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FUNDING PUBLIC INFRASTRUCTURE INVESTMENTS: THE EVALUATION OF USEFULNESS OF CAPITAL MARKET

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Danışman
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ABSTRACT

Master with Thesis

Funding Public Infrastructure Investments: The Evaluation of Usefulness of Capital Market

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Master in Science in Finance Program

Infrastructure facilities and services have great significance in terms of economic growth and social welfare in a country. Particularly, in parallel with rapid population growth, urbanization, globalization and industrialization, there happened significant increases in infrastructure services and investments which are provided by central and local governments in the last years. Once infrastructure facilities and services like energy, communication, transportation and water-sewerage which can be divided into many subgroups, require huge amounts of investments,, they have been provided in large extent by public sector for many years. Because of the inadequacy of the public sources to finance sustainable infrastructure investments, Municipal Bonds have become significant instrument in that they enable getting funds from Capital Markets. Besides, Private Sector Participation has also been frequently applied to finance these investments in both emerging and developed countries.

In this study, the implementation of alternative financing models in funding public infrastructure investments are to be examined in more detail. The main aim of this study is to unfold the possible alternative models that can also be adopted in Turkey, as well as to what extent the involved alternative financing models have already been in use. Needless to say, the policies targeting to unify and integrate Turkey with the EU necessitate mounting the

Turkish infrastructure investments to the European countries' level. This target inevitably requires larger funds also. As a consequence, this study aims at explaining why among other alternative financing models, "Municipal Bonds" are functional in diversifying securities for investors in capital markets as well as providing funds with a longer maturity for the bond issuers thereby cushioning, the investment risk decreasing financial load on the public sector and increasing social welfare.

Key Words: Infrastructure Investments, Funding Infrastructure Investments, Public Private Partnerships, Municipal Bonds.

ÖZET

Yüksek Lisans Tezi

Kamu Altyapı Yatırımlarının Finansmanı: Sermaye Piyasasının Kullanılabilirliğinin Değerlendirilmesi

Bülent AKKAS

Dokuz Eylül Üniversitesi

Sosyal Bilimler Enstitüsü

İngilizce İşletme Anabilim Dalı

İngilizce Finansman Programı

Bir ülkede ekonomik büyümenin ve toplumsal refahın arttırılması için altyapı tesisleri ve hizmetleri büyük önem arz etmektedir. Özellikle, gelişmekte olan ülkelerde yaşanan hızlı nüfus artışı, kentleşme, globalleşme ve sanayileşmeye paralel olarak bu ülkelerde hem merkezi hem de yerel yönetimlerce sağlanan altyapı hizmetleri ve yatırımlarında son yıllarda önemli miktarda artışlar meydana gelmiştir. Başlıca enerji, haberleşme, ulaştırma ve su-kanalizasyon sektörleri ile kendi içerisinde alt gruplara ayrılan altyapı tesisleri ve hizmetleri büyük rakamlarla ifade edilen yatırımları gerektirmektedir. Bu nedenle uzun yıllar bu yatırımlar kamu sektörü tarafından sağlanmıştır. Sürdürülebilir altyapı finansmanında kamu kaynaklarının yetersiz kalması nedeniyle bu yatırımların temininde Özel Sektör Katılımını Sağlayan Modellere ve Sermaye Piyasalarından Fon Teminini Sağlayan Belediye Tahvili uygulamalarına gelişmiş ve gelişmekte olan ülkelerde sıklıkla başvurulmaktadır.

Bu çalışmada hem gelişmiş hem de gelişmekte olan ülkelerde kamu altyapı yatırımlarının finansmanı için uygulanan alternatif finansman modelleri detaylı olarak incelenmiştir. Çalışmanın temel amacı bu alternatif finansman modellerinin Türkiye' deki altyapı yatırımlarının finansmanında ne ölçüde kullanıldığını ve uygulanabilirliğini ortaya koyabilmektir.

Şüphesiz Türkiye'yi AB'ye entegre etmeyi amaçlayan politikalar Türkiyedeki altyapı yatırımlarını Avrupa ülkeleri seviyelerine getirmeyi hedeflemektedir. Bu hedef kaçınılmaz bir biçimde büyük fonlar gerektirmektedir. Sonuç olarak bu çalışma, alternatif finansman modelleri arasındaki "Belediye Tahvili" uygulamasının yatırımcılar için sermaye piyasasında menkul kıymet çeşitliliğini arttırması ve tahvil ihraç edenler için daha uzun vadeli fon temini sağlaması bakımında fonksiyonel olduğunu açıklamayı hedeflemektedir. Böylelikle yatırım riski ve kamunun üzerindeki mali yük azalacak ve toplumsal refah artacaktır.

Anahtar Kelimeler: Altyapı Yatırımları, Altyapı Yatırımlarının Finansmanı, Kamu Özel Sektör Ortaklığı, Belediye Tahvilleri.

FUNDING PUBLIC INFRASTRUCTURE INVESTMENTS: THE EVALUATION OF USEFULNESS OF CAPITAL MARKET

CHAPTER 2

2. FUNDING INFRASTRUCTURE INVESTMENTS AND UTULITIES SERVICES

CHAPTER 3
3. FUNDING PUBLIC INFRASTRUCTURE INVESTMENTS THROUGH CAPITAL MARKETS

LIST OF ABBREVIATIONS

R&D	: Research and Development
ATM	: Auto Teller Machine
WB	: World Bank
ADB	: Asian Development Bank
EIB	: European Investment Bank
EBRD	: European Bank for Reconstruction and Development
IBRD	: International Bank for Reconstruction and Development
IDA	: International Development Association
IFC	: International Finance Corporation
MIGA	: Multilateral International Guarantee Agency
EUR	: Euro
PPP	: Public Private Partnership
UK	: United Kingdom
USA	: United State of America
BOT	: Build-Operate-Transfer
BO	: Build-Operate
BOO	: Build-Operate-Own
ROT	: Rehabilitate-Operate-Transfer
CEE	: Central and Eastern European
EU	: European Union
GDP	: Gross Domestic Products
PFI	: Private Finance Initiative
PBC	: Partnership of British Colombia
TBMA	: The Bond Market Association
SEC	: Securities and Exchange Commission
TANs	: Tax Anticipation Notes
RANs	: Revenue Anticipation Notes
BANs	: Bond Anticipation Notes
GANs	: Grant Anticipation Notes
G.O.B	: General Obligation Bonds

RB	: Revenue Bonds
WPPSS	: Washington Public Power Supply System
S&P	: Standard & Poor's
AMBAC	: American Municipal Bond Assurance Corporation
FGIC	: Financial Guaranty Insurance Company
FSA	: Financial Security Assurance Inc.
MBIA	: Municipal Bond Investors Assurance Corporation
JPY	: Japanese Yen
ISKI	: Istanbul Water Sewerage Water Institution
USAID	: The United State Agency International Development
CMB	: Capital Markets Board
CML	: Capital Market Law
DBFO	: Design-Built-Finance-Operate
DBF	: Design Build Finance
SWA	: Scottish Water Authority
DSI	: State Water General Directorate
SPO	: State Planning Organization
ANTSU	: Antalya Water
ASAT	: General Directorate of Water-Sewerage Water City of Greater Antalya
TASK	: Tepe-Akfen Water ad Waste Water Investment Corporation
SWM	: Solid Waste Management
MSWM	: Municipality Solid Waste Management
BNP	: Banque Nationale de Paris
PPL	: Przedsiebiotwo Porty Lotnicze
TAV	: Tepe-Akfen Airports Corp.
DHMi	: General Directorate of State Airports Authority
AMC	: Ahmedabad Municipal Corporation
USAID's	: The United States Agency for International Development
FIRE	: Financial Institutions Reform and Expansion
CRISIL	: Credit Rating and Information Services of India
SEBI	: Securities and Exchange Board of India

Rs	: Indian Rupees
TNUDF	: Tamil Nadu Urban Development Fund
NIS	: New Israeli Shekels

TABLE LIST

FIGURE LIST

INTRODUCTION

The attractiveness of a country for economic investors is largely determined by good infrastructure investments. A good infrastructure investment depends on an intelligent design, a cost efficient and quality build-up and a value preserving maintenance over its lifetime. In the European economic competition and also in the globalizing world economy the factor of being an attractive country becomes rapidly more important.

Therefore infrastructure investments and utilities services are of great importance to increasing attractiveness of a country, its productivity and economic development which all lead to better public welfare. These infrastructures and services include supply of energy, water, communications facilities, and transportation means, as well as the collection and treatment of wastewater/ sewerage and waste. There are many sub-sectors.

Traditionally, infrastructure investments and services have become the domain of public sector although previously it had been largely the field of the private sector (except for military investments, and even they often got funded through private money, as can be read in Greek, Roman and mid-level literature). Recently, the world population is increasing rapidly as well as the economic and demographic revolutions are changing the world. Growth, urbanization, industrialization, Europeanization, globalization, all call for more and better infrastructure investments and services.

The demand for more and better infrastructure is fastly growing. The state does not have enough financial sources and capacity to cope with all needed projects and works. The private sector can help, if it is given enough incentives. Public Private Partnerships (PPPs) present numerous advantages. They easily improve the service quality, give more value to the invested capital, lower the project costs and risks, increase innovative power, speed up the construction, and comply with the proposed budget and increase revenues. PPP models can be classified into different categories. Each has its own strength and weakness, so it is important to wisely

determine when and where PPP should be applied. In some instances it is very beneficial. In many it is indifferent and in some it may be hazardous.

Other financing methods provide funds through borrowing bonds from capital markets. This method has been applied intensively in the USA since its foundation years. Municipal Bonds are raised from the capital markets as short and long terms instruments to finance infrastructures in cities, tourist towns, and universities; also for electricity generation, and distribution, for hospitals and other administration buildings. Municipal bonds are mainly used to finance projects like transportation facilities (bridges, highways, roads, airports, ports, freeways, etc.); electric power–generating and–transmission facilities; water purification and distribution; sewage collection and treatment plants; waste collection and treatment of incineration or re-use plants, health facilities and assisting living facilities, nursing homes; housing; government office buildings; elementary and secondary school buildings; higher-education buildings, research laboratories, and dormitories; resource recovery plants.

This study concentrates on two types of infrastructure investments. It elaborates general features and discusses differences and communalities and presents concepts to fuel public discussions where and when to apply which kind of financial model.

In the first chapter, infrastructure investments are defined. In the second chapter, funding infrastructure investments and services, public-private sector partnership models, experience of public-private sector partnerships in Turkey and the world are explained. In the third chapter, funding infrastructure investments through capital markets, municipal bonds and experience of municipal bonds in Turkey and the world are given. Lastly, in the fourth chapter, the examples of Public Private Sector Partnerships and Municipal Bonds Case Studies in Turkey and the world are discussed. The conclusion evaluates the public-private sector partnership models used in funding infrastructure investments, and providing funds for infrastructure investments and services by using these financing models through borrowing methods from capital markets in the process of integration of Turkey with the European Union.

Turkey has long been attempted for improving the infrastructure investments. Several steps are taken: BOT of the international airport terminals, the speed train between Istanbul and Ankara, and so forth. Legislative steps in the Prime Minister's office have been initiated mainly initiated from the SPO and some cooperating ministries. The Investment Support and Promotion Agency of Turkey (ISPAT) has been founded primarily to raise funds for more investment. In fact Turkey has to fight at several fronts. On top there are discussions about the appropriateness of investment models, one of which is the -private sector partnership models and the other one is borrowing from capital markets to finance infrastructure. Yet, currently there is not enough information to evaluate Turkish applications in this study. On the other side, in these work international publications, articles and internet sources have been used; besides, personal contacts and correspondence to various persons, experts and organizations contributed to the body of knowledge summarized here.

In that sense it is hoped that this thesis contributes some building blocks for the knowledge base and competence which each country has to gather itself to pave an efficient entry into this field. The information provided here may be beneficial for people who research further on financing infrastructure and cooperate with central and local governments.

CHAPTER 1

1. INFRASTRUCTURE INVESTMENTS

1.1. THE CONCEPT OF INFRASTRUCTURE INVESTMENTS

1.1.1. Definition

The term "infrastructure" can be defined as the structural elements that provide a supporting framework for an entire structure or organization[1]. The term has diverse meanings in different fields, but is perhaps most widely understood to refer to roads, airports, and utilities. These various elements may collectively be termed civil infrastructure, municipal infrastructure, or simply the public works, although they may be developed and operated as private-sector or government enterprises. In other applications, infrastructure may refer to information technology, informal and formal channels of communication, software development tools, political and social networks and beliefs held by members of particular groups. Still underlying these more general uses is the concept that infrastructure provides organizing structure and support for the system or organization it serves, whether it is a city, a nation, or a corporation.

The concept of infrastructure in economics refers both to a particular and a much broader use: In specific, the term covers the structural elements of an economy, which allow for the production of goods and services without themselves being part of the production process e.g. roads allow the transport of raw materials and finished products. In a much broader sense, the term covers facilities, which an economy either already has or should have the possession of, for transportation, communication, energy, water, sewage as well as the institutions in health and

[1] Coşkun Can Aktan, Dilek Dileyici, İstiklal Y.Vural, **Altyapı Ekonomisi: Altyapı Hizmetlerinde Serbestleşme ve Özelleştirme**, First Edition, Seçkin Yayıncılık, Ankara, March 2005, p.11.

education sectors, while also implying the social and fixed capital inclusive of all the knowledge and competence regarding these sectors.

Along with the tangible and social infrastructures another item to be defined is the institutional infrastructure, which consists of the aggregate of legal regulations, rules and laws that determine private ownership, competition, financial and monetary arrangements[2] .

Infrastructure investments and utilities services are divided into various subcategories and they play a crucial role on the economic growth and development of a country.

1.1.2. Types

Types of public infrastructure investments included in this study are those that are called tangible or economic infrastructure services. Accordingly, economic infrastructure contains energy, gas-oil pipelines, telecommunication, water supply, sewage, solid waste aggregation - annihilation services; public works such as dams, water channels or services for roads; and transportation services such as railways, metro-subways, highways, local transportation, seaports, water carriage and airports[3].

1.1.3. General Characteristics

Infrastructure investments generally have the following characteristics, although they show some differences according to service types:

There is collective consumption of utilities services: There is collective consumption of utilities services rather than the individual consumption. Therefore, no decrease is

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[2] Coşkun Can Aktan, **Değişim ve Devlet**, TİSK Yayınları, No:22, Ankara, 1998, p.63.

[3] World Bank, **World Development Report 1994 : Infrastructure for Development**, Oxford University Press, Washington DC,1994, p.13.

observed in the quantity of these services when benefiting from them. It is possible for any utility service to be used by all the consumers simultaneously[4] .

Utilities Services generally show network characteristics and they own network externalities: Telecommunications, electricity and water services are among the major public infrastructure investments which show network externalities. This means that the demand of a user to benefit from a product or service is affected by the others using the same or compatible products or services. In other words, the benefit derived by a consumer from a good or service increase as the number of those using such a good or service increases. For instance, the more is the number of subscribers connected with a telephone network, the higher is the rate of new subscribers to prefer that network[5] .

Users generally pay the cost of using utilities service in public infrastructure investments: Therefore, such services can be classified as semi private goods or toll goods. Since they are served in return for a specific cost, it becomes possible to exclude users from consumption of infrastructure services while on the other hand it can sometimes be possible to render such services free of charge. In such a case, it becomes impossible to prevent some citizens from benefiting such utilities services.

A price under the cost of production can be set in utilities service: Fixing the service sales price under the cost of production in public infrastructure investments is related to public interest. Therefore, fixing the prices at a low rate makes one of the underlying reasons of public production.

Some utilities services display the characteristics of joint goods: Some infrastructure investments paves the way for servicing other goods and services. For instance, transportation services can be considered as joint goods with other public services. Government has to reach all the citizens all over the country to provide defense, domestic safety and frontier services together with health and education services.

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[4] Aktan, Dileyici, Vural, p.12.

[5] Özge İçöz, **Telekomünikasyon Sektöründe Regülasyon ve Rekabet**, Rekabet Kurumu, Ankara, February 2003, p.11.

Prioritizing such public services may require the construction of a road as a joint commodity which paves the way for other services[6].

It is not possible to stockpile utilities services: Public infrastructure sectors include mainly the service sectors therefore, it is naturally impossible to stockpile them.

Some utilities services are toll goods, the qualities of which become higher with collective consumption: Individual consumption of some utility services is not effective; therefore they are collectively used by all users. For instance; in telecoms, postal and telegram services telecommunication network with more users are more available and more valuable as opposed to only one user network[7].

Public infrastructure investments are essential to provide economic growth and development: Factors such as rapid urbanization and population growth bring about an increase in the demand for public infrastructure services. Even if infrastructure investments do not directly show production increasing characteristics, they constitute the necessary conditions to materialize production. Consequently, public infrastructure investments own positive effects on total production and economic development. Utilities services are, therefore, among the indispensable services having priority in order to provide diversified economic activity in a country or a region[8].

Infrastructure investments require high fixed costs at the preliminary stage: Utilities services are the services that require large amounts of fixed costs. Such a characteristic of utilities services takes root mainly from its structure of capital intensive production. Fixed costs are the sunk costs in short term, and being already incurred, sunk costs cannot be recovered to any significant degree in the event a firm leaves its field of operations. Sunk costs are sometimes compared with variable costs that show change with the suggested course of action.

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[6] Kenan Bulutoğlu, **Kamu Ekonomisine Giriş: Devletin Ekonomik Bir Kuramı**, Forth Edition, Filiz Kitapevi, İstanbul, 1988, p.365.

[7] Aktan, Dileyici, Vural, p.13.

[8] Aktan, Dileyici, Vural, p.13.

In microeconomic theory, only variable costs are relevant to a decision. For a company the sunk costs include research and development (R&D) costs as well as wear and tear of its machinery & equipment, hence many infrastructure investments inherently include the sunk costs. It is, therefore, argued that the infrastructure investment sectors and markets are not easy to penetrate for many firms. As it will be thoroughly explained in the course of the study, in our day it has become possible for a higher number of companies to afford indispensable fixed costs especially thanks to technological advancements.

Infrastructure investments are long-life investments: While **i**nfrastructure investments require high amounts of fixed costs at the preliminary stage, stages to follow show that fixed costs decrease as the amounts of production increase. Accompanied by high amounts of investment costs, benefits of the investments appear in years to come and services display long-life characteristics.

Infrastructure investments and services show the characteristics of economies of scale and economies of scope: Economies of scale characterize a production process in which an increase in the scale of the firm causes a decrease in the average cost of each unit in the long run.

Economies of scope are conceptually similar to economies of scale. Economies of scale primarily refer to efficiencies associated with supply-side changes, such as increasing or decreasing the scale of production of a single product type, whereas economies of scope refer to efficiencies primarily associated with demand-side changes, such as increasing or decreasing the scope of marketing and distribution of different types of products. Economies of scope are one of the main reasons for such marketing strategies as product bundling, product lining, and family branding.

Accordingly, in order for natural monopolies to appear where one company produces only one type of product, it must be the economies of scale prevailing in the market. Hence, in case a company produces more than one type of a product, natural monopolies will appear only if there are economies of scope. As things stand, some utilities services acquire the characteristics of economies of scope and some other

show the characteristics of economies of scale. Since postal and telecommunication services display the characteristics of economies of scope, they are combined into one and their services are supplied by either only one private company or a single public enterprise.

In utilities services the number of consumers increases as the cost per consumer decreases: Since an increase in the number of consumers requires an increase in the scale of production, cost of production decreases. As a result, some claim the most economic solution to be the presence of only one producer in the market[9]. Accordingly, these characteristics of utilities services and the infrastructure investments constitute the major reasons in defining these services as the natural monopoly. Depending on the increase in the number of consumers there becomes an increase in the scale of production which consequently decreases the cost of production, hence bringing about the economies of scale and the company rendering these services at the greatest scale shall get advantages which will gradually assume monopolistic characteristics within time[10].

1.2. MAJOR INFRASTRUCTURE INVESTMENTS AND UTILITIES SERVICES

Although there are too many sub-sectors, utilities services and infrastructure investments mainly include the energy, communication, transportation, water supply and sewerage sectors.

1.2.1. Energy

The energy sector is mainly composed of electricity sector. Electricity sector shows an integrated character which is materialized by production, transfer, allocation, and supply. In recent years, factors such as rapid urbanization,

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[9]Emanuel S. Savas, **Özelleştirme: Daha İyi Devlet Yönetiminin Anahtarı**, çev. Ergun Yener, Milli Prodüktivite Merkezi Yayını, No:517, Ankara, 1999, p.62.

[10]Aktan, Dileyici, Vural, p.13.

industrialization and population growth have significantly increased the demand for electricity as a major input. General characteristics of electricity are as follows[11]:

- Electricity sector presents an integrated structure in the form of a chain starting from production, continuing with transfer and allocation to end with supply. The production process includes the transformation of various energy sources such as water, wind, coal, geothermal, natural gases and oil to electricity energy. In the transfer stage, high frequency current is transferred to distribution channels by high-tension lines. Electricity coming to distribution channels is transferred to consumers in low voltage. Last stage is the supply stage which is the sales to end-users. Supply process includes measurement, invoicing, and marketing transactions to end with retail or gross sales.
- Electricity cannot be stored after production.
- Production, transfer, allocation and supply of electricity are significant in the sense that they show capital - intensive characteristics.
- Operations in the electricity sector require high fixed costs.
- Electricity sector directly involves high-tech applications especially its generation requires advanced technologies.
- Transfer and allocation of electricity display the characteristics of a natural monopoly.
- Electricity is an input the demand for which is highly variable.
- Electricity is an input the supply of which must be uninterrupted.
- While being produced at one end, electricity is simultaneously consumed at the other.
- Electricity is a marketable service.
- Electricity requires high sunk costs.
- Major cost items in electricity production are the fuel prices, capital costs, operating and maintenance costs. Another factor affecting its cost of production is the technology being used. Although the investment costs for

[11]Aktan, Dileyici, Vural, p.13.

nuclear energy are very high, operating and maintenance costs are low. While cost of production is low when electricity is generated from water and fossil fuels, variable costs are high when coal, natural gases and oil are used in electricity production[12].

Per capita consumption of electricity is an important indicator to assess the quality of life and development. Therefore, electricity consumption and access to electricity services are higher in developed countries than in underdeveloped and developing countries.

1.2.2. Communication Services

Communication Services are composed of postal and telecommunication services.

1.2.2.1. Postal Services

Postal Services can be generally defined as the total of services involving postal carriage and delivery from one place to another place. Mailing services are composed of personal letters, greetings cards, invoices and handbills. Other postal services are package carriage, express postal delivery and money transfer[13].

General characteristics of postal services are as follows;

- Postal Services show rather labor-intensive characteristics.
- Cost of labor is high due to its labor-intensive qualities.
- The deficit/loss frequently incurred by the government in postal services is subsidized with revenues from the telecommunication sector also provided by the same public enterprise. This is called "cross-subsidy"[14].

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[12] Aktan, Dileyici, Vural, p.15.

[13] Uğur Emek, "Posta Hizmetlerinde Özelleştirme, Regülâsyon ve Rekabet", **Rekabet Dergisi**, No: 9, Jan-Feb-Mar 2002, p.20-21.

[14] Aktan, Dileyici, Vural, p.16.

- The fundamentals of postal services are the carriage and delivery of a postal to the address written on the envelope/package in a regular and scheduled way within a network system. Savings from time and labor with respect to scale and scope economies gained through regular and scheduled delivery within a network system is the distinguishing feature of postal services among the other delivery and carriage services[15].

1.2.2.2. Telecommunication Services

It is necessary to distinguish between the network operations and service supply when defining the telecommunication sector. Network operators supply the connection between two points necessary for communication. Service suppliers use these connections to transfer miscellaneous telecommunication services to end-users[16].

Telecommunication services are composed of mainly three sub-groups[17].

- Telecommunication devices include phone and fax machines, satellites, cables, switchboards, mobile phone machines and computers.
- Basic telecommunication services cover local contacts, distance contacts and international contacts. Telegram and phone services are included in this group. In this sense, networks offering such basic services constitute the telecommunication system itself.
- Value –added telecommunication services are information intensive services including computer applications which supply stored information to subscribers. Electronic mail, data services, ATM services of banks and teleconference services exemplify this kind of services.

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[15] Emek, p.21.

[16] Rossana Achterberg, "Competition Policy and Regulation: A Case Study of Telecommunications" **Development Southern Africa**, Vol.17, No:3, September 2000, p.357-371.

[17] Aktan, Dileyici, Vural, p.16.

Telecommunication services show the following characteristics[18]:

- They have capital-intensive characteristics.
- There is a variable demand structure.
- This sector is directly affiliated with technological innovations.
- It is possible to offer various different products in the telecommunication sector.
- Telecommunication is an input for other sectors.
- There are high sunk-costs in these services.
- It is not possible to stockpile telecommunication services.
- Telecommunication sector owns network externalities.

1.2.2.3. Transportation Services

Transportation services are composed of highway, airway, railway, marine transportation and port services.

A list of characteristics featuring the Transportation services is given below[19];

- All Transportation services require tremendous infrastructure investments.
- Transportation services constitute a type of service that significantly extends positive network externalities. Such a positive externality aims at both the consumers and the private companies who benefit from these transportation services as such services ease their operations and decrease the cost of their operations.
- Transportation services have currently become more important as the mobility of products and services increased due to globalization.
- One of the general characteristics of all utilities services is the quality of joint product which becomes distinct in transportation services.
- Transportation services require tremendous fixed costs.

[18]Aktan, Dileyici, Vural, p.16.

[19] Aktan, Dileyici, Vural, p.17.

- Cost of Transportation services varies with its sub-sectors. For instance, highway services include costs such as road construction, repair-and-maintenance and vehicle operations.
- There are two main methods in financing transportation investments: One is that the cost of transportation services is financed with tax revenues either directly allocated from the government budget or indirectly collected via inclusion in fuel prices. Charging the users in return for transportation services is the second method. Toll rates are used to finance toll highways based on the concept of benefit. In the event that transportation services are provided by the government, prices can be fixed below the cost of services for the purposes of public interest.

In transportation services, production can be significantly multi-faceted. Hence, the railway sector constitutes a good example of this as it offers various different services by using the same type of tools and employing the same types of labor. It is possible to transfer both the passengers and the cargo on the same railways. Same holds true for the seaport services[20].

1.2.2.4. Water-Sewerage Services

Sustainable development and environmental problems have a great impact on water and sewerage services due to rapid industrialization, urbanization and population growth. Consequently, the opportunity to reach clean drinking water is gradually decreasing all over the world. Water-Sewerage Services own similar characteristics to a great extent which can be summarized as follows[21]:

- Rate of access to clean drinking water and sewerage services is a fundamental indicator of life quality and development.

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[20] Ioannis N Kessides, **Reforming Infrastructure-Privatisation, Regulation, an Competition**, A co-publication World Bank and Oxford University Press, Washington DC, 2004, p.188.

[21] Aktan, Dileyici, Vural, p.18.

- These infrastructure investments are essential to ensure public health and environmental protection.
- Water is not a product of a homogenous quality; its quality control is therefore of paramount importance.
- Water and sewerage services show the characteristics of network externalities.
- While the demand for these services is variable, their supply is limited.
- These infrastructure services are closely related with population growth, urbanization and other demographic factors.
- Demand for sewerage services is higher in high income countries than in low income countries.
- Because water has a vital importance, benefiting from fresh and clean water is accepted as a fundamental right.

1.3. INFRASTRUCTURE INVESTMENTS AND NATURAL MONOPOLIES

One of the basic characteristics of infrastructure services including energy, telecommunication, transportation, water-sewerage and relevant sub-sectors is the fact that they are natural monopolies. Such kind of infrastructure investments have been therefore so long funded and serviced by the government enterprises. However this trend has gone through changes over the last 25 years, some of which include amendments in regulations governing utilities services and relevant sub-sectors.

1.3.1. Natural Monopoly Theory

Showing either the economies of scale or the economies of scope observed in utilities services and infrastructure investments form the source of their being natural monopolies. As is known, one of the basic conditions of market competition is the presence of many buyers and sellers. In competitive markets producers are also forced to minimize the costs along with the need for the production of high quality goods. In order to survive, a producer has to keep the cost of production below the sales price.

Nonetheless, the companies should not go lower than a certain scale of production if they want to benefit from the advantages of large scale production in some fields. It is not possible to expect small size companies to achieve success where they own ever-growing per unit costs against big size companies which are lowering their unit costs while increasing their production quantities. Under such circumstances, it becomes inevitable that the small size companies diminish from the market whereas big size counterparts emerge[22]. Accordingly, the markets emerging under these conditions are nothing, but the monopoly markets. Monopoly markets are those in which a good, which is impossible to substitute, is produced only by one company. Monopoly markets do also include many barriers hindering access to the market. The goal of a monopolistic firm is profit maximization to be achieved by sustaining the production at a level where the marginal yield equals to the marginal cost.

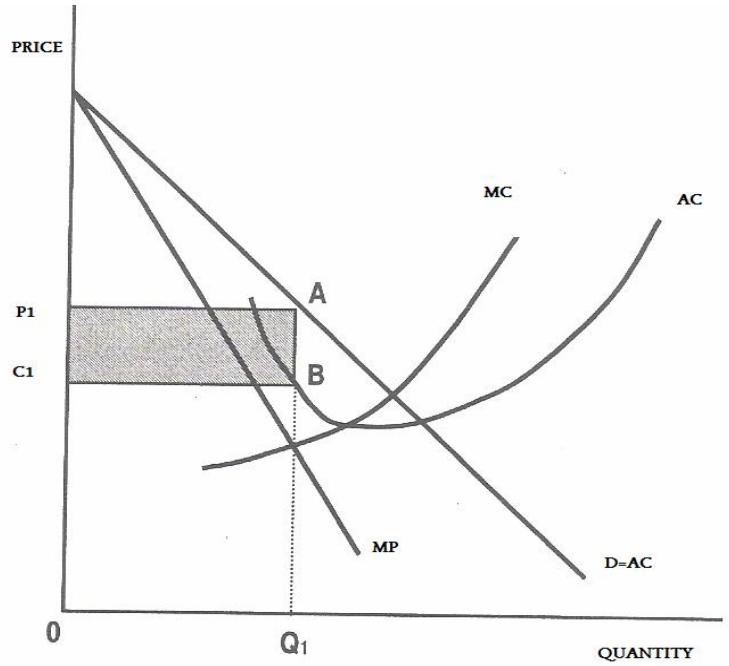
Some goods and services are produced at a continuously decreasing cost in some sectors as such markets are dominated by the condition of increasing yields based on scale. Namely, the more increases the production scale, the lesser becomes the average cost which results in a condition deeming the survival of a single firm for the production of such goods and services -a single firm, producing at the lowest cost level, stays in the market. Accordingly, a market structure is defined as a natural monopoly where there is only a single firm present for the production and supply of goods and services demanded in the market. If there is, however, more than one firm to produce and supply in such sectors, then in order to increase their profits, firms compete among themselves by way of lowering their product prices to achieve higher sales volumes. As a result, a single firm survives in the market and forms a natural monopoly.

Natural monopolies constitute a special case within the monopoly market. Unlike the monopoly market, in a natural monopoly a single firm can supply all the

[22] Aktan, Dileyici, Vural, p.22.

market demand at a lower unit cost than that of a market structure with two or more firms.

Figure 1.1: Natural Monopoly



Source: Dillingham et.al, 1992, p. 304.

Figure 1.1 shows the structure of a natural monopoly. The vertical axis shows the general price level as well as the firm proceeds (P), whereas the horizontal axis displays the production level (Q). AC represents the average cost curve and MC embodies the marginal cost curve. Marginal cost curve of the firm is below the demand curve. Demand curve (D) forms also the average proceeds curve (AP). In order to maximize its profit, the firm would produce at Q1 level where the marginal cost would be equal to marginal proceeds (MM=MP). Here, the price setting by the firm would depend only on the demand curve (D) for its goods and the consumers would pay the price level P1 against the production level at Q1. Namely, P1 is the highest price level that the firm can apply. The difference between the total cost and the total proceeds is the firm's profit. At Q1 production level, the average cost is at

C1 level. In conclusion, the firm would profit as indicated by the rectangular area of C1P1AB where it would apply the price level P1 at the production level Q1[23] .

If it were two or more firms to operate in the sector instead of a single firm, then the marginal cost would be much more than the marginal cost to be incurred by a single firm. Under these circumstances, firms would either join into a single venture; else the remaining would be pushed out of market while only one firm would be able to survive[24] .Yet however, if there were an agreement among these firms, they would continue to work with idle capacity giving rise to waste of sources. The former of the number-of-firms-related two cases would result in short-term competition whereas the latter would produce ineffective use of sources.

The condition of a natural monopoly appears basically due to special attributes of a production process in an industry which employs the technology of its times. In theory, a natural monopoly arises if there are very large economies of scale with respect to the demand for the products of a certain sector. In such a case, the greater is the quantity of production by a single firm, the lesser is the average cost per unit. Hence, such a case occurs where the production of such a good requires an initial capital at vast amounts, yet as the production increases it requires a very small adjunct cost for any adjunct production. Under these circumstances the firm, which starts with the greatest market share and reduces the price of its products below the cost of production incurred by its competitors, becomes advantageous and pushes the other players out of the market. While doing so, as it sustains profitability, it also enjoys a condition where greater is the market share, lower is the unit cost until it becomes a monopoly in the market. These are the features suggested by the traditional monopoly theory in relation to basics of a natural monopoly. Traditional approaches list the characteristics of a natural monopoly as follows[25];

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[23] Achterberg, p. 16-17.

[24] Aktan, Dileyici, Vural, p.23.

[25] Aktan, Dileyici, Vural, p.24.

- The characteristic of natural monopoly appears depending on the production scale. A natural monopoly arises in markets where the production scale increases as the average cost decreases. Accordingly, natural monopolies are observed in markets where economies of scale prevail.
- There is only a single firm which produces and supplies goods and services to the market. However, if there were more than one firm to produce in the market, then those firms that needed to produce at the average cost would prefer to decrease their prices in order to maximize their profits, and as a result of the subsequent competition a single firm would survive in the market.
- It requires vast amounts of capital investment to emerge as a single firm in the market. Such a condition prevents new firms from entering the market, thereby hindering the competition.
- In an industry where there is natural monopoly, in order for a firm to start production of such goods or services it has to have the potential to afford high fixed costs.

On the other hand, according to the modern natural monopoly theory, which finds explanations provided by the traditional natural monopoly as insufficient, a natural monopoly does not appear depending singly on the production scale. Natural monopolies can emerge in the event that average cost increases along with the increase in production. The idea suggests the element determining the characteristics of a natural monopoly not to be the cost items but the shift in demand. It is also argued that even if there is no change in demand conditions, technological changes may result in the elimination of natural monopoly characteristics[26].

One of the greatest representatives of modern natural monopoly is Richard A. Posner who defines the natural monopoly as a condition in which a single firm can supply all the market demand at the lowest cost level and points to the relation between the demand and supply technologies for the occurrence of a natural monopoly. According to Posner, the number of firms will either reduce through joint

[26] Aktan, Dileyici, Vural, p.25.

venture or bankruptcy else the industry will continue wasting sources if more than one company operates in such kind of a market[27]. He also emphasizes that monopolies produce multi products, not only a single product as is seen in the telecommunication sector (they do not only provide local call services but also supply intercity and international call services). In models where there is more than one product, the manufacturer enjoys cost advantages (economies of scope) due to various different products being produced together. Therefore, this becomes indicative of the presence of a natural monopoly in a multi product economy[28].

1.3.2. Characteristics of a Natural Monopoly in Infrastructure Investments and Utility Services

Most of the characteristics owned by natural monopolies emerge in markets supplying infrastructure services. Particularly, the economies of scale observed in infrastructure services, e.i. decrease in average cost in relation to increase in production scale, prevents competition from emerging in these fields and consequently the infrastructure services acquire the characteristics of a natural monopoly.

According to the criteria of economic efficiency, formation of competitive structure in utilities services derogates economic efficiency. It is argued that utilities services are among those services that should be widely accessible by the society, therefore competitive servicing of such increases the total cost. As a result, natural monopoly arises in utilities services and in such a case it becomes possible to derive the highest quantity of output for the lowest amounts of cost. Traditional economists argue that utilities services are served to consumers by using only tangible infrastructures as one pipeline, a single way or a single wire and that it is not a preferable solution to get these services from more than one line as the supplier[29].

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[27] Ömür Paşaoğlu, **Doğal Tekellerde Regülasyon ve Rekabet – Bir Örnek: İngiliz Elektrik Sektörünün Yeniden Yapılandırılması**, Rekabet Kurumu, Uzmanlık Tezleri Serisi No: 14, Ankara, 2003, p.10-11.

[28] Paşaoğlu, p.12-13.

[29] Şahin Ardıyok, **Doğal Tekeller ve Düzenleyici Kurumlar, Türkiye İçin Düzenleyici Kurumlar Modeli**, Rekabet Kurumu, Ankara, 2002, p.34.

Infrastructure investments and utilities services are among those services where duplication can be observed. Accordingly, supply of a good and service by more than one company may result in more than one infrastructure investment and this situation causes resource squandering in the economy. Thence, some support the idea that supply by a single firm in such services would be more rational from an economic point of view.

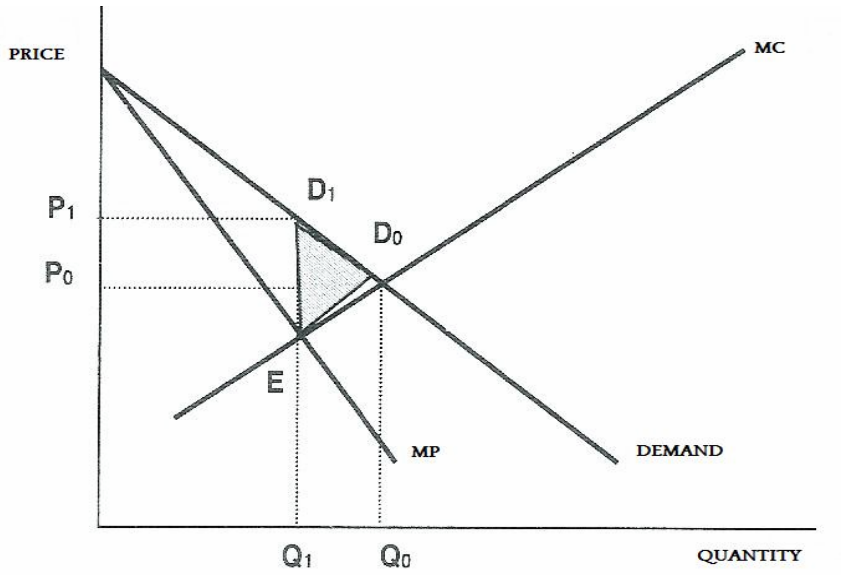
1.3.3. Natural Monopolies, Government Intervention and Legal Monopolies

A Legal Monopoly is formed when government holds the production or sales of goods and services in a monopolistic and statutory way. In a legal monopoly, there is a government monopoly established by the relevant legislation. Legal monopolies are observed in sectors and sub-sectors in markets where natural monopolies occur or provide for their occurrence. So a natural monopoly turns into a legal monopoly. There may be various reasons why the government does not allow forming natural monopolies in some sectors and provide for legal monopolies. They can be summarized as follows:

If a private firm is in a monopoly position it causes resource squandering and prosperity loss: 19th century economist and philosopher John Stuart Mill is the first to have discussed that in a monopolistic market private firms caused a competition which resulted in resource squandering. Mill argued that the government needed to provide infrastructure investments and services. After Mill, other economists mentioned that private monopolies caused resources squandering, subsequently the prosperity loss. Accordingly, a natural monopoly situation results in a single firm increasing product prices, restricting production quantities and causing resources squandering. Marginal cost-price equation is one of the main assumptions of the Perfect Competition Theory and it is the solution which maximizes total surplus (consumer surplus plus the producer surplus). The highest surplus is formed at the intersection point of marginal cost with the demand, and production after this point results in the decrease of total surplus as costs increase to the advantages of producers. However, it is not possible to equalize marginal cost to price. The main

reason is the presence of economies of scale. In positive economies of scale, production increases as the average costs decrease and at the same time the marginal cost stays below the average cost. Therefore, adjusting the prices according to the marginal cost results in a firm's failure

Figure 1.2: Loss of proceeds causes natural monopoly



Source: Aktan, 2005, p. 21.

In Figure 1.2, horizontal axis shows the production quantity and the vertical axis represents the price level. Price (Po) and production level (Qo) are most effective when marginal cost equals to price (Po=MC) under Perfect Competition. However, in natural monopoly position, the monopolistic firm would be negatively affected and would not want to produce under these circumstances. In order to maximize its profit it would, therefore, prefer to stay at the level where marginal cost is equal to marginal proceeds (MC=MP) at Po price level and Q1 production level. The equilibrium level (D1) results in higher price and lower production level in comparison to point of effectiveness (Do). In such a case, the monopoly firm is

expected to decrease prosperity at an amount indicated by the area of ED1Do triangle which is called as the Harberger Triangle [30].

- *Cross-subsidy Tool:* Supply of some natural monopoly goods has a multi-level structure. This characteristic provides a cost advantage for the concerning firm producing these products and brings about economies of scope. For instance, communication services are composed of postal services and telecommunication sub-sectors whereas electricity services contain generation, transmission and distribution. In such services, the deficit in one sub- sector is met by the profit in another sub-sector, a case called "Cross-subsidy**".** In case of a natural monopoly, however, no firm would like to continue production in a sub-sector with a deficit. This is one reason why legal monopolies occur in such sectors[31]. Dual structure is present in communication services which are composed of postal and telecommunication services. In postal services, so as to protect low income consumers, the government keeps price tariffs below costs for the purposes of subsidy. Postal services are labor-intensive services and show high cost characteristics, whereas telecommunication services are capital-intensive services. In postal services, government's deficit is met by the revenues derived from telecommunication services[32].
- *A tool of strategic importance:* The main point in transforming natural monopolies into legal monopolies is that these services and the required infrastructure investments are of strategic importance. Accordingly, the prevailing in idea is that ownership of these services by a private firm (possibly by a foreign firm) may bring about dangerous results with respect to country's defense, security and sovereignty. Therefore, legal monopolies are formed in these services. Thanks to legal monopoly, a foreign government's

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[30] Paşaoğlu, p.17-19.

[31] Coşkun Can Aktan, **Kamu İktisadi Teşebbüsleri ve Özelleştirme,** Anadolu Matbaacılık, İzmir, 2002 , p. 211.

[32] Aktan, p.212.

authority would be prevented in these markets and the effects of multinational companies would be reduced in the country[33].

- *Need for the protection of consumers:* Since natural monopolies cause producers unfair income due to high price levels accompanied by insufficient amounts of production at poor quality, consumers might incur high costs. Therefore, it becomes necessary to prevent a monopoly firm from operating to the disadvantage of consumers. In this case, such goods and services are generally produced by the government monopoly and consumers are prevented from being exploited by the natural monopolies. On the other hand, if there is more than one private firm operating in these markets, they give rise to emergence of many local infrastructure systems that cause increase in costs[34].
- *Presence of sunk costs***:** The fact that the natural monopolies contain sunk costs at significant amounts has made the reason of forming state monopolies in such sectors. Sunk costs constitute asymmetry between the firms already active in the market and those planning to become a player, since the former are in a position where they have already spent the funds, the redemption of which are impossible. While taking a decision whether to enter into the market, the new firm does not consider the present profit - price level, but just pays interest to the profit - price level to be established once it enters into the market. The new firm worries that it won't be in a position to redeem the costs it will have incurred to enter the market including the sunk costs; therefore it does not will to enter into the market as it foresees present firms to increase the prices.

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[33] Aktan, Dileyici, Vural, p.29.

[34] Gabriel Roth, **The Private Provision of Public Services in Developing Countries**, EDI Series in Economic Development, The World Bank, Oxford University Press, 1987, p,166.

1.4. REGULATING INFRASTRUCTURE INVESTMENTS AND SERVICES

Regulation can be broadly defined as the use of legal tools to achieve the purposes targeted with social and economic implementations[35]. Government can apply social and economic regulations to achieve economic efficiency, stability as well the fair and equitable distribution of income[36]. For this reason, it has long been the government which committed to do such infrastructure investments and provide utilities services. Accordingly, the state enterprises have formed legal monopolies as entrepreneurs and hindered the private sector from infrastructure investments.

In times when there were legal monopolies in the supply of infrastructure investments and services, financial problems faced by the governments caused limitation in funding of infrastructure of investments by the government. Consequently, the quality of services decreased and the costs increased. On the other hand, because of rapid urbanization and population growth, the demand for infrastructure investments has gradually increased, and this caused the governments to open such services to private sector. Such problems gave rise to adoption of specific regulations in which limits of such services to be provided by the private sector are determined by the public sector. Legal arrangements such as antitrust law and competitive law are made to provide regulation with an aim to protect consumers from monopolistic prices, low quality services and cartelist-firm behaviors.

Besides, these arrangements protect smaller firms against the control of markets by the bigger firms[37]. Regulation has been provided via various methods in order to prevent loss in public prosperity in sectors dominated by natural monopolies without being governed by any regulation. Such methods include profit regulation,

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[35] John den Hertog, **General Theories of Regulation**, Economic Institute, Utrecht University, 1999. http://encyclo.findlaw.com/5000book.pdf (15.04.2008), p.223.

[36] Aktan, Dileyici, Vural, p.30.

[37] David Parker, "Economic Regulation: A Preliminary Literature Review and Summary of Research Questions Arising", **Centre on Regulation and Competition**, Working Paper Series, Paper No: 6, October 2001, p. 8.

price regulation, market-entry regulation and service-quality regulation. In infrastructure services, however, profit and price regulations are the most common methods.

1.5. EFFECTS OF TRENDS IN CHANGE ON NATURAL MONOPOLIES

At present, many sectors have lost their economies of scale and subsequently their natural monopoly characteristics have been opened to competition. Factors changing the structure of a natural monopoly in infrastructure investments and services are as follows;

- *Technological Developments:* Technological developments affect natural monopolies in two ways: First effect is the change in cost in a natural monopoly thanks to technological developments. Second is the production of new substitute goods and services instead of competitive goods. These two effects make the utilities services lose the characteristics of natural monopolies. These two effects bring about considerable changes in telecommunication and electricity sectors. Technological changes in utilities services decrease network costs. As is known, utilities services require a considerable amount of construction cost for infrastructure services such as telecommunication, electricity, water and sewage services. However, new technologies provide considerable decrease in such costs. Radical changes in the telecommunication sector such as microelectronic, optoelectronic and internet platforms in telecommunication sector bring about increase in efficiency. The percentage of firms has increased in 1996 from 24% to 34% in 2000[38].

  All the while, thanks to technological advancements, production of new substitute goods and services has started. Rapid increase in the use of cellular phone lines instead of standard telephone lines has caused decrease in the

[38] Ioannis N Kessides, **Reforming Infrastructure-Privatisation, Regulation, and Competition**, A co-publication World Bank and Oxford University Press, Washington DC, 2004, p.39

scale and importance of natural monopolies in this field. The cost of wireless technology has decreased and it has become very competitive against the phone technology. Likewise, new technologies in electricity sector have decreased the minimum effective production scale and cost of investment, duration of planning, construction cost of factories. Thanks to new technological innovations, natural gas cycle plants have recently started to produce electricity and this decreased the production cost of electricity in comparison to coal thermal power plants, ultimately resulting in the increase of its production[39].

- *Effects of demographic factors*: Demographic factors such as rapid urbanization, population growth and immigration have considerably increased the demand for infrastructure investments and utilities services. As government monopolies in such fields have become insufficient, in view of the growing demand, new financing methods have emerged to handle infrastructure investments more effectively[40].

[39] Aktan, Dileyici, Vural, p.36

[40] Aktan, Dileyici, Vural, p.38

CHAPTER 2

2. FUNDING INFRASTRUCTURE INVESTMENTS AND UTILITIES SERVICES

2.1. FUNDING TYPES IN INFRASTRUCTURE INVESTMENT

Rapid urbanization, population growth and immigration are among the factors that have remarkably increased the demand for infrastructure investments and utilities services in developing countries. For a more effective management of infrastructure investments new financing methods have been developed.

2.1.1. Funding with Government Budget

Rapid industrialization had its indispensable consequences in the nineteenth century such as a vast demand for infrastructure investments and rapid urbanization. The new requirements naturally accelerated the building of railways, communication and correspondence networks and irrigation in agriculture and more specifically, the utilities, transportation and water infrastructures in the urban areas.

In times of such capitalism when there was no governmental intervention, investments in these infrastructure fields were set up and operated by the private sector. However, such initiatives sometimes resulted in duplications of the investments of the same type as well as giving rise to destructive competition among the rivals (sabotages, etc.).

As for the twentieth century, in addition to all, the prewar needs for the infrastructure resources exacerbated. The postwar massive destructions observed in infrastructure facilities required massive amounts of financial resources for the renewal of such devastated infrastructure facilities. Besides, it necessitated various relevant arrangements to raise capital which altogether curbed the limits of private sector possibilities to make such investments in the relatively short term and within

the time deemed necessary. Therefore it became a must that such infrastructure investments should be undertaken by the Public sector. All the while, the 1929 economic crises and the collapse of markets, in sequence, the onset of public intervention in the post crises economy-the public sector being involved not only in the infrastructure investments but also in the industry- made the Public sector assume an economic role along with the private initiative at this stage of the capitalist movement. Again the welfare-state policies followed by the western countries of the time also played a crucial role in the increasing role of the Public in the economy of those times[1] .

Once governments became primarily responsible for providing infrastructure services as well as securing the effective satisfaction of user needs, they started to play a significant role in observing the quality standards in terms of capacity and quantity. Duties of a government therefore played a critical role at the stage of planning and implementation so that the investments were made and funding was provided in a timely manner, and services were duly rendered and effectively managed. Until the 1970s, infrastructure services in Europe and Asia were provided widely by public entities particularly in the sectors of telecommunication, electricity and railway services. Some segments in transportation have retained this organizational structure in planning and managing their infrastructure models (roads, railways, airports).

However, by the end of 1970s tides in the West turned. Public investments became costly, by becoming increasingly incompatible with the advancing technology. They became dysfunctional and failed to compete in the world markets on price and quality basis. Furthermore, they left comparatively weak even in domestic markets while generally incurring loss. They started to pose rather as burden on the national economies. Hence, contemporaries started to think that the

[1] Erol İmre, "Türkiye'de Yap-İşlet-Devret Modeli: Yasal Çatısı, Uygulaması", 10-11.01.2002, http://www.ydk.gov.tr/seminerler/turkiyede_yid_modeli.htm (02.05.2008) p.1-2.

private sector would work more effectively than the public sector and the private sector companies could be far better controlled in contrast with the nineteenth century.

Particularly for the infrastructure investments, major contracting companies went through a severe bottleneck and some had to cease operations due to significantly decreased opportunities in their homelands on the one hand and cessation of contracting business in the Gulf countries and Libya on the other because of varied reasons.

So that these firms, which looked for business opportunities abroad, started to exert pressure on their governments to secure certain formulations; i.e., build-operate-transfer; mutual relations and so forth, to create new business opportunities for themselves.

Hence in parallel with such worldwide developments, Public Private Partnership was devised as a new model to realize infrastructure investments via the private sector, especially in the developing countries.

New compatible financing methods also emerged, as reaction to growing demand, to cope more effectively with infrastructure investments in fields where recent developments proved it to be insufficient to handle such investments by the government sources alone. Consequently, production started to be outsourced, often via tenders. Or public–private partnerships were set up, introducing more complex contractual structures. Yet, investment decisions were still directly made or influenced by the public authorities in any of these cases.

Accordingly, the appropriateness of public decision-making and of public sector organization has been the most important investment topic in any of the sectors involved. Infrastructure project evaluation in the public arena, the source of revenues (user payments or taxes), institutional options to assign revenues to investments (budget system, clubs, concessions, etc.), the availability of sufficient funds and the optimal decentralization of investment are just a few of the most obvious problems.

2.2. EXTERNAL FINANCING FOR INFRASTRUCTURE INVESTMENTS (WORLD BANK, ADB, EIB, EBRD,)

As central governments and local governments or municipalities in infrastructure investments have become insufficient, in terms of growing demand, external financing gained importance to provide such investments from multilateral agencies.

In the developing world the role of multilateral institutions in financing and supporting infrastructure activities is extremely important. The contribution of multilateral agencies like World Bank**,** ADB, EIB, the European Bank for Reconstruction and Development (EBRD), into infrastructure development and its subsequent enhancement of economic growth and alleviation of poverty is significant. However, given the growing demand for infrastructure in Asia, more specifically in South Asia, multilateral agencies are expected to play a greater role in covering the infrastructure deficit and sustaining economic growth in the region.

2.2.1. World Bank

The World Bank (WB) is an international financial institution which was found in accordance with the Bretton Woods agreement in 1944 with the mission of assisting post war reconstruction and alleviating poverty. The WB provides loans and credits to developing countries for projects that would alleviate poverty and promote social and economic development. Today the Bank lends public-sector through the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). IBRD which was found as the original institution of the World Bank Group and was structured like a cooperative that was owned and operated for the benefit of its 185 member countries. IBRD loans are favorable in terms of interest rates and of long term. IDA credits are extended to the poorest countries at no interest, with very relaxed loan repayment schedules. The IBRD and IDA also provide loans and guarantees in support of private sector projects. However, the majority of Bank financing for private sector operations is through the International Finance Corporation (IFC) and the Multilateral International Guarantee Agency (MIGA).The World Bank has developed an

Infrastructure Action Plan, which encompasses innovative ways to finance infrastructure projects[2] .

The World Bank provided Euro 212.900.000 loan for 17-year maturity, the project's main objective is to support the sustainable environmental services such as water, wastewater, and solid waste investments which will bring better water and environment conditions to citizens living in many urban areas[3].

2.2.2. Asian Development Bank (ADB)

The Asian Development Bank (ADB) is a multilateral development financial institution which was found in 1966. Its main missions are promoting economic and social development in Asian and Pacific countries providing with loans and technical assistance. ADB has 67 members, 48 from the region and 19 from other parts[4]. Turkey become an extraterritorial member ABD in 1990 and provides loans to ADB, but Turkey does not receive loans from ADB.

2.2.3. Eurepean Investment Bank (EIB)

The European Investment Bank is the financing institution of European Union which was found in 1958. It provides loans to public and private sector bodies and enterprises for capital investment furthering European Union policy objectives in particular regional development European transport networks, energy, telecommunications and research, development and innovation, environmental

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[2] İlhan Öztürk, "Dünya Bankası Politikaları", **Sosyal Bilimler Dergisi** 3 (1), Haziran 2006 . http://mpra.ub.uni-muenchen.de/335/ (02.05.2008), p.36-38.

[3] FIFOOSTORG, "Municipal Services Project Loan for Turkey", June 2005. http://www.fifoost.org/news/index.php?name=News&file=article&sid=467 (02.06.2008), p.1.

[4] ADB, "Asian Development Bank" June 2008 http://www.asia-studies.com/adb.html (05.06.2008), p.1.

improvement and protection, health and education. The loans those are provided by EIB are the individual and intermediate loans[5].

Individual loans are provided to viable and sound projects and programmes costing more than EUR 25 million which are in line with EIB lending objectives. Intermediated loans are credit lines to banks and financial institutions to help them to provide finance to small and medium-sized enterprises with eligible investment programmes or projects costing less than EUR 25 million[6].

EIB has supported 17 projects in nearly the value of 1.64 billion Euros such as sewerage system, waste water treatment, industrial waste water treatment, urban development, urban transportation (ferry-boat, local railway, subway, and light rail), and drinking water, sewerage systems since it began from1995[7].

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[5] Anelia Stefanova, "The European Bank for Reconstruction and Development", 2.04.2008 http://www.sbilanciamoci.org/docs/sbileu/26.pdf (30.05.2008), p. 1-2.

[6] European Investment Bank (EIB), "Intermediated Loans" , 2006. http://www.eib.org/products/loans/intermediated/index.htm (30.05.2008), p.1.

[7] Hazine Müsteşarlığı "Mahalli İdarelerin Mali Yönetimi Forumu: Mahalli İdarelerin Borçlanması 22-23 Mayıs 2008", Sunum Metinleri.

http://193.25.125.6/Mahalli_Idareler_Forumu (30.05.2008) p.1-9

Table 2.1: The Supports of EIB to Infrastructure Projects in Turkey

Projects	Amount (Million Euros)
Antalya Metropolitan Municipality Sewerage System	35
Ankara Metropolitan Municipality Sewerage System	45
Izmit Metropolitan Municipality Industrial Waste Water Treatment	50
Adana Metropolitan Municipality Waste Water Treatment	45
Diyarbakır Metropolitan Municipality Waste Water Treatment	32
Tarsus City Waste Water Treatment	38
Reduction of Industrial Pollution in Turkey	70
Bursa Metropolitan Municipality Waste Water Treatment	80
Mersin Metropolitan Municipality	60
Eskisehir Metropolitan Municipality Urban Development	110
Batman City Drinking Water and Sewerage System	40
Samsun Metropolitan Municipality Waste Water Treatment	30
Istanbul Metropolitan Municipality Ferry-Boat	41.6
Izmir Metropolitan Municipality Local Railway	130
Antalya Metropolitan Municipality Light Rail	40.5
Bursa Metropolitan Municipality Light Rail (Second Part)	100
Istanbul Metropolitan Municipality Subway (Second Part)	700
TOTAL	1647.1

Source:http://www.hazine.gov.tr/mahalli/English/Presentations_Speaches.htm. (30.05.2008) Dr. Lucius, Hakan Head of Infrastructure Section, Deputy Head of Division for Turkey, EIB.

2.2.4. The European Bank for Reconstruction and Development (EBRD)

The European Bank for Reconstruction and Development (ERBD) is a multilateral bank which was found in London in 1991.It provides loans, equity

investments and guarantees for private and public sector projects in the areas of finance, infrastructure, industry and commerce in Eastern Europe and ex-soviet countries. Today EBRD supports to build and develop the market economies and democracies in the countries from Central Europe to central Asia, works in close cooperation with other international financial institutions such as the World Bank and the European Investment Bank. The EBRD has signed 2636 projects approximately 37 billion euros in 29 countries in the region since its foundation in 1991 since 2006 the Bank have increased its lending up to 5 billions euro annually[8] .

Turkey has officially applied for full membership at the European Bank for Reconstruction and Development in May 2008. Following its full membership in the EBRD, Turkey will be able to provide new loans for the private sector.

2.3. PUBLIC PRIVATE PARTNERSHIPS (PPP)

2.3.1. Genesis of Public Private Partnerships (PPP)

Today local municipalities/states and governmental authorities are finding that their existing water, sanitation, energy and other urban infrastructures are unable to service their rapidly expanding urban population. In addition, governments realize that their limited financial resources are not sufficient to cover the needed expansion of these services. Even where government does find the resources to subsidize public utilities, service is often poor and sectors of the population largely unserved. It is becoming increasingly clear that governments cannot meet the increasing demand for water, waste, energy and other urban services acting alone. Local governments are finding that their tax revenues are not providing sufficient resources to meet these needs, and official development assistance has not been able to fill the gap. It is in this backdrop that the government is forced to think of alternate sources of finance, technical excellence and support. The term “public-private partnerships” has frequently appeared in the media and in the economic development literature in

[8] Stefanova, p. 1-2.

recent years. As an institutional approach, however, public-private partnerships have a long history in local economic development policy. With the structural change of the economy in the developed countries and the development of economic globalization in the last two decades, urban regions have been forced to use a wide variety of incentives to compete for mobile capital and high quality labor. Therefore, PPP Models has become a solution to solve the financing dilemma in the developed countries such as UK, USA, Ireland, Spain for long times.

Public private partnerships (PPPs) are the arrangements between government and private sector entities for the purpose of providing public infrastructure, community facilities and related services. Such partnerships are characterized by the sharing of investment, risk, responsibility and reward between the partners. The reasons for establishing such partnerships vary but generally involve the financing, design, construction, operation and maintenance of public infrastructure and services[9].

2.3.2. Risks Associated with Privatization of Public Services and Infrastructure Investment Projects

The Privatization of public services and infrastructure investment contain major risks, responsibilities and premiums which are necessary to be shared between public and private sectors. Whoever solves these risks better among the partners should take the mission in order to reduce total cost of projects, and these missions defined in detail in agreements. These risks can be divided into three major groups such as business (commercial) risk, financial risk, and political risk[10] .

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[9] Jenny Kwan, "Public Private Partnership: A Guide for Local Government", May,1999 http://www.cserv.gov.bc.ca/lgd/policy_research/library/public_private_partnerships.pdf (30.05.2008), p. 5

[10] Enver Güney, "Kamu Hizmetleri ve Altyapıda Kamu- Özel İşbirliği", **E-yaklaşım Dergisi**, Vol: 19, 2005, p.4,13.

2.3.2.1. Business Risks

Contingent costs can be defined as cost-overrun risk which contains the problems related with the issues undetermined and appeared at last such as delay of construction due to several causes, changes in design, the problematic issues (in construction areas where the construction stays in protected area or historical artifacts are found). The other issues are in relation to risks which delay some permission such as foreign capital investment permission and environmental assessment report. Operational risk is known as a type of risk which the private entrepreneur faces the operational costs higher than the expected cost. Lock-out and strike can be given as an example of these types of risks. Income risk is not obtaining the expected level of income during operational process. The biggest problem is not obtaining the expected income due to the keeping down the tariffs or the users' orders being below expectation. The government usually guarantees service procurement in the lowest level from a certain tariff in order not to cause this risk to appear. For instance, the government guaranteed minimum annual customer in Built-Operate-Transfer Model of Istanbul Atatürk Airport and Antalya Airport with their bidding to private entrepreneur. Namely, the government stipulates to pay this compensation below expected users charges. In addition, the government guarantees not to operate the same facility in order to eliminate this risk. Private entrepreneur sometimes suffers from not collecting the charges from public enterprises; for instance, this situation appeared in Russia Federation[11].

2.3.2.2. Financial Risk

Financial risk is composed of debt-service coverage risk and exchange rate risk. The debt-service coverage risk arises when the enterprise revenues can not cover the repayment of principal debt and interest. The private entrepreneur can underwrite this risk or the government can guarantee some of the debt. The exchange rate risk is when the operation revenues can not be converted into foreign currency in expected exchange rates or demanded rate. This risk arises from the case

[11] Güney, p.13.

of local currency's constantly depreciating against foreign currency or the government's endeavors to put the exchange rates in low levels. This issue decreases the revenues.

2.3.2.3. Political Risk

Tariff risk, expropriation risk, repatriation risk, dispute resolution risk are types of political risk. If government or regulation authority does not increase and even endeavor to decrease the tariffs, the rate regulation risk arises. The government should find the automatic tariff mechanism in order to eliminate this risk. The government or the authority causes the private entrepreneur to lose by levying high taxes or nationalizing investments. The government generally has a tendency to settle the payment under the value of the investment in the expropriation. The repatriation risk is the situation in which private entrepreneur does not transfer operation activity revenues to any other countries. The investment is guaranteed by an agreement with Multilateral Investment Guarantee Agency (MIGA) in order to eliminate this risk.

2.3.3. Advantages of Private Sector Participation

The Private Sector provides the following advantages[12];

- Private sector submits well designed and profitable projects to government. Furthermore, same utilities for old projects requiring rehabilitation, restoration are provided by private sector.
- Government infrastructure projects target political goals and are uneconomic in nature. Private sector projects display a self-financed character.
- There are private sponsorships with experienced commercial creditors which provide technical and financial support to private sector projects.
- Private sector can persuade risky investors, who like high market risk and high rate of return, to invest in private sector projects by coming into the private capital markets instead of public sector resources. Thus, public funds

[12] Güney, p.4.

become available for other projects and public credit rating increases by leading to a lesser deficit in the public budget.

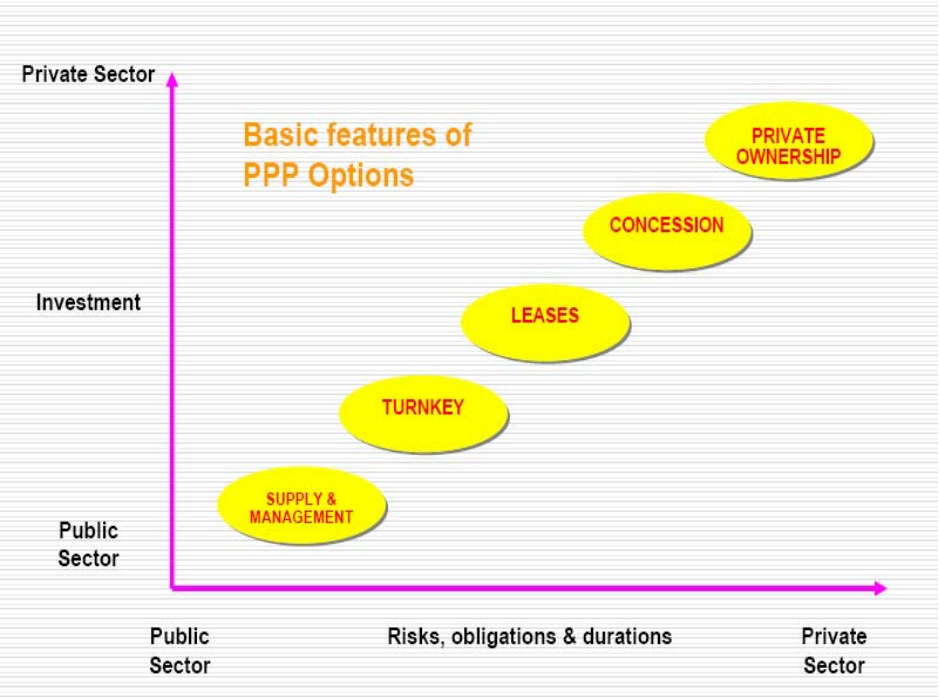
- The construction phase in public sector investments is longer than those of the private sector due to further more bureaucratic and complex bidding processes. Private sector shortens the procedure and investors rapidly complete the bidding stage.
- Compared to public sector enterprises, the private sector complies more effectively with water and environmental regulations despite its comparatively heavier costs than those of the government.
- Private investor brings in the-state-of-the-art technology and provides training to public sector staff during the life of any given project.
- Since the private sector makes use benchmarking, efficiency and the actual cost of any given public sector project are better evaluated and estimated in a private enterprise initiative.

2.3.4. Public Private Partnership Models

The PPP models vary from simple management contracts and BOT form to divestiture. These models show variations mainly by ownership of capital assets, responsibility for investment, assumption of risks, and duration of the contract.

As shown in Figure the PPP models can be classified into five broad categories: Private ownership, concession, leases, turnkey and supply & management.

Figure 2.1: Public Private Partnership Models



Source:www.unescap.org//ttdw/common/TPT/PPP/text/ppps_different_perspectives.pdf.

2.3.4.1. Supply or service contract

Service contracts secure private sector assistance for performing specific tasks—installing or reading meters, monitoring losses, repairing pipes, or collecting accounts. They are typically for short periods, from six months to two years and they benefit from private sector expertise for technical tasks or open these tasks to competition. They give the responsibility for coordinating these tasks to the public utility managers and the public sector. Service contracts are widely used. For instance, In India, Madras Metro Water has contracted services. The water utility in Santiago de Chile has contracted out services including computer services, engineering consulting services, and repair, maintenance, and rehabilitation of the network. Although it is relatively simple, service contracts must be carefully

determined and checked. If a utility is not managed very well, its service contracts probably will not be either[13].

2.3.4.2. Management Contracts

Management contracts give responsibilities for the operation and maintenance of government-owned businesses to the private sector. These contracts are made generally between three and five years. The simplest ones require paying a private firm a fixed fee because of performing managerial tasks. More sophisticated management contracts can stimulate efficiency, by defining performance targets and basing remuneration at least in part on their fulfillment. These contracts must produce efficiency gains large enough to meet the regulatory costs of objectives and checking performance against them. Management contracts give all responsibility for investment to the government. Therefore, they are not a good option if a government wants to access private finance for new investments. Management contracts are most likely to be useful where the main objective is to rapidly increase technical capacity and its efficiency to perform specific tasks, or to prepare for greater private involvement[14].

2.3.4. 3. Turnkey

Turnkey contract is usually used to implement the infrastructure facilities. The contractor, who designs, builds a facility for a fixed fee, rate or total cost is determined through a bidding process. There are many types of turnkey contracts in use today. The simplest contract is called "Build/Transfer". The contractor transfers the facility to the owner after build. The transit authority undertakes to review and approve architecture and engineering plans, to make regular payments on time, and to assist the contractor in acquiring the necessary permits and inspections.

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[13] The World Bank, "What are the options?" http://www.worldbank.org/html/fpd/water/wstoolkits/Kit1/kitone4.html (02.06.2008), p.1-9

[14] The World Bank, p.1-9.

A "Build/Operate/Transfer" contract is more complex. The builder is contracted to operate the facility for a time after construction, then to transfer it to its owner. This mechanism has been used particularly with new light rail and rapid rail transit system construction[15] .

2.3.4. 4. Lease

A lease arrangement is a leasing of the assets of a utility from the government to private sectors which takes the responsibility for operating and maintaining them. Because the lessor has the rights of income gained from the utility's operations (except the lease payment), it accepts some of the commercial risk of the operations. In accordance with a good contract the lessor's profitability will depend on how much it can reduce costs. For instance, leases have been widely used in France and Spain and are currently in the Czech Republic, Guinea, and Senegal[16].

2.3.4. 5.Concessions

A concession gives responsibility to the private partner for the operation and maintenance of a utility's assets and investments. However, asset ownership belongs to the government including those created by the private partner. When the contract ends—usually after 25 to 30 years, the responsibility belongs to the government again. Concessions are often bid by price: the bidder that offers to operate the utility and meet the investment targets for the lowest tariff wins the concession. The concession is given by a contract that determines conditions such as the main performance targets (coverage, quality), performance standards, arrangements for capital investment, mechanisms for adjusting tariffs, and arrangements for arbitrating disagreements. Concessions have a long history of use in infrastructure in France. Recently they have spread to the developing world, where they have been used for water and sanitation in Buenos Aires, for water in Macao, and for sewerage in

[15] Planning Department of Government of Rajasthan, "Guidelines on PPP Models" http://ppp.rajasthan.gov.in/ppp/pppmodels.pdf (02.06.2008), p.3.

[16] The World Bank, p.1-9.

Malaysia. The concession is an attractive option where large investments are needed to expand the coverage or improve the quality of services.

The quality of regulation is of great importance in determining the success of the concession, especially the distribution of its benefits between the concessionaire (in profits) and consumers (in lower prices and better service)[17] .

2.3.4.6. Build-Operate-Transfer type of Contracts

Build-operate-transfer (BOT) arrangements are used for Greenfield projects, such as a water or wastewater treatment plant. In a BOT arrangement a private firm might undertake to construct a new dam and water treatment plant, operate them for a number of years, and at the end of the contract transfer all rights to the public utility. The government or the distribution utility will pay the BOT partner for water from the project, at a price determined during the contract to cover its construction and operating costs. The contract between the BOT concessionaire and the utility is usually on a take-or-pay basis, giving the obligation to the utility to pay for a specified quantity of water whether or not that quantity is consumed. This places all demand risk on the utility. Capacity charge and consumption charge might be paid by the utility. BOTs have been used for water treatment in such countries as Australia and Malaysia and for sewage treatment in Chile and New Zealand.

BOT models, which may also be used for plants that need extensive control, has many variations such as build-operate-own (BOO) and ROTs (rehabilitate-operate-transfer) arrangements. In BOO arrangements the public and private sectors share responsibility for capital investments[18].

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[17] The World Bank, p.1-9.

[18] The World Bank, p.1-9.

2.3.4.7. Divestiture

Divestiture is giving the private sector full responsibility for operations, maintenance, and investments. It can be partial or complete. A divestiture which transfers ownership of the assets to the private sector is not like a concession in that the nature of the public-private partnership differs slightly. A concession assigns the government two basic tasks: The first one is to ensure that the utility's assets are used well and returned in good condition to the government at the end of the concession. The second is to protect consumers from monopolistic pricing and poor service. Theoretically, in a divestiture the governments only do the regulations and the private company should maintain its asset base.

Although divestitures in the water and sanitation sector have been limited to England and Wales, they are widely used in other infrastructure sectors. Since the national infrastructure services are of economic importance, governments generally do not want to divest water and sanitation assets without safeguards[19].

2.3.5. Experiences of Public Private Partnership (PPP) in the World and Turkey

2.3.5.1. PPP Models and Country Experiences of Infrastructure Investments in the European Union

The infrastructure investment requirements such as telecommunications, highways, railways, airports, energy, and water sectors increased after the break down of socialism and joining of these Central and Eastern European (CEE) countries to EU. The governments of CEE countries were willing to reduce the infrastructure gaps with Western Europe.

Table 2.2 summarizes infrastructure investment requirements of CEE countries in between 1995 and 2010.

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[19] The World Bank, p.1-9.

These countries should achieve the average of infrastructure level in EU-15 until by 2010. The investment requirements are more than EUR 500 billion. This corresponds to about 5 percent of annual GDP in these countries, for a period of 15 years. During the transition period, access to infrastructure financing was limited in the public and in the private sector. Public infrastructure financing was constrained by the need to consolidate state budgets in an environment of falling tax revenues[20].

Table 2.2: Estimated infrastructure investment needs of new EU member countries, 1995–2010

Sector	Reference	Investment needs	
		in EUR billion	in percent of annual GDP
Roads	Modernization/construction to EU-15 average density	44	0,5
Railways	Modernization/construction to EU-15 average density	37	0.4
Telecoms	Teledensity:35 mainlines per 100 citizen	63	0.9
Water/Sewage	European standards for collection and treatment	180	1.5
Energy	Network development, oil, gas and coal sector reform	110	1.4
Environment	EU Directive Air Pollution and Waste	71	0.3
SUM		505	5.0

Source: Source: Brenck et.al, 2005, p.85

Therefore, the usage of Public Private Partnership models increased in the member States of the European Union to finance major infrastructure services such as water treatment and supply, waste management, transportation (rail, metro, roads), energy, telecommunications, healthcare, criminal justice (courts and prisons), education facilities (schools, dormitories), and environmental management and to

[20] Andreas Brenck et al, "Public-Private Partnerships in New EU Member Countries of Central and Eastern Europe: An Economic Analysis with Case Studies from the Highway Sector", **EIB Papers**, Vol. 10, No. 2 (2005),p.84-85.

meet public sector deficit financing set in the framework of Economic and Monetary Union[21].

Some EU countries experiences in PPP application is given below.

2.3.5.1.1. The United Kingdom

The UK government has begun to use the application of Public Private Partnerships (PPP) Models to provide public services since 1992. This application was called as The Private Finance Initiative (PFI). The government developed the PFI further and changed its name as Public Private Partnerships (PPP) in 1997. The first usage of PPP is started in the prisons sector and moved later into construction of schools, public buildings, hospitals and municipal projects in the UK. By using PPP Models, the private sector was engaged to design, build, finance and operate infrastructure facilities[22]

2.3.5.1.2. Spain

The participation of private sector in infrastructure go back to the second half of the 19th century in Spain. During the 19th century, bridges and a number of railways were also developed by private investors. Therefore, the first applications were in the development of toll roads. The private developers gained 15 toll road concessions between 1967 and 1976. The Spanish public authorities have gained success and developed the usage of PPPs in all sectors in developing PPPs[23].

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[21] Andrea Renda, Lorna Schrefler, "Public-Private Partnerships: Models and Trends in the European Union (IP/A/IMCO/SC/2005-161) http://www.europarl.europa.eu/comparl/imco/studies/0602_ppp_briefingnote_en.pdf (02.06.2008), p.5.

[22] British Embassy, "Public Private Partnerships: The UK Experience**",** 02.11.2006. http://www.kozbeszerzok.hu/dokumentumok/konf0903/sn.pdf.(02.06.2008), p.1.

[23] Pricewaterhouse Coopers, http://www.pwc.com/extweb/pwcpublications.nsf/docid/5D37E0E325CF5D71852570DC0009C39B (02.06.2008), p. 33,56- 57

2.3.5.1.3. The Netherlands

The PPP model was applied in 1991 to reduce traffic jam and car accidents by building a tunnel in the area of the Randstad. The chosen contract is BOT Concession between the National Transportation Department and the ING Bank and its duration is thirty years and the private party (ING) bears risks of design and construction[24].

2.3.5.1.4. Ireland

The PPP model is founded as a DBO contract among the Dublin Municipality, the Water Authority and a Private International Consortium. The risk belongs to the private party that bears maintenance and operation costs while the public party provides financing and retains the ownership of the asset. The contractor is paid through tariffs collected from non-domestic consumers. The tariff level covers both capital and operating costs. The private party is obliged to maintain the treatment plant and to cover its operating costs for 20 years. Consequently, to gain some profit, the private party encourages efficiency by reducing both operating and maintenance costs. This PPP agreement is a good example of attracting the latest available technology and protecting capital investment and ensuring sustainability of a project in the long term[25].

2.3.5.1.5. Hungary

Although the application of PPP Models are not very successful at the beginning in Hungary, the applications and interests of PPP and concession models have particularly increased in transportation sector. Highway construction investments were calculated at around EUR 3 billion, to be raised through concessions to both domestic and foreign private investors. The concessions of Hungarian's major motorway and two bridges over the river Danube were planned.

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[24] Renda, Schrefler, p. 6-7.

[25] Renda, Schrefler, p. 6-7.

The introduction of cost-covering tolls was a necessary condition for the success of this type of PPP[26].

2.3.5.2. Other Developed Countries Experiences

2.3.5.2.1. Canada

In Canada, the government levels are federal; provincial/territorial; and municipal. These three levels of government use some connected entities for a wide range of small and medium-sized projects to provide directly. The provinces of British Columbia, Ontario, Alberta and Québec provide large-scale capital projects involving long-term, privately financed concessions. In June 2002, the province of British Columbia established Partnerships (PBC) to provide public infrastructure and services to expand social infrastructure within budget constraints. British Columbia has applied eight transactions since mid-2004 including the Richmond Airport Vancouver Rapid Transit and the Sea to Sky Highway. In Ontario, like in British Columbia, a partnership has been established by provincial budget constraints to meet social and economic infrastructure needs. Ontario's government found the Ontario Power Authority to provide major power supply projects and the Ontario Infrastructure Projects Corporation to superintend the implementation of major infrastructure projects other than power supply. There has been little PPP activity performed in Alberta, the provincial government's Ministry of Infrastructure and Transportation is responsible directly for procurement for the major projects, with only the Edmonton Ring Road and Calgary Court House. Future activity is likely to centre on education and transport infrastructure. The province of Québec formed Public-Private Partnerships to advise the government on the implementation and structure of PPP projects Québec in 2005[27].

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[26] Brenck et al, p.92

[27] Global Legal Group Ltd., London, Robert G. Power, Anne M. Stewart, "The International Comparative Legal Guide to: PFI / PPP Projects 2007", 2007 http://www.iclg.co.uk/khadmin/Publications/pdf/1019.pdf (03.06.2008), p.13.

2.3.5.2.2. Japan

PPP models are applied in Japan in many sectors including central accommodation, education, health, water and waste management and recreational facilities. The first prison agreement is being made with PPP models and many agreements in other sectors are expected. For instance, the new Haneda International Airport is separated into three PFI projects which are being launched: the passenger terminal, cargo terminal and apron. While Japan's budget deficit was the main cause for activity, the PPP market is expected to grow as more public authorities want to benefit from the value of money benefits generated by PPP projects. A PPP Promotion Law was accepted in 1999 and facilitated the adoption of the PPP approach. There are principally three models for projects: free-standing, joint-venture, and service provision structure[28].

2.3.5.2.3. United States

The US PPP market has been limited with a few projects mainly to take advantage of US tax-exempt financing. Oregon, Georgia, New Jersey, New York, Virginia and many others are now considering PPPs and launching PPP programmes. As in other emerging PPP markets, there has been attention on road and rail infrastructure development. Because of limited state budgets and funds gained by selling an asset or transferring the costs of building and operating the asset to the private sector, there are a number of increasing PPP developments in the US. Moreover, political support is growing as PPPs will enable the federal and state governments to generate fund for infrastructure development except relying just on the tax[29].

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[28] Pricewaterhouse Coopers, p. 56.

[29] Pricewaterhouse Coopers, p. 56.

2.3.5.3. Emerging Countries Experiences

2.3.5.3.1. Mexico

In Mexico public and private sectors work together in accordance with concession agreements such as the airport, rail and water/wastewater sectors and in arrangements similar to the PFI/PPP model in the health, prisons, and education and roads sectors. PFI activity started formally in 2004 when four pilot projects were two roads, one hospital and one university[30].

2.3.5.3.2. Turkey

The oldest legislation regarding the provision of public services through concession agreements between private parties and the state is dated back to Ottoman Empire. Tramline and Tunnel Systems, Electricity and Gas and Haydarpasa Port in Istanbul and Izmir Port and Izmir Göztepe Tramline are a few to name among the concessions granted to foreign companies. If we set aside the concession agreements effective in the times of Ottomans (such as the agreements for the transfer of public service concessions), Turkey's getting know to the private sector participation relevant public infrastructure investments date back to the 1980s. Because, the private sector has become the focus of attention as the source of financing for infrastructure investments emerging as the natural outcome of winds of liberalization and privatization in 1980. Not only the funding of such projects by the private sector, but also making use of the merits that the private sector has to offer in operation-management of such projects has become the issue.

Turkey was introduced with Public Private Partnership (PPP) model in the year 1984. The first Act No 3096, enacted in 1984, enabled private local or foreign companies to take part in the production, transmission, distribution and commerce of electricity.

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[30] Pricewaterhouse Coopers, p.56.

The electricity sector was monopolized by the Turkish Electricity Institution, Pursuant to Article 3 of this Act, the companies established to provide electricity services can be entrusted by the Board of Minister of Energy to build up necessary facilities for production, transmission and distribution of electricity in the specific regions identified in the implementing regulation.

The Ministry of Energy concludes a contract for up to ninety nine years which is determined taking the depreciation period of such facilities into account, with the decision of the Board of Ministers. In addition to this provision Article 4 stipulates that the Ministry of Energy may grant a license to private companies established exclusively to produce electricity for building up and operating the production facilities.

Electricity energy produced in such facilities can be sold to the Turkish Electricity Institution accordance with the tariff fixed by the Minister. The second Act No 3465 enacted in 1988 created an opportunity for the private sector to participate in the building up and maintenance of motorways which was used the sole responsibility of the General Directorate of Highways. According to this Act, private companies established in Turkey may be entrusted with building up, maintenance and operation of service facilities for travelers. The duration of contract may be a maximum of forty nine years and the contract term shall include the building up, maintenance and operation of all facilities. At the end of term, the entire motorway and facilities with their annexed shall be returned automatically to the General Directorate available for use, free from any charges, debts and commitments. Even in this case the responsibilities of the entrusted firm vis-à-vis the General Directorate shall continue. Act No 3096 and Act No 3465 provided the implementation of Build-Operate-Transfer Model for the Electricity Energy and Highway sectors, yet they were limited on the Sectoral basis, not cover a wide range of sector. When it got harder to procure financial resources for public investments in the 1990s, the issue appeared on the agenda claiming the necessity to adopt a law which could be in brooder terms more applicable with respect to BOT. On 13.6.1994 Act No 3996 was

therefore adopted to form a legal basis. Many projects were applied such as in within this Act No 3996[31].

After a short while, the Act no 4046 was enacted in 1994 to regulate the implementations of privatization in Turkey. Article 15 of this Act provides that the operation rights of public authorities with general or additional budgets and the sections of their associate entities, which produce goods or provides services and their assets (dams, ponds, motorways, accommodated health facilities, ports, etc.) as well as that of public corporations and their associate partnerships, undertaking and undertaking units may be transferred to private persons through " granting of operation right" or "renting" or any similar mechanism up to forty nine years. This provision clearly demonstrates the transition from the traditional approach to the provision of the public services by the state or public authorities the more functional one involving private entities. In addition, Act No 4283 enacted in 1997, introduced a model so called "Build-Operate (BO)". The main objectives of this is to regulate the conditions and procedures of granting license for the establishment or operation or thermal power plants and for energy sale to production companies in compliance with the energy planning and policies of the state through "Built-Operate Model" in which such companies will have the ownership of these facilities Hydroelectric, geothermal, nuclear power stations and other renewable energy sources which are not within the scope of this legislation[32].

Act No 5762 enacted in 2008, brought a model called "Build-Operate-Transfer (BOT)". The main objective of this Act is to provide some investments and services by Built-Operate-Transfer Models. These investments and services are in relation to "highways", "railways", "railway stations complex and logistic center", "airports", "marina complex", "border gates, the plants in national park (except own private act)", "wholesale warehouses".

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[31] İmre, p.1.

[32] İmre, p.1.

CHAPTER 3

3. FUNDING PUBLIC INFRASTRUCTURE

INVESTMENTS THROUGH CAPITAL MARKETS

3.1. THE CONCEPT OF MUNICIPAL BONDS

Another way of financing the public infrastructure investments in countries such as USA and Canada, which have developed financial markets, is to provide funds by issuing municipal bonds in capital markets. Municipal bonds represent the amount of funds borrowed from investors by qualified issuers who are subject to a local government or a subsidiary of a local government. Issuers promise to pay off the principal and the interest in a certain period of time[1]. They have a maturity between one and forty years.

Table 3.1 shows that the bonds issued by local governments in USA were in the amount of approximately $429 billion in year 2007 and Table 3.2 shows that the sum of holders of the bonds is as much as $2,6 billion for the same year. When these facts are taken into consideration, it is easy to understand that the local governments often provide funds by issuing municipal bonds in capital markets, and there is an active market for these instruments in USA.

[1] The Bond Market Association (TBMA), **The Fundamentals of Municipal Bonds**, Fifty Edition, 2001, p.1.

Table 3.1: Investment of U.S. Municipal Securities (in $ Billions)

	New Capital	Refunding	Total
1996	124,0	61,2	185,2
1997	137,8	82,9	220,7
1998	160,8	126,0	286,8
1999	157,4	70,1	227,5
2000	165,1	35,7	200,8
2001	197,2	90,5	287,7
2002	236,9	120,6	357,5
2003	262,2	120,5	382,7
2004	229,1	130,7	359,8
2005	222,3	185,9	408,2
2006	256,0	130,5	386,5
2007	274,5	154,6	429,1

Source:http://www.sifma.org/research/pdf/Municipal_New_Money_Refunding.pdf

Table 3.2: Holders of U.S. Municipal Securities (in $ Billions)

			Banking	Insurance		
	Individuals	Mutual Funds	Institutions	Companies	Other	Total
1996	493,0	416,9	107,1	188,8	55,8	**1.261,6**
1997	497,6	446,2	112,0	208,1	54,6	**1.318,5**
1998	498,7	496,1	120,4	226,5	61,0	**1.402,7**
1999	528,1	519,5	125,7	219,1	64,7	**1.457,1**
2000	531,2	540,6	128,8	203,2	76,9	**1.480,7**
2001	581,1	604,4	143,6	192,5	81,9	**1.603,5**
2002	678,7	641,8	148,2	202,9	91,4	**1.763,0**
2003	704,1	671,6	163,9	250,3	110,8	**1.900,7**
2004	742,7	697,2	179,9	297,9	113,2	**2.030,9**
2005	821,4	737,9	209,2	345,7	111,8	**2.226,0**
2006	866,0	804,1	241,8	371,8	119,5	**2.403,2**
2007	916,0	936,9	256,7	389,8	118,5	**2.617,9**

Source: http://www.sifma.org/research/pdf/Holders_Municipal_Securities.pdf

3.1.1. History of Municipal Bonds

Local governments have long been issuing bonds. It is known that in the period of Renaissance, Italian city governors were the first people who borrowed funds from families owning big commercial banks. Although the US local governments have issued bonds since the eighteenth century, the first official record regarding the issue of municipal bonds was the general obligation bonds issued by

New York City. Within a few years following the end of the American Civil War, many local governments issued bonds with the aim of constructing a railway, and these bonds are the first example for today's revenue bonds. At the beginning of the twentieth century, in line with the improvement of the US economy, the number of the bonds issued by municipalities gradually increased; up to the great depression in 1930. During the 2nd World War, national resources were exhausted. Therefore, a big decrease was observed in the circulation of municipality bonds. However, after the war there was a boom in the issue of municipality bonds[2]. Due to the recession in general economy, the local governments were unable to fulfill their obligations during 1870's and 1890's as well as the Great Depression. This case resulted in the existence of different methods such as rating and bond insurance in order to eliminate the risks of bonds. Moreover, various organizations were established with the aim of informing investors properly at the right time, and some regulations were introduced by these organizations[3].

With the new tax law which was put into practice in USA in 1986, the scope of municipality bond revenues' exemption from tax was changed, and the exemption was made valid only for individual investors. Hence, municipality bonds lost their attraction for institutional investors such as banks or insurance companies. Therefore, the market of municipality bonds became the sole market in the bonds market where the main investor group was individual investors. This case caused municipality bond issuers to add some features to bonds in order to make them more attractive, and it resulted in an extraordinary increase in the number of bond insurances[4].

3.1.2. General Characteristics

Providing financial resources by local governments through the issue of bonds is a method which has been applied in USA for nearly 200 years[5].

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[2] The Bond Market Association, p. 49-50.

[3] Susan C. Heidi, Robert Klein, Jess Lederman, **The Handbook of Municipal Bonds**, Probus Publishing, 1994, p. 495.

[4] Anette Thau, **The Bond Book**, Irwing Professional Publishing, 1992, p. 100.

[5] Frank J Fabozzi, T. Dessa Fabozzi, **The Handbook of Fixed Income Securities**, McGraw-Hill; 4. edition, December 1, 1995, p. 155.

The reason why municipality bonds are preferred especially in USA is that the revenues gained from these bonds are exempt from federal taxes. Therefore, municipality bonds are also called “bonds exempt from taxes”. In USA, municipality bonds can be issued by the states or the local governments directly on their behalf or through private institutions. Municipality bonds are used to finance various kinds of projects including the examples below:

- Transportation facilities, including bridges, highways, roads, airports,
- Ports, and surface transit,
- Electric power–generating and –transmission facilities,
- Water tunnels and sewage treatment plants,
- Hospitals, healthcare and assisted living facilities, and nursing homes,
- Housing for low- and moderate-income families,
- Streets and roads,
- Government office buildings,
- Elementary and secondary school buildings,
- Higher-education buildings, research laboratories, and dormitories,
- Resource recovery plants.

The US market of municipality bonds consists of thousands of professionals who own various skills in order to provide funds from capital markets for the states and the local governments. All of them work together to provide funds with the principal aim of achieving public projects and infrastructure investments for the local governments. However, in this market the state government or local government authorities, public finance investment banks, underwriters, analysts, barristers, financial advisors, rating agencies, insurers, commercial banks, investors, brokers, technology manufacturers and suppliers, media and market regulators have different

functions. The market of municipality bonds consists of a primary market where new bonds are issued, and a secondary market where previously issued bonds are traded[6].

3.1.3. Other Characteristics

Capital market instruments issued by local governments are established on securities whose market terminology still has a face value of $1000 although they are usually issued with a value of $5000 or multiplied $5000's. Although it was tried before to issue securities in the face value of $100 in order to attract small investors, this kind of issues which have a small face value did not become prevalent[7] .

3.1.3.1. Legal Opinion

Another characteristic of capital market instruments issued by local governments is that, in a primary market, they are issued with a barrister's legal opinion about issuer and issuing. In order to market the security, it is significant that legal opinion is announced with the security to public. Legal opinion became compulsory since a big part of municipality bonds issued especially at the end of the nineteenth century were not paid back. The complicated structure which appeared in financial markets and federal tax limitations widened the scope of legal advisors' responsibilities.

3.1.3.2. Official Statement

In many cases, securities of local governments are exempt from SEC's obligations to keep a record. However, when issuing securities for the first time, a document of public offering which is called as official statements must be prepared usually by the issuing institution[8].

Permanent enlightenment of public: With the change made in 1994 November by SEC in the Rule No.15c2 Item no. 12, which regulated the issue of security by local governments, the obligation of underwriting was brought about

[6] The Bond Market Association, p. 1.

[7] The Bond Market Association, p. 39-48.

[8] The Bond Market Association, p.66-67.

during the first issue within the framework of the above-mentioned item. With this regulation, underwriter became obliged to prepare and announce documents which will enlighten investors. Because of underwriter's obligation to attain information about issuing from the issuer, it is the obligation of the issuer to give these documents to the underwriter. With a change in Rule 15c2–12 in 1996, after supplying bonds to public in primary market, it became compulsory for underwriters to take a written liability document from issuers stating that the necessary information to enlighten investors permanently will be given to underwriters[9].

3.1.3.3. Call Provisions

Call provisions allows the issuer of the bond to buy bond back, before its maturity date of bond at a pre-specified price. It must be stated this right in official statement and documents the right of call provisions during the issuing of security[10].

3.1.4. Types of Municipal Bonds

Capital market instruments issued by local governments in the USA are short and long-maturity securities.

3.1.4.1. Short Maturity Bonds

Providing short maturity funds from capital markets by local governments is usually used in eliminating time gaps between expenditures and revenues. Short-term securities issued by local governments are generally called anticipation notes, and maturity of these notes is thirteen months or shorter. Usually, interests of the notes are paid at the date of redemption. Especially after default of a short-term note issued by New York City in 1975, these notes, which used to have an important place in the

[9] Selçuk Dinçsoy, "Belediye Tahvilleri (Municipal Bonds) Kavramı ve Mahalli İdareler Tarafından İhraç Edilebilecek Sermaye Piyasası Üzerine Öneriler", **Sermaye Piyasası Kurulu Ortaklıklar Finansmanı Dairesi, Yeterlilik Etüdü**, October 2001, p.14.

[10] Dinçsoy, p. 14.

issuing made by local governments before 1970's, were issued fewer[11]. Short-term securities issued by local governments are usually categorized in four groups;

1. Anticipation Notes,

2. Tax Exempt Commercial Paper,

3. Variable-Rate Demand Obligations

4. Dutch Auction Securities,

The information about these short-term securities is as follows;

3.1.4.1.1. Anticipation Notes

Anticipation Notes can be divided into five sub-groups[12];

a) Tax Anticipation Notes (TANs)

These short-term notes called as TAN's in the bond markets are issued by local governments depending on the revenues which will be gained through local taxes such as real estate taxes.

b) Revenue Anticipation Notes (RANs)

RANs are issued by anticipating the future revenues which will be attained by local governments from their own resources except tax revenues. (These notes are called TRANs provided that the note is issued based on the anticipations in both the tax and the other revenues)

c) Bond Anticipation Notes (BANs)

BANs are securities issued through the resources owned by local governments from the bonds which will be issued in the future and these securities

[11] The New York Institute of Finance (NYIF), **How the Bond Markets Works**, New York,1988, p.130.

[12] Dinçsoy, p. 15.

provided local governments with an interim financial resource before issuing the bonds.

d) Grant Anticipation Notes (GANs)

GANs are securities issued based on collections by local governments from the central government or anticipation of allocations.

e) General Obligation Notes:

Some short-term securities are issued by local governments in order to achieve various goals rather than single objective. These kinds of notes are mostly securities based on trust in the issuer.

3.1.4.1.2. Tax Exempt Commercial Paper

Commercial Papers are securities which usually have a payment term of 30, 60 or 90 days but this term can vary from 1 day to 270 days. Although these bonds are used similar to anticipation notes and general obligation bonds, the main advantage of these bonds is that they provide issuer with the flexibility of determining both payment term and interest rate[13].

3.1.4.1.3. Variable-Rate Demand Obligations

Before 1980's when one talked about short-term securities issued by municipalities, only anticipation notes used to come to mind. However, especially at the end of 1970s, fluctuations in interest rates and increase in investment instruments exempt from tax made it obligatory to diversify types of short-term securities. These securities were useful in securing both investor and local governments from the fluctuations in interest rates[14]. Table 3 shows the volume of fixed-rate and variable-rate bonds that fixed-rate bonds' volumes are grater than variable-rate bonds. This shows that the investors not want to affect the interest rate fluctuations.

[13] Frank J Fabozzi, T. Dessa Fabozzi, Sylan G. Feldstein, **Municipal Bond Portfolio Management**, Richard D. Irwin, Inc, 1995, p. 23.

[14] Dinçsoy, p.16.

Table 3.3: Volume of U.S. Fixed Rate and Variable Rates Bonds $ Billions

	Fixed-Rate	Variable-Rate	Other	Total
1996	158,5	21,7	5,0	185,2
1997	182,6	30,3	7,8	220,7
1998	249,4	29,1	8,3	286,8
1999	186,4	30,6	10,5	227,5
2000	146,8	40,9	13,2	200,9
2001	228,7	43,5	15,5	287,7
2002	274,6	53,5	29,4	357,5
2003	288,8	49,9	44,0	382,7
2004	260,8	52,8	46,1	359,7
2005	306,2	64,3	37,7	408,2
2006	288,4	59,7	38,7	386,8
2007	320,3	63,1	45,7	429,1

Source: http://www.sifma.org/research/pdf/Holders_Municipal_Securities.pdf.

These kinds of short-term securities which protect both the investors and the local governments from the risk of interest are usually known as variable-rate demand obligations. In this type of investment instruments the payment term is determined every day or every week in parallel with the changes occurring in coupon interest rates. In a period of 7 days after the investors are informed about the changes in the interest, the investors have the chance of selling the issued bonds whenever they want with the principal and the interest calculated over the new interest rate[15].

3.1.4.1.4. Dutch Auction Securities

Dutch Auction Securities are another type of Variable-Rate Demand Obligations and the most important difference between these securities and Variable-Rate Demand Obligations is that the latter are less likely to be liquidated[16]. In this type of security, liquidity is ensured by regulating interest rate with a procedure based on auction. In this auction following determination of the lowest interest rate by which the potential buyers will be voluntarily buying all securities, owner(s) can give orders to the representative of the auction to “hold”, “increase” or “sell” the

[15] Gary M. Strumeyer, **Keys to Investing in Municipal Bonds**, Baron’s Educational Series Incorporate., 1996, p. 84.

[16] The Bond Market Association, p. 38.

securities involved. In Dutch Auction Securities, the initial interest rate at the auction which will be held later is determined according to the lowest interest rate in the preceding auction where the barter of security can be made. Auctions where the interest rates are fixed again are generally held every 35 days, once a week or every day.

3.1.4.2. Long Maturity Bonds

Municipal bonds are issued in order to finance required resources generally to achieve urban infrastructure projects. Except very few cases, municipal bonds are not used to finance activity expenditures of local governments such as the wages of workers and social security expenses. Municipal bonds are divided into two groups according to usage areas of funds:

1. General Obligation Bonds – G.O.B.

2. Revenue Bonds (RB)

Table 4 summarizes the volume of GO and Revenue Bonds that the volume of General Obligation bonds are lesser than Revenue Bonds.

Table 3.4: Volume of U.S. GO and Revenue Bonds $ Billions

	GO	Revenue	Total
1996	64,6	120,6	185,2
1997	72,4	148,3	220,7
1998	93,7	193,1	286,8
1999	71,0	156,5	227,5
2000	66,6	134,3	200,9
2001	101,7	186,0	287,7
2002	125,7	231,8	357,5
2003	142,1	240,6	382,7
2004	129,6	230,1	359,7
2005	144,2	264,0	408,2
2006	114,8	272,0	386,8
2007	131,1	293,2	424,3

Source:http://www.sifma.org/research/pdf/Municipal_General_Obligations_Revenue.pdf.

3.1.4.2.1. General Obligation Bonds

General Obligation Bonds are the ones issued by cities, states, towns, school areas in the USA, and they are supported with the strength of general taxation of local government which issued the bond. In General obligation bonds, the issuer's official and authority of taxation is regarded as a guarantee of interest payments. Furthermore, principal and interest of bond are paid by taxes from the local area. Some of these kinds of bonds can also be barreled with not only tax payments, but also some certain charges and private tuitions. General Obligation Bonds supported with other sources of income except tax incomes are also called double-barreled bonds[17].

3.1.4.2.2. Revenue Bonds

Local governments can also issue bonds whose back payment resource is not some fixed revenues such as taxation of local government but specific incomes gained by activities. These kinds of bonds can also be called as revenue bonds. The bond can be issued either by a local government or a local government-backed institution. Revenue bonds are issued to produce electricity, distribute and collect drinking water and waste water as well as to build transportation facilities or to increase their capacities. Revenues provided from activities, fees of subscriptions and rents taken from real estates are used to pay back principal and interest coupons of these bonds. Before the issuing of revenue bond based on finance of the project, some feasibility studies are made to understand if revenue which will be gained from the project will bear payments or to what level it will bear them due to the issuing of the bond. To find out when the project will create a reverse cash flow is another aim in these feasibility studies with which the future performance of the project is measured. The examples regarding the types of revenue bonds which have been issued for many years are given below[18]:

[17] Strumeyer, p.87-90.

[18] Fabozzi-Fabozzi, p.159-161.

College and University Revenue Bonds:

Principal and interest payments of bonds based on revenues of university education tuitions are met with dormitory fees, university installment payments and sometimes college and university assets.

Hospital Revenue Bonds:

Principal and interest payments of hospital revenue bonds are generally paid with shares taken from federal aid programs about health services, payments gained from health insurances and fees demanded from patients in return for health services.

Airport and Seaport Revenue Bonds:

Principal and interest payments of Airport Revenue Bonds are met with either revenues of air traffic such as landing and take-off or lease payments generated by areas used as aircraft shed. Principal and interest payments of Seaport Revenue Bonds are made with revenues attained from agreements made with companies regarding the leasing of the seaport management and charges of loading and off loading.

Public Power Revenue Bonds:

Principal and interest payments of bonds based on energy revenues are covered with revenues of facilities constructed with the aim of electricity production.

Toll Road and Gas Tax Revenue Bonds:

In general, there are two types of toll road bonds and in the first type principal and interest payments of bonds are met through fees attained from tunnels, bridges and highways, and in the second type, apart from direct usage fee of a highway, taxes from oil products, register of motor vehicles and driving licenses are used in principal and interest payments of bond.

Water and Sewer Revenue Bonds:

Water and Sewer Revenue Bonds are issued with the aim of financing water and sewer systems and their network. Principal and interest payments are made with allowance and usage fees gained from the users of these municipal services.

Industrial Development Revenue Bonds:

Principal and interest payments of these bonds are met with revenues attained from various commercial and industrial activities in commercial and production areas and shopping centers.

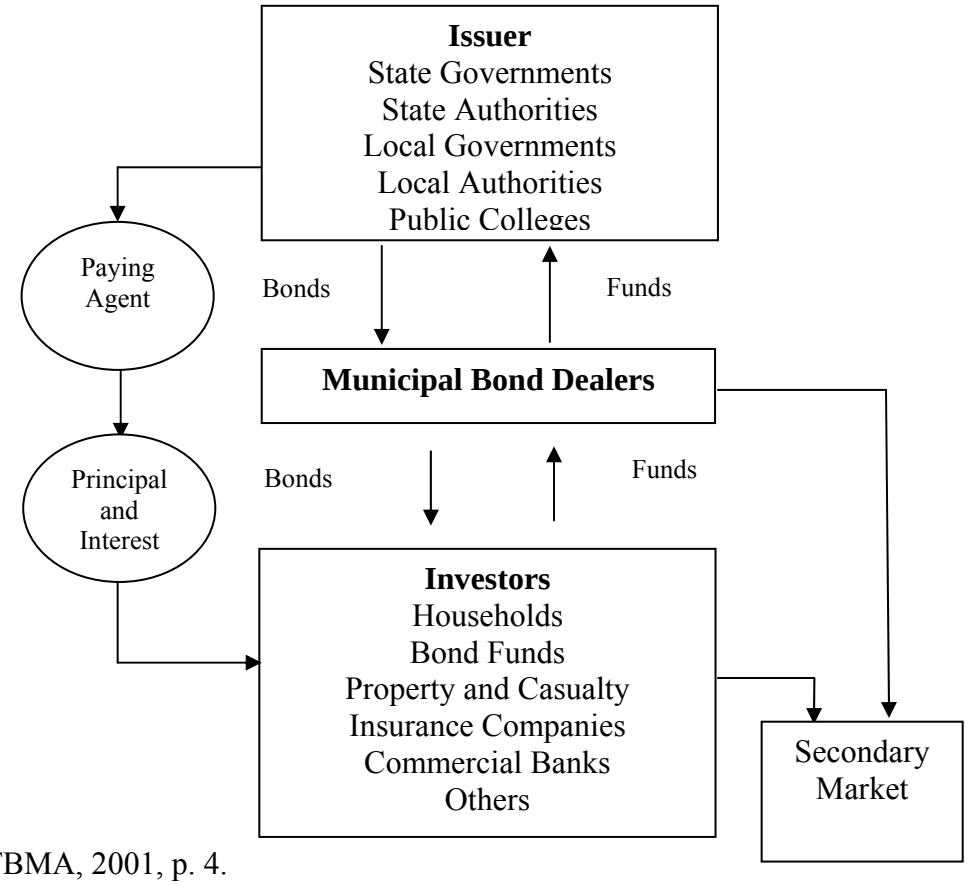
3.1.5. Municipal Bonds Markets

Municipal Bond markets consist of a "*primary market"* in which bonds are issued and a "*secondary market"* in which previously issued bonds are traded.

3.1.5.1. Primary Market

In a primary market, securities can be sold to large masses of investors by means of public offerings through local governments or a quantitively small mass of investors through allocated sales.

Figure 3.1: Funds flow charts in primary market



Source: TBMA, 2001, p. 4.

In primary market, securities are bought by a securities company, a local government securities department of a bank or a dealer independent from this kind of institution. This is called *"underwriting stage"* and it is not necessary to underwrite provided that the bond is sold for a special use[19].

Later, these securities are sold to institutional or individual investors by the institution which bought the bond directly. Even though securities are bought by the underwriter, if they are not sold, the underwriter holds the risk of securities' being kept in the assets until these securities are sold. Principal and interest payments of the bonds invested by issuer are generally made by a bank within a fixed period. In underwriting stage, underwriting securities can be produced by means of a competitive sale or a negotiated sale. Underwriting through a competitive sale is conducted by means of offering an interest rate by underwriter to issuer with the

[19] The Bond Market Association, p.7.

method of sealed bid, whereas in a negotiated sale, underwriter is chosen by the issuer himself according to method of mutual negotiation[20] .

3.1.5.2. Secondary Market

Municipal bonds issued in primary market are traded in over the counter market as secondary market. The bonds are traded by dealers, and after it was bought by the dealer from the seller, the bond is kept in the portfolio of the dealer until it is sold again. In parallel with technological developments, especially in secondary markets, traditional methods which had been used to trade securities changed, and these methods were replaced with the systems of electronically trading and barter[21].

3.1.6. Taxation of Municipal Bonds

Fundamental regulations regarding federal taxation of securities issued by local governments in the USA were initiated with the Tax Reform Law, which was put into practice with the item no. 103 of the Internal Federal Revenue. Although with this law, interest revenues gained from securities issued by local governments are still exempt from tax, securities which will be used to finance the projects with non-public goals such as sports facilities or a shopping center will no longer be exempt from tax[22].

3.1.7. Risks Relating to Municipal Bonds

Borrowing instruments issued by local governments are the most secure capital market instruments after securities issued by the USA Treasury. However, they have some systematic and unsystematic risks as every borrowing instrument. Information on general risks faced by investors of securities issued by local governments is as follows[23].

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[20] Joe Mysak, **Handbook for Municipal Issuers**, Bloomber Pres, First Edition, January 1, 1998, p. 40-41.

[21] The Bond Market Association, p. 105.

[22] The New York Institute of Finance, p. 132.

[23] Robert Lawrence Khun, **Corporate and Municipal Securities**, Dow Jones-Irwin, p. 770-772.

3.1.7.1. Default Risks

In municipal bonds, besides general risks stemming from market conditions, there is a risk that interest and principal payments of bond cannot be paid due to issuer's bad financial situation or decrease in revenues of investments, which is the reason for the issuing of securities in revenue bonds.

3.1.7.2. Market Risks

As it is known, there is a negative effect between the price of borrowing instruments and the market interests. In this framework, market risk comprises of risks caused by a negative impact on the price of the borrowing instrument due to sudden increases which might occur in interest rates in the market. However, increase which could occur in interest rate does not affect every borrowing instrument at the same level, and variable-rate borrowing instruments are affected less by sudden increases occurring in market interests compared with fix-rate borrowing instruments.

3.1.7.3. Reinvestment Risks

Investor of a municipal bond gets revenue from coupon interests of a security, sale of a bond in secondary market and usage of coupon interest revenues in new investments.

As for reinvestment risk, when one buys a municipal bond, there is a risk of less revenue compared with the determined period due to investing coupon interest rates in an investment instrument lower than interest rate of the bond.

3.1.7.4. Purchasing Price Risks

In the case of purchasing price risk which is also called as inflation risk, there is a possible for revenues of investments in municipal bonds to be lower than inflation rate and the real revenue attained from bond investment to be negative.

3.1.7.5. Call Risks

When a bond is collected from investors before local government's issue date, there is a call risk stemming from investors' losses due to usage of money in less profitable ways in current market conditions.

3.1.8. Defaults

Default means "not paying back the principal and interest of municipal bonds, or in other words, the local government cannot make the repayment due to its obligations stemming from securities issued by itself. Especially in the USA in 1870's and 1890's, there was a big decrease in defaults of local governments in line with negative improvements which occurred in general economic conditions. Later in the period of Great Depression, which began in 1930 and affected the whole economy fundamentally, local governments like all bond issuers were affected negatively from this case, and in this period, approximately 5000 local governments defaulted on their obligations from bonds they had issued[24]. After the 2nd World War, in line with improvements observed in the world economy, there was a significant decrease in the defaults on principal and interest payments of securities issued by local governments from 1945 to 1970. However, in the 1970s, there was a default on the payments of short-term capital market instruments issued by New York, Cleveland and New York State Urban Development Company. Therefore, in the USA, the risk of default on municipal bonds became essential again and both investors and underwriters began to be more attentive about the results of analysis made on Money borrowed by local governments. Especially in 1983, there was even more attention due to failing in the payments of bonds in the amount of nearly $ 2.25 billion issued with in the program of Washington Power System[25].

[24] Heidi, Klein, Lederman, p. 495.

[25] The Bond Market Association, p. 159.

3.1.8.1. The General Causes of Defaults on Municipal Bonds

There are usually three reasons for default on principal and interest payments of municipal bonds. The first one is changes in general economic conditions. Secondly, due to the fact that local governments are generally non-profit organizations, prices of their activities are not determined in accordance with normal market conditions; their prices are lower because of some political and populist goals. The third reason is that local government administrations are not experienced enough and well-informed about capital markets and finance[26].

3.1.8.1.1. Economic Factors

Negative conditions stemming from some economic factors in parallel with negative conditions occurring, i.e., deficit in the budget due to increase in expenditures of local governments or decrease in their revenues, not collected tax revenues of general obligation bonds, decrease in revenues gained from taxes, not completing investments in bond revenues on time, increase in investment costs or failure to attain revenues from investments planned before due to other reasons etc., might result in default or late payment of principal and interests of bonds issued by local governments in capital markets.

3.1.8.1.2. Faulty tariff of services

When one considers that the principal aim of local governments is to provide public services, revenues of investments through issuing bonds may not meet principal and interest payments of bonds due to pricing of services at a low level.

3.1.8.1.3. Managerial Factors

There might be some changes in service policy and services of local governments in terms of periods since the head of executive body in local governments take office generally after election. Administrators who took office after the issuing of bond do not have enough knowledge about finance and budget, or in general obligation bonds, administrations use revenue of the bond for their own

[26] Arthur J. Hausker, **Fundamentals of Public Credit Analysis**, Jai Pres Inc., 1993, p. 147.

preferences or interests instead of using them in profitable investment areas, and in revenue bonds, increasing investment costs unnecessarily with some certain causes. Therefore, there might be a default in principal and interest payments of the bond.

3.1.8.2. Default Risk Indicators in General Obligation Bonds

The emergence of one or a few of the following cases after issuing a general obligation bond based on tax income may have an effect which increase the risk of default on the bond[27];

- Decrease in the value of assets in the municipality or increase in the number of tax payers who do not pay their tax,
- Decrease in population,
- Decrease in the number of building permits given by the municipality,
- The fact that transfer revenues gained from federal governments are below the estimated sum.
- Deficit by the end of financial year,
- Increase in unemployment rate and decrease in collected income taxes due to economic recession.

3.1.8.3. Default Risk Indicators of Revenue Bonds

After a local government issued a revenue bond based on specific activities, the emergence of one or a few of the following cases have an impact which increases the risk of default on the bond[28].

- The fact that reserves which will be gained by issuers through borrowing, and other reserves are melted away as they are used constantly and rapidly,

[27] Khun, p. 780.

[28] Khun, p. 794.

- Increase in financial dependence on revenues of investments which will be gained by issuer or selling the assets of local governments in order to meet budget expenses,
- Delayed declaration of independent auditing reports prepared on financial reports,
- Unexpected costs in the construction of investment projects or delay in construction according to the timescale,
- Frequent and significant increases in interest rates of variable-rate demand obligations due to market conditions, revenues bonds,
- Unexpected expenses such as maintenance-repair and technological innovations in the plants,
- Extreme increase in the expenses of general management.
- Decrease in the number of users or subscribers who benefit from the activities,
- A new and unexpected competitive atmosphere.

3.1.9. Ratings of Municipal Bonds and Credit Rate Agencies

Rating is an indication of decrease in the possibility of a complete payment by debtor of the issued bond in the determined maturity, in other words, a default. The rating category of security, which expresses a trustable and independent judgment regarding the relative quality of investment, is a significant source of information for investor and issuer about the consequences of security.

Moreover, there is inadequate information for public regarding most local governments which makes the investment in the market. Therefore, rating is regarded as a means of measurement in terms of credibility of security. During the rating, alphabetical or numerical symbols are used by the rating agency. On the basis of

three big rating agencies, information about symbols used in order to assess the risk is shown in Table 5.

Table 3.5: Credit Rating Agency and Symbols

Credit Quality	Moody's	Standard & Poor's	Fitch IBCA
Investment Grade			
Prime	Aaa	AAA	AAA
Excellent	Aa	AA	AA
Upper medium	A	A	A
Lower medium	Baa	BBB	BBB
Non-investment grade			
Speculative	Ba	BB	BB
Very speculative,	B, Caa	B,CCC, CC	B,CCC, CC, C
Default	Ca, C	D	DDD, DD, D

Source: TBMA, 2001, p. 13

Although all rating agencies have different categories, it is reported that the highest credit rating in market is generally AAA. There are three main rating agencies in the market involved in the issuing of securities by local governments. Moody's Investor Service Inc. (Moody's) has given the service of rating municipal bonds since 1909, and Fitch IBCA (Fitch) since 1913. In municipal bonds, individual investors consider that securities which have a rating mark below BBB, the lower-medium rating, are risky. Hence, they do not prefer these types of securities. However, securities which have a low credit rating are invested by investors which prefer the combination of high risk and high revenue.

Whether principal and interest payments of the security will be paid on time or not is a question about rating and securities which requires an answer. Although, in many cases, credit ratings given to municipal bonds by rating agencies answered this question in the best way, small but considerable cases caused participants in the market to evaluate again how much credit rating were dependable. In 1929, for instance, 78 % of municipal bonds were given a credit rating of AA by rating agencies, and 48% of them had even a better credit rating of AAA. However, in 1932, these municipal bonds were at the risk of not being repaid. In 1983 bonds with the serial no. 4 and 5, which had a value of $ 2.25 billion, were issued for a nuclear power station within the WPPSS program. However, there was a default in their

principal and interest payments. Moreover, there were sold under the credit rating of A1 given by Moody's and A+ given by S&P[29].

3.1.10. Bond Insurance & Bank Guarantee

Although principal and interest payments of municipal bonds have the risk of not being paid by the issuer, rating which helps to find out the risks, insuring the principal and interest payments of bonds, and the guarantee given by a bank regarding the repayments of the bond are some methods which eliminate the risk of default almost completely.

If the local government which issued the bond fails to repay the principal and the interest, bond insurance promises that these payments will be made by the insurance company. With the bond insurance, principal and interest payments which will be paid to investors are under guarantee. Generally, bond insurance is put into practice with a contract made between the issuer and the insurance company before the bond is issued in primary market. However, if the bond is issued without insurance, the future payments of the bonds can be insured by the investor or the insurance company in secondary market. The insurance usually involves all the principal and interest payments of the bond until the date of default. The first insurance of municipal bonds in the USA was made in 1971 by American Municipal Bond Assurance Corporation (AMBAC). Since that date, many insurance companies have been working on just municipal bonds or multi-purpose insurance companies except AMBAC are Financial Guaranty Insurance Company (FGIC), Financial Security Assurance Inc. (FSA) and Municipal Bond Investors Assurance Corporation (MBIA). Bonds insured by these companies are given the highest credit ratings by S&P, Moody's and Fitch[30] .

[29] Fabozzi-Fabozzi, p. 167.

[30] The Bond Market Association, p. 13-14.

3.2. BORROWING INSTRUMENTS FROM CAPITAL MARKETS IN DEVELOPED AND DEVELOPING COUNTRIES

The problem of financing infrastructure has arisen not only in the USA but also in other developed or developing countries, in line with rapidly-increasing urbanization. Therefore, different techniques were introduced in order to find financial resources for local governments. In the issue of financing these expenditures, the scope of local taxes or the amount is increased in some countries to provide local governments with funds, and in some other countries, providing funds through financial and capital markets are facilitated for local governments.

In Western European countries, and Turkey funds for local governments are generally provided through long-term loans taken from investment banks expertise in this issue. In some developing Eastern European countries like Czech Republic, Poland, and Hungary; in Latin American countries such as Brazil and Argentina and in Asia funds are provided through borrowing instruments which are issued in national and international markets by local governments[31].

3.2.1. EU Experiences

When securities issued by local governments in Europe are examined, it is recognized that, compared with the USA, this market has improved less. In England, one of the main countries in Europe, where capital markets have improved, and the method of raising funds from capital markets in order to finance the needs of local governments is used rarely. The most important reason for this is that Public Works Loan Board, which is a governmental institution, found in 1817, allocated to local governments a long-term loan with a low cost. Local governments in England are supported by the funds of these institutions[32].

However, among developed European countries, especially in Germany and Italy, local governments have improved in benefiting from capital markets. When

[31] Dinçsoy, p. 35.
[32]George Peterson, **Building Local Credit Systems**, The World Bank, Municipal Finance, Background Series 3, WBI 2000, p. 27.

compared with developed European countries, in Eastern European countries and Russia it is observed that there have been great improvements in providing funds from capital markets through the issuing of bonds by local governments. Metropolitan municipalities in Eastern Europe and Russia issued securities in Eurobond markets after the 1990s, and they are still being issued. For instance, a bond in the value of $ 250 billion was issued by Prague Municipality in international markets in 1994. This bond, which had a credit rating of BBB, was to be paid with a variable interest five years later[33].

3.2.2. Asia Experiences

When one scrutinizes the bonds issued by local governments in Asia, it is seen that securities are issued by local governments especially in Korea and Japan. In this framework, bonds based on subway revenues were issued in Korea by Seoul Municipality. By 1999, the rate of these bonds among issued bonds in Korea is 1.17 %[34].

When it is considered the bonds issued by local governments in Japan, it is observed that only long-established local governments with a big budget are allowed to issue bonds for the public and the public offering was made after it was approved by the Ministry of Internal Affairs. Moreover, during public offering, it is essential that underwriting of bond should be made by a brokerage house or a bank, which is also the case in the USA. In this framework, at the end of the fiscal year 2004, totally 28 municipalities to offer bonds to the public and these bonds amounted to JPY 25 billion[35].

In India, the municipal bonds are of great importance to provide the fund for municipal infrastructure investments. Urban authorities and most of cities have requested and received credit ratings for proposed municipal bond issues. In 1998, Ahmedabad Municipality is the first municipal bonds issuing city in value of Rs. 1

[33] Dinçsoy, pp. 35-36.

[34] Dinçsoy, p.36.

[35] Japan Local Government Bond Association, "Data", 2006
http://www.chihousai.or.jp/english/05/data01.html (02.06.2008), p. 6.

billion with an AA rating. The other city is Bangalore issued municipal bonds in value of Rs. 2 billion issue municipal bonds with AA rating Ahmedabad and Bangalore, issued South Asia's first- the Ahmedabad bonds, most notably, were offered through a partially public issue and without a guaranty by the state government[36].

3.3. 3.The Borrowing Instruments from Capital Markets in Turkey

When one consider the securities issued by local governments or subsidiaries of local governments in our country, it is observed that the Metropolitan Municipality of Ankara issued bonds in international capital markets. Furthermore, there is an application for issuing bonds made by The Directorate General of ISKI; however, due to the fact that necessary documents and information were not convened, the bonds were not issued[37].

3.3.3.1. The Issue of Bonds by the Metropolitan Municipality of Ankara

Between 1990 and 1992, bonds were issued in international markets by the Metropolitan Municipality of Ankara with the support of the World Bank to finance the projects of Ankara Intercity Bus Station and Housing and Environmental Development projects in Dikmen Valley. In this framework, some bonds were issued five times without taking a security from the Turkish Treasury. One group of bonds was issued in Germany, and four groups in Japan. Information about bond issues are given in Table 3.6

[36] The United State Agency International Development, (USAID), "Empowering Development",2005 http://pdf.usaid.gov/pdf_docs/PNACK569.pdf (02.06.2008), p. 1.

[37] Dinçsoy, p. 36-37.

Table 3.6: The Issue of Bonds by the Metropolitan Municipality of Ankara

The Issuing of Bonds by the Metropolitan Municipality of Ankara					
Issue Date	Intermediary Bank	Amount (million)	Mature (Year)	Interest	Market
09.10.1990	DG Bank	150 DM	5	10,25	Euro DM
05.06.1991	Nomura-Mitsui Bank	8500 Yen	5	8,4	Shibosai
09.10.1990	Nomura Bank	5000 Yen	1,9	Libor+1,05	Shibosai
09.10.1990	Nomura Bank	4600 Yen	5	7,6	Shibosai
09.10.1990	Nomura Bank	50000 Yen	5	6,8	Shibosai

Source: http://ekutup.dpt.gov.tr/banka/cetiks/illerban.pdf, (02.06.2008), p.103

The bonds evaluated by S&P with the credit rating BBB were issued by the Metropolitan Municipality of Ankara. The aim of issuing these bonds was to depict that the Municipality had a well-established financial structure and prove that the projects which would be supported financially were realistic and feasible[38].

In 1996, Metropolitan Municipalities of Ankara and Istanbul defaulted with repayment of bonds in international markets. By 1999 June, the two municipalities postponed the repayment of about $ 400 million to German and Japan banks as well as the other owners. Then, lest it should blacken the country's image, the Turkish treasury shouldered the debt.[39]. The debt of the Metropolitan Municipality of Ankara borrowed in the 1990s amounting $ 1,222,154 thousand was later paid by the Turkish Treasury too. $ 787.5 million of this debt was due to principal and interest repayments of these bonds issued in international markets[40] .

The municipalities, especially Metropolitan Municipality of Ankara, were unable to pay the loans which they had attained from abroad. Therefore, a performance criterion was added to The Turkish Treasury Budget Law in 1997. Also, in 1998, for external loans of municipalities gained with the security of the Turkish Treasury, borrowing was limited to the amount of $ 700 million and in 1999, external loans of municipalities for commercial activities was limited to the amount of $ 500 million.

[38] Korel Göymen, **Türkiye' de Kent Yönetimi**, Boyut Yayınları, Istanbul, September, 1997, p. 84.

[39] Peterson, p. 15.

[40] Dinçsoy, p. 37.

3.3.3.2. Bond Issue Attempts of the Metropolitan Municipality of Istanbul

After the Metropolitan Municipality of Ankara, there were also attempts made by the Metropolitan Municipality of Istanbul in order to issue bonds abroad. In this framework, the Municipality Assembly on the January 26, 2001 decided to issue some bonds in international markets amounting to $ 200 million. It was planned that The Chase Manhattan Bank would be the underwriter of the bonds with a payment term of five years. Moreover, they would be sold to institutional investors in the USA in the form of allocated sales without the guarantee of the Turkish Treasury. Rating agencies named Moody's, S&P and Fitch was made to rate the credit risk of the Municipality and as a result of the evaluation, the Municipality was given a rating of "B+" by Fitch, "B" by S&P, and "B1" by Moody's. However, in parallel with the economic crisis in 2001, the credit rating given to the Municipality by these three rating agencies was decreased. The decision of issuing bonds approved by the Municipality Assembly was sent to the Ministry of Internal Affairs by the Province Management[41].

3.3.3.3. Bond Issue Applications of ISKI Directorate General

In 1993 The Directorate General of ISKI applied to the Board of Capital Market for the record of the bonds in the face value of 75 billion TL at a variable interest rate with a payment term of 30 months required to be paid every six months with interest. It was guaranteed by Turkish Emlak Bank A.Ş. that the first series of principal and interest of the bonds, which were supposed to be sold through public offering, would be made on time. As a result of the studies carried out, it was decided that the bonds would be recorded by the Board. However, after the decision of the Board regarding the issue, the file of application was removed from the procedure due to the fact that the required information and documents were not sent to the Board by ISKI[42].

[41] Dinçsoy, p. 38.

[42] Dinçsoy, p. 38.

3.4. THE EVALUATION OF USEFULNESS CAPITAL MARKETS TO FUND MUNICIPAL INFRASTRUCTURAL INVESTMENTS IN TURKEY.

3.4.1. Legal Regulations Relation to Municipal Bonds.

In our country, municipalities got the right to issue municipal bonds with Article no. 10 added in 1953 to the Item no. 19 titled "the rights, authorities and privileges of Municipalities" of the Municipality Law no. 1580. According to the clauses in this article, by giving a financial guarantee to Emlak Banks, municipalities are authorized to issue bonds having a maturity of at most 20 years in order to pay the costs of nationalization which will be carried out with the aim of applying the approved building scheme and to build facilities in accordance with the building scheme and the aim of nationalization[43].

In order to be able to issue bonds, the decision which will be taken by the municipality assembly has to be approved by the Turkish Treasury after the remarks of the governor, and finally it is approved by the Prime Minister. As it is observed, there is no limitation on the borrowing source in the mentioned clause. Therefore, borrowing by issuing bonds can be made from both external markets and internal sources. However, when one thinks that internal financial sources have not reached an adequate dynamism, it is obvious that such borrowing is more likely than external sources, and developments in application support this fact.

There are a lot of clauses in Securities Exchange Act no. 2499 regarding borrowings of municipalities from internal sources by issuing bonds. In the article (h) of the 3rd Item of the Act, local governments and institutions, administrations and businesses which have activities in accordance with their special legislation have been described as issuers. The 13th item titled Issuing of bonds and other bonds points out that limits determined in special laws will not be applied when issuing limits are determined by Council of Ministers. Moreover, issuing which are guaranteed by the Turkish Treasury, it is also stated that issuing limitations envisaged in the Laws and Regulations will not be applied. Until 1992, it was not

[43] Dinçsoy, p. 39.

necessary to get permission from Capital Markets Board to supply securities which will be issued by local governments.

In 2008, Capital Market Board prepared a Communiqué draft based on Article 22/ (o), Article 35, and Article 36 of the Capital Market Law numbered 2499 to regulate the principles and procedures with regard to founders and establishment procedures, licensing of portfolio management activity, organizational structure, registration of their securities with the Board, investment activities, obligations concerning public disclosure and information policy of Infrastructure Investment Trusts.

According to Article 19 of Communiqué draft, the Infrastructure Investment Trusts can invest on infrastructure investments and facilities, project of the infrastructure investment and facilities, rights and capital market instruments based on infrastructure investments and facilities, Infrastructure Company by participating or buying debt instruments, operating company by participation[44].

After Infrastructure Investment Trusts Communiqué enacted, public infrastructure investments shall be accelerated, capital market shall deepen and gain more volume, it should not be needed a guaranty by the Turkish Treasury to infrastructure projects with this model.

The financing of infrastructure investments and services shall be provided by public and local governments' equity with this model, thus, the share of Infrastructure Investment Trusts shall be issued the investors.

[44] Sermaye Piyasası Kurulu (SPK), "Haberler Duyurular: Altyapı Yatırım Ortaklıklarına İlişkin Esaslar Hakkında Tebliğ Taslağı", 21.05.2008,

http://www.spk.gov.tr/index.aspx (05.07.2008), p.8.

CHAPTER 4

4. CASE EXAMPLES OF FUNDING TYPES INFRASTRUCTURE INVESTMENTS

4.1. PUBLIC PRIVATE PARTNERSHIPS CASES

For many years, the public sector has traditionally financed and operated infrastructure projects using own resources from taxes and various levies. However, the recent disparity between the capacity to generate resources and the demand for new facilities has forced governments to look for new funding methods and sources. Many countries are now using Public Private Partnerships (PPP) as an arrangement between public and private to finance, design, build, operate and maintain public infrastructure, community facilities and related services in different sectors. Public Private Partnerships Models mainly can be applied in Water and Wastewater Treatment, Solid Waste Management, Transportation, Energy, Irrigation, Tourism, Education and Health Sectors. Three example cases in different sectors are examined in terms Value of Investment, Contract Duration, Transfer of Responsibility, Demand Risk, Availability Risk and Contract Type from EU Countries and Turkey to evaluate how these models implement and estimate the risks. The criteria are given in Table 4.1.[1]

[1] Roberto Ridolfi, **"**Resources Book on PPP Case Studies", June 2004, http://ec.europa.eu/regional_policy/sources/docgener/guides/pppresourcebook.pdf (02.06.2008), p. 12.

Table 4.1: Examination criteria of PPP Cases

Criteria Scale	1	2	3	4	5
Investment Value (million Euro)	Under 10	10-50	50-100	100-150	Over 150
Contract Duration	5 Year	10 Year	15 Year	20 Year	Over 20 Year
Responsibility Transfer	Fully Public	70/30	50/50	30/70	Fully Private
Demand Risk (%)	Under 20	20/49	50	51/80	Over 80
Availability Risk %	Under 20	20/49	50	51/80	Over 80

Value of Investment – the capital investment of the project as a stand-alone investment exclusive of the income stream or operational costs.

Contract Duration – the duration of the PPP contractual relationship with respect to the initial investment.

Transfer of Responsibility – the degree to which the private party is involved in the project defined by the contractual model and obligations, ownership of assets or operating rights and the project operational structure.

Demand Risk – the degree to which the risks of variations in market demand, competition or technological obsolescence are passed onto the private party.

Availability Risk – the degree to which the private party's risk of delivering against the contractual specifications, failure to meet standards and quality levels, delivery of services against specifications or failure to meet agreed volumes is passed onto the private party.

Contract Type – the type of PPP contractual arrangement using the typology of the guidelines.

4.1.1. Public Private Partnerships in Water and Wastewater Treatment Sector

The decision and policy makers are staying under huge pressure to provide improved clean water and sufficient sanitation services to the consumers due to rapid population growth, immigration, environmental pollution and global warming worldwide. A solution can be to mobilize the private sector to support provision of water and sanitation services in order to provide this increasing demand.

At the global economic sphere, PPPs have taken place in the international water and waste water sectors for many years. For instance, France has used the current system of water concessions for nearly 40 years and many municipalities are improving PPP type contracts relation to water and waste water sector in UK. There are many successful water and waste water PPP applications in EU member countries. The distribution of PPP Structures for example cases is given in Table 4.2[2].

Table 4.2: Distribution of PPP Structures

Cases	Joint Venture	Concession	Service Agreement	BOT/DBFO
Apa Nova, Romania		x		
Scottish Water, UK	x			
Scottish PPP, UK				x
Berlin Wasser, Germany	x			

[2] Ridolfi, p. 12.

Table 4.3 shows the Key Financial and Contractual Conditions in These Example Cases.

Table 4.3: Key Financial and Contractual Conditions

Cases	Guaranteed Minimum Revenue	Risk of Contract Termination	Profit Sharing	Sharing of Management Decisions
Apa Nova, Romania	Yes	Low	Yes, when profit generated.	Board includes public and private parties
Scottish Water, UK	No	Low	Only for private party	Board includes public and private parties-strong regulator
Scottish PPP, UK	No	Low	Only for private party	Board includes public and private parties-strong regulator
Berlin Wasser, Germany	Yes	Low	Only for private party	Board includes public and private parties-strong regulator

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 1. APA Nova Water Concession

Table 4.4: Characteristics of APA Nova Water Concession

Case Study/Country	Apa Nova, Romania
Rationale/Objectives of the PPP	Attract financial recourses to upgrade the water systems. Introduce international management practices and expertise
PPP Actors	City of Bucharest; Apa Nova; Vivendi
Financial Structure	EBRD loan, tariff financing
E.U. Supports?	No
Contract Agreements between parties	Concession
Risk Allocation	Private operator is bearing most of risk
Institutional/Managerial Structure	Board between the public and private counterparts
Tariff Setting	Price cap tariff set on PPP contract signature
Strong Points	Improved water system
Weak Points	The private operator is bearing most of the risk.

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Bucharest gave out by contract water system after World Bank recommendations in 1996; this privatization resulted in a concession agreement between Bucharest Municipality and Vedia for the management of the water system. Apa Nova is an enterprise found between Vedia and Bucharest Municipality. The French company Vivendi won the tender of management of Apa Nova. This concession gives the rights of operating Bucharest Municipality's water and sewerage assets for a period of 25 years. The Concession Contract with the Municipality was signed on 29 March 2000, and became effective on 17 November 2000. The other characteristics of Apa Nova are as follows[3];

[3] Ridolfi, p. 21.

Investment Amount : 132.000.000USD

Contract Duration : 25 years.

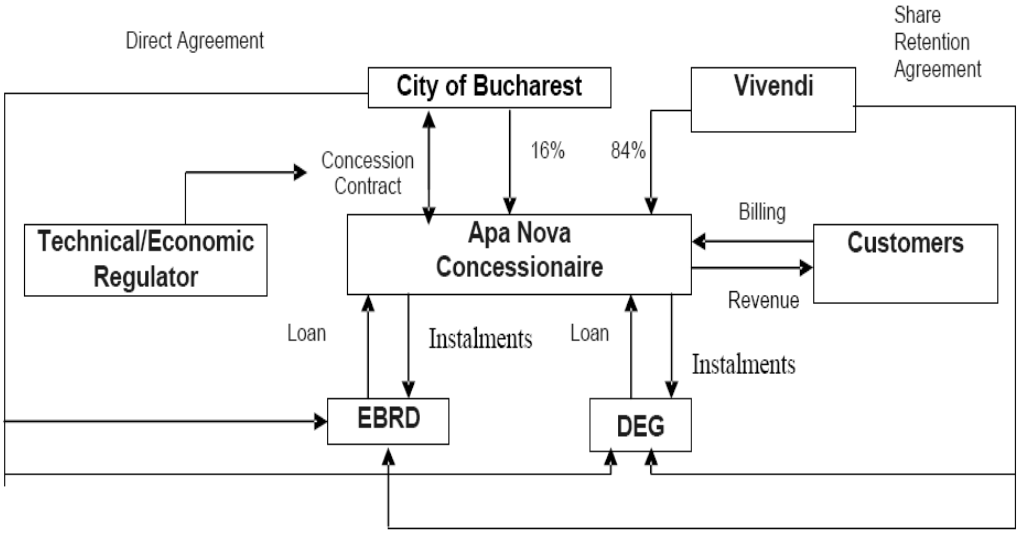
Contract Type : Concession

Responsibility Transfer : 30/70 %

Demand Risk : 51-80%

Availability Risk : 51-80%

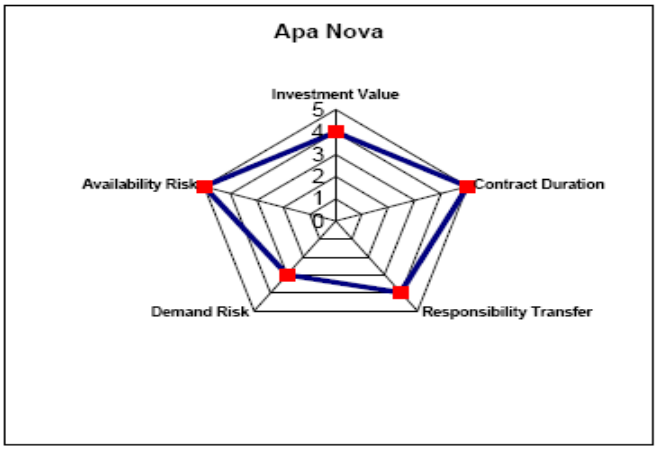
Figure 4.1: PPP structure of APA Nova



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

According to above criteria of the concession the radar diagram shows the qualitative characteristics below;

Figure 4.2: Radar diagram of APA Nova



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 2. Scottish Water Solution, Scotland, UK

Table 4.5: Characteristics of Scottish Water Solution

Case Study/Country	Scottish Water Solutions, Scotland, UK
Rationale/Objectives of the PPP	Achieve operational efficiencies and deliver urgent infrastructure upgrading investments
PPP Actors	Scottish Water Authority, Scottish Executive Regulators, Scottish Water Solutions, Private Operators
Financial Structure	Debt financing, equity
E.U. Supports?	No
Contract Agreements between parties	Joint Venture
Risk Allocation	Shared
Institutional/Managerial Structure	Board control
Tariff Setting	Tariff set by regulators after review
Strong Points	Strong partnership between Scottish Water and Scottish Water System, rapid integration , use of sector expertise
Weak Points	Ability to provide further efficiency increases and incentives private parties

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

In 2002, The Scottish Water Authority, SWA, was found by the combining of three water authorities. SWA gives water and wastewater services to 2,2 million household customers and 130,000 businesses in Britain.

Scottish Water Solutions, SWS, formed a joint venture with Scottish Water Authority (SWA). SWS provide some experience in global asset management, engineering, program management, construction skills and delivering major capital investment programs experienced to the UK water industry. The other Characteristics of Scottish Water Solutions are as follows[4];

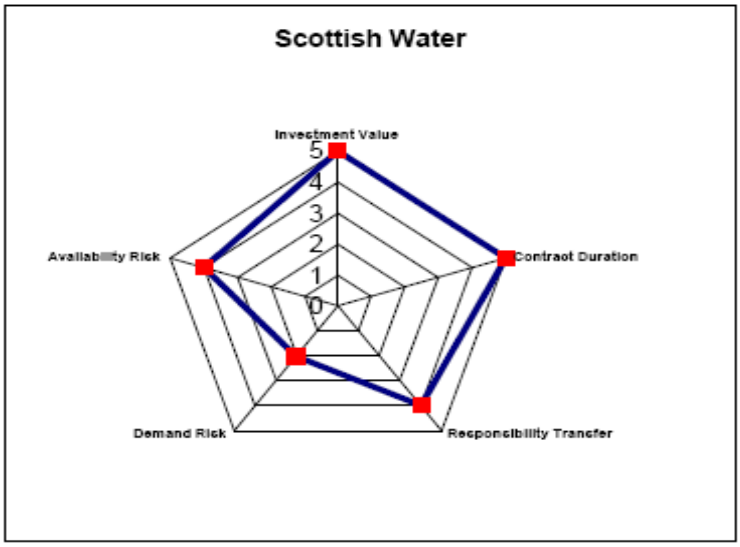
Investment Amount	: 1.800.000.000 £
Contract Duration	: 30years.
Contract Type	: Joint Venture
Responsibility Transfer	: 30/70 %
Demand Risk	: 20-49%
Availability Risk	: 51-80%

According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

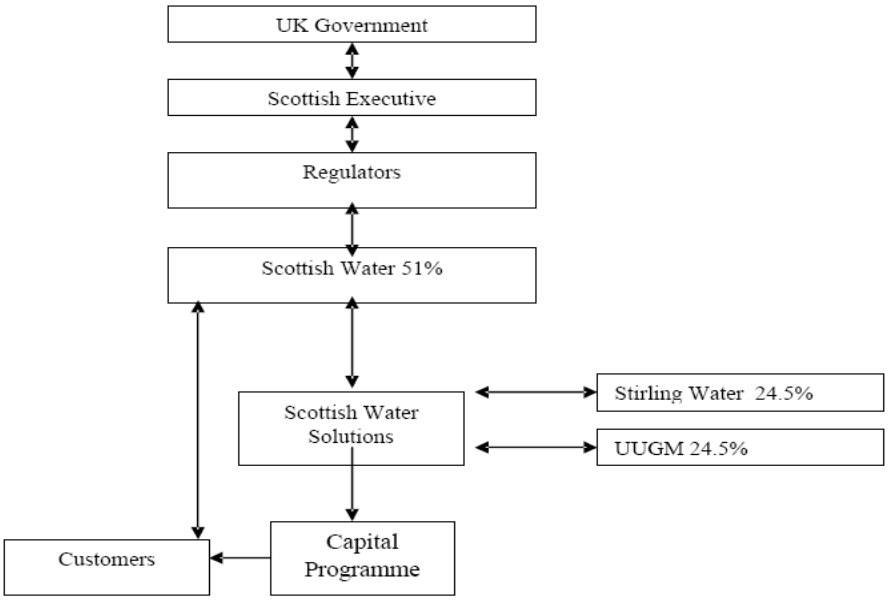
[4] Ridolfi, p. 24-25-26.

Figure 4.3: Radar diagram of Scottish Water



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Figure 4.4: PPP Structure of Scottish Water Solutions, UK



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 3. Scottish PPP Water Projects, UK

Table 4.6: Characteristics of Scottish PPP Water Projects

Case Study/Country	Scottish PPP Water Projects, Scotland, UK
Rationale/Objectives of the PPP	PPP demonstrated better value for money than traditional public sector delivery method
PPP Actors	Regulators, Scottish Water Authority, Private Consortia
Financial Structure	Internal and debt funding
E.U. Supports?	No
Contract Agreements between parties	BOT
Risk Allocation	Majority on Private Party
Institutional/Managerial Structure	Regulatory control
Tariff Setting	Set by Regulator after consultation
Strong Points	Enhanced value for money, faster delivery
Weak Points	Questionable efficiency of risk transfer

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

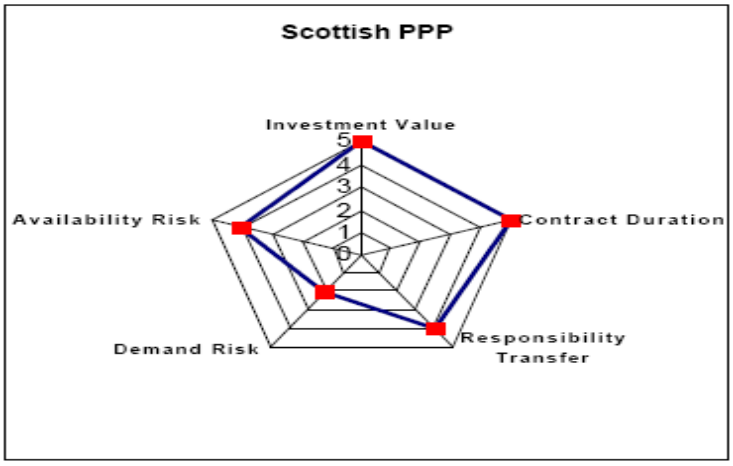
Stirling Water is a consortium Thames Water (49%), M J Gleeson (41%), Montgomery Watson (10%). This consortium was responsible for designing, building; operating and maintaining improved treatment facilities. Stirling Water operates The Almond Valley and Seafield Project that was the biggest Private Finance Initiative (PFI) relation to water and wastewater industry. The contract duration was 30 years and in £105 million value. In East of Scotland, Northumbrian Water and Scottish Power found a joint venture to construct and operate a wastewater treatment plant together. This joint venture was £45 million in the period of 40 years. The other Characteristics of Scottish PPP are as follows[5];

[5] Ridolfi, p. 27-28.

Investment Amount	: 150.000.000 £
Contract Duration	: 30-40years.
Contract Type	: BOT
Responsibility Transfer	: 30/70 %
Demand Risk	: 20-49%
Availability Risk	: 51-80%

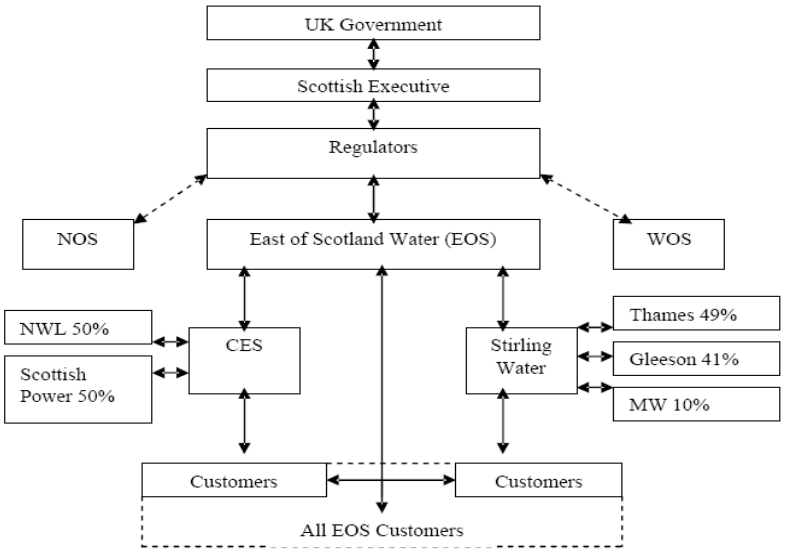
According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

Figure 4.5: Radar diagram of Scottish PPP



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Figure 4.6: PPP Structure of Scottish PPP, UK



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 4. Berlin Wasser, Germany

Table 4.7: Characteristics of Berlin Wasser

Case Study/Country	Berlin Wasser, Germany
Rationale/Objectives of the PPP	Increase efficiency; transfer of technology and expertise; introduce new financial resources
PPP Actors	International consortium; public authorities
Financial Structure	Joint Venture
E.U. Supports?	EIB Loan
Contract Agreements between parties	Joint Venture + operation concession agreement
Risk Allocation	Mostly on private operator
Institutional/Managerial Structure	Board
Tariff Setting	Fixed at the beginning of the contract
Strong Points	Transfer of technology and know-how
Weak Points	Constraints on tariff adjustment and cost control measures

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

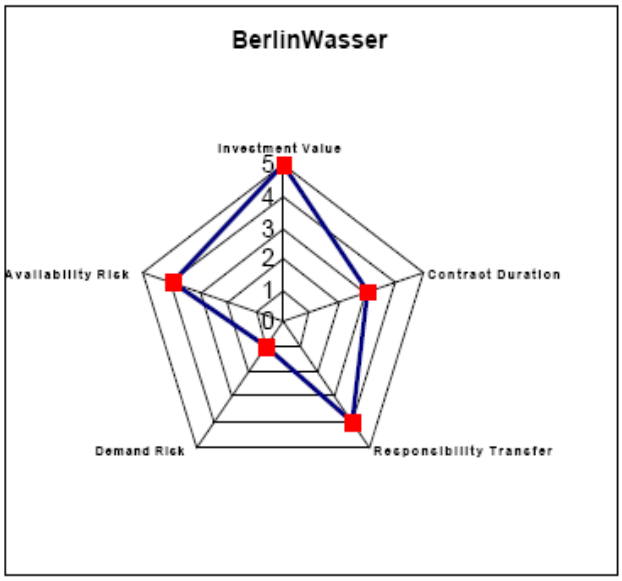
The German government started a privatization program to increase the performance of large state owned companies inherited from the socialist era after in 1992 after reunification of East and West Germany. Berlin Wasser Holding was found as a joint venture after privatization with a European wide tendering process in 1999. Today, Berlin Wasser is responsible the operation of eleven water works in water supply and seven wastewater treatment plants. The other Characteristics of Berlin Wasser are as follows[6];

Investment Amount	: 250.000.000 £
Contract Duration	: 15years.
Contract Type	: Joint Venture
Responsibility Transfer	: 30/70 %
Demand Risk	: Under 20 %
Availability Risk	: 51-80%

According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

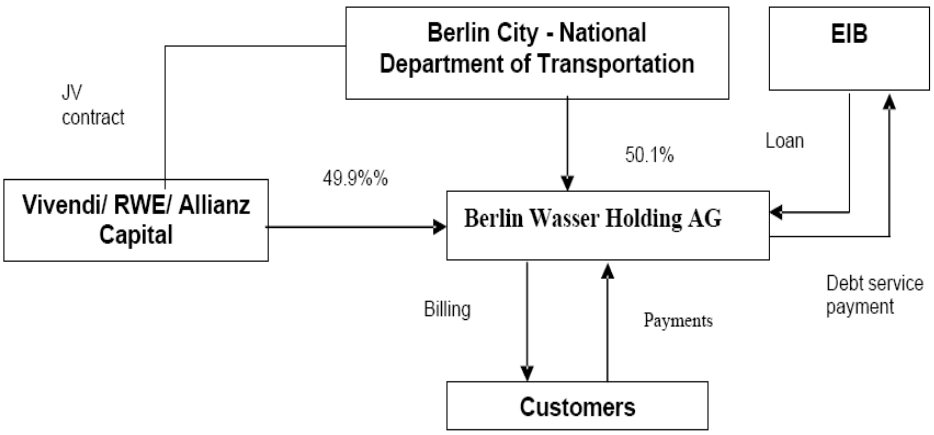
[6] Ridolfi, p. 30-31-32.

Figure 4.7: Radar diagram of Berlin Wasser



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Figure 4.8: PPP Structure of Berlin Wasser



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 5.City of Greater Izmit Water Supply BOT

The water supply project of City of Greater Izmit was begun in 1986 from Yuvacik Dam. This project was continued by State Water General Directorate (DSI) in 1987. City of Greater Izmit applied 100.000.000 USD credit from EBRD for using in this project, and decided to execute this project through BOT Model, therefore applied State Planning Organization (SPO). On 13.06.1995 Act No 3996 was adopted to form a legal basis, this Act regulated BOT Models. After this Act No 3996, City of Greater Izmit Water Project was transferred as BOT Model. In 1995, ISAS, consortium of Gama-Guris and Thames Water PLC, was found to execute BOT Model in this project. The other Characteristics of City of Greater Izmit Water Supply BOT are as follows[7];

Investment Amount : 512.000.000 USD,

Contract Duration : 15 years.

Contract Type : BOT

Responsibility Transfer : 70/30 %

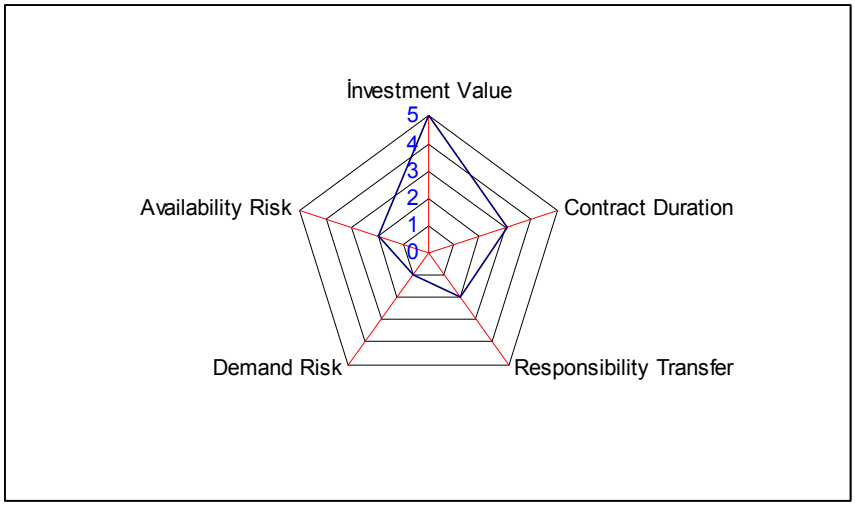
Demand Risk : Under 20 %

Availability Risk : 20-49%

According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

[7] Tayfun Çınar, Hülya K. Özdinç, **Su Yönetimi:Küresel Politika ve Uygulamalara Eleştiri**, Memleket Yayınları, First Edition, Ankara, July 2006, p. 303-305.

Figure 4.9: Radar diagram of City of Greater Izmit Water Supply BOT



Source: The graphic was drawn by us by using the data getting from the study of Çınar and Özdinç[8]

Case 6.City of Çesme-Alaçatı Water Supply and Waste Water Service-Management Contract

Çeşme-Alaçatı Water Supply and Waste Water Union were founded with Cabinet Decision on 08.09.1997 and 97/9933 numbered.

The Union brought 1.86 million USD itself, and the union provided funds from IBRD in amount of 8.34 million USD and the Turkish Treasury given funds in amount of 6 million USD. Totally, the cost of the project was 16 million USD. City of Çeşme-Alaçatı Water Supply and Waste Water Service and management Contract characteristics are as follows[9];

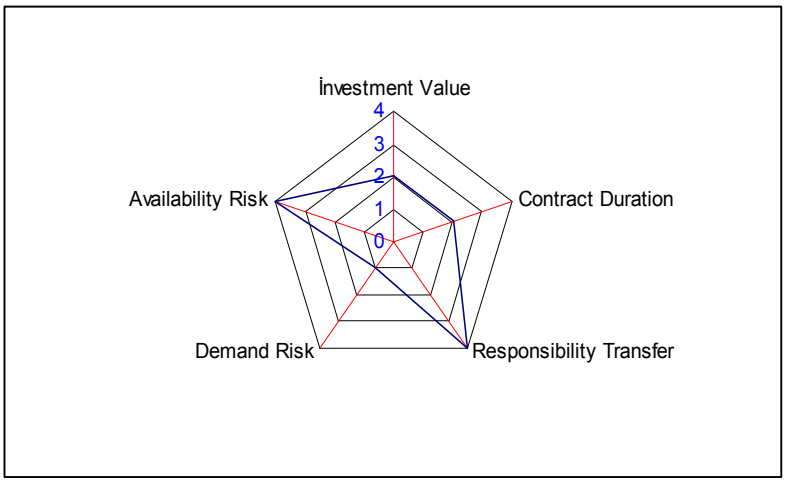
[8] Çınar, Özdinç, p. 303-305.

[9] Çınar, Özdinç, p. 303-307.

Investment Amount	: 16.000.000 USD,
Contract Duration	: 10 years.
Contract Type	: Service and management Contract
Responsibility Transfer	: 30/70 %
Demand Risk	: Under 20 %
Availability Risk	: 20-49%

According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

Figure 4.10 Radar diagram of City of Çesme-Alaçatı Water Supply and Waste Water Service and management Contract.



Source: The graphic was drawn by us by using the data getting from the study of Çınar and Özdinç[10]

[10] Çınar, Özdinç, p. 303-307.

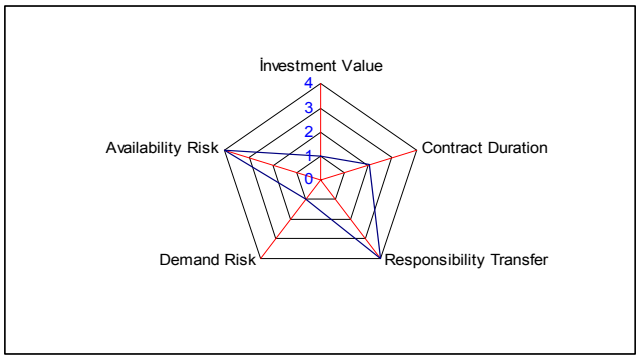
Case 7. City of Greater Antalya Water Supply and Waste Water Concession

ASAT is a dependant General Directorate of City of Greater Antalya. In 1996, ASAT transferred all assignments and responsibilities ANTSU Corporation according to Municipality Act 5393 article number 15. City of Greater Antalya Water Supply and Waste Water Concession characteristics are as follows[11];

Investment Amount	: 5.000.000 USD,
Contract Duration	: 10 years.
Contract Type	: Concession
Responsibility Transfer	: 30/70 %
Demand Risk	: Under 20 %
Availability Risk	: 51-80%

According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

Figure 4.11: Radar diagram of City of Greater Antalya Water Supply and Waste Water Concession.



Source: The graphic was drawn by us by using the data getting from the study of Çınar and Özdinç[12]

[11] Çınar, Özdinç, p. 322-325.

[12] Çınar, Özdinç, p. 322-325.

Case 8. City of Güllük Water Supply and Waste Water Service Concession

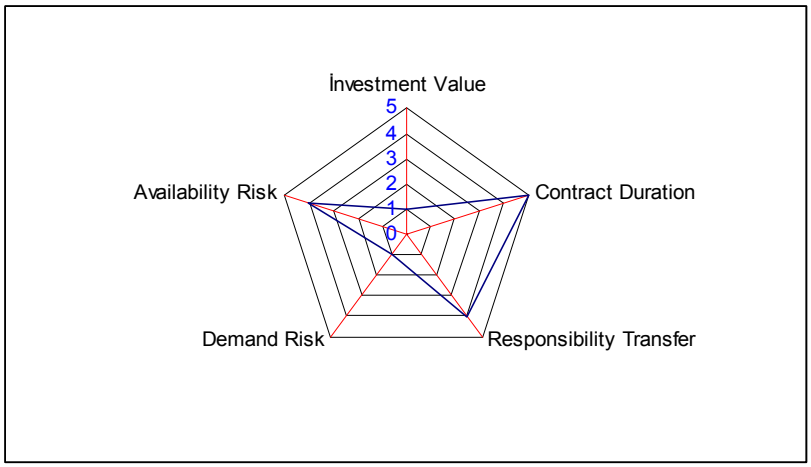
According to Municipality Act 5393 article number 15, Güllük Municipality signed Agreement with TASK -Tepe-Akfen Water ad Waste Water Investment Corporation in October 2005. City of Güllük Water Supply and Waste Water Service Concession characteristics are as follows [13]

Investment Amount	: 4.5000.000 USD,
Contract Duration	: 35 years.
Contract Type	: Concession
Responsibility Transfer	: 30/70 %
Demand Risk	: Under 20 %
Availability Risk	: 20-49%

According to these criteria of the concession the radar diagram shows the qualitative characteristics below;

[13] Güllük Municipality Documents, 2006.

Figure 4.12: Radar diagram of City of Güllük Water Supply and Waste Water Service Concession.



Source: The graphic was drawn by us by using the data getting from Güllük Municipality

4.1.2. Public Private Partnerships in Solid Waste Management Sector

Municipalities has improved the Solid Waste Management (SWM) in the modernization of vehicles and equipment, the construction of sanitary landfills to European Union standards, the adoption of integrated and holistic municipality solid waste management (MSWM) strategies and the regionalization of collection and transport services centered around regional facilities. Both Member States and Candidate Countries opened this sector to private sector interest in order to increase the environmental standards and save public health. The distribution of PPP Models in some cases is given below in this sector. According to cases concession and joint venture are commonly used (Ridolfi, 2004: 54-55).

Some of cases in water and waste water sector are examined in terms Value of Investment, Contract Duration, Transfer of Responsibility, Demand Risk, Availability Risk and Contract Type from EU Countries.

Table 4.8 shows the distribution of PPP Structure in given the cases.

Table 4.8: Distribution of PPP Structures of Solid Waste Management Sector

Cases	Service Contract	Concession	Joint Venture
ASA, Hungary			x
Golden Bug, Bulgaria		x	
Delva, Macedonia		x	

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Table 4.9 shows Key financial and contractual condition of given cases.

Table 4.9: Key Financial and Contractual Conditions of Solid Waste Management Sector

Cases	Guaranteed Minimum Revenue	Risk of Contract Termination	Profit Sharing	Sharing of Management Decisions
ASA, Hungary	Yes	Low	Joint Venture 51:49	Shared
Golden Bug, Bulgaria	No	High	None 100% company	Mostly company
Delva, Macedonia	No	Unknown as yet	None 100% company	Mostly company

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 1. ASA Hungary

Table 4.10: Characteristics of ASA Hungary

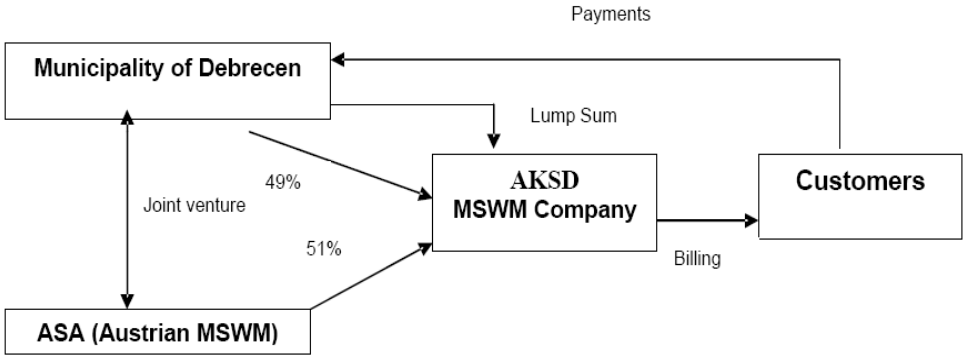
Case Study/Country	Municipal Solid Waste Management (MSWM) Companies: ASA and Rethman-Hungary
Rationale/Objectives of the PPP	Mobilize private capital for the replacement of vehicles and landfill construction
PPP Actors	ASA and Debrecen Municipality Rethman and Szolnok and neighboring settlements
Financial Structure	Investment financed by strategic investor, which holds the control share; and in kind contributions by municipality
E.U. Supports?	EIB Loan
Contract Agreements between parties	Joint Venture with majority control by the foreign investor
Risk Allocation	Risk shared by Joint Venture partners
Institutional/Managerial Structure	Municipal Council Approval; Controlled by strategic investor
Tariff Setting	By Municipal Council, in consultation with the company
Strong Points	Municipality participation in management decisions; effective conflict resolution mechanism in the case of ASA
Weak Points	Unrealistic initial assumptions on affordability and income growth

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

In the first half of 1990, the investors took place in the Hungarian Municipal Solid Waste Management. Many foreign companies had established and a few of them is A.S.A Austrian controlled waste management company, and Rethmann, German waste management company. Debrecen is Hungary's second largest city in 250,000 populations. In 1991, ASA and the city of Debrecen formed a joint venture (AKSD) for waste management. The City of Debrecen and ASA embarked on a joint

venture with the foreign partner holding a 51% controlling share, and the Municipality holding a 49% share.[14]

Figure 4.13: PPP Structure of Debrecen MSWM



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 2. Nessebar "Golden Bug" Landfill, Bulgaria

Table 4.11: Characteristics of Nessebar "Golden Bug" Landfill

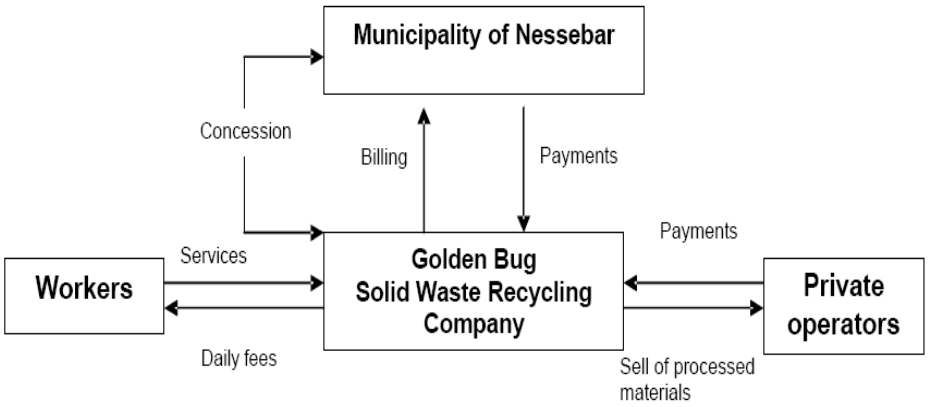
Case Study/Country	Nessebar "Golden Bug" Landfill, Bulgaria
Rationale/Objectives of the PPP	Recycling as a profit generation opportunity
PPP Actors	Municipality of Nessebar
Financial Structure	All investment made by private operator
E.U. Supports?	No
Contract Agreements between parties	Concession
Risk Allocation	All born by private investor
Institutional/Managerial Structure	100% owner controlled and operated
Tariff Setting	By the private operator
Strong Points	Good marketing for recyclable waste streams
Weak Points	Unenforceable contract, conflict with municipality

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

[14] Ridolfi, p. 61-62.

Nessebar is a prime tourist city of Bulgaria. It has a very successful municipal management with a mile long shore with new luxury hotels. A well-run waste management service is of great importance in tourist area. The municipality government invests in modernization of its vehicle fleet and containers. Municipal company operates the transport and collection service. Nessebar's landfill is operated through a concession, the company, Golden Bug, operates the landfill since 1994. The company has developed the site with its own resources. Water, sewage, and electricity have been installed. Initially, Golden Bug operated under a service contract, which was later converted into a 15- year concession from the Municipality[15].

Figure 4.14: PPP Structure of Nessebar Golden Bug Landfill



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

[15] Ridolfi, p. 71-72.

Case 3. The Jegunovce Concession, Macedonia

Table 4.12: Characteristics of the Jegunovce Concession

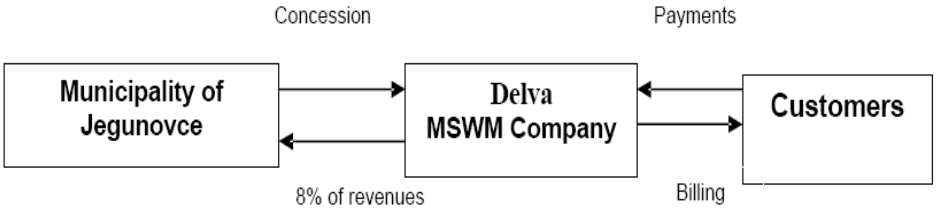
Case Study/Country	The Jegunovce Concession- Macedonia
Rationale/Objectives of the PPP	Establish organized Municipal Solid Waste Management (MSWM) service, selling it off from municipal Government Services
PPP Actors	Municipal Council of Jegunovce; Delva Company
Financial Structure	Finances by Private Partner
E.U. Supports?	No
Contract Agreements between parties	Concession
Risk Allocation	All born by private investor
Institutional/Managerial Structure	Municipal Council approval; private owner operated
Tariff Setting	Private partner sets price with municipal approval
Strong Points	Robust simple concession contract
Weak Points	Poor legal and business environment makes replication problematic

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Jegunovce is a town of about 25,000 inhabitants. In town, there have been metal and paint manufacturers and they pollute the source of Skopje's drinking water with toxic wastes. The landfill has also been the "informal" landfill serving the municipality. The Jegunovce management privatized the waste management to the entrepreneur (Delva Company). The contract gives Delva the exclusive right to collect household waste in the town. Delva pays a fee of 8% of its revenues to Jegunovce Municipality[16].

[16] Ridolfi, p. 80-81-82.

Figure 4.15: PPP Structure of Jegunovce MSWM



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

4.1.3. Public Private Partnerships in Transportation Sector

Different types of PPP Models have been applied in the transport sector for road, tunnel, rail and airport projects in both Member States and Candidate Countries for a considerable period. For instance, toll motorway concession contracts, BOT contracts, Shadow toll DBFO contracts are being complemented in road sector.

The private sector contractor finance a major road scheme, collect user tolls and bear the risk associated with traffic demand in toll motorway concession contracts. In BOT contracts, the private sector receive fees paid by the public sector (shadow tolls), but the public sector finance the projects and accept the risk associated with demand. Shadow toll DBFO contracts are used where the private sector contractor accept some of the risk associated with traffic demand, but direct user tolls are not applied[17].

Some of cases in transportation sector are examined in terms Value of Investment, Contract Duration, Transfer of Responsibility, Demand Risk, Availability Risk and Contract Type from EU Countries.

[17] Ridolfi, p. 87-88.

Table 4.13 shows the distribution of PPP Structure in given the cases.

Table 4.13: Distribution of PPP Structures of Transportation Sector

Cases	Concession	BOT/Other
M1 M15, Hungary	x	
Warsaw, Poland		x

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Table 4.14 shows Key financial and contractual condition of given cases.

Table 4.14: Key Financial and Contractual Conditions of Transportation Sector

Cases	Guaranteed Minimum Revenue	Risk of Contract Termination	Profit Sharing	Sharing of Management Decisions
M1 M15, Hungary	Initially None	Medium	Yes when profit generated	Board includes public and private parties
Warsaw, Poland	Yes	Slight	Yes	Board includes public and private parties

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 1. M1-M15 Motorway, Hungary

Table 4.15: Characteristics of M1-M15 Motorway

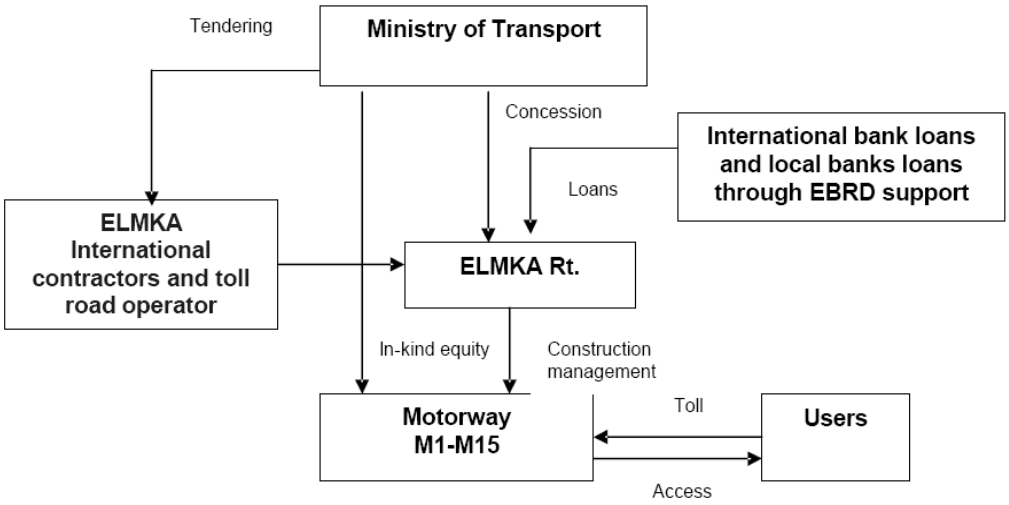
Case Study/Country	M1-M15 Motorway, Hungary
Rationale/Objectives of the PPP	Realization of two high priority sections of motorway forming part of the Trans-European motorway network
PPP Actors	ELMKA Rt., Ministry of Transport, EBRD and other lenders
Financial Structure	Loans by private and domestic banks; lenders ensuring a 14 year loan maturity
E.U. Supports?	EBRD support
Contract Agreements between parties	Concession (DBFO)
Risk Allocation	Risks mainly allocated to the private partner
Institutional/Managerial Structure	Government support
Tariff Setting	Concessionaire free to set initial tariffs (tolls)
Strong Points	Attempts to achieve private sector efficiencies and incentives for the design, construction and operation of the motorway
Weak Points	Overestimated traffic forecasts and inadequate tender criteria

Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

The Government of Hungary permitted road PPP application in order to fund 57 km of new motorway. The project consisted of the design, financing, building, operation and transfer (35 years after effectiveness of the Concession Agreement) of 43 km of motorway from Gyor to the Austrian border (M1) and 14 km of motorway linking the M1 to Bratislava (M15). This implementation transfer traffic risk (volume and revenue) to the private sector without mitigation. ELMKA, Rt is a private, comprising the international contractors and toll-road operator.

The private sector company borrowed Euro 329 million from Banque Nationale de Paris (BNP), the European Bank for Reconstruction and Development (EBRD), and syndicated to 11 commercial banks. The loan maturity was 14 years[18].

Figure 4.16: PPP Structure of M1-M15 Motorway, Hungary



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

[18] Ridolfi, p. 93-94.

Case 2.International Airport, Warsaw, Poland

Table 4.16: Characteristics of International Airport, Warsaw, Poland

Case Study/Country	International Airport Warsaw - Poland
Rationale/Objectives of the PPP	Construction of a major transport infrastructure under constraint public budgets
PPP Actors	Hochtief Airport AG; Polish Airports enterprise
Financial Structure	Citibank AG loan,
E.U. Supports?	EIB
Contract Agreements between parties	Design, Build Finance (DBF)
Risk Allocation	On private partner
Institutional/Managerial Structure	Political and institutional support
Tariff Setting	Fixed at the contract
Strong Points	Strong government and international support
Weak Points	--

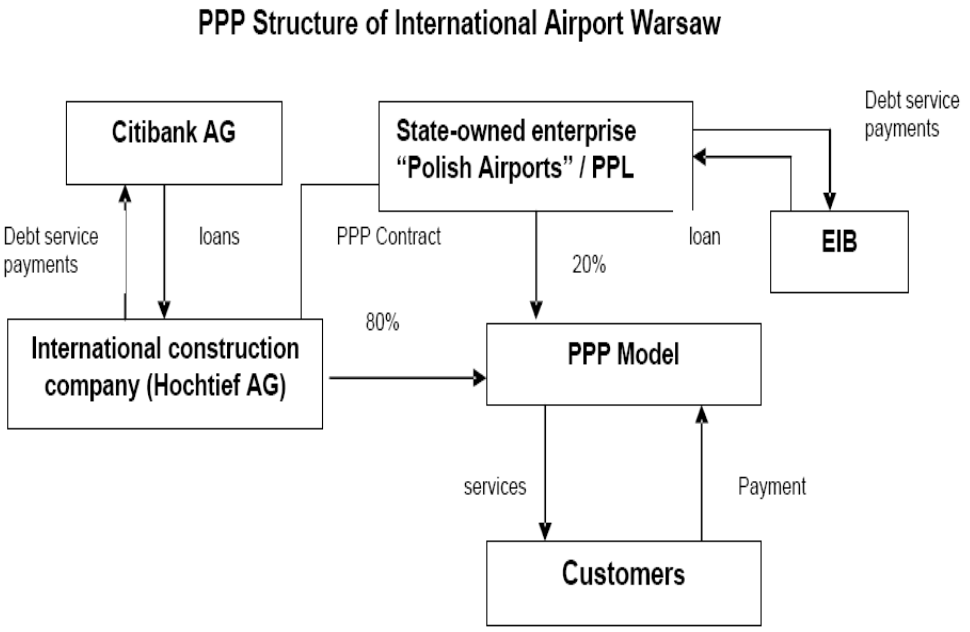
Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

It is forecasted that the growth of the freight volume and passengers numbers will be increase in significant amount in Candidate Countries for the period 2002 to 2020. Therefore, PPP airport projects are of great importance for Candidate Countries.

The International Airport in Warsaw was the first major planned PPP airport pilot project in 1991. PPP Model was Design Build Finance (DBF). PPL (Przedsiebiotwo Porty Lotnicze) was the state enterprise Polish Airports in this project. The European Investment Bank (EIB) supported the construction of the new terminal I in the year 1992 with a €50m loan to PPL. The private partner was Hochtief Construction AG, financed by Citibank AG. The risk allocation was on private sector[19].

[19] Ridolfi, p. 110-111.

Figure 4.17: PPP Structure of International Airport, Warsaw, Poland



Source: EU Commission Directorate-General Regional Policy Resources Book on PPP Case Studies, 2004.

Case 3.Göcek Tunnel, Göcek, Muğla, Turkey

Göcek area is of great significance for tourism. The Göcek ramp negatively affects the traffic flow from Dalaman to Fethiye in especially summer term. For this reason Göcek Tunnel was projected 40 years ago to simplify the transportation. But, this project was not being able to apply due to financial and technical insufficiencies. The project was tendered in 2002 and was started to construct in 2004 and completed in 2006. The length of tunnel is 926m.

PPP application of Göcek tunnel project is a Design Build and Operate Model (DBO). The private sector is Göcek Tunnel Construction Corporation spent 14million USD for construction of tunnel. The private company operates this tunnel during 26 years[20]

[20] Göcek Bilgi Merkezi, "Göcek Tüneli", 15.07.2008,

Case 4.Atatürk Airport International Terminal, Turkey

The Atatürk Airport's BOT project consisted of an international terminal building, a multi-story car park and complements. The total cost of this project was 400 million USD. The company TAV operated the terminal from 10 January, 2000 to 2 July, 2005.

The necessary legal applications were completed in order to give the private sector operational rights, both at Istanbul and the other BOT terminals, via tenders.

By this, the operational rights of all the BOT terminals, the periods of which have expired, have been allowed to be transferred to private sector companies. In the first application, following the tender, the operational rights for the Istanbul Atatürk Airport Domestic and International Passenger Terminals have been transferred to TAV for 15.5 years with a lease amount of US$3 billion[21].

Case 5.Antalya Airport International Lines Terminal Building, Turkey

Another important BOT model project is the Antalya Airport International Lines Terminal Building and its complements. The construction works of the new International Lines Terminal Building and complements was put out to tender to serve 5 million international line passengers in 1993.

The 54,000 m^2 terminal opened to service on 1 April 1998. It comprises 12 passenger gates, 60 check-in desks, restaurants, a bar and duty-free shops serving for the comfort of the passengers. In addition, the project has a 725 capacity multi-story car park. The total cost of this project was US$65 million, and the operating company is Antalya Airport International Terminal Management, who will operate the terminal for nine years. The terminal will return back to the DHMi on 15 September 2007. Because of the immense increase in the number of international passengers, the new international terminal has become inadequate, and a second

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http://www.thegocek.com/tr/gocek_ulasimi.htm (14.07.2008) p.1.

[21] Devlet Hava Meydanları İşletmesi Genel Müdürlüğü, " Annual Report", 2006, http://www.dhmi.gov.tr/newenglish/annualreport/2006/projects_2.html (16.07.2008) p.1.

terminal building was constructed under the BOT model, entering into service on 7 April 2005[22]

4.2. MUNICIPAL BONDS CASES

The world over municipalities and cities often apply capital markets for their long term financing needs. This financing method is issuing of municipal bonds. Municipal bonds are securities or debt instruments issued by municipalities or city authorities to raise capital for public works and income generating projects. Recently, the developing countries began to use these instruments as developed countries. Municipality bonds are used to finance the transportation facilities, including bridges, highways, roads, airports; ports, and surface transit; electric power–generating and –transmission facilities; water tunnels and sewage treatment plants; hospitals, healthcare and assisted living facilities, and nursing homes; housing for low- and moderate-income families; streets and roads; government office buildings; elementary and secondary school buildings; higher-education buildings, research laboratories, and dormitories; resource recovery plants.

Case 1. New York State Municipal Bond, US

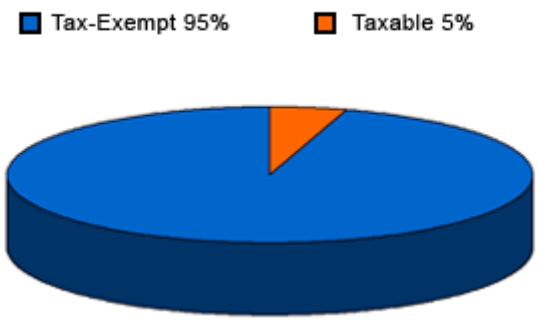
New York City issues the bonds to borrow the money needed to pay for construction and repair of capital infrastructure projects such as roads, bridges, water supply and schools. The main goal of the City's borrowing is that to provide the funds and thus, these projects will be continued for many years. The Comptroller shares the responsibility for issuing City General Obligation bonds and notes with the Mayor. Working with the Mayor's staff, the Comptroller's Public Finance staff determines and approves structures, terms, and conditions for all city debt. The Bureau also approves Transitional Finance Authority, Water Authority, Housing Development Corporation, Trust for Cultural Resources and Health and Hospitals Corporation debt issues. For residents of New York City, City bonds are usually triple-tax exempt. That means that investors who buy the bonds do not have to pay

[22] Devlet Hava Meydanları İşletmesi Genel Müdürlüğü, p.1.

federal tax or New York State or City income taxes on the interest they receive. New York City does not sell bonds directly to the public, but sells bonds through registered broker dealers. New York State Municipal Bond is an example of a general obligation bond issuance. GO bonds are backed by New York City property taxes, which are the largest single source of the City's revenue. The City expects to derive approximately 36% of its total tax revenues and 22% of its total revenue for fiscal year 2008 from real property taxes. The GO debt limit is equivalent to 10% of the five-year average full value of taxable real estate in New York City [23]

The City of New York General Obligation Bonds Portfolio. This graph represents the breakdown of the City's General Obligation debt outstanding as of June 30, 2007.

Figure 4.18: The breakdown of the City's General Obligation debt outstanding (%)



Source:http://www.comptroller.nyc.gov/bureaus/pf/portfolio_graphs.shtm#gobP

[23] Public Finance, June 30, 2007, http://www.comptroller.nyc.gov/bureaus/pf/index.asp (12.07.2008) p.1.

Table 4.17: City of New York and Related Credits Bond and Note Ratings

Bond Issuers	Standard & Poor's	Fitch Ratings	Moody's
NYC General Obligation	AA	AA-	Aa3
Transitional Finance Authority	AAA	AA+	Aa1
TFA – Subordinate	AAA	AA+	Aa2
TFA Building Aid Revenue Bonds	AA-	A+	A1
Municipal Water Finance Authority	AAA	AA	Aa2
MWFA – Second Resolution	AA+	AA	Aa3
Municipal Water Finance Authority: Commercial Paper Notes*			
	Standard & Poor's	Fitch Ratings	Moody's
Series 1	A1+ (Stable)	F1+ (Stable)	P1 (Stable)
Series 5A	A1+ (Stable)	F1+ (Stable)	P1 (Stable)
Series 5B	A1+ (Stable)	F1+ (Stable)	P1 (Stable)
Series 6	A1+ (Stable)	F1+ (Stable)	P1 (Stable)
Series 7	A1+ (Stable)	F1+ (Stable)	P1 (Stable)

Source: http://www.comptroller.nyc.gov/bureaus/pf/ratings.shtm

Case 2. Ahmedabad Municipal Bond, India

Ahmedabad is the seventh largest city and known as the textile capital of India, it contributes about 14% of the total investments in all stock exchanges in India and 60% of the total productivity of the state.

In 1950, under the Bombay Provincial Municipal Corporation Act, Ahmedabad Municipal Corporation (AMC) was formed. The main tasks of AMC are providing main infrastructure services such as protected water supply, sewerage and storm water drainage, the construction and maintenance of roads, street-lighting, disease prevention and monitoring, solid and liquid water disposal, public transport, and parks and gardens. AMC's major source of revenue is the tax on goods into the city and called as Octroi and, it is accounting for about 70 to 75% of total revenue.

In the mid-1990s Ahmedabad Municipal Corporation (AMC) was in financial deficit, but needed to carry out major improvements to services, especially investment in water and sanitation infrastructure. AMC updated the rates of tax, employed extra collectors, stamped out corruption – and as a result increased the amount of money collected by 60%. Within property taxes, then extra major source of revenue, the council created a computerized database, imposed sanctions on people who were not paying, and strengthened the collection staff – and tax collected increased by 55%. AMC also computerized, modernized and professionalized its accounting system.

AMC planned a five-year capital investment plan for investing in amount of Rs 5,973 million (US $150 million) for water supply, sewerage, roads, bridges and solid waste management projects and allocated Rs. 4,393 million ($US 110 million) for the water supply and sewerage component in 1996.

The water supply project contain a pump house and laying 42 kilometers of pipeline--most more than two meters in diameter that it was designed to supply 65 million gallons (246,000 cubic meters) of water a day to the Ahmedabad City.

The USAID's Financial Institutions Reform and Expansion Project (FIRE) project is of great significance in supporting Ahmedabad in improving the bond issue. In 1994, FIRE and AMC worked together in the preparation of an urban environmental workbook and an environmental risk assessment. The FIRE project also supported Credit Rating and Information Services of India (CRISIL). This independent rating agency improves methodology for credit ratings of local governments in India. CRISIL initially assigned a credit rating of "A+" to Ahmedabad's municipal bond. Ahmedabad was the first city where this methodology was applied for a municipal bond issue.

AMC issued 10,000 secured redeemable bonds with the registration at the Securities and Exchange Board of India (SEBI) in 1998. AMC bonds had a face value Rs. 1,000 (US $25) and total of Rs. 1,000 million. AMC sold 25% of the bonds to the Indian public and the remaining 75% of the issue to private placement to institutional investors. With this funding through municipal bond, the water project

was completed in 130 days. With funds from the bond issue through capital markets AMC constructed a new water pump house and pipelines to service 60% of the city's population.

Thanks to the success of the first municipal bond issue, AMC issued another second bond issuance in the same amount i.e. Rs. 1,000 million in 2002, that it is tax exempt. AMC is again the first municipal corporation in India to issue tax-free municipal bonds. This bond was used to complete its original water and sewerage infrastructure scheme[24]. The other cities issued the municipal bonds with the success of issuance of Ahmedabad Municipal Bonds that the amounts and maturity terms are listed in Table 4.18

Table 4.18: The List of Municipal Bonds is issued by Indian Cities.

Municipal Corporation	Issue Date	Maturity (Years)	Coupon (%)	Rating	Agency	Amount	Guarantee
Bangalore	1997	7	13	A- (SO)	CRISIL	100	Yes
Ahmedabad	1998	7	14	AA- (SO)	CRISIL	100	No
Nashik	1999	7	14,75	AA- (SO)	CRISIL	100	No
Ludhaina	1999	10	13,5-14	LAA (SO)	ICRA	10	No
Nagpur	2001	7	13,43	LAA- (SO)	ICRA	50	No
Madurai	2001	15	12,25	LA+ (SO)	ICRA	30	No
Indore	2001	7	11,50	--	--	10	Yes
Hyderabad	2002	8,5	7	AA+ (SO)	CRISIL	82,5	No
*TNUDF	2001	5	11,85	LAA+ (SO)	ICRA	106	No
*TNUDF	2002	15	9,2	--	--	30	No

*TNUDF: Tamil Nadu Urban Development Fund

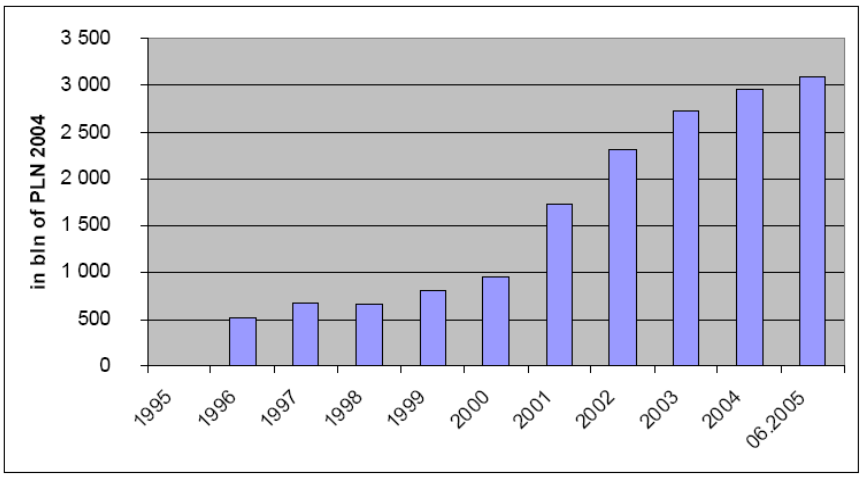
Source: Srikumar, Urban Infrastructure Development in India, p. 19.

[24] ICLEI, "Increasing Resources to Local Government in Ahmedabad, India", 2005, http://www3.iclei.org/localstrategies/summary/ahmedabad2.html (12.07.2008).p.1.

Case 3. Polish Municipal Bond

In 1995, thanks to American advisors from USAiD and World Bank supports, Polish municipal bonds regulations were formed based mainly on US' model. Polish municipalities began to issue general obligation bonds and revenues bonds with application of these regulations. The municipal bond market has improved during this period. The following figure shows the development of the municipal bond market. (Figure 4.15)[25]

Figure 4.19: Market value of bonds issued by municipalities in years 1996-06/2005



Source: Agnieszka Kopanska, "Communal bond market in Poland", Faculty of Economic Science, Warsaw University, 16/2004, p.2

[25] Agnieszka Kopanska, Communal Bond Market in Poland, **Faculty of Economic Science**, Warsaw University, 16/2004, http://unpan1.un.org/intradoc/groups/public/documents/NISPAcee/UNPAN025602.pdf (12.07.2008), p. 2.

In Poland, the local and regional self-government units select the loans and credits - commercial and non-commercial or to issue municipal bonds or municipal bills to spent the funds for following purposes[26].

- Construction of plumbing, 32.1%
- Education, 11.4%
- Sewage system, 10.5%
- Public transport, 8.8%
- Roads, 8.8%
- Sports objects, 7.9%
- Sewage treatment plant, 6.5%
- Social building, 5.2%
- Other e.g.: recycling and storing of scrap materials, central heating plants, technical infrastructure of grounds, 8.8%.

Four Polish municipalities issued in municipal bonds. Table 4.10 shows these municipal bonds and their characteristics.

[26] Maria Jastrzebska, The Role of Municipal Bonds as a Repayable Source of Financing the Territorial Self-Government Units in Poland, **Department of Finance,** University of Grandsk,1999 http://unpan1.un.org/intradoc/groups/public/documents/nispacee/unpan004536.pdf (12.07.2008), p.2-3.

Table 4.19: The List of Municipal Bonds are issued by Polish Cities

Issuer	Rating Agency/mark	Value of issue and issue date	Maturity- rate above 52 week treasury bills
Bydgoszcz	Standart&Poor's BBB- stable-international	72 mln PLN started in July 2002	4-0,30 5-0,35 6-0,40 7-0,45 8-0,50 9-0,55
Wroclaw	Standart&Poor's BBB stable-international	80 mln PLN started in January 2002	4-0,45 6-0,50 8-0,57 10-0,70
Ostrow Wielkopolski	Fitch Polska A- Communal Bonds A general, for local currency	10 mln PLN started in September 2002	4-0,70
Tychy	Fitch Polska A- Communal Bonds A general, for local currency	13 mln PLN started in July 2002	1-0,50 1-0,50 3-0,50 4-0,60 5-0,70 6-0,80

Source: Agnieszka Kopanska, "Communal bond market in Poland", Faculty of Economic Science, Warsaw University, 16/2004, p. 9.

Case 4. Bond Issuance by Ramla Municipality, Israel

In Israel, the local authorities have applied the municipal bond implementations to maximize the funds of infrastructure investments. For instance, the municipality of Ramla issued bonds backed by municipal property taxes in the amount of NIS 140 million, for a term of 15 years, at an interest rate of 5.9% in November 2005. The issue was targeted to institutional entities. Ramla thus became Israel's first local authority to issue municipal bonds. The issue received a rating of A+ from the securities rating company Maalot[27].

[27] Finance Ministry of Israel, "Municipal Bond Issuance", http://www.mof.gov.il/debt/gen/docs/rep05_f.pdf, (12.07.2008), p. 104.

Case 5. Tagaytay City Municipal Bonds, Philippines

Tagaytay City is fast changing urbanized city from being agro-based to the tourism center and service-oriented community. The tourism and agriculture revenues are of great significance for Tagaytay City's economic activities. In 1994, the Tagaycity Mayor and committee prepared a Master Development Plan the construction of an infrastructure complex with a convention center, function rooms with lodging facilities, assembly halls and auditoriums. In 2001, Tagaytay City bonds were issued in the amount of P220 million to start of construction of Tagaytay International Convention Center[28].

Case 6. The City of Johannesburg Municipal Bonds, South Africa

The City of Johannesburg has applied successfully four municipal bonds to generate income to meet capital expenditure since 2004. The issuer of the municipal bond guarantees to pay interest (coupons) at set periods and to repay the principal debt on a specified date. The interest paid on the bond in tax deductible. Johannesburg is rated by both local and multinational credit agencies. Improved credits ratings help reduce debt servicing costs as a percentage of overall expenditure[29]. These bonds are; CoJ 01, CoJ 02, CoJ 03, CoJ 04. The characteristics of these bonds are given in Table 4.11.

[28] Lydia N. Orial, "Local Government Finance and LGU Bond Market Development Philippines", **Asian Development Bank**, October 2002, http://www.adb.org/Documents/Events/2002/LG_Finance_Bond_Market/PHI_report.pdf (12.07.2008), p. 114-116.

[29] Cities Alliance, "City of Johannesburg municipal bond issue", **Presentation to IADF Conference**, October 2004, http://www.citiesalliance.org/doc/resources/cds/joburg-bond-issue-roland-hunter.pdf (12.07.2008) p.20-26.

Table 4.20: Characteristics of the City of Johannesburg Municipal Bonds

Bond Code	Maturity (Years)	Nominal Amount (R Bn)	Coupon Rate (%)
CoJ 01,	6	R1bn	11,95
CoJ 02	12	R1bn	11,90
CoJ 03	8	R700m	9,70
CoJ 04	12	R1.2bn	9,00

Source: Bond Exchange of South Africa (BESA) at 30 June 2006

Case 7. The Issue of Bonds by the Metropolitan Municipality of Ankara

Metropolitan Municipality of Ankara issued bonds with the support of the World Bank to finance the projects of Ankara Intercity Bus Station and Housing and Environmental Development projects in Dikmen Valley between 1990 and 1992 in international markets. These bonds were issued five times without taking a security from the Turkish Treasury.[30] One group of bonds was issued in Germany, and four groups in Japan. Information about bond issues are given in Table 4.12

Table 4.21: The Issue of Bonds by the Metropolitan Municipality of Ankara

The Issuing of Bonds by the Metropolitan Municipality of Ankara					
Issue Date	Intermediary Bank	Amount (million)	Mature (Year)	Interest	Market
09.10.1990	DG Bank	150 DM	5	10,25	Euro DM
05.06.1991	Nomura-Mitsui Bank	8500 Yen	5	8,4	Shibosai
09.10.1990	Nomura Bank	5000 Yen	1,9	Libor+1,05	Shibosai
09.10.1990	Nomura Bank	4600 Yen	5	7,6	Shibosai
09.10.1990	Nomura Bank	50000 Yen	5	6,8	Shibosai

Source: http://ekutup.dpt.gov.tr/banka/cetiks/illerban.pdf, (02.06.2008), p.103

[30] Sedat Çelik, **Belediye Hizmetlerinin Karşılanması ve Finansmanında İller Bankasının Rolü**, Devlet Planlama Teşkilatı, Uzmanlık Tezi, Ankara, May 1993,

http://ekutup.dpt.gov.tr/banka/cetiks/illerban.pdf (02.06.2008), p.103.

CONCLUSION

Infrastructure services and investments are needed for economic development, to maintain competitive advantages and to decrease poverty. High-quality infrastructure services in adequate numbers contribute significantly to transport and distribute public goods and services to end users, to increase foreign trade, to improve environmental conditions and to decrease problems from over-population and rapid urbanization. Similarly, infrastructure services well qualified; in sufficient numbers and with sustainable strategies enhance economic development through increasing productivity and decreasing production costs.

In the past the government provided most infrastructure services. During the last decade, globalization, strongly growing demand for infrastructure services, many technological improvements and problems within public management called for the development of different models to finance urgently needed infrastructure. Dividing the services of providing infrastructure over its lifecycle yields three phases: planning, building and operating the infrastructure.

Particularly in developing countries where the need for more and better infrastructure is rather high due to very high population growth rates, tremendous developmentally lagging behind, financial weaknesses and legal insufficiencies. In these countries the new models found rapidly acceptance and arose hopes for closing these gaps. But first the necessary legal regulations need to be installed to provide the legal infrastructure. Foreign financial institutions offered long and short-term loans like the World Bank, Asian Development Bank, European Development Bank; and Public-Private Sector Partnership initiatives, Municipal Bonds. Funds supplied from Capital Markets and Revenue Bonds were financial resources supplied to finance infrastructure services.

First the Public-Private Partnerships Models (PPP) appeared in developed countries like England, and later the USA, Ireland, Spain and Portugal. They enabled the private sector to participate in public services and thereby overcome the lack of financial resources, which at that time became a fundamental deadlock for

governments. PPP first was developed as a solution to privately render services which over the last two or three centuries have permuted to be public services only. People forgot that historically most services except a few like military services were in private hands. The common thinking over the last 200 years was established that public services are privileged services to be supplied only by the government. They became a public domain and the private sectors hesitated to supply these services without the heavy involvement of the government. Through the Public Private Sector Partnership, it became possible for the private sector to plan, build and operate large infrastructure projects like roads, tunnels, hospitals, drinking water and sewerage systems. They all were thought of as the sole belongingness of the government (public domain). In this context, PPP works as a deregulation the responsibilities of the authority, also the costs, risks, revenues and benefits were shared between the public and the private sectors.

Public Sector Partnership share responsibilities, costs, risks, revenues and benefits; therefore PPPs are certainly not simple agreements, in which the costs of the infrastructure are burdened only onto the private sector. The sharing needs to leave enough incentives for mounting a profitable business for the private side. In return the private side needs to deliver suitable, customer friendly, sustainable projects to please the government and the broader public. PPP models are not suitable to decrease the stocks of bad governmental projects. In fact each project needs to prove it's suitability by type of project (experiences in other countries) and by the special contractual and financial conditions in the local circumstances.

PPP models seem to

1. Make it very easy particularly in developing countries with lots of financial problems to fulfill their infrastructure requirements.
2. Call and use idle capital in a country and direct it towards solid and good production and/or investments.
3. Relieve governments from borrowing international capital; instead they can use resources from their own economy for infrastructure investments.

These are three major pitfalls! (1) It is not easier but much more difficult to give good incentives in a well structured institutional environment to engage in planning, building, operating and decommissioning infrastructure projects (for the entire life cycle). It first needs a lot of institutional building, capacitating, and strengthening to accomplish good projects on this route. (2) There is hardly idle capital around. Capital seeks for good investment chances. The government needs to create these improved chances. Else, the capital goes international and is lost for local and regional development. There is a tough competition between investment opportunities here and there. (3) If international capital (e.g. from international finance institutions) wants to come to a country and wants to be invested, then only as long as the international institutions may apply their own criteria. Only this environment guaranties the required return on investment.

Basically there are two sets of factor influencing investment environment: (a) The European procurement laws (not PPP laws, because there are not any) and (b) The national procurement laws (if there are any, else it causes a lot of cumbersome negotiations, see the last 5 years in the UK).

Basic rules no. 2004/18/EC and 2004/17/EC regulate public procurement in the European Union, and Public-Private Partnerships models are practiced in accordance with "acquis communautaire" (= the European legal system) which regulates transparent public purchases.

There are no special regulations regarding PPP in the above mentioned set of rules. Due to budget limitations, a number of EU-member states, turned to PPP and converted it to a different means of financing their infrastructure needs. Lately we can see in those countries a number of projects popping up using the PPP model of procurement and financing: transportation, schools, hospitals, energy productions, water production, wastewater collection and treatment, waste collection and depositing, even some projects considered as sensitive because of "national security issues" like prisons, courts, city administration buildings can be provided, if the state authority activities are nicely separated from the commercial administration and

maintenance issues. In this framework, Public-Private Partnerships models have been vital for some member states.

Moreover, a guide with successful PPP Applications was published by the European Union in March, 2003. Some advantages and disadvantages of PPP were described. Some definitions and criteria were given with applications to explain advantages and disadvantages of special PPP models like BOT (Built, Operate, and Transfer), DBO (Design, Build, and Operate) and etc. were explained. In summary, PPP is a financial means of procuring projects. It requires a higher degree of transparency, clear communication, well defined goals and functional specification and most importantly it requires a well structured legal and sustainable commercial environment on which industry and private businesses.

In Turkey, applications of PPP models were observed in 1990's. Some models like BOT (Build-Operate-Transfer) or BO (Build-Operate) were applied in spite of a very spare legal framework. Some projects were defined in electricity production and supply, drinking water supply, etc. However, one can not say that the design and application of these models were successful. The lack of efficient political, economical and legal infrastructure (the institutional frame and the legal structure as well as early mistakes) made in the drafting of contracts and the unbalancing of risk distribution between the public and private sector caused serious problems for a good cooperation between the sectors. Individual doubted the reliability of the new PPP models. However, some successful applications in airport construction and operation give hopes.

Negative experience with PPP in Turkey should not become a major obstacle. As long as there are many other successful applications, we have to learn what the needed ingrediences are. Good maintenance is one of the main requirements in the success of PPPs. Furthermore, for PPP models the improvement of the necessary legal infrastructure is of greatest importance. The contractual design for PPPs is crucial and can be learned as a tool set from international practices.

Successful PPP models need political supported at the highest levels. PPP should also be supported by public sector. Clear objectives and good

communications must be provided to the public and to the press. In spite of high expectations all over the world, not all projects do qualify for a PPP finance solution. Applications in various countries show commercial risks have to be determined very well. Risks have to be structured clearly in Governmental, commercial, financial, operational, etc. Each player should assume those risks, the player can influence and mitigate. Governments seem to be bad risk takers. Too often they direct even the risk of an earthquake on to the contractor (these risks only can be carried by the entire community, the state).

Public and private players have often different senses of justice in attainability or purchasibility of services. What is important is the context of partnership. If the system of information sharing has not been efficiently built between partners, and if partners continue to behave according to negative assumptions about each other, information asymmetry will hinder to grow a good partnership. Similarly, if political and cultural conflicts cannot be overcome, PPPs will not have the expected efficiency.

To sum up, PPP models can easily and successfully applied in various areas of the Turkish economy. Especially considering infrastructure requirements and the country's appropriate environment for investment it is obvious that there are a number of opportunities for good cooperation between the public and the private sectors. Examples are in the fields of energy, water, waste water, railways and municipal services. Ingrediences for successful PPP models; (1) Proper projects should be selected. (2) Selective criteria for successful projects should be described. (3) The work plan needs to be structured well. (4) The evaluation criteria need to be clearly specified and published beforehand. (5) The provision of funds should be determined early. (6) Legal and managerial procedures should be formulated (and followed) to avoid the project being stopped once in a while. (7) The risks shall be distributed between the parties (each talks the risk which can be managed). (8) The selection criteria for the company consortia need to be clarified beforehand. (9) The regulations of European Union must be taken into consideration. (10) Successful and unsuccessful cases should be studied (reference a state aid, as Pre-accession aid

could equally become discussable as structural funds). (11) Performance criteria and evaluation measurements should be decided upon ahead of time.

If the projects are selected well and if the project type is suitable for PPP and when suitable conditions are provided for PPP's, then the necessary conditions for a PPP are fulfilled. To become a successful project it needs well trained and honest and transparent negotiations. If all these factors come together, then the sufficient conditions are fulfilled to run a good PPP project. Then finally it needs the willingness of politicians and the population and finally it needs some luck.

Another infrastructure financing model is through Municipal Bonds, or Revenue Bonds, which are commonly used by local governments in developed countries in order to provide funds through borrowing from capital markets. Considering the growing demand for infrastructure through rapid population growth the contribution in equity received from the local and the central government was inadequate to provide good public services for infrastructures like housing, treatment plants, transportation means, etc. There was a need to find additional financial resources. As a result also this model which is based on Bonds was introduced.

These borrowing bonds also called "municipal bonds" have been used for 200 years especially in the USA. They are capital market instruments issued for and long terms in national and international capital markets by governments of cities, touristy towns, states, universities, hospitals and electricity distribution companies which provide services with public aims.─Local governments are exempt from the obligation of registering to SEC to issue municipal bonds.

In terms of maturity, municipal bonds are categorized into two groups as short and long-term bonds.

- Short-term securities are bonds issued with the aim of closing the gap between the anticipated income and expenditure. These securities are divided into four sub-groups as Anticipation Notes, Tax Exempt Commercial Paper, Variable-Rate Demand Obligations, and Dutch Auction Securities.

- Long-term securities are divided into two sub-groups as General Obligation Bonds (G.O.B) and Revenue Bonds (RB).

Municipal bonds are traded in primary and secondary markets. The fact that there is a great local market of loans, and various bonds are traded in this market caused secondary market to be more active, as well. The existence of secondary market for municipal bonds makes primary market to be attractive for investors. It is out of question that local administration intervenes in the market. So, the market becomes even more attractive for investors.

Risks regarding municipality bonds can be grouped as Default Risks**,** Market Risks, Reinvestment Risks, Purchasing Price Risks and Call Risks. Defaults occur because of Economic Factors, Faulty tariff of services and Managerial Factors.

Moreover, investors who have been investing in the market of municipal bonds have taken risks depending on the principle of risk/revenue. Therefore, they have needed trustable data resources about municipalities in which they had invested. This need has been met in municipal bond and loan market in the USA at institutional level. Rating agencies, bond companies and similar organizations have supplied information on these issues.

Today municipal bonds are insured by insurance companies. Tax exempt municipal bonds finance public-aimed projects as well as private projects which are beneficial for public. As municipal bonds are exempt from taxes, the government and local administration have the chance of borrowing under the market rate. Furthermore, investor benefits from the advantage of income tax. Insuring municipal bonds makes these bonds even a more attractive instrument of investment since principal and interest payments in the payment plan are under the guarantee of the company which insures the municipal bond. This guarantee covers 100 % of principal and interest payments during the maturity of the bond, and canceling this guarantee is out of question. Bonds might have been insured in primary and secondary markets.

For small local municipalities, to have the bonds insured is less costly than applying for credit rating which will be made by a rating agency. This case has greater importance for issuer when there is fluctuation in interest rates. Insuring facilitates to market bonds. Municipalities issuing bonds rarely or at a small scale is not known by municipal bond investors. In these cases, insuring bonds increases the chance these financial instruments' find acceptance in the market. Especially in developed (industrialized) countries like the USA, Canada and Japan, the most significant borrowing instruments of local governments are Municipal Bonds. In accordance with the clauses in the Securities Act, securities issued by local governments in the USA have been exempted from registering at the SEC and from the obligation of periodical reporting within the framework of the clauses in Securities Exchange Act. (This is a relaxation which degrades the quality of municipal bonds, much like the problems in the US housing markets. Eventually this lack of quality control hits back.)

MSRB is an independent regulatory institution founded in 1975 by the USA Congress, whose basic duty is to make regulations in the market of securities issued by local governments. MSRB stands for Municipal Securities Rulemaking Board. This regulatory body is responsible for making rules regulating dealers who deal in Municipal bonds, Municipal notes, and other Municipal securities.

In the market where securities issued by local governments are traded, the first regulation to protect investors directly is Rule 15c2-12, which was accepted by SEC in 1989 and put into practice on the date of 01.01.1990. With this regulation, underwriter became obliged to prepare and announce documents which will enlighten investors. Because of underwriter's obligation to attain information about issuing from the issuer, it is the obligation of the issuer to give these documents to the underwriter. With a change in Rule 15c2-12 in 1996, after supplying bonds to public in primary market, it became compulsory for underwriters to take a written engagement from issuers stating that the necessary information to enlighten investors permanently will be given to underwriters.

In Turkey, municipalities got the right to issue municipal bonds with Article no. 10 added in 1953 to the Item no. 19 titled "the rights, authorities and privileges of Municipalities" of the Municipality Law no. 1580. According to the clauses in this article, by giving a financial guarantee to Emlak Bankası, municipalities were authorized to issue bonds having a maturity of at most 20 years in order to pay the costs of nationalization which will be carried out with the aim of applying the approved building scheme and to build facilities in accordance with the building scheme and the aim of nationalization.

It seems that the application of municipal bonds, which was tried but failed for various reasons in 1990 and 1991, will again appear on the agenda in our country during the following years in order to finance increasing infrastructure demands due to rapid population growth and urbanization in cities. Especially, during the integration period with the European Union, it is the goal of the European Union that nominating countries reach the infrastructure level in member states. As it is known, especially metropolitan municipalities need hundreds of millions of Dollars even to finance the most basic municipal services. For most projects like this, sources transferred from general budget, municipalities' own sources and traditional borrowing possibilities are not enough.

In this regard, the matter of bond issuing of some metropolitan municipalities in international markets should be revised in the near future because of relatively improved economic structure and to finance municipal services.

It is said that the amount of investments which should be made during the following 20 years by municipalities in our country, especially environmental infrastructure, is nearly 50 billion Dollars. It is inevitable to use external sources for such a big investment. Whether in the form of a direct loan or a bond issuing, permission of laws and regulations is not sufficient to provide a long-term finance with a low interest (Recently, there has been news on the media reporting a preparation in the Capital Markets Board for regulating bond issuing of municipalities.), at the same time, internal-external market conditions and financial-

administrative cases should be convenient, too. At this point, one should talk about another condition. This is a good credit rating.

Credit ratings are performed by an international rating agency to municipality which will borrow. In fact credit rating which recently came to the agenda in our country especially with small and medium size enterprises (SME) in the framework of BASEL II discussions is one of the first criteria demanded by international financial institutions while they are lending. Rating process, which evaluates municipalities in many ways ranging from their financial situations to their governing period, might actually be beneficial not only for borrowing but also to grasp the current situation of the municipality.

In spite of some problems in the Europeanization process, introducing more modern living conditions in townships will depend on the success of municipalities to solidify their financial management: (1) income from citizens, (2) from federal input and (3) pre-financing projects with loans and raised capital through new means as described in this thesis.

In short, (1) successful application of Municipal Bonds requires more transparency in revenues and expenses of municipalities. The Law about Municipal Revenues tries to motivate municipalities to be open to more supervision. This law should be put into practice urgently. (2) Another measure to secure the application of municipal bonds could be the introduction of an institution such as the MSRB in the USA. (3) Furthermore, credit rating agencies and the application of bond insurance should be introduced quickly. (4) Municipal Bonds primary market should be formed (under the Bond Market of Istanbul Stock Exchange).

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