outfall shall be urgently developed.

7.5 Drainage System Development

Since recent rainfall data in designated short timeframe is not available, study team calculate the water flow based on following conditions and designed drainage facilities in Tirana Municipality. Figure 7.5.1 shows drainage facility plan with catchment boundary.

Storm water flow (Q)

$Q = 1/360 \times C \times I \times A$

Where: Q; Storm Water Flow (m^3/sec)

C; Run-off Coefficient (=0.5 for urban area, and 0.3 for outside area)

I; Rainfall Intensity (mm/h)

A; Catchment Area (ha)

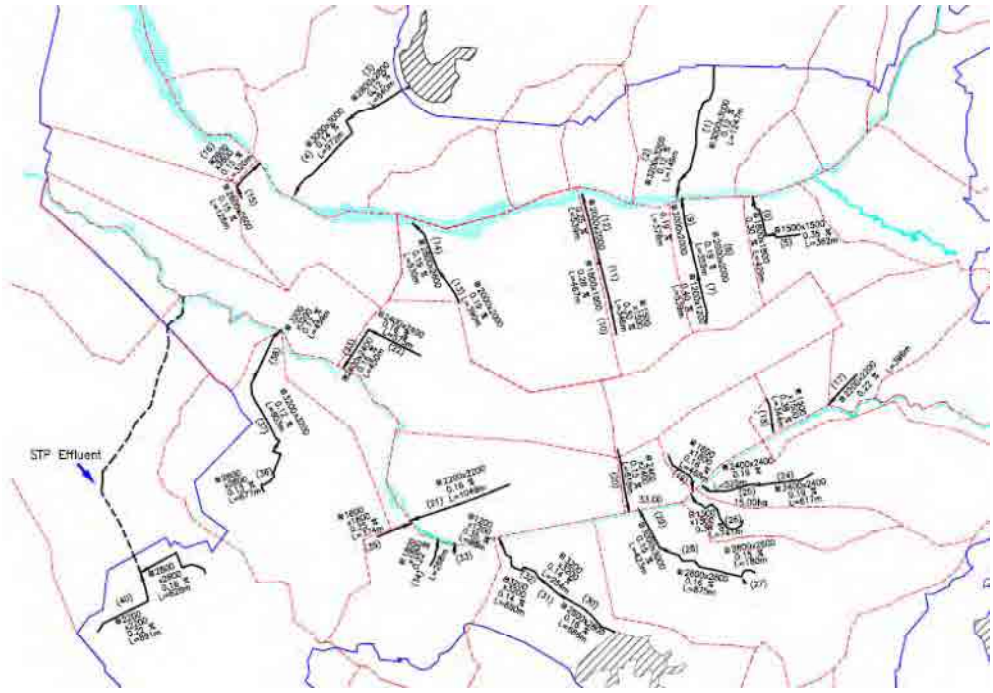
And, rainfall intensity formula (I) is described as following formula

$$I = \frac{2870}{t + 16} \quad \text{(Return Period : 5 years)}$$

Where: t ; run-off time (min) and

$t = t_1$ (inlet time 5.0min) + t_2 (=L (length; m)/V (velocity; m/sec)/60)

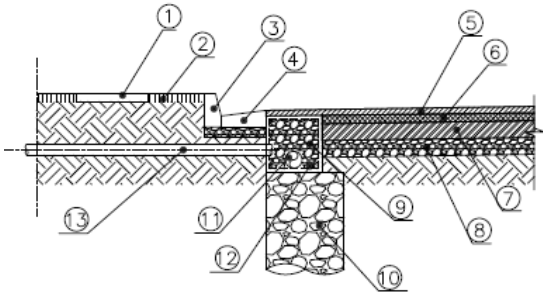
Assumed velocity is 1.5 m/sec for branch sewer and 2.0 m/sec for main sewer (designed pipe)



Source: JICA Study Team

Figure 7.5.1 Drainage Facilities with Catchment Area

Permeable road pavement can infiltrate 10mm/hour of rainfall and reduce the area of storm water pipe, reducing the 10% of construction cost of drainage facility.



No.	Material and Dimensions, etc.	No.	Material and Dimensions, etc.
①	Walkway concrete (Uniform finishing), t=7cm	⑧	Lower subbase: Mixed gravel (t=15cm)
②	Walkway turf (Esmeralda species)	⑨	Pervious trench: No.3 Gravel (50cm x 50cm)
③	PC edge stone （Municipality type, H=30cm）	⑩	Pervious well: No.3 Gravel + Broken stone (Ø=70cm)
④	Side ditch (cast in-situ concrete, t=10cm-15cm）	⑪	Perforated drain pipe: PVC Ø=15cm
⑤	Surface layer: Pervious asphalt (CPA: t=5cm)	⑫	Liner sheet (Bidim)
⑥	Base layer: Normal asphalt (PMQ: t=7cm)	⑬	Rainwater drain pipe inside housing lot: PVC Ø=10cm
⑦	Upper subbase: Size controlled gravel (t=15cm)		

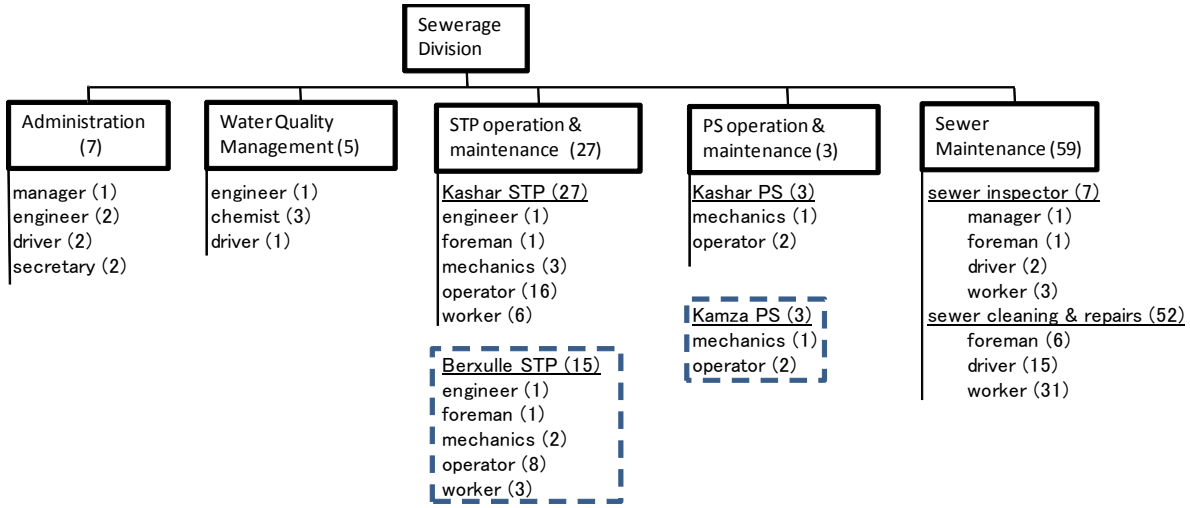
Source: JICA Study Team

Figure 7.5.2 Permeable Pavement

7.6 Capacity Building for Management of Sewerage System

(1) Organizational Strengthening of Sewerage Sector of UKT

Existing sewerage section of UKT shall be enforced mainly for the large scale of treatment plant and also pumping station. Figure 7.6.1 is the organizational chart proposed in the 2007 JICA Report.

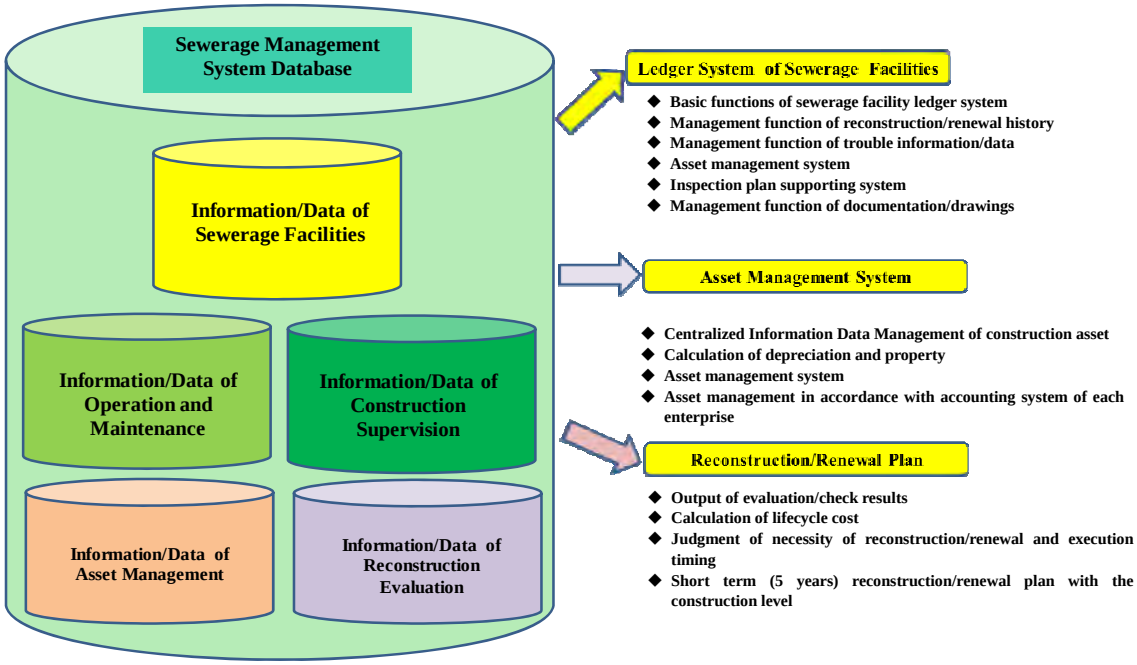


Source: JICA Study Team

Figure 7.6.1 Proposed Organization of Sewerage Sector of UKT

(2) Management System

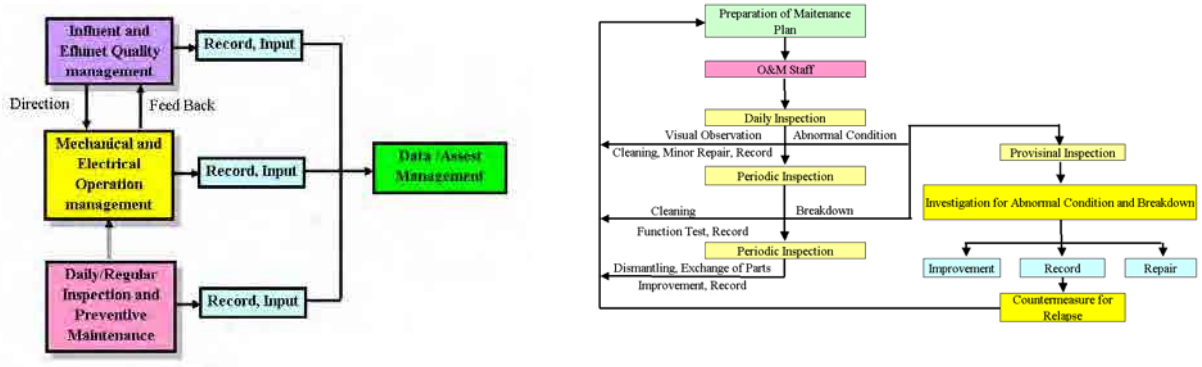
Database of UKT as management tool is proposed for sustainable management of UKT facility. Database will be mainly used for Ledger System, Asset Management system and reconstruction/Renewal Planning as shown in Figure 7.6.2.



Source: JICA Study Team

Figure 7.6.2 Database system for Sewerage Management

Daily inspection, operational data and water quality data of the STP shall be systematically managed for the quantitative operation and preventive operation and management of sewerage facilities as shown in Figure 7.6.3.



Source: JICA Study Team

Figure 7.6.3 Preventive Operation & Maintenance System for Sewerage system

Before inauguration of the STP, training for operational management and water quality management shall be conducted at the similar type of domestic facility or through JICA training

in Japan. After the training, operational staffs will be used to the actual facility during the test run of the STP. The study team will propose training required for the acquisition of operational know-how.

(3) Sewage Tariff

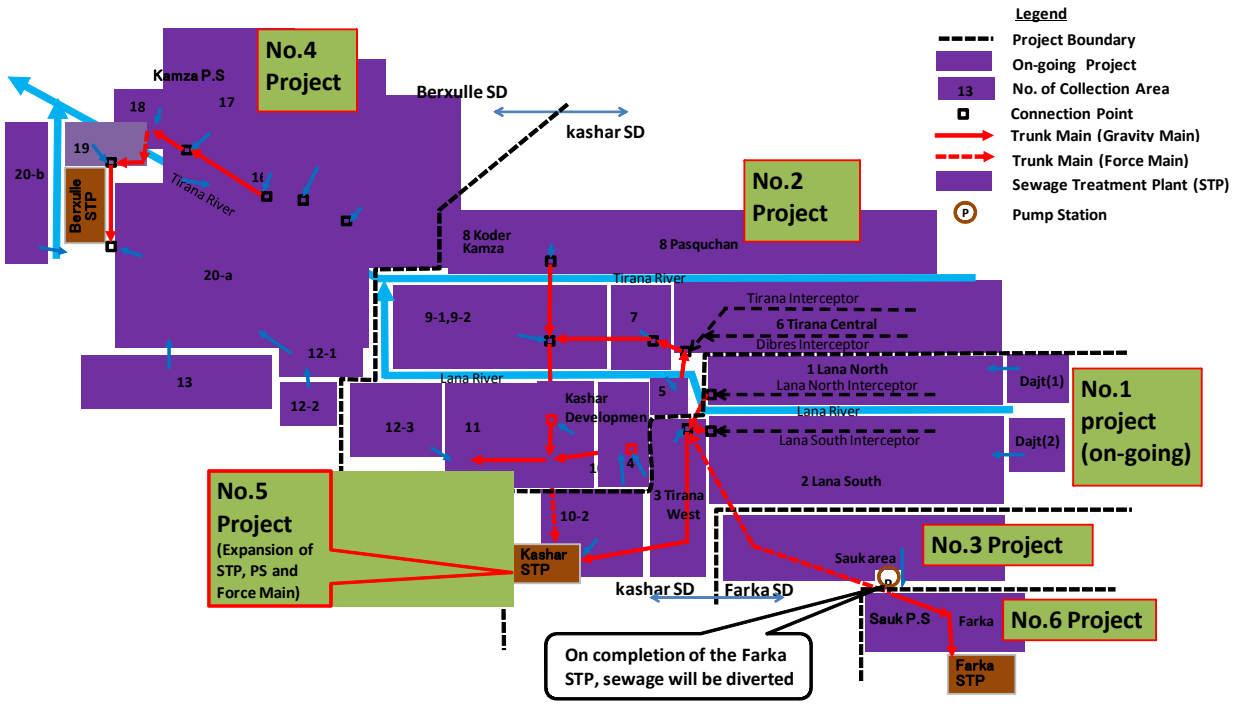
To cover the O&M cost of the new STP, a rational sewage tariff is necessary to be structured.

7.7 Phasing of Sewerage Development

(1) Formation of Project

Sewerage project is usually formed by Sewer District. In case one Sewer District is large, phased project is formed. In the Master plan studied in 2007 JICA Report was reviewed by loan project JICA report, Kashar Sewer District is divided into two stage, consisting of three staged project including Berxulle Sewer District. In this study, in addition to above stages, three stages are added, that is, the stage of future expansion of Kashar STP, the stage of tentative transmission of Sauk sewage and the stage of construction of Farka Sewer District. In total six stages are involved in this master plan and each stage is regarded as one project. First project is on-going now by Japanese ODA Loan.

Based on the data investigated by Japanese ODA Loan project consultant and also this time study on Farka Sewer District, outline of six projects is shown in Table 7.7.1. It shows the on-going project and priority project explained later. Schematic plan is shown in Figure 7.7.1.



Source: JICA Study Team

Figure 7.7.1 Schematic Plan

Table 7.7.1 Selection of Priority Project

No.	Project	Period	Framework	Main Facility	Remarks
1	Kashar SD Phase I Project (On-going)	2009 - 2015	Service Population; 335,880 person STP Inflow Volume 94,046 m³/d (Daily Maximum Flow)	Trunk Main 4.42km Main & Branch Sewer 11.16 km Improvement of Lana South Interceptor D800-1500 L=2,990m Kashar STP Phase I Capacity: 94,100 m³/d (Daily Maximum)	This project is on-going under the Japanese ODA Loan fund. Construction bidding and contract is due in 2012 fiscal year.
2	Kashar SD Phase II Project	2016 - 2021	Total Service Population; 816,772 person Total STP Inflow Volume 253,202 m³/d (Daily Maximum Flow)	Trunk Main 10.3km (including 2.9 km of Force Main) Main & Branch Sewer 79.6 km Kashar STP Phase II Capacity:253,300 m³/d (Daily Maximum) ⇒expansion volume; 159,200 m³/d (Daily Maximum) Kashar PS 141 m3/min (Hourly Maximum)	Feasibility study of this project is included in consulting service of Japanese ODA Loan consultants
3	Sauk Area Development Project	2022 - 2024	Service Population; 20,000 person Sewage Volume 6,200 m³/d (Daily Maximum Flow)	Main & Branch Sewer 44.3 km (including 6.58km of Force main to Kashar SD) Sauk PS Capacity: 6.2 m³/min (Hourly Maximum)	Sewage of Sauk area is tentatively transferred to the Kashar SD, to the head of No.3 Trunk Main Sewer.
4-1	Berxulle SD Development Project	2025 - 2030	Service Population; 155,917 person STP Inflow Volume 48,334 m³/d (Daily Maximum Flow)	Trunk Main 6.8km (including 0.29 km of Force Main) Main & Branch Sewer 74 km Kamza PS: 32.4 m³/min (Hourly Maximum) Berxulle STP Capacity: 48,400 m³/d (Daily Maximum)	This project was third stage of Master Plan of 2007 JICA Study, reviewed and postponed to 2030 in the 2009 Japanese ODA Loan consultants
4-2	Kashar SD Improvement Project	2028 - 2030	Total Service Population; 1,034,384 person STP Inflow Volume 320,660 m³/d (Daily Maximum Flow)	Kashar STP Expansion from 253,300 m³/d to 320,700 m³/d (Daily Maximum) Kashar PS Expansion from 141 m³/min to 206 m³/min (Hourly Maximu) Additional Force main from PS to STP D1000mm pressure pipe of 2.9km length is installed.	This expansion is planned mainly due to the population increase of Kashar Development area.
5	Farka SD Development Project	2031 - 2034	Total Service Population; 40,000 person Total STP Inflow Volume 12,400 m³/d (Daily Maximum Flow)	Main & Branch Sewer 35.4km exclusively for Farka area Farka STP Capacity: 12,400 m³/d (Daily Maximum)	After the completion of Farka STP, sewage form Sauk area is diverted to Farka SD by gravity flow, abolishing Sauk PS.

Source: JICA Study Team

(2) Prioritization of the project

Kashar Sewer District Phase I project, Japanese ODA Loan project, is expected to complete in 2015 and Albanian Government is considering Phase II project as the next loan project judging from the fact that feasibility study for Phase II project is included in consulting service of loan project consultant. Main part of Phase II planning area is the central area of Tirana Municipality covered by Tirana Interceptor and Dibres Interceptor. Efficient sewerage system development using these interceptors is expected.

Sewerage development for Sauk area, strategic hub area for Tirana Municipality, has higher priority than Berxulle Sewer District development and this project comes after Kashar Phase II project. As is described in master planning stage, sewage from Sauk area is tentatively transmitted to Kashar Sewer District by pumping since it takes long time to complete new Farka STP. Sewage from Sauk area is finally converted to Farka Sewer District in final stage.

Next, comes development of Berxulle Sewer District. According to 2007 JICA report, several existing combined sewers are discharged to Tirana River. Intercepting these sewage, trunk main sewer along the Tirana river can convey sewage to the Berxulle STP.

Construction plan of expansion project for Kashar STP corresponding to increase of sewage from 2022 to 2030 is determined investigating the actual inflow volume after the completion of Kashar Phase II project.

As to the Farka Sewer District, it is deemed final project since it takes long time to before decision of STP site and approval of Environmental Impact Assessment.

Tentative implementing schedule is shown in Figure 7.7.2.

	Staged Plans	Construction Period
1	Kashar Sewer District Phase-I Project (on-going)	2013 - 2015 (3 yars)
2	Kashar Sewer District Phase-II Project	2016 - 2021 (6 years)
3	Sauk Area Development Project	2022 - 2024 (3 years)
4	Berxulle Sewer District Project	2025 - 2030 (6 years)
5	Kashar Sewer District Expansion Project	2028 - 2030 (3 years)
6	Farka Sewer District Project	2031 - 2034 (4 years)

Source: JICA Study Team

Figure 7.7.2 Construction Schedule of each project

(3) Construction Cost

Construction cost of all projects is summarized in Table 7.7.2. As to the indirect cost, following conditions are assumed based on 2007 JICA study.

- Administrative Expense is 5% of direct construction cost
- Engineering Service is 10% of direct cost
- Physical Contingency is 10% of direct cost
- VAT is 20% for local currency portion of direct cost.
- Capacity Building is technical transfer by Japanese Engineer

Table 7.7.2 Project Cost

Component	Kashar 1st Phase (FS Cost)			Kashar 2nd Phase			Sauk area development			Berxulle SD project			Kashar Expansion project			Farka SD project			Project Total		
	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total	FC	LC	Total
Direct Construction Cost																					
Trunk Sewer	2,038		2,038	2167	272	2,439			0	174	355	529	101	13	114			0	4,480	640	5,120
Main Sewer		288	288		1748	1,748	165	828	993		1520	1,520			0		779	779	165	5,163	5,328
Kashar PS			0	328	298	626			0			0	299	26	325			0	627	324	951
Kashar STP	2,000	2,054	4,054	2626	2598	5,224			0			0	1,114	911	2,025			0	5,740	5,563	11,303
Kamza PS			0			0			0	208	137	345			0			0	208	137	345
Berxulle STP			0			0			0	1419	948	2,367			0			0	1,419	948	2,367
Sauk PS			0			0	55	38	93			0			0			0	55	38	93
Farka STP			0			0			0			0			0	484	260	744	484	260	744
Total of Direct Construction Cost	4,038	2,342	6,380	5,121	4,916	10,037	220	866	1,086	1,801	2,960	4,761	1,514	950	2,464	484	1,039	1,523	13,178	13,073	26,251
Indirect Construction Cost																					
Land Acquisition and Compensation		1,146	1,146		90	90.0			0			0		57	57		160	160	0	1,453	1,453
Administrative Expense		319	319		502	502		54	54		238	238		123	123		76	76	0	1,313	1,313
Engineering Services	404	234	638	512	492	1,004	22	87	109	180	296	476	151	95	246	48	104	152	1,318	1,307	2,625
Physical Contingency	404	234	638	512	492	1,004	22	87	109	180	296	476	151	95	246	48	104	152	1,318	1,307	2,625
Capacity Building Cost	96	51	147	84	25	109													180	76	256
Value Added Tax (VAT)			0		983	983		173	173		592	592		190	190		208	208		2,146	2,146
Total of Indirect Cost	904	1,984	2,888	1,108	2,583	3,692	44	401	445	360	1,422	1,782	303	560	863	97	652	749	2,816	7,602	9,555
Total Project Cost	4,942	4,326	9,268	6,229	7,499	13,729	264	1,267	1,531	2,161	4,382	6,543	1,817	1,510	3,327	581	1,691	2,272	15,994	20,675	35,806

Source: JICA Study Team

8. Strategic Environmental Assessment (SEA)

8.1 Objectives and Methodologies

(1) Objectives

The objective of the SEA is to conduct an assessment in Initial Environmental Examination (IEE) level for the proposed basic plans which will be formulated targeting the year 2027 in each sector of road/transport, solid waste management, and water supply and sewage treatment/ urban drainage.

According to the JICA Guidelines, SEA studies environmental and social considerations in providing alternatives of proposed plans at an early stage of formulation of master plans. In this study, the proposed basic plans were examined in terms of the environmental and social considerations outlined in the JICA Guidelines.

(2) Methodology

The SEA was conducted through the analysis of the secondary data and information and the results of the field reconnaissance. The elements of social environment (e.g. land issues, land use, social infrastructure and cultural heritage), natural environment (e.g. topography, geology, flora and fauna) and pollution (e.g. air, water, soil and noise) were established for estimating the possible impacts on their environmental elements at each stage of action, namely, before construction, at construction and operation stage. The impacts level was analyzed in the state of significant, some and negligible for the possibility of adverse impacts. In case there is possibility of adverse impact by the proposed action plans or projects, their mitigation measures will be recommended including establishment of environmental management plan.

(3) Legislative Framework of SEA

The scoping in the SEA, especially its assessment on possible environmental and social impacts, will be based on the domestic laws and regulations in Albania. However, for the issues such as involuntary resettlement and water quality standards which are not regulated in Albania, an international guideline or policy such as the operational policy of the World Bank or World Health Organization (WHO) guideline will be applied.

8.2 Scoping of Proposed Action Plan / Projects in Each Sector

(1) Road / Transport Sector

In road / transport sector, the following four major development plans are proposed.

- Road development plan
- Transportation Control Measures (TCM)
- Public Transport Development Plan
- Freight Transportation System

The major projects with the priority of implementation and the facility development which may

cause adverse impacts on environment were selected for the environmental and social consideration (ESC).

1) Development of Outer Ring Road

Alternatives Considered

The proposed plan is to develop a road section running in parallel to Tirana river of a natural river, and has four options including *zero option* of 1) O_1: an option to develop a new road in the south part of Tirana river, 2) O_2: an option to develop a new road in the both sides of Tirana river along with the development recreation park and 3) O_3: an option to develop a ring road through utilizing an existing road in the northern parts along Tirana river.

Possible Environmental and Social Impacts

The target area, accordingly, has been deteriorated in sanitary condition with dumped garbage, river water environment with direct discharge of sewage and also its deteoriorated scenic value. Any development option except *zero option* may require land acquisition for securing *ROW* (Right of Way) of the project sites and result in an expropriation or resettlement of residential houses and establishments. The development of new roads in case of O_1, O_2 and O_3 may generate air pollutants and noise during its construction and operation stage although the *zero option* may also cause air pollution due to the traffic congestion for future increased traffic demand.

2) Development of Tirana Northern Boulevard

Alternatives Considered

The proposed plan is a transport project which MOT called for the international competition to solicit the development concept in November 2011 and is currently under process for the selection of final winner of the competition. The plan is a project to extend a boulevard toward north direction which starts at the existing train station or the crossing point of *Boulevard Zogu I* and *Reshit Petrela* Street through relocating the existing train station and removing railway track. The plan has three options including *zero option* regarding the end points of the extension, namely, an option (A_1) extending its end point before *Paskuqan* park and another option extending its end point inside *Paskuqan* park (A_2). The both options develop a new tram way through removing the existing railway track which extends toward the west part of Tirana city from the city center and construct a new station at the present vacant land at *Kamza's Curves*.

Possible Environmental and Social Impacts

The existing *Paskuqan* Lake is in insanitary condition with the lakeside scattered with the dumped waste. There are not much difference on the impact level in option A_1 and A_2. Both options may require an expropriation for resettlement of the residential houses and establishment possibly affected by the proposed plan. Option A_1 and A_2 may cause adverse impact on cityscape, air and noise during construction and operation stage.

3) Public Transport System

Alternatives Considered

Development of public transport system will have an important significance in the meaning that controls the number of vehicles entering the city center. Two tramlines (LRT system) are proposed on existing road areas. One is the east-west line (*Kinostudio – Kombinat*) and another is the north-south line (*Student City* – New Station of Intermodal Terminal). On the other hand, the dedicated bus lanes (BRT) are proposed in the two routes, one is an east-west line (*Kavaja* Road – *Porcelani* Road) and another is a north-south line (*Student City – Paskuqan* Lake)..

Possible Environmental and Social Impacts

The plan may not cause an adverse impact on land issue such as land acquisition nor resettlement. BRT system may require a measure for controlling reducing air pollutants to be generated at the operation.

4) Development of Parking Systems

Alternatives Considered

The parking areas will be constructed in underground structure of blank space and park. This option and *zero option* ("do nothing") will be discussed for the alternative study.

Possible Environmental and Social Impacts

The proposed plan of underground parking areas may affect the social infrastructure of existing utilities (e.g. water pipes, electricity), hazards, ground subsidence and noise at the construction stage. However, *zero option* may cause another negative impact of air pollution to be caused by the traffic congestion.

(2) Solid Waste Management Sector

1) Intermediate Treatment

Alternatives Considered

The target municipal solid waste is divided into recyclable, flammable and biodegradable waste in its characteristics or composition, and the intermediate treatment is divided into recycling facility (*MRF*: Material Recovery Facility) for recyclable materials, incineration facility (*waste-to-energy*) for combustible waste and bio-gasification / composting facility for biodegradable waste. The proposed intermediate facility is the combination or integration of these facilities, not a single system of these facilities. Therefore, the alternative of the proposed intermediate treatment is *zero option* ("do nothing": no intermediate treatment).

Each option of intermediate treatment will contribute the reduction of waste volume except the *zero option*. The facilities of the proposed intermediate treatment is planned to be developed in the adjacent to the existing *Sharra* final disposal site.

Possible Environmental and Social Impacts

The definite project sites of each option have not been decided yet. However, one of the candidate sites of the project is adjacent site to the existing Sharra final landfill site. There are currently several houses and agricultural lands near the proposed site.

The proposed project may affect some adverse impact on the social issue of land acquisition or influence to the agricultural land. Each option also may generate odor and wastewater. The development of *MRF* and *waste-to-energy* may affect some impacts on the current waste picking activities which are currently practiced by large amount of Roma people. The option of *waste-to-energy* may generate the air pollutants such as NOx, SOx, HCl and Dioxins and slag containing heavy metals such as Hg and Pb. The emission control measures and the environmental management for treating such air pollutants and heavy metals will be required. The *zero option*, however, may shorten the life span of the existing *Sharra* final disposal site because the volume of generated waste will not be reduced, and this may cause insanitary condition the whole city area.

2) Development of Final Disposal Facility

Alternatives Considered

Currently, the site of final disposal area cannot secure in the administration area of Tirana municipality where most of the land has been already urbanized. Accordingly, the final disposal site has to be selected from the appropriate candidate site in the surrounding communes. Site *A* (*Sharra* site) locates adjacent area of the existing landfill site where some houses and agricultural lands exist. Both lands of Site *B (Lalm*) and Site C (*Mullet*) are located in the catchment area of tributary of *Erzenit* River in a valley area with low vegetation. Site *D* (*Ferraj* site) is located in the catchment area of the *Tirana* River and in a hilly and valley area. Several houses were identified nearby Site *A* but not identified in Site *B*, *C* and *D*.

Possible Environmental and Social Impacts

Site *A* (*Sharra* site) is close to several houses and agricultural lands. Some negative impacts are expected on the residents and the agricultural lands in case that the land of Site A is selected. In the case of other options of Site *B*, *C* and *D*, the lands are possibly private lands, and some negative impacts on the land owners will be estimated for their land acquisition. In the case of Site *A*, *B*, *C* and *D*, some adverse impact may be caused on public health and water pollution unless appropriate design or operation is implemented for the treatment of leachate water or soil covering for landfill operation. The *zero option* will deteriorate the public health or hazard such as collapse of landfill if the existing landfill in *Sharra* is used beyond its capacity.

(3) Water Supply Sector

Alternatives Considered

The options in the sector are divided majorly into securement of new water source, expansion of existing facility, improvement of water distribution network. A development of new water source is consists of dam reservoir, digging a well, development of spring water and expansion of raw water main.

Possible Environmental and Social Impacts

The development of a new water source, especially, a development off a dam / reservoir may cause a most significant impact in spite of the secure supply of water. On the other hand, the expansion of the water supply pipe may cause a least significant impact among the options of securement of new water volume. The expansion of the existing water treatment plant will be indispensable in any case for meeting the water demand which may cause some impact on generation of noise due to the operation of pumping equipment. The *zero option* will cause a critical state of water shortage for the water demand due to the increase of future population.

(4) Sewerage / Drainage Sector

Alternatives Considered

There is no sewage treatment plant in *Tirana* city and the wastewater including sewage from houses and establishments is currently discharged to the *Tirana* and *Lana* river courses directly without any treatment, which has brought the causes of the degradation of water environment. A development of sewage treatment facilities has become an urgent challenge to improve above degradation in the urbanized city.

Currently, the Albanian government is preparing for a construction of 1st phase of above sewerage system (*Kasher* STP + *Kasher* Pump Station) which was studied in terms of the alternatives of optimum sewerage system by JICA in 2007. The proposed project is to develop a 2nd phase of the system (expansion of 1st phase system) by adding a pump station at *Sauk* area which cannot be served by the expansion of above system because of the topographical situation of the area. Therefore, the alternative of the proposed project is *zero option* which does not develop the sewerage system (STP + Pump Station) at *Kasher* area nor a pump station at *Sauk* area.

The proposed project consists of *Kasher* STP, *Kasher* pump station, *Sauk* pump station, trunk sewer main and branch lines on existing road areas. The proposed *Kasher* site is located in flat open area in *Kasher* commune and currently under process for the construction of 1st phase of sewerage project under the Japan Yen loan.

Possible Environmental and Social Impacts

In the case with the project, some adverse impact is estimated at construction stage (e.g. resettlement, social infrastructure for existing water pipes / power lines, hazard or noise due to construction works) and operation stage (e.g. hazard, generation of sludge after the treatment or offensive odor). In the case without project ("*zero option*"), on one hand, the water pollution in

the water area of *Tirana* and *Lana* rivers will still remain because of the untreated sewage and the wastewater, which will cause the degradation of cityscape and offensive odor which was identified in the existing *Tirana* and *Lana* rivers.

8.3 Stakeholder Meetings

The 1st stakeholder meeting was held at Hotel Rogner in Tirana in February 10th 2012. The officers from MOT, mini-municipalities, mayors of surrounding communes adjacent to MOT, universities, water and sewerage entities (Water regulatory entities), recycling association and local NGO groups, etc. attended the meeting as total attendants over 84 personnel.

The meeting commenced with the opening remarks by the mayor of MOT and the JICA representative in Tirana and followed by the explanation of the detailed contents and the current progress of the study by the JICA study team. After the explanation, a question and answer session was carried out among the participants.

The results of the opinions from the participants and the replies from MOT and the steering committee members are shown in Table 8.3.1.

Table 8.3.1 Results of 1st Stakeholder Meeting

Issue	Opinion	Response by MOT or Steering Committee Member
Close relationship with communities	I recommend making a close relationship with communities. I think that even mini-municipalities should be included in these meetings and be a part of the discussions.	In the next stage the mini-municipalities will be included in the consultation process.
Water supply and sewerage	I understood from the presentation that part of *Sauk, Sanatorium*, *New Neighborhood* and *Police Academy* are located in low land area. Some are discharged to the *Erzeni* River and the rest are discharged into the Tirana Lake. I do not know how these problems are taken into consideration.	We will import your opinion into our study. At the same time we already have had a GIS system on the Internet where each municipality and commune will begin to input the existing networks and consequently meet with project. This base will be applied to your area too.
Outer ring road	As it was a ring and radial system, on the presentation we did not see anything. Are you working to present this?	We are working with the Transportation Department to support the Consultant, getting a part of the data from the Transportation Department.
Solid waste management (1)	Problem of urban waste: - the solution is by new landfill that will be created, or – by any technological or scientific solution?	I think the JICA study will develop the possibility of the technology and it will be decided that which option will be appropriate. I am convinced that the time has come to adopt other technologies for the solution of solid waste management.
Sold waste management (2)	We think that the ideas and requests presented by us to manage the urban waste are in accordance with JICA ideas represented in this presentation.	In the waste management field, environmental protection through integrated waste management, rapid implementation of separate waste collection will be formulated in the JICA plan.
Environmental management	I have to highlight some issues related to urban environmental management. I think the time has come, that the local government should demand full authority for environmental management. Monitoring of environmental elements in Tirana is an issue that needs a new system for environmental data.	On the issue of cooperation and coordination with the central government, I can say that we ask and insist to have collaboration, of course, based on the laws.
Public awareness or environmental education	I am from a sector of civil society and actually would like to say that I appreciated the plan presented, especially the vision of Tirana as the Eco2 City. One question is: Can we find these materials on the Tirana Municipality webpage or how can we find them?	On the issue of cooperation with civil society, your presence here today is just a good time that we see as cooperation opportunities. In the webpage of the Municipality you will have the full link to the JICA report.
Cross-local cooperation	Are these local units communities consulted in the process, in order that they do not see only benefits but also maybe the consequences, damages, and how to recover these in a long-term process?	Municipality of Tirana and surrounding communes have signed an agreement to cooperate for the development of the region Memorandum of the agreement is a public document that has emerged as a clear need to coordinate a long-term strategic development. This memorandum sets out clearly the rights and obligations for mitigation such damages which are equal for everyone.
Consideration for safety and the people who need special care	I would like to hear clearly about how the plan regarding safety and degree of satisfaction for the people who need special care.	A condition at each step of planning an infrastructure, these kinds of issues will be taken into consideration. The care plan such as sidewalks, roads, urban transport, and public facilities will be some examples for the vulnerable people.

Source: JICA Study Team

8.4 Further Consideration and Actions

Some adverse impacts on environmental and social aspect were identified by the assessment analysis of IEE for the proposed basic plans in each sector. Mitigation measures in short, mid and long term for these adverse impacts will be established as recommendation.

Environmental Management Plan or Environmental Monitoring Plan for mitigating above adverse impacts will be established for the proposed basic plans in each sector. The TOR (Terms of Reference) which will be required for environmental clearance in Albanian EIA system will be prepared for the priority projects in each sector.

9. Institutional and Organizational Reform for Development Coordination

9.1 Coordination Issues in Municipality of Tirana (MOT)

There are three kinds of coordination issues in Tirana Municipality, namely the issue of vertical coordination, horizontal coordination, and of sector coordination. This section will deal with the first two coordination issues. The issue of sector coordination will be discussed in Section 9.5: Proposed "Coordination Manual" for Planning, Implementation and Monitoring.

(1) Vertical Coordination

In terms of vertical coordination, a serious lack of vertical collaboration regarding Tirana urban development issues has brought occasional conflicts between the two levels of governments in Albania. In this context, the Territorial Planning Law, 2009 stipulates:

"Integrated planning instruments shall define the future development for the purpose of achieving a balanced and integrated development between the local and national levels, and determining objectives of local and national importance and joint interest set for one or more national and local planning authorities….." <Article 29 Integrated Planning, Territorial Planning Law, 2009>

(2) Horizontal Coordination

With respect to horizontal coordination, the lack of horizontal cooperation has prevented the promotion of coherent and efficient structuring of growth and efficient provision of infrastructure services throughout the fast growing region.

The recognition of the importance of horizontal coordination by the Government of Albania can be seen in the <Article 28: Cross-local Planning, Territorial Planning Law, 2009>. "Cross-local planning instruments shall be designed to help foster coordination among the local government units, and shall define future development across the entire or a part of the territory of two or more local government units, with the purpose of achieving certain goals of local importance or joint interest."

In addition, the Law on the Organization and Functioning of Local Government, Chapter III stipulates the right of cooperation of local government. That is:

"For the performance of specific services in the name and for the benefit of the respective communities, two or more units of local government may together exercise every function that is given to them by law, through the implementation of joint contracts or agreements, the delegation of particular responsibilities and competencies to one another or contracting with a third party."

In this way, the Albanian Law points out the importance of vertical and horizontal coordination. However, the issue is how. Laws do not give us how local governments can coordinate their activities with central government, and how they can cooperate effectively with each other. In this regard, the Team proposes concrete mechanisms to promote coordination in the following section based on the experience of Japanese local governments which have used several

methods to handle these coordination problems.

9.2 Institutionalization of Effective Coordination Mechanism

(1) Vertical Coordination

In terms of vertical coordination, there are two ways the Municipality of Tirana (MOT) coordinates with the central government. First, MOT formulates its municipal development plan within the framework of the national development policy and law. Second, when MOT formulates its development plans, MOT establishes advisory committees that consist of representatives from central government agencies, professors, experts, private sector and civil society, depending on the issue.

Thus, if MOT needs coordination with a central government agency for some issue, they ask the agency to send its staff to participate in the advisory committee, so their plan can reflects the input from the central government agency. In this way, the task team of each department can promote coordination with concerned central government agencies through consultation with advisory committees. In addition, the establishment of advisory committees contributes to the promotion of stakeholder participation in planning process including experts from universities and research institutions as well as representatives from private sector, NGOs and civil society.

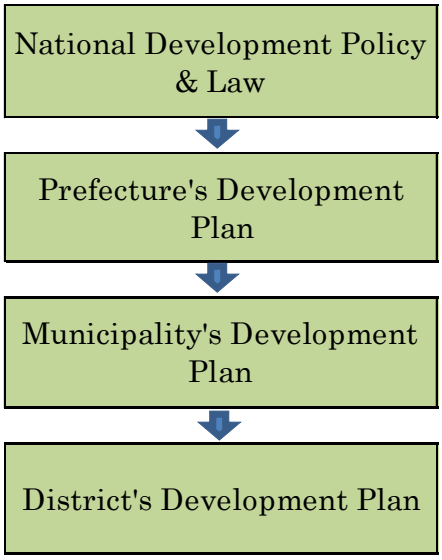


Figure 9.2.1 Vertical Coordination in Japan (1): Formulation of Municipal Development Plan based on the National Development Policy & Law

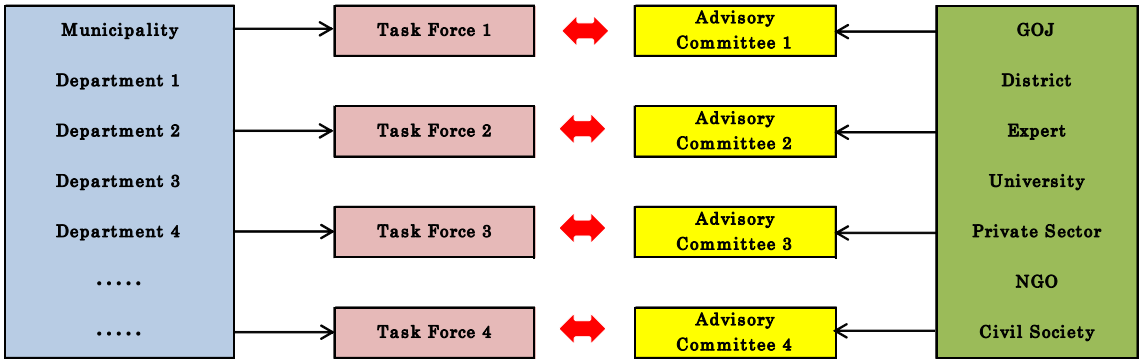


Figure 9.2.2 Vertical Coordination in Japan (2): Establishment of Advisory Committees in the Formulation of Municipal Development Plan

(2) Horizontal Coordination

The implementation of the Master Plan for MOT requires effective coordination among local governments since the implementation of many proposed projects bypass their administrative boundaries. In this respect, the role of provincial government is very critical in coordinating different interests of member municipality/commune governments.

However, the experience of local government's performance in Albania is not encouraging in this field. The narrow administrative boundaries of local governments combined with the limited role of provinces have led to suboptimal investment decisions from regional and national perspectives. In this situation, there is a need to establish some kind of mechanisms that effectively coordinate different interests among local governments.

In addition, some communes near MOT cannot handle their decentralized responsibilities effectively in the near future. According to the Local Government Law, communes and municipalities shall assume responsibilities for a number of "exclusive" functions, including construction and maintenance of road, public transport, water supply, wastewater and solid waste management, urban planning and land management, park and public spaces, the maintenance of facilities for pre-university education and health care (for municipalities), and so forth. The main weakness of the present system is that some local governments are too small in size and are financially too week as well as the lack of technical expertise to pursue some of their functions effectively. In addition, in the Tirana Metropolitan area, most local governments do not encompass the full urban and urbanizing areas of their city/district. This has led to the fragmentation of urban governments, creating a political barrier against effective urban government and economical service delivery.

In order to cope with the problems derived from small scale local government, the adoption and implementation of amalgamation may provide a solution for effective urban management. However, it will take some time given the movement toward decentralization in today's Albania. If there is little possibility to merge local governments, then local governments will have to learn how to do joint investment projects together to gain economies of scale which is new experience in Albania. An effective method to promote cooperation among local governments is the formation of local government associations (LGA) for specific objectives.

Considering Japanese experience, the local government association should be established under

the following principle:

- It is established and managed by the consent of all participating local governments.
- It has an administrative authority as a quasi-local government.
- Human resources and revenue depend on the provision of member local governments
- Budgetary contribution of member is determined by 1) equal rate for fixed cost, and 2) proportional rate for investment and operation cost which is usually calculated by the share of population.

The rationale for the formation of this kind of local government association is to manage the issues of trans-municipality/commune nature and to attain the scale of economy in such a way that all members can solve their common problems with specific targets and pool their funds to reduce administrative costs for operation and maintenance.

At present, many local governments in Albania do not possess sufficient financial resources and technical expertise to pursue some of their functions effectively, such as solid waste and waste water management. The capital requirements needed to set up efficient and effective facilities are too costly for the local government alone to afford. By establishing a common facility, each local government is able to reduce costs while achieving the same objective. In addition, managing common facilities requires sustainable cooperation among member local governments. However, this is difficult to achieve since each local government usually has different interests derived from different resources, skills, objectives and procedures. Thus, the sustainability of cooperation depends largely upon the effectiveness of coordination among local governments. The creation of local government associations (e.g., LGA for the construction and management of final disposal sites) can contribute to handle these problems.

9.3 Proposed Organizational Structure for Metropolitan Development Administration

From the perspective above, the following form of local government association (Figure 9.3.1) is proposed which is basically the same organizational structure as that of local governments in Albania. There are legislative, executive, and accounting bodies. Council represents the legislative body, and under the council, there are auditors. Executive body consists of the chief executive, deputy chief executives and the secretary general. Under the secretary general, there are two division, namely administrative division and operational division.

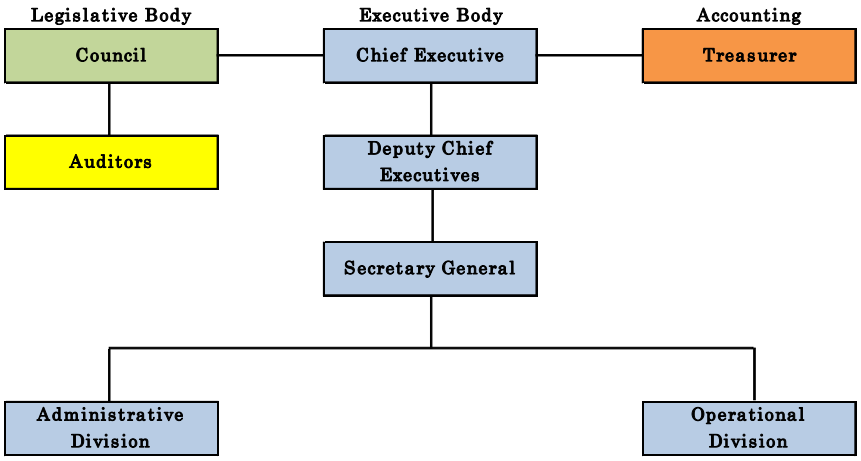


Figure 9.3.1 Proposed Organizational Structure of LGA

The details of the Organizational Structure of Local Government Associations are as follows:

(1) Objective

To deal with a joint project concerning the construction and management of a common facility across several municipalities/communes

(2) Member Local Governments

Member local governments include a municipality/commune and surrounding municipalities/communes, or any local governments that agree the objective and want to participate in the projects.

(3) Legislative Body

The Council is the Association's legislative body which shall be composed of the Presiding Officer and the regular Council Members

The member of the Council members equals the number of member local governments (each member local government has one seat).

The regular members of the Council are elected from among the members of the Council at each local government. Their terms of office are based on the terms of office of their home Council. If a member of the Council loses his/her seat in his/her home Council, he/she automatically loses his/her seat at the Association's Council.

The Council shall be presided over by a Chairman who is elected from among the vice executives of members local governments. The Chairman's term of office shall be the same as the term of office of the home local government. In case that the Chairman has an accident or loses his seat, the Vice Chairman takes over the position.

(4) Executive Body

The Association has one Chief Executive and several Deputy Chief Executives. The Chief Executive shall be elected from among the executives (i.e., mayors/regents) of member local governments. Their terms of office are the same as the terms of office of their home local government.

The Chief Executive shall be assisted by Deputy Chief Executives who shall also be elected

from among the executives (e.g., mayors/regents) of member local governments.

Under the executive Body, a permanent office for the Secretariat shall be established for their daily administrative and operational work.

A Board of Directors can be formed instead of the Chief Executive in order to perform the functions of the Chief Executive when the Association has a number of member local governments with a wide range of activities. The Board of Directors is composed of the executives (e.g., mayors) of member local governments. In some associations, the members of their board of directors could be appointed by the executive (e.g., mayor) with the consent of the home Council.

(5) Treasurer

A Treasurer shall be appointed by the Chief Executive with the consent of the Association Council from among the treasurers of member local governments

The Term of office is the same as the term of office of the home local government.

(6) Secretariat

The secretariat of the Association shall be headed by a Secretary-General assisted by other staff members appointed by the Chief Executive.

Under the Secretary-General, there are two divisions: Administrative Division and Operations Division.

The staff shall be dispatched by member local governments and, if necessary, the central government.

(7) Auditors

The Chief Executive shall appoint one auditor from experts outside the Association and, if necessary, one from among the members of the Association Council with the consent of the Council.

With respect to the term of office, the expert shall have a fixed term of office (for example, 4 years), and the legislature shall have the same term of office as that of the home council.

Auditors shall monitor the performance of the executives and their staff, and for this purpose shall be under the Council of the Association.

(8) Finance

The costs are financed by the sharing of expenses by member local governments and other revenues.

The share of expenses per local government shall be decided by the Council. The budgetary contribution of member local governments shall be determined by equal rate for fixed cost; and proportional rate for investment and operation cost which is calculated by the share of population.

Part of initial costs shall be subsidized by the Central Government, and if necessary by ODA grant/loan. The rest of initial costs shall be provided by member local governments or through bond issued by the Association.

The involvement of mayors/executives and the legislative body of member local governments ensure the commitment of local governments and enhance coordination between and within local governments. The representation of all member local governments and the division of power between the Council and Executive Body introduce a mechanism of checks and balances within the organization to promote impartiality, and thus contribute to consensus building among all member local governments. The existence of auditors under the Council may promote the transparency of organization's performance that is the basis for sustainable cooperation. The financial and technical support from the Central Government may enhance the capacity-building of local government association.

9.4 Institutional Set-up for the Implementation of the Master Plan

Finally, a proposal is made for MOT regarding institutional set-up for the implementation of the Master plan.

(1) Establishment of Cross-functional Task Forces

After the completion of the JICA Study Project, a task force should be established in each directorate (in charge of road construction and transport, solid waste management, water-related facilities, land use and environment) which is in charge of preparation of implementation plan to mobilize necessary resources for the projects based on the Master Plan. For projects that need cooperation of other directorates, the task force could become inter-directorate group that consists of middle ranked officers from different departments. This kind of cross-functional task force could achieve multi-sector coordination through the participation of members from all relevant sectors in decision making processes. Later, these cross-functional task forces can assume planning functions for the field concerned. Moreover, the task forces may also contribute to human resource development in planning and implementation of urban development plan in Tirana Municipality through the participation of middle ranked officials from relevant departments/division in urban infrastructure planning processes.

(2) Establishment of Technical Advisory Groups and Steering Committee

The establishment of Technical Advisory Groups will provide the taskforces with technical advises, but also contribute to multi-sector coordination as well as vertical and horizontal coordination depending on the formation of the groups. For this purpose that four Technical Advisory Groups will be set up under the Steering Committee, which consist of 1) Environment and land use group, 2) Urban transport group, 3) Solid waste management group, and 4) Water supply, sewerage/drainage group. The Technical Advisory Groups are composed of stakeholders in each target area including senior officials from related fields, experts from universities and research institutes, representatives of central agencies and communes concerned, as well as representatives of private sector, NGOs and civil society wherever necessary. The groups will be held periodically to monitor the implementation of the projects concerned and give necessary technical advices to their task forces. The Steering Committee oversees the implementation of all projects. Thus through these Technical Advisory Groups, the officials of Tirana city from related department will participate in the formulation of implementation plan based on the Master Plan, and monitor the implementation of proposed projects. The establishment of these Technical Advisory Groups can contribute to the promotion of vertical,

horizontal and interdepartmental coordination as well as stakeholder participation in the process.

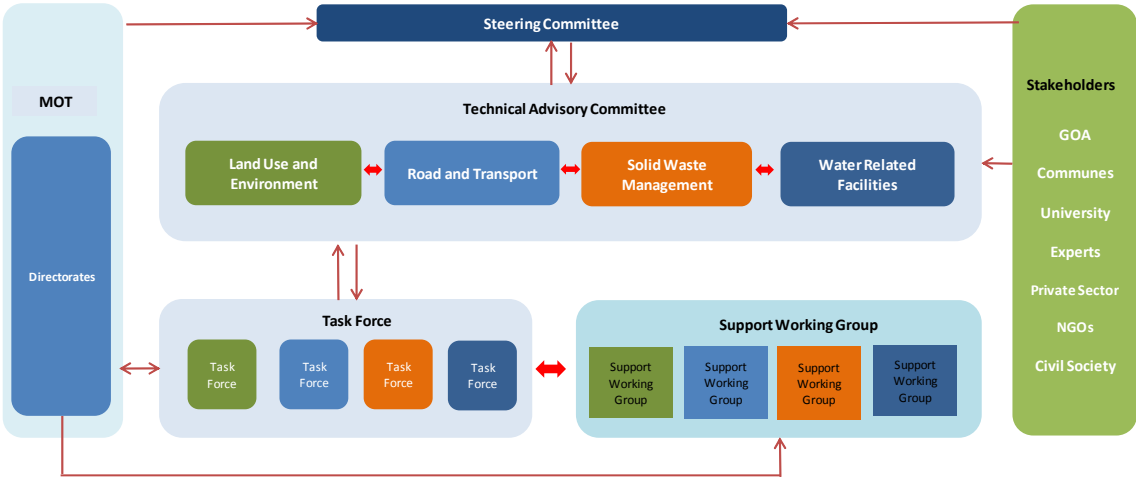


Figure 9.4.1 Institutional Set-up for the Implementation of Regulatory Plan

Main functions of each participating organizations are as follow.

1) Task forces (consisting of middle ranked staff in each four directorates)

- To prepares implementation plan to mobilize the necessary resources for projects based on the Master Plan.
- To coordinate their works with other directorates

1) Working Groups (consisting of staff from relevant directorates)

- To support the task forces by providing them with necessary data and information.

2) Technical Advisory Groups

- To monitor the implementation of the projects concerned
- To provide task forces with necessary technical advices.

3) The Steering Committee

- To oversees the implementation of all projects.

4) The Directorates of MOT

- To provide staff for their task force
- To be implementing bodies for the projects which may establish project management units as required.

5) The Government of Albania

- To oversees and approves environmental impact assessment, etc.

9.5 Proposed "Coordination Manual" for Planning, Implementation and Monitoring

(1) Urban Development Planning Process

The stage of urban development planning process includes economic assessment, strategic formulation, implementation and strategy review (See Table 9.5.1).

For consistent and smooth flow of this process, it is necessary for MOT to have effective coordination mechanisms with relevant central government agencies and with neighbouring communes as well as for interdepartmental coordination within MOT.

Table 9.5.1 Planning Process of Urban Development

Stages	Elements	Description
Economic Assessment	Information gathering	An effective local economy assessment will start with a preliminary review of the existing economic relationships and activities within an area, and will make use of available quantitative and qualitative information that highlights existing structures and trends in business development, manufacturing, employment, skills, and other data that will help to identify the strategic direction of the local economy. The assessment need not necessarily be limited by an administrative jurisdiction or boundary such as a municipal boundary. An area might consist of a metropolitan region, a travel-to-work area, a town, city or its urban or rural hinterland. The information collected may highlight the need for specific projects and programs that will expand and diversify the local economic base.
	Economic Assessment	After obtaining this data, it will be necessary to collate and analyze the data so as to provide a profile of the local economy. Several tools including SWOT analysis (Table 2), benchmarking and regional economic indicators may be used to identify key information on the local economy.
Strategic Making	Vision	An agreed stakeholders' consensus on the preferred economic future of the community.
	Goals	Identify key priority areas of action to meet vision; specify desired outcomes of the LED planning process.
	Objectives	Set performance standards and targets for development; they are time bound and measurable.
	Programs	Define and group together similar projects that collectively achieve particular objectives.
	Projects	Implement specific program components; they are prioritized, costed, time bound and measurable
Implementation	Implementation Plan	Lays out the budgetary, human resource, institutional and procedural implications of implementing an Strategy. It is the point of integration of all projects and programs within an Strategy.
	Action Plans.	Provide specific details on project components including a hierarchy of tasks, responsible parties, a realistic delivery timetable, human resource and financial needs, sources of funding, expected impacts, results, performance measures and systems for evaluating progress for each project
	Institutional Frameworks for Implementation and Monitoring.	Establishing and maintaining both formal and informal links with all the key stakeholders can support implementation and monitoring. Building working relationships and trust between partners assists in the process of managing perspectives and differing agenda.
	Availability of Relevant Inputs	It is necessary to ensure that the required inputs are available and in place prior to the start of strategy implementation. MP implementation requires a commitment of resources, time and political support, and securing and maintaining such inputs will determine effectiveness to achieve programs and projects, and therefore the overall vision.

Stages	Elements	Description
	Tasks in Project Action Plans.	Prior to the commencement of project implementation, project managers will ideally have been selected and charged with responsibility for each project. During the implementation of the project, constant review should be undertaken to ensure that the project is delivering its stated aims and desired outputs. The collection of project data should be a priority to ensure that detailed and relevant information is available for monitoring and evaluation purposes, both during and after project implementation. The use of sound management techniques such as project monitoring and evaluation can help to avoid delays thus ensuring the smooth implementation of a project.
Strategy Review	Monitoring	Is the continuous assessment of a strategy and/or project implementation in relation to agreed schedules, and of the use of inputs, infrastructure, and services by project beneficiaries. Provides managers and other stakeholders with continuous feedback on implementation. Identifies actual or potential successes and problems early to facilitate timely adjustments to project operation. Accepts the project design as given; Measures progress, is focused on performance and occurs continuously.
	Evaluation	Evaluation is the periodic assessment of a project's relevance, performance, efficiency, and impact (both expected and unexpected) in relation to stated objectives. Project managers undertake interim evaluations during implementation as a first review of progress, a prognosis of a project's likely effects, and as a means of identifying necessary adjustments in project design. Evaluation challenges the design of a project, draws conclusions and makes judgments, is focused on the effectiveness of the program or project, becomes a key milestone in the project cycle

Source: JICA Study Team

(2) Importance of Stakeholder Participation

However, MOT has suffered from serious coordination problems: vertical, horizontal and interdepartmental.

Aside from political factors, one of the main reasons of these problems seem to be the lack of participation of major stakeholders in the decision making in the each stage of urban development process. This prevents from consensus building among major stakeholders, which hinders smooth implementation of urban development plans.

(3) Use of Technical Advisory Group for Vertical and Horizontal Coordination

When MOT formulates its development plans, MOT should establishes advisory committees that consist of representatives from central government agencies, neighbouring communes, professors, experts, private sector and civil society, depending on the issue.

By including the representatives of related central government agencies and of neighbouring communes as members of the committees, the decisions made by MOT can reflect the input from those organizations.

Moreover, the establishment of this kind of advisory committee contributes to the promotion of stakeholder participation in planning process including experts from universities and research

institutions as well as representatives from private sector, NGOs and civil society.

This may lead to the implementation of broad based Metropolitan development plan made by MOT.

(4) Establishment and Use of Task Force for Interdepartmental Coordination

The present sector programs and projects are planned and implemented individually and not in an integrated manner. One of the major factors contributing to this problem may be the lack of effective interdepartmental coordination within MOT.

Establishment and use of cross-sectional task forces for addressing major development issues (e.g., the formulation of annual implementation plan of Master Plan) can cope with this problem.

At the first stage, a task force should be established in each directorate for the formulation of implementation plan of MP. At the later stage, the task forces can be formed at least for each vital issue area, such as financial plan for Metropolitan projects, human resource development plan, formulation of training program, and plan for the establishment of a local government association for a cross-jurisdiction project. The Task Forces can also be formed in order to formulate concrete strategies on various important issues. The members and functions of cross-functional task forces are as follows.

Members

- Competent middle ranked officers from relevant departments
- If necessary, a task force can form its own advisory committee whose members include researchers/university professors and consultants, representatives of private sector and mass media as well as representatives of civil society.

Functions

- formulate strategy for each important issue
- promote coordination among departments and major stakeholders
- monitor the implementation of the strategy
- take lessons for the successive year and replicate the best practice
- promote active participation of key stakeholders in decision making process
- develop human resource in related departments

(5) Establishment of Local Government Association as an Effective Measure for Horizontal Coordination

Proposed local government association can be effective to deal with a joint project concerning the construction and management of a common facility (e.g., a final disposal site) across several municipalities/communes.

Member local governments include a municipality/commune and surrounding municipalities/communes, or any local governments that agree the objective and want to participate in the projects. The proposed LGA should be established based on the following principles.

- It is established and managed by the consent of all participating local governments.

- It has an administrative authority as a quasi-local government.
- Human resources and revenue depend on the provision of member local governments
- Budgetary contribution of member is determined by 1) equal rate for fixed cost, and 2) proportional rate for investment and operation cost which is usually calculated by the share of population

9.6 Financial and Fiscal Management

(1) Sustainable Measures for Local Governments Financing Capacity for Urban Development

As a result of decentralization in Albania, Tirana Municipality has increased both total revenues and relative fiscal autonomy.

- Tirana's total local revenues have roughly doubled from ALL 3804 million (2000) to ALL 7,605 million (EUR 62.4 million) (2007).
- In the same period, local source revenues expanded by nearly seven times while unconditional transfers advanced from zero in 2000 to 7.7% in 2007.
- Tirana's discretionary revenues (own source plus unconditional transfers) have risen to 65% of total revenues, slightly higher than the national average of 58%.

However, in spite of impressive advances in recent years, Tirana's revenues are still extremely low compared to that of South East European countries.

- In per capita terms, Tirana's total per capita revenue in 2007 amounted to ALL 11,800 or just under EUR 100 per capita. This is roughly twice as high as the average level for Albanian municipalities (about EUR 50).
- On the other hand, the average per capita revenue of Slovanian and Romanian municipalities is about EUR 500 (EUR 522 and EUR 474, respectively), and that of Bucharest is about EUR 1,100. Thus, the per capita revenues of Albanian municipalities still are only about one-tenth as high as those selected countries of South East Europe.

Increasing local revenue is vital to implement the Master Plan proposed by this Project. Table 9.6.1 indicates Tirana's municipal budget, proposed for 2006-2008.

- The table shows that the budget of Tirana Municipality was grown strongly in recent years, with an increase of 28% between 2006 and 2008.
- Capital investments, accounting for about 40% of Tirana's total budget, are well above the national average.
- For 2008, Tirana's total proposed budget was EUR 64 million, Capital expenditures amounted to EUR 26 million. The largest share – about 70% - is devoted to road construction and the construction of educational facilities is the second largest investment item. Since "other" item of capital expenditure include culture, parks, transport, cleaning, etc., the total amount of investment for the implementation of the Master Plan is less than ALL2,950.691millions (Traffic infrastructure + other).

Table 9.6.1 Tirana's Municipal Budget, Proposed 2006-2008

Budget (proposed)	2006		2007		2008	
Current Expenditures	(1000ALL)		(1000ALL)		(1000ALL)	
Personnel (salaries & social insurance)	1,087,189	29.5%	1,162,805	29.2%	1,448,094	31.5%
Operating expenses	1,272,221	34.6%	1,355,803	34.1%	1,553,863	33.8%
Water supply transfer	267,870	7.3%	317,980	8.0%	413,287	9.0%
Social assistance	893,350	24.2%	958,600	24.1%	1,049,585	22.8%
Funeral/burial expenditures	26,500	0.7%	17,000	0.4%	0	0.0%

Subsidies	27,000	0.7%	25,000	0.6%	5,000	0.1%
Reserve funds	109,662	3.0%	140,000	3.5%	124,600	2.7%
Total current expenditures	3,685,792	100.0%	3,977,188	100.0%	4,594,429	100.0%
Capital expenditures	(1000ALL)		(1000ALL)		(1000ALL)	
Traffic infrastructure	1,784,485	74.9%	1,634,172	71.4%	2,271,895	71.9%
Educational facilities	307,076	12.9%	308,418	13.5%	207,424	6.6%
Other	290,872	12.2%	345,796	15.1%	678,796	21.5%
Total capital expenditures	2,382,434	100.0%	2,288,287	100.0%	3,158,215	100.0%
TOTAL BUDGET	6,068,226		6,265,575		7,752,644	
Capital expenditures as % of total	39.3%		36.5%		40.7%	
Total budget in million EUR	49.6		51.4		64	

Source: Bashkia e Tiranes, Buxheti I Vitit 2007, p49; Bexheti 2008, p32

(2) Strengthening tax collection capacity

Major efforts are required to raise the level of local revenues. The greatest potentials for revenue enhancement lie in the areas of property taxes and the small business tax. According to an extensive study of "Tirana Creditworthiness Enhancement Program" (2008), both taxes are found to have a potential increase – optimistic scenario – of over 200%.

At present, the yield of property tax in Tirana is negligible: property tax accounts for ALL 540 million, just 7.1% of total revenues. Even after an increase of 200%, Tirana's property tax yield, extrapolated to the national level, would be less than 0.3% of GDP.

This would still be negligible by European comparison: in Romania, for example, property tax revenues amount to 0.5% of GDP.

This low level of property tax revenues is a result of the incomplete property registration, very poor coverage, low valuation and low collection efficiency. Therefore, concerted efforts would be required to expand the tax base, adjust rates and improve collection efficiency.

(3) Public debt financing

Initial investment on public services can be made through a variety of loans sourced from the commercial banks, capital market and/or external aid money, i.e. ODA (Official Development Assistance.

The Local Government Law allows local government to borrow on capital markets. Local government lending considerably increase the Municipality's capacity to participate in and shape developments in the city.

The capacity to take credit to expand the Municipality's capacity for capital investments is at least as important, particularly in view of the enormous current service gaps and the backlog of deferred investment and maintenance efforts. In this respect, Tirana has greatly expanded its loan-financed investment activities in recent years.

At present, The Municipality of Tirana has been the beneficiary of three major loan packages in recent years:

- EUR 12.4 million from CEB to finance the construction of schools,
- EUR 8.2 million from EBRD to finance road construction,
- EUR 5.685 million from CEB to finance social housing in the city. This is a very positive development that will increase the Municipality's capacity to play a leading role in the development of priority areas of the city.

10. Financial and Fiscal Management

10.1 Current Status and Salient Features

(1) Fiscal Decentralization in Albania

Fiscal decentralization in Albania is based on the Law on Organization and Functioning of Local Governments of 2000, which defines the functional responsibilities of local governments and provides local governments with autonomous revenue raising authority.

According to the law, there are three types of local government functions, i.e. exclusive functions, shared functions and delegated functions.

Table 10.1.1 Delineation of Responsibilities under the Local Government Law

Function	Explanation/ Description
Exclusive functions	This includes water supply, public transportation, public lightening and garbage collection.
Shared functions	Covers pre-school and pre-university education, health care, public order and civil protection.
Delegated functions	These are from the Central Government which were classified as mandatory and non-mandatory functions.

Source: Dorina Nikolla, "Fiscal Decentralization and Local Financial Management in Albania"

In practice, however, many "exclusive" functions have not yet been fully assumed by local governments**.** With respect to "shared" function, the important functions of pre-university education, along with local health services and social welfare in this category are still largely under the Central Government management and, thus, resemble "delegated functions." There is lack of clear specification of "shared" functions within the legal and institutional framework.

The following revenue sources are available to local governments in Albania.

Table 10.1.2 Revenue Sources of Local Governments

Revenue Item	Sources
Local source revenues	Local taxes User charges and fees Shared taxes (often centrally collected and then shared among the parties) Other (asset revenue, penalties, sequestrations, etc.)
Central government transfers	Unconditional transfers Conditional transfers
Loans	

Source: Diagnostic Study Chap 11: Financial and Fiscal Management

After the decentralization, various measures have been taken to increase financial power of local governments in Albania.

Table 10.1.3 Measures to Expand Local Government Revenue Sources and Power

Measures	Explanation/ Description
Unconditional transfers	These were first introduced in 2001.
2002 fiscal package	Devolves the authority to set tax rates on local property tax. Establishes a local small business tax and infrastructure impact tax.
Transfer of existing taxes	The tax on the transfer of property rights and vehicles registration tax were transferred to local governments.

Measures	Explanation/ Description
Simplified profits tax	This was established for small business that do not fall under the VAT system
State budget law of 2006	Made unconditional transfers available for capital investments, based on transparent criteria. A competitive grant scheme was also introduced, making it possible for local governments to compete for funds through proposed capital expenditure plans.

Source: Diagnostic Study Chap 11: Financial and Fiscal Management

As a result of these measures, total local expenditures in Albania increased from 20,420 million Albanian Lek in 2000 to 38,872 million Lek. As a proportion of GDP, total local expenditures have expanded from 3.8% in 2000 to 4.3% in 2006. While the rise is significant, Albania still takes last place in comparison with other European countries.

Fiscal autonomy of local governments has increased significantly since 2001. Total local revenues have expanded by 50% between 2001 and 2006 (Table 10.1.4). In the same five-year period, local governments expanded locally generated revenues nearly 400%. Discretionary revenues, a measure of fiscal autonomy (the locally generated revenues plus unconditional transfers from central government) have increased, as a share of total local revenues, from just over 30% in 2001 to 58%. Net local discretion as a percentage of local revenues, revenue over which local government has complete spending authority (comprise locally generated revenues plus unconditional transfers, minus "unfunded mandates", or functions, delegated by central government, that must be paid out from local revenues) increased from 22.9% to 53.4% in the same period.

Table 10.1.4 Local Source Revenues and Net Local Discretion[1], Albania 1996-2006

	1998	2001	2006
Total local government revenues (million ALL)	15,673	25,464	38,232
Total source revenues (million ALL)	658	1,996	9,825
Local source revenues as a percent of total local revenues	4.2%	7.8%	25.7%
Unconditional transfer (million ALL)	-	5,659	9,800
Shared taxes (million ALL)	-	345	2,534
Total discretionary revenues (million ALL)	658	8,000	22,159
Discretionary revenues as percent of total local revenues	4.2%	31.4%	58%
Unfunded mandates[2]	-	2,178	1,740
Unfunded mandates as a percent of total local revenues	-	860%	460%
Net local discretion as percent of total local revenues	4.2%	22.9%	53.4%

[1]Amounts are in Albanian Lek= ALL

[2]Payments from local discretionary revenues for functions mandated by central government.

Source: Pigey, Juliana, H. et. al. "Albania: Decentralization and Local Government Finance: Key Successes and Future Challenges", The Urban Institute, 2007

Unconditional transfer has contributed towards greater equity local revenue. After unconditional transfers, Tirana's total per capita revenue was only about three times higher than that of all communes and municipalities, and twice that of all municipalities. Average unconditional transfers from central government amounted to over 60% of the total local revenue of all

municipalities and communes, but only about 10% of Tirana's total local revenue.

Table 10.1.5 Mean Per Capita Local Revenues of Albanian Local Governments[1], 2003

	Total taxes	Fees and non-tax	Own source	Unconditional transfer	Total Local Revenues
All municipalities & communes	755	514	1,268	2,064	3,332
Municipalities only	1,970	1,296	3,266	2,005	5,272
Municipality of Tirana	7,763	1,767	9,530	1,031	10,561

[1] All numbers are in Albanian Lek per capita

Source: Schroeder, Larry. Albania Fiscal Decentralization Policy Study, The Urban Institute, May 2004, p47

(2) Decentralization and Tirana's Financial Situation

As a result of decentralization in Albania, Municipality of Tirana (MOT) has increased both total revenues and relative fiscal autonomy. Table 10.1.6 shows total and own sources revenues of MOT in 2000, 2005 and 2007. Tirana's total local revenues have roughly doubled from 3,804 million Albanian Lek (2000) to 7,605 million Lek or 62.4 million Euros) (2007). In the same period, local source revenues expanded by nearly seven times while unconditional transfers advanced from zero in 2000 to 7.7% in 2007. Tirana's discretionary revenues (own source plus unconditional transfers) have risen to 65% of total revenues, slightly higher than the national average of 58%.

Table 10.1.6 Total and Own Sources Revenues of MOT 2000, 2005, 2007

	2000	2005	2007
Total revenues (million ALL)	3,804	7,387	7,605
Local source revenues (million ALL)	654	4,248	4,365
Local source revenues (in percentage)	17%	58%	57%
Unconditional transfers (in percentage)	0%	5%	8%
Conditional transfers (in percentage)	82%	38%	35%
Discretionary revenues (in percentage)	17%	63%	65%
Total revenues in EUR (million)	28.99	60.94	62.44
Local source revenues in EUR (million)	4.99	35.04	35.84

Sources: 2000-2005: Dhimitri, A., Ikonomi, B., M., "Financing Metropolitan Government, Tirana City, Background Processes", MOT, 2007; and 2007: Studio Galli Ingegneria, Tirana Creditworthiness Enhancement Program, Report 9: "The citty's Debt and Debt repatment analysis2, Febriaru 2008, p40

However, in spite of impressive advances in recent years, Tirana's revenues are still extremely low compared to that of South East European countries. In per capita terms, Tirana's total per capita revenue in 2007 amounted to ALL 11,800 or just below EUR 100 per capita. This is roughly twice as high as the average level for Albanian municipalities (about EUR 50). On the other hand, the average per capita revenue of Slovanian and Romanian municipalities is about EUR 500 (EUR 522 and EUR 474, respectively), and that of Bucharest is about EUR 1,100. Thus, the per capita revenues of Albanian municipalities are still only about one-tenth as high as those selected countries of South East Europe (p199).

Table 10.1.7 shows the composition of Tirana's total local revenues in 2007. The main characteristics include (Diagnostic Study p199):

- Local source revenues comprise 57.4% of total local revenues;
- Most central government transfers are conditional at 35% of total; unconditional transfers at 7.6% constitute a small portion of total local revenues.
- Local taxes comprise roughly 40% of total local revenues.
- The most important local taxes, the small business tax and infrastructure impact tax, each comprise about 15% of local revenues.
- Property tax accounts for 540 million Lek, just 7.1% of total revenues.

Table 10.1.7 Composition of Local Revenues of MOT in 2007

(Unit: 1,000 ALL)

Budget Item	2007	Percent
A. Total own revenues	4,361,710	57.4%
A.I. Local taxes	2,982,400	39.2%
Property tax	540,000	7%
Small business tax	1,100,000	14.5%
Infrastructure impact tax (on construction)	1,100,000	14.5%
Other (green, hotel, hotel/restaurant income, etc.)	242,000	3.2%
A.II. Local user charges and fees	975,610	12.8%
Local user charges	767,500	10.1%
Cleaning	597,000	7.9%
Parking	74,000	1%
Other (dormitories, kindergarten, crèches)	96,500	1.2%
Local fees	208,110	2.7%
A.III. Asset Revenues	13,500	0.2%
A.IV. Penalties and sequestrations	40,200	0.5%
A.V. Grants and Sponsorships	0	0.0%
A.VI. Shared Taxes and Fees	350,000	4.6%
Simplified profits tax on small businesses	0	0.0%
Immovable property transaction tax	150,000	2.0%
Vehicle registration fee	200,000	2.6%
B. Transfers from State Budget	3,242,820	42.6%
B.I. Unconditional transfer	582,319	7.6%
B.II. Conditional transfer	2,660,501	35.0%
Operative	2,660,151	35.0%
Investments	350	0.0%
Total Income	7,604,530	100.0%
Remaining cash from previous year	345,946	4.5%
Total Cash Income	7,950,476	104.5%

Source: Studio Galli Ingegneria, Tirana Creditwothiness Enhancement Program, Report 9: "The city's Debt and Debt repayment analysis", February 2008, pp36-37

(3) Allocation of Local Expenditures in Albania and Tirana City

Table 10.1.8 outlines the functional allocation of operating and capital expenditures on local public services by all local governments in Albania. The diagnostic study points out the following characteristics of allocation of local expenditures in Albania:

- Overall, capital expenditures comprise about one-fifth of total expenditures.
- Regarding conditional transfers, pre-university education accounts for more than one-third of the total operating expenditures and social assistance, about one-fifth; this indicates the extent to which central government has employed local government as an agent of the state in delivering these social functions.
- Capital expenditures for public works, 43% of the total, have been largely determined by Central Government through conditional transfers.
- General administration, nearly one-half of capital expenditures from discretionary sources, have devoted to general administration; this indicates the importance that local governments have considered increasing their administrative capital.

Table 10.1.8 Allocation of Local Expenditures on Local Public Services in Albania

	Conditional transfers	Discretionary sources	All sources
Current Expenditures (1,000 ALL)	37,565,717	13,397,698	50,963,415
General administration	14.5%	40.0%	21.2%
Education	39.2%	8.6%	31.2%
Health	6.8%	3.3%	5.9%
Social assistance	20.8%	0.0%	15.3%
Public Works	10.5%	29.3%	15.4%
Cleaning and solid waste	4.6%	12.9%	6.8%
Others (culture, parks, transport, cleaning, etc.)	3.6%	6%	4.2%
Capital Expenditures (1,000 ALL)	7,614,348	3,213,713	10,828,061
General administration	20.9%	48.1%	29.0%
Education	15.6%	1.5%	11.4%
Health	4.9%	0.6%	3.6%
Social assistance	0.0%	0.0%	0.0%
Public Works	43.1%	18.5%	35.8%
Cleaning and solid waste	7.0%	16.6%	9.8%
Others (culture, parks, transport, cleaning, etc.)	8.5%	14.7%	10.3%
Capital Expenditures as Percent of Total	16.9%	19.3%	17.5%

Source: Schroeder, Larry, "Albanian Fiscal Decentralization Policy Study", The Urban Institute, May 2004, p41-42

Table 10.1.9 indicates Tirana's municipal budget proposed for 2006-2008. The following aspects are noteworthy:

- The budget of MOT has grown strongly in recent years, with an increase of 28% from 2006 to 2008.
- In terms of allocation, the municipal budget has changed only slightly in the sa,e period.
- Current expenditures are composed mainly of personnel costs (about 30%), operation and maintenance (34%) and social assistance payments (24%).
- In terms of functional responsibilities, education accounts for about 35% of Tirana's current expenditures (salaries plus operation and maintenance costs) while social assistance payments account for 17%. This functional allocation of current expenditures corresponds roughly to the national average (31% and 15%, respectively)
- Capital investments, accounting for about 40% of Tirana's total budget, are above the national average. For 2008, Tirana's total proposed budget was EUR 64 million; Capital expenditures amounted to EUR 26 million. The largest share – about 70% - is devoted to road construction. The construction of educational facilities is the second largest investment item.

Table 10.1.9 Tirana's Municipal Budget, Proposed 2006-2008

Budget (proposed)	2006		2007		2008	
Current Expenditures	(1000ALL)		(1000ALL)		(1000ALL)	
Personnel (salaries & social insurance)	1,087,189	29.5%	1,162,805	29.2%	1,448,094	31.5%
Operating expenses	1,272,221	34.6%	1,355,803	34.1%	1,553,863	33.8%
Water supply transfer	267,870	7.3%	317,980	8.0%	413,287	9.0%
Social assistance	893,350	24.2%	958,600	24.1%	1,049,585	22.8%
Funeral/burial expenditures	26,500	0.7%	17,000	0.4%	0	0.0%
Subsidies	27,000	0.7%	25,000	0.6%	5,000	0.1%
Reserve funds	109,662	3.0%	140,000	3.5%	124,600	2.7%
Total Current Expenditures	3,685,792	100.0%	3,977,188	100.0%	4,594,429	100.0%
Capital Expenditures	(1000ALL)		(1000ALL)		(1000ALL)	
Traffic infrastructure	1,784,485	74.9%	1,634,172	71.4%	2,271,895	71.9%
Educational facilities	307,076	12.9%	308,418	13.5%	207,424	6.6%
Others	290,872	12.2%	345,796	15.1%	678,796	21.5%
Total Capital Expenditures	2,382,434	100.0%	2,288,287	100.0%	3,158,215	100.0%
TOTAL BUDGET	6,068,226		6,265,575		7,752,644	
Capital expenditures (in percent)	*39.3%*		*36.5%*		*40.7%*	
Total budget in million EUR	*49.6*		*51.4*		*64*	

Source: Bashkia e Tiranes, Buxheti I Vitit 2007, p49; Bexheti 2008, p32

(4) Municipal Debt and Debt Repayment

The Local Government Law allows local government to borrow on capital markets. Local government lending considerably increased the municipality's capacity to participate in and shape developments in the city. At present, MOT has been the beneficiary of three major loan packages in recent years.

Table 10.1.10 Loan Packages Received by MOT

Year	Lender	Content
2005	The Council of Europe Development Bank (CEB)	EUR 12.4 million To finance the construction of schools. The project value is EUR 18.9 million; EUR 6.5 million is contributed by the Ministry of Education. The CEB loan disbursal schedule is: 2005 (EUR 2 million); 2007 (EUR 4 million), 2008 (EUR 4.9 million); 2009 (EUR 1.5 million). Repayment starts in 2009 and is to be completed by 2018
2006	EBRD	EUR 8.2 million To finance road construction The total loan is EUR 14.6 million and the beneficiary is the Central Government, which is on-lending to Tirana and other municipalities. The disbursal schedule runs from 2006 to 2009. Repayment would be made from 2009 to 2020, (3- year grace period and 10-year repayment).
2008	CEB	EUR 5.685 million To finance social housing in the city. The project value is EUR 9.475; EUR 3.79 being the local contribution. Central Government is the borrower, with one-lending to the Municipality.

Source: The Diagnostic Study: Chap 11 Financial and Fiscal Management

10.2 Sustainable Measures for Local Governments Financing Capacity for Urban Development

(1) Strengthening tax collection capacity

Major efforts are required to raise the level of local revenues. The greatest potentials for revenue enhancement lie in the areas of property taxes and the small business tax. According to an extensive study of "Tirana Creditworthiness Enhancement Program" (2008), both taxes are found to have a potential increase – optimistic scenario – of over 200%.

At present, the yield of property tax in Tirana is negligible: property tax accounts for ALL 540 million, just 7.1% of total revenues. Even after an increase of 200%, Tirana's property tax yield, extrapolated to the national level, would be less than 0.3% of GDP.

This would still be negligible by European comparison: in Romania, for example, property tax revenues amount to 0.5% of GDP.

This low level of property tax revenues is a result of the incomplete property registration, very poor coverage, low valuation and low collection efficiency. Therefore, concerted efforts would be required to expand the tax base, adjust rates and improve collection efficiency.

(2) Public debt financing

Initial investment on public services can be made through a variety of loans sourced from the commercial banks, capital market and/or external aid money, i.e. ODA (Official Development Assistance.

The Local Government Law allows local government to borrow on capital markets. Local

government lending considerably increase the Municipality's capacity to participate in and shape developments in the city.

The capacity to take credit to expand the municipality's capacity for capital investments is at least as important, particularly in view of the enormous current service gaps and the backlog of deferred investment and maintenance efforts. In this respect, Tirana has greatly expanded its loan-financed investment activities in recent years.

At present, MOT has been the beneficiary of three major loan packages in recent years:

- EUR 12.4 million from CEB to finance the construction of schools;
- EUR 8.2 million from EBRD to finance road construction; and
- EUR 5.685 million from CEB to finance social housing in the city. This is a very positive development that will increase the Municipality's capacity to play a leading role in the development of priority areas of the city.

10.3 Introduction of "PPP Model" for Urban Infrastructure Projects

As seen above, the budgetary capacity is so limited that MOT has faced a difficulty in self-financing strategic projects, which shall be delineated in its regulatory plan. Therefore, a scheme of "Public Private Partnership (PPP)" has been pursued under the current administration in order to solve such a budgetary issue. It is informed that three strategic projects are currently targets to seek for practical PPP schemes for their implementation. These are:

- Development of the intermodal terminal with a new railway station, bus terminals and truck terminal;
- Development of two lines of new tram systems (North-South Line and East-West Line); and
- Development of a new technology center to accommodate new high tech- and ICT- based industries.

Concrete mechanisms for respective projects are to be examined in the course of their feasibility studies, being supported by international donor agencies such as EBRD and EIB. A basic concept on the PPP scheme is based on a concessionaire system so that MOT shall issue a concession to a private entity whose proposal is selected as the best, through an international competitive bidding process.

However, it should be noted by MOT that the most important key for success is whether or not MOT will be able to offer attractive incentives and/or governmental guarantees to minimize anticipated risks for investment and operation by the private sector entities.

Needless to say, the PPP scheme is applicable for not only three projects above but also some projects related to enhance the solid waste management system. In order for MOT to pursue a practical mechanism, a legal framework in the form of municipal bylaw or ordinance, should be thoughtfully developed in line with the national policy on application of PPP models for provision of public service facilities and infrastructures. It is obvious that since a huge amount of initial investment is required to develop such cost-heavy projects such as tram systems, international investors shall be called for participation in the PPP scheme. For this sake, or in order to issue bonds, MOT as well as Albania needs to be evaluated for its financial capacity

and reliability of the governance at the international finance market, because international money is very sensitive to governmental credibility.

Department of Strategic Project and International Investment, MOT, shall be chiefly responsible to pursue a new funding scheme to materialize a number of strategic projects. To this end, top priority needs to be placed on the development of the effective legal framework with right knowledge on both the central and municipal governments' power and responsibilities to make a PPP scheme practically operable. A clear-cut demarcation with the public and private sectors are also formulated, based on experiences in other countries, because the PPP is not a way that the governments' burden is lessened to implement projects.

10.4 Listing of Priority Actions

The institutional, organizational and financial capacities should be further strengthened to effectively manage the implementation of the regulatory (master) plan of the Tirana Metropolitan Area. For this purpose, three priority actions are recommended as follows:

- Establishment of "Local Government Association" as an effective measure for horizontal coordination for the implementation of related urban development projects as well as urban policies and strategies among member local governments in the Tirana Metropolitan Area.
- Implementation of actions proposed by the study, titled "Tirana Creditworthiness Enhancement Program (2008)" supported by EBRD, to strengthen the local government's financing capacity for project execution, focusing particularly on the reform of tax collection system for local taxes such as property tax.
- Preparation of the legal basis and legislative framework for PPP projects and strengthening of the governance of MOT to make clear its administrative powers, roles and responsibilities, and enhancement of capacities for financing and arbitration of disputes, etc.