TÜRKİYE GENÇ İŞADAMLARI DERNEĞİ

YOUNG BUSINESSMEN ASSOCIATION OF TURKEY

HIGHLIGHTS OF THE *TURKISH SOCIAL ENVIRONMENT*

TÜGİAD, " YES " Avrupa Genç İşadamları Derneği ortak üyesidir.

TÜGİAD, is an Associate Member of " YES Young Entrepreneurs for Europe."

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FOREWORD

The economic structure and development of a nation is very closely related to the social structure and the nature of the social issues involving that society. The demographic makeup of society, the nature and availability of social services provided to the public, and the extent of social development within the polity are all factors which effect not only the social structure of the society, but the tendencies for socio-economic development as well. The development of social indicators plays an important part in the development of a nation on an international scale.

TÜGİAD recognizes the direct relationship between economic and social issues, and following the publication of "Highlights of the Turkish Economic Environment" in conjunction with its membership into the "Young Entrepreneurs for Europe," has continued under the same venue, seeking to inform fellow YES members and other interested parties of some important factors affecting the Turkish social environment. This report has been developed with the purpose of giving a general overview of selected issues in the Turkish social environment.

The structure of Turkey's population and demographic indicators at present and in the future, as well as the development of effective programs to control population growth into the future have a growing importance in the context of Turkey's socio-economic development, as it becomes increasingly evident that economic growth can only be accomplished in tandem with an effective population program. The ameliorization of social services within a national framework is an indicator of overall national development. Developments in the Turkish health and education sectors, the quality and availability of services provided and development of programs aimed at increasing the effectiveness of services are all crucial parts of the development of the Turkish social environment. The protection of the environment in industrial and developing countries alike has become an increasingly crucial issue worldwide. The analysis of the extent of pollution and environmental resources in Turkey is particularly essential as Turkey implements programs for sustainable development.

This report, which aims to give an overview of selected issues affecting the Turkish social environment, has been developed by RGA Management Consultants, Ltd. and prepared by Suzan ARTEMEL and Dr. Ruhi GÜRDAL. We would like to thank TÜGİAD members and TÜGİAD's Chairman of the Board Murat BEKDİK for their contribution and support.

TÜGİAD

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INTRODUCTION

This report, which was developed from previous reports prepared for TÜGİAD by RGA Management Consultants, Ltd., aims to present a general overview of selected issues affecting the Turkish social environment. In this context, the analysis of developments leading to the present, the present situation in Turkey and selected countries and some suggestions for the future are presented.

Chapter One provides an overall summary of developments in Turkey's demographic structure and the development of population policies. Characteristics of and changes in the Turkish population, population policies and indicators in Turkey and selected countries, as well as suggestions for future population programs are analysed in this section.

Chapter Two is a general overview of the Turkish health sector and related services in Turkey. An analysis of the developments in the Turkish health sector, physical infrastructure of the health sector and related human resources are analysed in comparison with international indicators in this chapter.

Educational indicators, services and policies in Turkey are presented in Chapter Three. In this context, a brief overview of Turkey's educational system, analysis of comparative developments in Turkey's educational resources, human resources and institutional infrastructure are made in this section.

The overall development and situation of the Turkish environmental environment are presented in Chapter Four. Indicators demonstrating the extent of air, noise and water pollution, solid waste, pollutants and soils, forests and wooded areas and wildlife in Turkey and selected countries are presented in this section.

CHAPTER 1

POPULATION

The straining effect which population growth has on the distribution of resources requires all nations to implement population policies aimed at holding growth to an optimum level. Developing nations in particular must realise that economic growth can only be fully realised in tandem with an effective population program. This factor is true in the case of Turkey, as it continues through economic development.

1.1. POPULATION POLICIES IN TURKEY

Turkish population policies have gone through two distinct stages since the formation of the Turkish Republic in 1923. The first of these periods, lasting until 1960, is characterised by the encouragement of population growth. After 1960, controlled population growth, and subsequently policies to reduce population growth became dominant.

1920-1960 Period

Poplation policies during this period reflect Turkey's general socio-demographic make-up at the time. Following the War for Independence, Turkey's population dropped substantially and the overall tendency was towards increasing the size of the population. Various laws and regulations encouraging a high fertility rate were enforced during this time period. This pro-population growth attitude continued through the early-1960s.

First Five Year Development Plan (1963-1967)

As ā result of successful efforts to increase the size of the population, by the mid-1960s it became necessary for the Turkish government to take steps to control population growth. The first measures to this end were included in the First Five Year Development Plan. The development of family planning activities and the improvement of general health conditions were major goals during this period.

Second Five Year Development Plan (1968-1972)

Goals of the Second Five Year Development Plan closely paralleld those put forth in the First Development Plan. The development of widespread family planning services reaching all women in Turkey was an important goal during this period.

Third Five Year Development Plan (1973-1977)

In the context of the Third Five Year Development Plan, family planning was incorporated into basic health care activities and the need for child health services to be considered an integral part of overall development plans was stressed.

Population Policies and Developments in Turkey During Planned Periods		
	GOALS	**DEVELOPMENTS AND POLICIES**
1920-1960	• Stimulating an increase in population	• Establishment of Ministry of Health (1920), • Establishment of model hospitals, • Families with more than 5 children exempt from Road Tax (1929), • Medals given to families with 6 or more children (1930), • Responsibility of encouraging high birth rate given to Ministry of Health • Prohibition of import and sale of abortionary equipment, • Lowering of marriagable age to 17 for males, 15 for females in accordance with Turkish Civil Law • Establishment of Social Insurance Institution (1945), • Establishment of Mother and Child Health Organization (1952).
1963-1967	• Controlling population growth	• Passing of Population Planning Law, • Establishment of General Directorate of Population Planning, • Establishment of regulations regarding cases ad medical reasons requiring sterilization and abortion (1967), • Encouragement of private sector investment in the health industry, • Public health education measures, • Distribution of information regarding pregnancy prevention, rescindment of law forbidding sale of contraceptive devices, • Information regarding population planning given to those working in the health sector.
1968-1972	• Development of Family Planning services	• Education of general public regarding health, • Efforts to increase widespread family planning services.
1973-1977	• Incorporating Family Planning activities into basic health services	• Coordination of child health and planning measures.
1979-1983	• Establishment of a close relationship between population and socio-economic development	• Consolidation of family planning services in the General Directorate for Mother and Child Health and Family Planning (1982), • Passing of the Family Planning Law (1983),
1984-1989	• Development of strategies and programs aimed toward the family	• Recognition of the family as a basic unit in the development of social and economic programs, • Establishment of 43 new Mother-Child Health Centers, • Establishment of a centralized population management system.
1990-1994	• Development of population policies in tandem with economic and social development, • Reducing population growth rate	• Support of organizations conducting research and education regarding demography, development of periodic reports on population policies and programs, • Priority given to parts of society previously unable to benefit from mother-child health and family planning services, • Efforts to increase the effectiveness of family planning services.

Fourth Five Year Development Plan (1979-1983)

In spite of the setting of impressive goals, the success rate of Turkey's efforts to control population growth were quite low until the early 1980s. Problems like migration to urban areas, a lopsided distribution of wealth and a rising unemployment rate had developed, while overall economic development slowed down. In the Fourth Five Year Development Plan, these problems were addressed, and the relationship between population growth and socio-economic growth was stressed. During this period, efforts to reduce the fertility rate were emphasized, and family planning services were implemented.

Fifth Five Year Development Plan (1984-1989)

Until the mid-1980s, the family was seen as an integral part of many diverse subjects including health, education, social security, housing, employment and urbanization. After 1986, the family began to be considered as an important unit in itself. Policies and strategies aimed directly at the development of the family unit were first developed during this time period and made up an important part of the Fifth Five Year Development Plan.

Sixth Five Year Development Plan (1990-1994)

Turkey's Sixth Five Year Development Plan particularly stresses the importance of human resources in the process of socio-economic development. At the same time, the coordination of population growth and socio-economic policies was included in

this plan. The widespread distribution of health and family services is an important goal included in the sixth Five-Year Development Plan.

1.2. POPULATION INDICATORS

Population Size

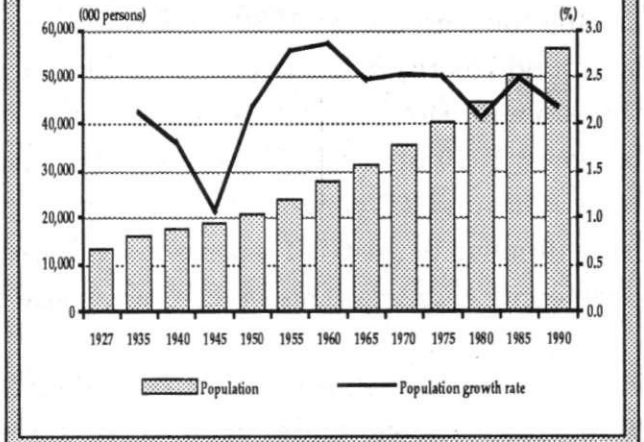
Turkey's first census was administered in 1927, according to which Turkey's population totalled 13,648,270 persons. After 1935, the census was repeated every five years. Turkey's population had grown to 56,473,035 persons in 1990 and was estimated to be 59,869,000 at the end of 1993.

With the exception of the 1940-1945 period, Turkey's population growth rate has historically been over 2 percent. Between 1940 and 1945, as a result of a large proportion of the male population being drafted during World War II, an increase in the death rate, reduction of the birth rate and overall negative health conditions served to decrease the population growth rate to 1.06 percent.

As was true throughout the world, Turkey's population growth rate increased dramatically in the 1950s. Along with the termination of the war, revolutions in health care including the introduction of antibiotics and the war against malaria played an important role in the overall increase of the worldwide population growth rate. A parallel development can be seen in the Turkish case, where the population growth rate during the 1950s and early 1960s was close to 3.0 percent.

Following 1960, the average annual population growth rate in Turkey began to fall. The introduction of family planning and control of population growth policies served to reduce overall population growth. Turkey's average annual population growth rate fell to around 2 percent by 1980. A decrease in the rate of immigration to Turkey, a fall in the fertility rate and migration of Turkish workers to other countries were all factors leading to a decrease in the size of the childbearing population in Turkey and thus causing a decrease in the overall population growth rate.

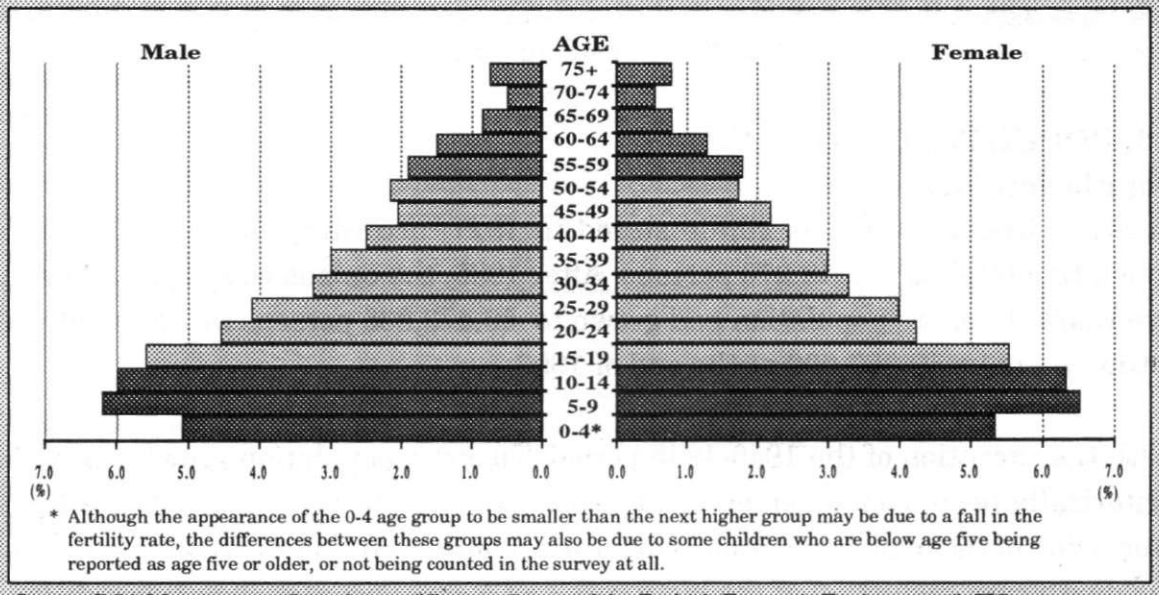
Population and Population Growth



Source: Statistical Yearbooks of Turkey, SIS.

Between 1980 and 1985, Turkey's annual population growth rate rose again to the 2.5 percent level. One of the most important factors causing this increase was the return of a large

Turkey's Age Pyramid (1990)



* Although the appearance of the 0-4 age group to be smaller than the next higher group may be due to a fall in the fertility rate, the differences between these groups may also be due to some children who are below age five being reported as age five or older, or not being counted in the survey at all.

Source: RGA Management Consultants, "Current Status of the Turkish Economic Environment", SIS.

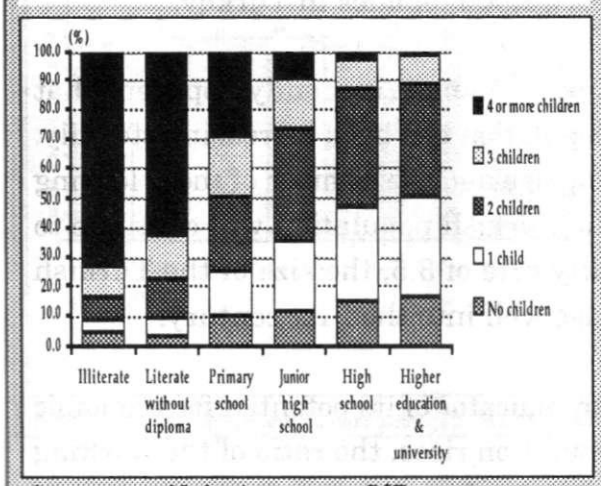
percentage of the Turkish workers who had migrated to Western Europe and other countries during the 1960s and 1970s. For differing reasons, people who had not been counted in the 1980 census were included in the 1985 census. This development caused the population growth rate to appear to have increased between these two censuses.

Estimations of Turkey's future population growth rate predict that population growth will fall below 2 percent in the next 20 years, reaching a population size of 68 million persons by the year 2000. While this population growth rate is close to that of many other developing countries, it is well above that of industrialized countries, whose population size is predicted to contract in the next 50 years. The close relations between Turkey and the Western European nations will then become an advantage for Western Europe in particular, with Turkey's large work force making up for the overall contraction of the European workforce.

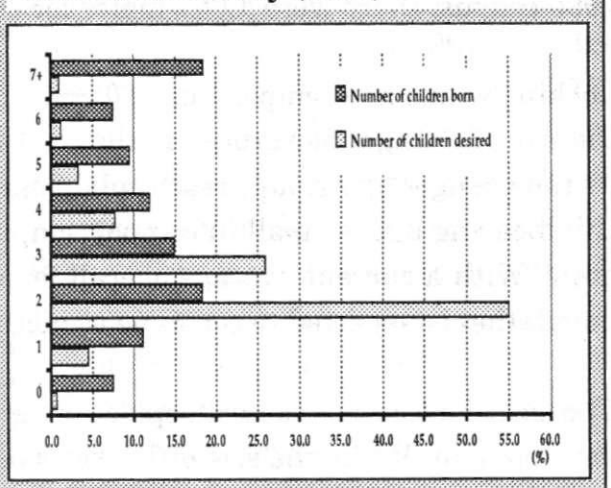
During the period 1965-1980, total world population grew at an average annual rate of around 2 percent. Turkey's population growth rate during this period was close to this amount. However, while overall world population growth rate fell to 1.7 percent between 1980 an 1991, Turkey's annual population growth remained relatively high at around 2.3 percent. The population growth rates in industrialized countries have dropped to the 0.5-1.0 percent level. On the other hand, in underdeveloped and developing countries this percentage is still high, around the 2.5-3.5 percent level.

Turkey's crude birth rate was 2.77 in 1989 according to the 1990 population study. This rate shows wide variations across geographic regions in Turkey, demonstrating the differences in socio-demogrphic indicators throughout the

Distribution of Married Women by Education and Number of Children (1989)



Number of Children Desired and Number of Children Born to Married Women in Turkey (1989)



Source: 1989 Nüfus Araştırması, DIE.

country. While the crude birth rate in urban areas in 1989 was 2.59, this rate was a relatively large 2.94 in rural areas.

The same study has shown that while the great majority of married Turkish women desire to have two children, only 18.4 percent of these women actually have two children. 62.8 percent of Turkish married women have borne three children or more. The fact that a majority of Turkish women bear more children than they would optimally desire to is an indicator of the inadequacy of protection and family planning measures in Turkey.

In 1991, Turkey's fertility rate was 3.4 percent. While this is a significant drop from 4.9 percent in 1970, it is still a relatively high rate. One of the most important factors influencing the fertility rate is literacy and level of education, which are in turn related to socio-economic development. 73.4 percent of illiterate women in Turkey have four or more children. This ratio falls steadily with the rise in educational level, and is only 1.7 percent for graduates of higher education and/or universities. As is true throughout the world, education and socio-economic development are directly related to the fertility rate and population growth in Turkey.

Composition of Population

The composition of any population is an important indicator of that society's structure. This structure plays an important role in the determination of overall social and economic strategies. Two important classifications of population are age and sex.

The distribution of the Turkish population according to sex has changed since the mid-1940s when the female population outnumbered the male population. In the 1990 census, there were 1,027 males for every 1,000 females in Turkey.

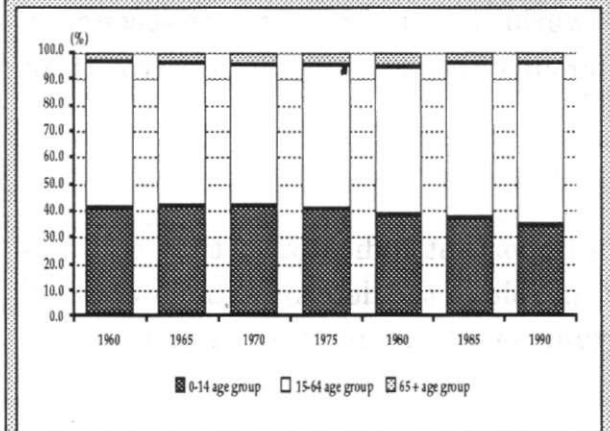
Looking at the age composition of Turkey's population, it is readily apparent that the size of younger age groups in the total population has been increasing steadily. As the younger age-groups reach child-bearing age and the number of those leaving childbearing age is small in comparison, the Turkish population will continue to grow. With a current average overall fertility rate of 3.5, the size of the Turkish population is expected to continue to increase well into the 21st century.

The size of a country's active population is an indicator of its potential for economic development. While the size of Turkey's population rises, the ratio of the working population is also increasing at a comparable rate. Just the opposite is occuring in Western European nations.

Turkey's 0-14 age group makes up a large and growing percentage of the total population. In five to twenty years, the persons in this group will enter the work force, making the creation of additional jobs especially essential for the well-being of the economy in the future. On the other hand, the ratio of the 65+ age group in total population has been growing steadily in most Western European nations. As this part of the population continues to increase and the younger population fails to replace those leaving the active population, it will become increasingly difficult for those economies to provide sufficient services for this changing population structure.

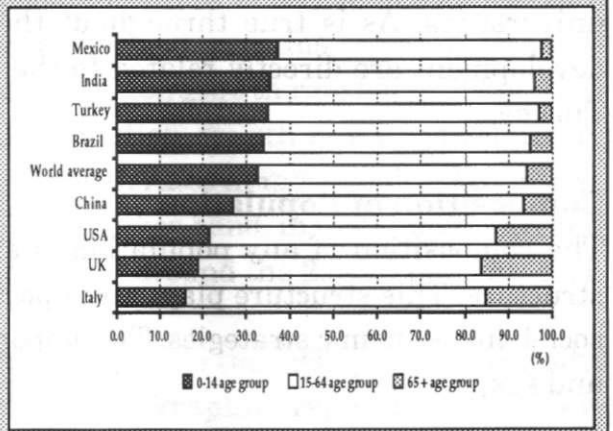
As technological advances continue, the overall life expectancy of those living in

Age Structure of the Turkish Population



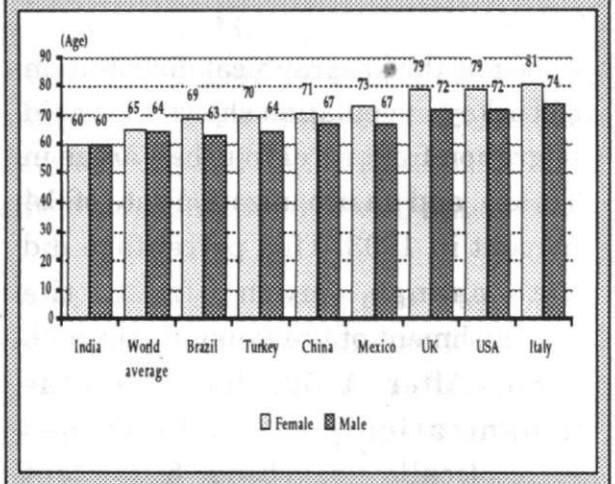
Sources: türkiye Ekonomisi İstatistik ve Yorumlar, SIS.

Age Structure of Population in Selected Countries (1991)



Source: World Development Report 1993, The World Bank.

Average Life Expectancy at Birth in Selected Countries (1991)



Source: World Development Report 1992, The World Bank

both industrial and developing nations will continue to rise. While life expectancy has been rising worldwide, there is still a big difference among regions. For example, in 1991 the life expectancy for males was around 76 years in Japan, Switzerland and Sweden. The life expectancy for males in many underdeveloped nations is below 50 years. In contrast to both of these figures, Turkey's life expectancy for males has developed along with the world average, increasing from 49 years in 1960 to 64 years in 1991.

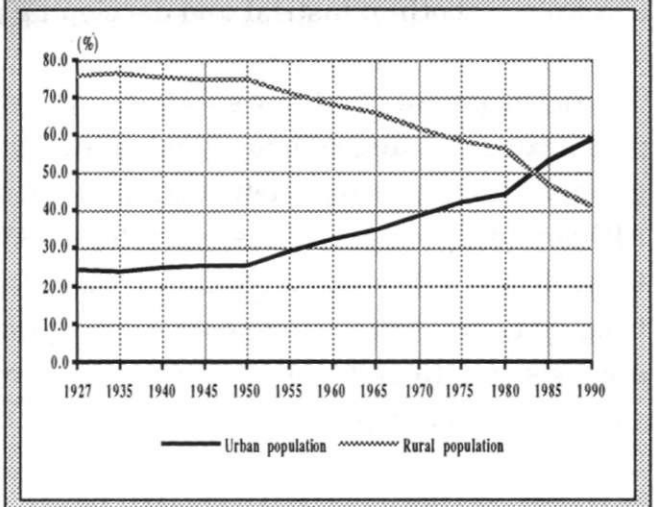
Distribution of Population

The geographical distribution of a population is a good indicator of its economic structure. While underdeveloped countries' economies are primarily dependant upon agriculture and the majority of the population lives in rural areas, industrial societies have a relatively large urban population.

An important problem facing developing countries is the inability to provide services to those migrating from rural to urban areas as the economy develops. The migration of the rural population to the cities is a pressing problem for Turkey as well. Not only does migration effect the demographic makeup of the population, but also presents problems to the economic and social structure of the nation.

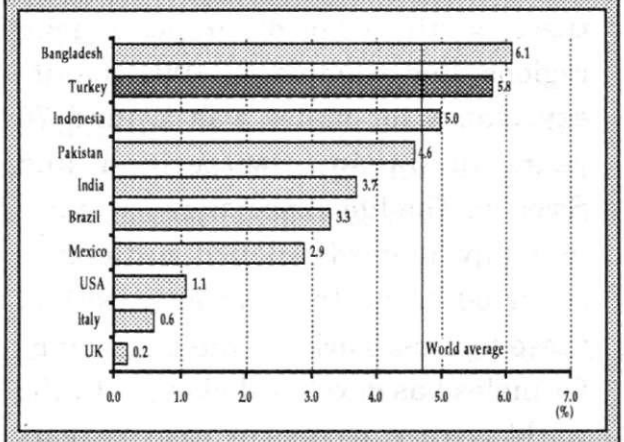
Rapid urbanization occured in today's industrialized nations during the early part of the 20th century, and is occuring presently in the developing countries. In many of these nations, the rate of urbanization is atleast twice the rate of overall population growth. While the average population growth rate in Turkey was 2.4 percent between 1980 and 1990, the urbanization rate was 5.9 percent, led to by both high migration and a relatively low rate of

Distribution of the Turkish Population



Source: Statistical Yearbooks of Turkey, SIS.

Urbanization Rates in Selected Countries (1991)



Source: World Development Report 1992, The World Bank.

infant mortality in urban areas.

A look at the geographical distribution of Turkey's population shows the rapid migration from rural to urban areas in Turkey, and an urbanization rate of 6.4 percent in 1993. This percentage did not change much from the establishment of the Republic through 1950. After 1950, however, the urbanization rate increased dramatically, reaching 5 percent between 1950 and 1955. Between 1955 and 1980, the average urbanization rate was 4.6 percent, and in 1980 45.4 percent of the total Turkish population resided in urban areas, this ratio rising to 61 percent in 1990. Turkey's urban population is expected to rise to 75 percent of total Turkish population by the year 2000.

1.3. POPULATION POLICIES AND THE DEVELOPMENT OF AN EFFECTIVE FAMILY PLANNING PROGRAM

Population Policies

Because population policies which aim to increase or decrease population growth in a country directly affect society, the development of related programs should be adopted by all parts of society. While a growing population leads to a scarcity of resources and a drop in the overall standard of living, a contracting population can lead to a decrease in the workforce and problems relating to social security. Keeping a balanced population growth rate is an issue that must be handled carefully by both industrial and developing nations.

The development of a truly effective population policy is a difficult task. Internal pressures including religious and cultural opposition and the pressure of other groups of society can be detrimental to the development of an effective program. Although these barriers are undoubtedly strong, an effective program will take these factors into consideration in the development of overall policies. At the same time, external factors including family planning, incentives, the collection and analysis of data and institutionalization have a definitive effect on the success of the population program.

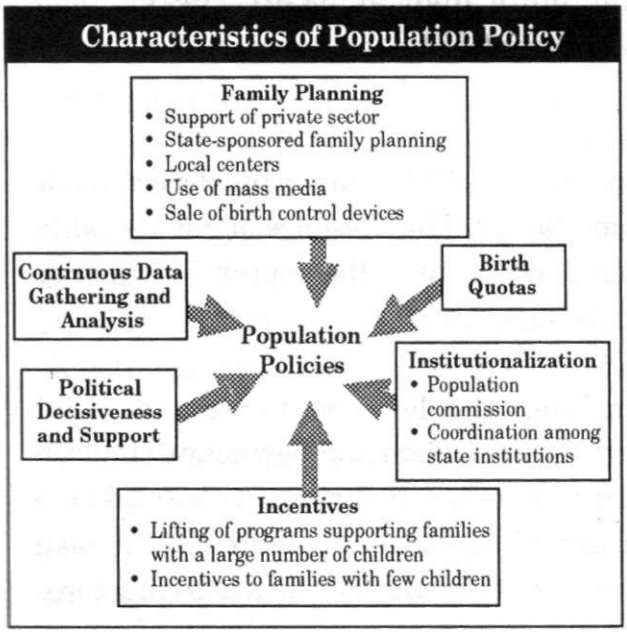
Data Gathering and Analysis: The collection of reliable and accurate demographic data is a requirement for economic planning and development

programs. Essential information include data regarding population, death, births per woman and infant mortality. The absence of such figures can have a negative effect on the healthy development of a population program. The collection and analysis of demographic data, analysis of population trends and the careful development and implementation of effective policies will not only have a positive effect on population growth, but on economic development as well.

Political Decisiveness and Support: To a larger extent than is generally recognized, political support is essential for the development of a population program. An overall concensus regarding the essentiality of the measures called for in the development of policies will enable officials to implement programs with relative ease. At the same time, political support should not rest completely on the shoulders of high-level public officials, but be spread among the lower levels of government and public and private institutions as well.

Institutionalization: In order for population programs to be truly effective, the authority and responsibilities of institutions and organizations taking part in the program should be clearly defined. The careful determination of policies and resources required in order to obtain demographic goals is important for the success of population policies. The integration of population policies with social policies including education, health, social security and family planning will have an overall synergistic effect on socioeconomic development. To this end, the establishment of population commissions including representatives of all these areas, carried out on the Ministry level will be especially advantageous.

Because population policies rely on so many various areas, another important factor determining their success is coordination and collaboration among related institutions. Education (female literacy rate, overall lifelong education), information (use of family planning methods), justice (marriageable age, laws and regulations), women's affairs and rural issues are all subjects that should be included in a coordinated population policy.



Population policies should aim to create better living standards and

overall welfare for present and future generations of society. The definition of goals, however, should not be confined to demographic factors alone. Cultural beliefs and social values are also important in the determination of population policies. For example, factors affecting fertility and the control of population growth should be defined and used in the determination of appropriate action plans. For this purpose, population policies should be in harmony with social values and play an integral part in overall socioeconomic development. The basic characteristic of an effective population policy in developing countries is the aim of lowering the rate of population growth. It is for this reason that family planning efforts should be an integral part of population policies. For Turkey, such a view will help in the creation of better living standards in the 21st century.

Effective Family Planning

The dissemination of information and education aiming to decrease the occurance of unwanted pregnancies and resulting miscarriages and neonatal deaths, enabling families to determine when and how many children they have are all parts of family planning programs. While such programs have been developed and are run effectively in many countries, there are still nations in which such programs have either not developed properly or are not present at all. A truly effective family planning policy should have reachable goals and specify methods with which these goals may be attained.

One of the most important elements of an effective family planning program is the development of a healthy environment for mother and child. As is the case in many developing countries, infant and mother mortality rates in Turkey are quite high. While the infant mortality rate per 1,000 live births varies from 4 to 7 in Western European countries, this ratio remains quite high at 58 in Turkey. The development of a healthy environment is essential to the success of a family planning program.

As important as the development of the sense of family as a unit, is the development of a sense of parenthood in both mother and father. The presence of such a value increases the chance that newly born children will be given the appropriate quality and quantity of nutrition, health and educational care.

Family planning efforts should play an integral role in economic and social development. Giving women the ability to determine when and how many children to have is an important step in the development of the opportunities available to her and her children. Families are more likely to have as many children as they can care for. At the same time, women' ability to enter the work force has a driving force

on the overall national economy. It is for these reasons that the development of educational programs aimed specifically at women, raising their status in the family as well as in the eyes of society, are important factors of economic and social development.

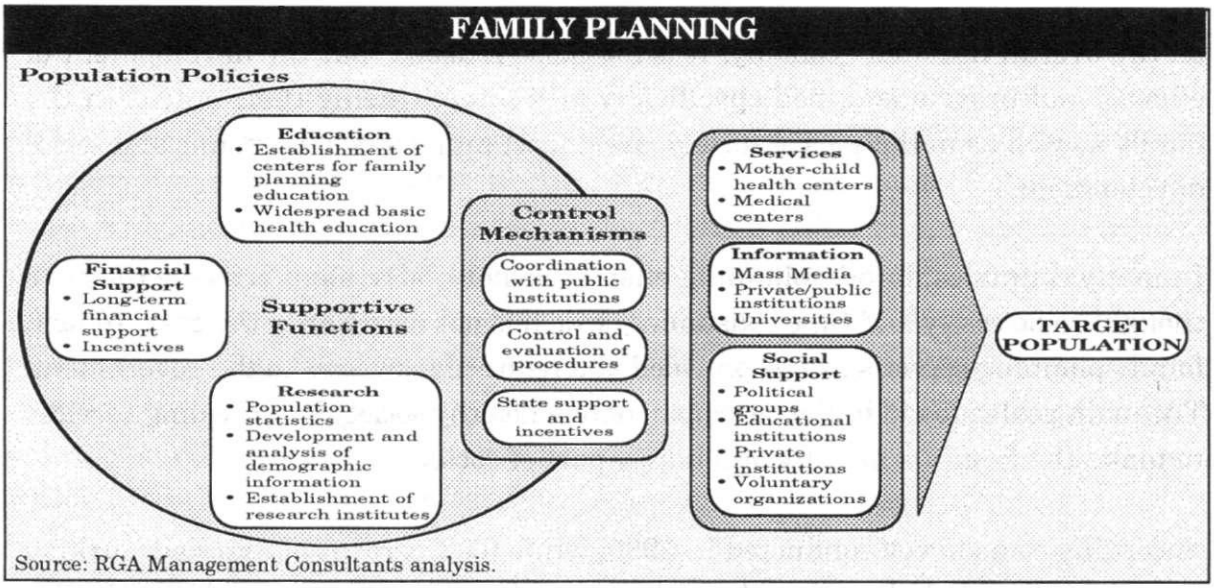
In many countries, family planning efforts are not undertaken because they are thought to be costly and time consuming, which is not necessarily the case. In fact, family planning services can be provided at a relatively low cost to the government. The main goal is to aid in the development of a healthy society by providing services to make the family a healthy and happy part of society.

According to a survey conducted in 1990, while 97.2 percent of married Turkish women responded that they have heard of family planning, only 7 percent responded that they implement family planning measures. Some of the reasons given most frequently for not using birth control methods even though they do not wish to become pregnant are "health reasons," "husband's objection," "lack of knowledge."

Family planning is one of the basic parts of population policies. In some countries like Brazil, Nigeria and Sudan, while no official population policy exists, family planning efforts are included in overall health services. However, the existence of an effective family planning policy supported by related services is essential for the reduction of population growth in developing countries. Doing away with customary beliefs that a large population makes a country powerful, the development of education and health services and the equal distribution of national resources are essential for the healthy development of an effective family planning program.

The Development of Family Planning Programs: Family planning programs can only be truly effective if they are carried out on a nationwide basis. To this extent, the government and public and private institutions must all support the development of such a program. While the determination of the tenets of family planning programs vary from country to country, they are most often influenced by factors like demographic structure, geographical status, level of development, educational level, culture, beliefs and customs.

The Implementation of Family Planning Programs: Family planning is an integral part of overall population policies. In this context, the specificity and openness of the goals of a family planning program are essential to the effective implementation of the program itself. At the same time, effective organizational



structure, coordination and control mechanisms have an important effect on the success of the program. As is true of all services, family planning efforts rely upon human resources. At the same time, however, modern technology, financial resources and the efficient distribution of information are essential infrastructural parts of the overall program.

Family planning services are best distributed through local mother-child health clinics and health centers which are readily accessible to the public. The quality and compatibility of services to the needs of the public are important factors determining the success of the program. Another essential part of the family planning effort is the effective dissemination of information through the mass media, educational institutions and other private and public institutions. At the same time, widespread social support for the overall program is important for the development of public acceptance for the program. Political groups, educational institutions and voluntary organizations play an important role in this process.

As is true of most policies dealing with social and economic development, family planning efforts are directly related to education. In order for family planning practices to be truly effective and have a long-lasting effect on the nation, relevant educational services should be provided. These include not only the education of adults regarding family planning and health issues, but programs aimed at the relevant education of school-going children as well.

In order for family planning programs to develop with changing society, research and development activities are particularly essential. The collection and analysis of population and demographic statistics, the development of geographic population distribution data and the close examination of worldwide developments are important parts of the family planning program.

CHAPTER 2

THE HEALTH SECTOR AND RELATED SERVICES IN TURKEY

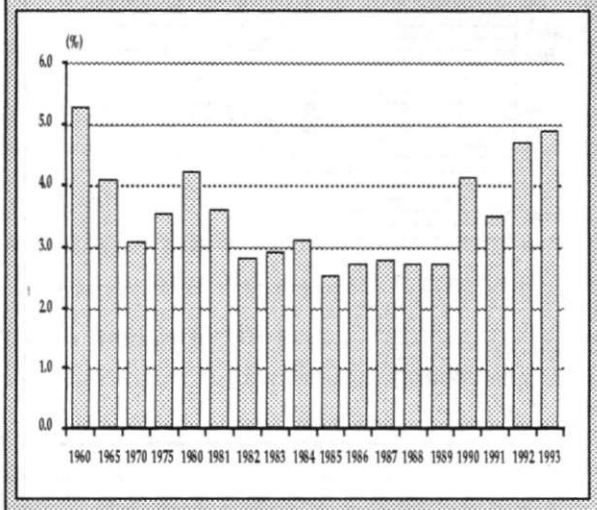
2.1. DEVELOPMENTS IN THE TURKISH HEALTH SECTOR

Although the importance of the health sector in overall development is widely recognized, health considerations have historically taken a second seat to economic development in Turkey. Relatively few resources have been allocated to the ameliorization of health services in Turkey, and as is the case in many developing and industrialized countries, the rebuilding of the neglected health sector has become an important and recurring issue.

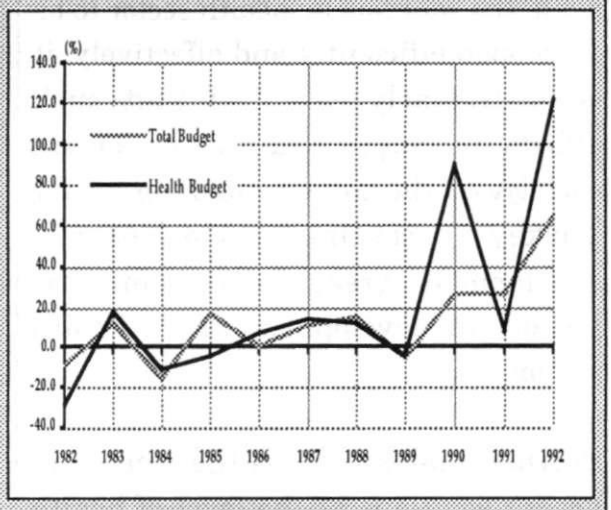
Looking at the share of health expenditures in Turkey's overall fiscal budget demonstrates that the proportion of resources allocated to health services in Turkey is indeed quite low. Although health expenditures made up over 5.0 percent of the fiscal budget in 1960, resources allocated to the health sector dropped steadily in subsequent years, reaching a low of 2.5 percent of the fiscal budget in 1985. Following 1985, even though an increasing priority has been given to the health sector, health expenditures have failed to reach the pre-1960 level.

While the health budget has increased in real terms most years following the early 1980s, in most cases this increase has actually been either near or below real increases in the overall budget. The relative increase in the health budget in recent years, however, is an indicator of the growing importance being placed on health services.

Health Expenditures in Overall Fiscal Budget

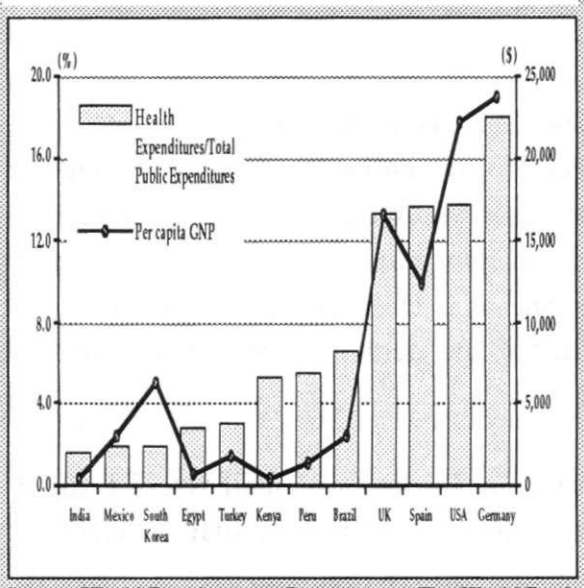


Real Increases in Fiscal and Health Budgets



Source: Türkiye'de Sağlık Politikaları, Sağlık Bakanlığı, 1992.

Per Capita GNP and Share of Health Expenditures in Total Public Expenditures (1991)



Source: World Development Report-1993, The World Bank

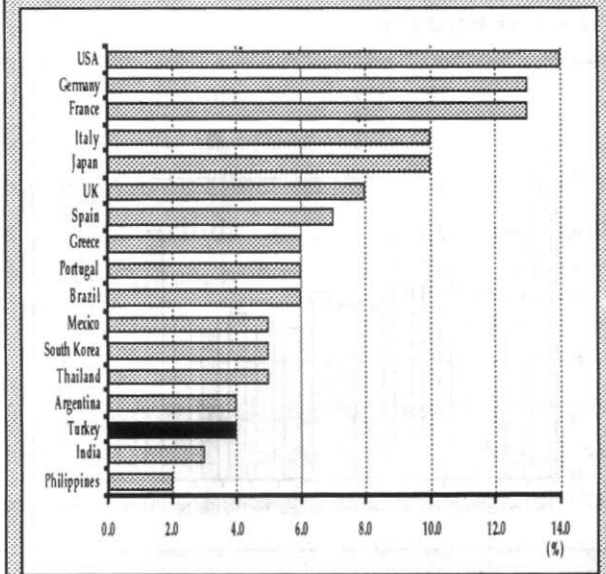
Turkey's health expenditure as a percentage of total public expenditures is larger than South Korea and Mexico, among other countries. The level of health spending as a ratio of total public expenditures is highest in the industrialized countries, where it reaches over 10 percent. This ratio, however, falls to below 2 percent of public expenditures in developing countries, and remains around 3 percent in Turkey.

In general, the percentage of household income spent on medical care shows a direct correlation with a country's level of development. Just as public expenditures on health services are relatively low, so is the case with individual consumption expenditures. In terms of expenditure on medical care as a percentage of total household consumption, Turkey is far behind many countries with a similar or lower level of per capita income. This indicator demonstrates that Turkish consumers are also not in the habit of spending large parts of their income on health care.

The apparent neglect of the health sector by both the public sector and consumers in Turkey leads to problems in the further development of the sector itself. In order for the health sector to be developed efficiently and effectively, it is particularly essential that such efforts be supported by the entire society. At the same time, in order for Turkey to continue socio-economic development, great emphasis must be put on the development of the health sector.

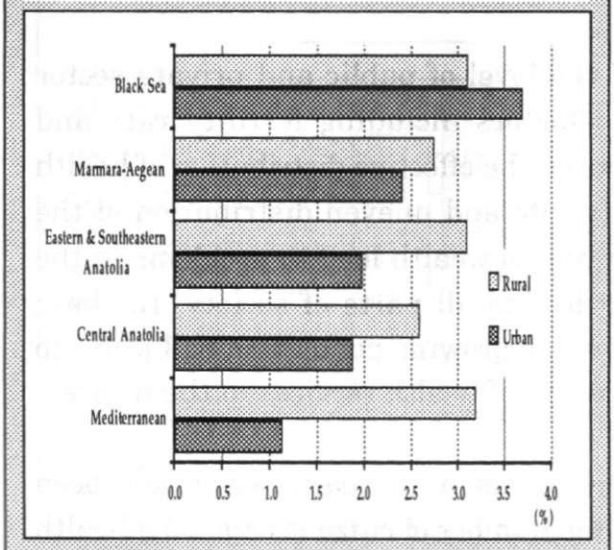
Further analysis shows that there are great variations in the level of health

Medical Care as a Percentage of Total Household Consumption in Selected Countries (1985)



Source: World Development Report-1993, The World Bank

Health Expenditures as a Percentage of Consumption According to Geographical Regions

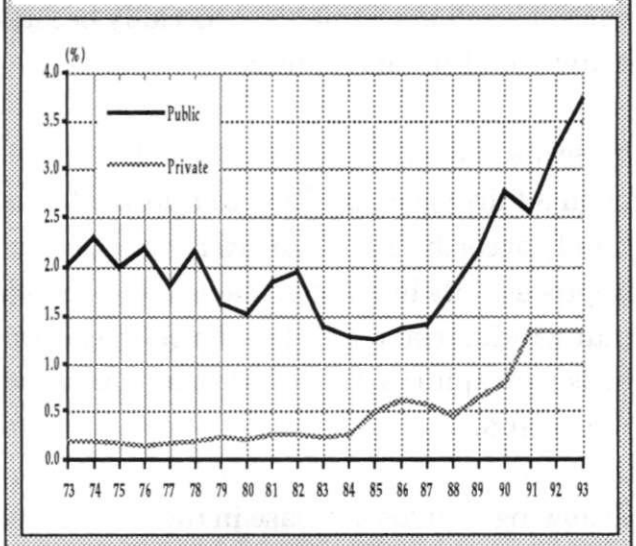


Source: Tüketim Harcamaları-1987, DİE, Ekim 1990.

care consumption according to geographic region and place of residence. In Turkey, for example, there is both a variation according to urban/rural residence as well as geographical region. There is relatively little variation in consumption on health care in rural areas, where health care makes up between 2.5 and 3.0 percent of total consumption. On the other hand, in urban areas, health care consumption as a percentage of total consumption varies from 1.0 to 3.5 percent according to geographical regions. All in all, health expenditures make up a relatively low percentage of total consumption throughout Turkey, showing quite little variation according to the level of economic development of the entire region, while there is a sizable difference between health care consumption in rural and urban areas.

Analysis of the share of health investments in total fixed capital investments is an important indicator of the developments and tendencies of overall health investments. Health investments of both the private and public sectors have been quite low in Turkey historically. All in all, the health sector has a relatively low share in total fixed capital investments, indicating that problems may arise in health services in the future. Only very recently has investment in the private sector reached 1.0 percent of total fixed investment. There have, however, been important developments in health investments in recent years, with private sector investments in the health sector showing a particularly large increase following the mid-1980s, when the government began investment incentives aimed at the health sector. These factors combine to indicate that carefully planned incentives encouraging investment in the health

Share of Health Investments in Total Fixed Capital Investments



Source: Yıllık Programlar, DPT.

sector, especially in the less-developed regions, along with the updating and development of existing facilities are essential for the future development of the Turkish health sector.

Along with consumption tendencies and the level of public and private sector investments and expenditures, external factors including fertility rate and population distribution have definite effects on the effective distribution of health services within a country. A high fertility rate and uneven distribution of the population both geographically and according to wealth lead to problems in the dissemination of appropriate health services to all parts of society. In these countries, insufficient investments along with a growing population will prove to be particularly detrimental to the development of health services in the future.

This case is also true in Turkey, where investments in the health sector have been far from sufficient while at the same time the number of citizens expecting health care services grows steadily. Population growth is not only a barrier to socio-economic development, but also prevents the efficient distribution of health services. The addition of family planning services to the overall health program is an essential step toward not only decreasing the rate of population growth, but developing overall health care services as well.

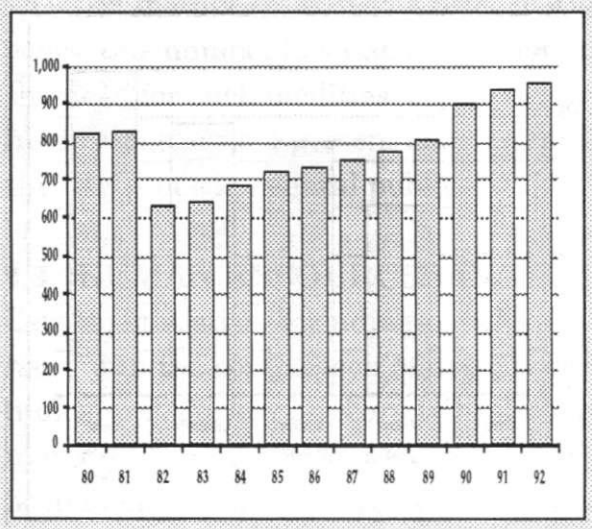
2.2. PHYSICAL INFRASTRUCTURE

Although investment in the health sector on the whole has been relatively low in recent years, investment in physical infrastructure such as in-patient institutions and health clinics appears to be promising. On the other hand, the lack of careful planning in the initial stages of these investments has caused subsequent problems in other areas. Careful site selection, human resource planning and capacity estimation are all factors that must be taken into account at the initial stage of such investments, especially because these investments eventually rely so heavily on human resources.

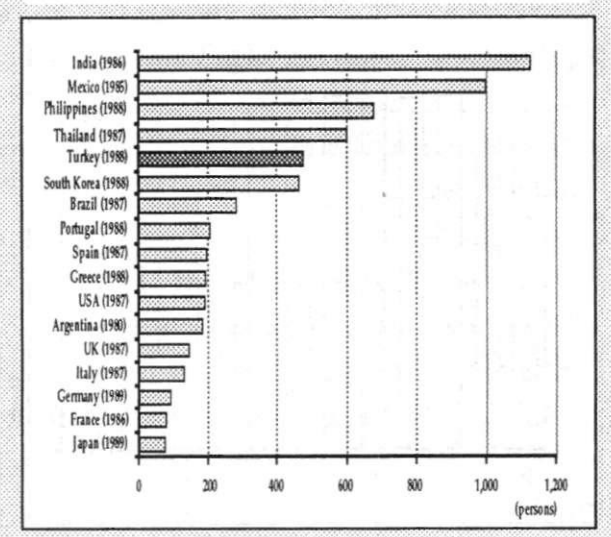
In terms of overall physical infrastructure in the health sector, Turkey appears to be in a fairly good position in relation to many developing countries. On the other hand, according to indicators such as population per hospital bed, although improvements have been made in this area in the last decade, Turkey is still behind many industrial as well as developing countries. There are half as many hospital beds per capita in Turkey as there are in countries like Portugal, Spain, Greece and Argentina.

Following a slight decrease in the number of in-patient institutions in Turkey in the

Population Per Hospital Bed in Turkey



Population Per Hospital Bed in Selected Countries (1991)



Source: Türkiye İstatistik Yıllıkları, DİE.

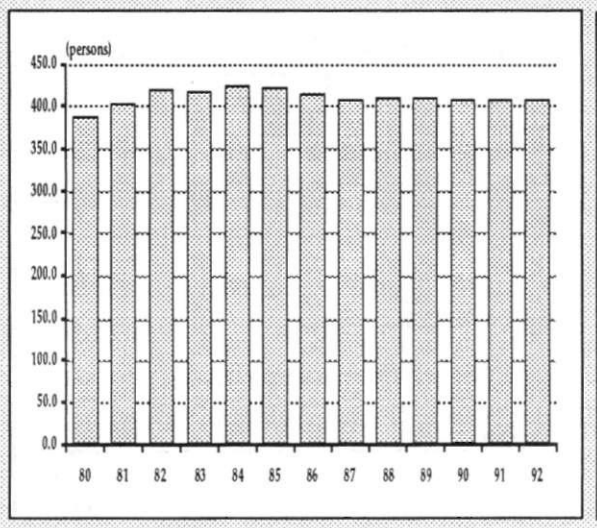
early 1980s, the number of in and out-patient medical institutions has returned to the level it had maintained until the late 1970s. Due in part to a high rate of population growth, investments made in health care facilities during the 1980s were able only to sustain the level of facilities per population. Unfortunately, the inherent lack of financial and human resource planning has caused many facilities to be operated at well under capacity levels, while others do not have sufficient capacity to meet demand.

Turkey has shown a marked improvement in indicators like population per hospital bed in recent years, but is still behind many lower-income countries in this respect. While the number of hospital beds in Turkey is increasing, the efficient and effective use of these facilities is declining. A lack of coordination among health-care providing institutions and the fact that particular facilities are available only to certain members of the population lead to very low occupancy rates in some in-patient institutions, while other institutions are not able to care for the large number of patients coming to them.

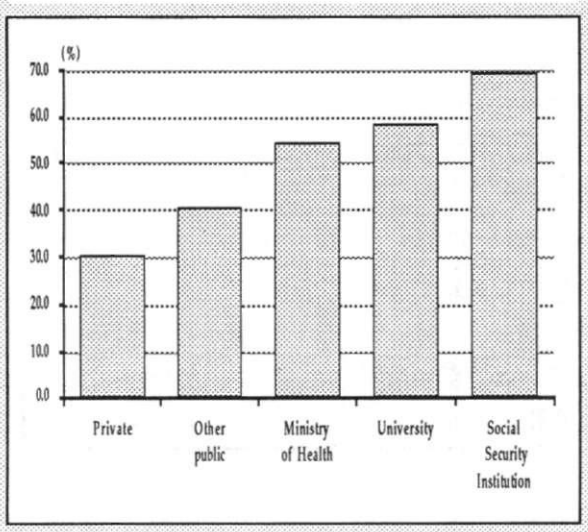
Employment and personnel problems in existing facilities lead to notable problems in health services. While infrastructural facilities may be sufficient to meet overall need, a lack of sufficient personnel leads to problems in health care and treatment. This factor has led to a growing lack of trust in health care institutions throughout Turkey.

The two most noticable factors leading to the ineffectiveness of physical infrastructure in Turkey are the lack of coordination with human resource

Number of In-Patient Institutions in Turkey



Occupancy Rate of In-Patient Health Institutions in Turkey (1990)



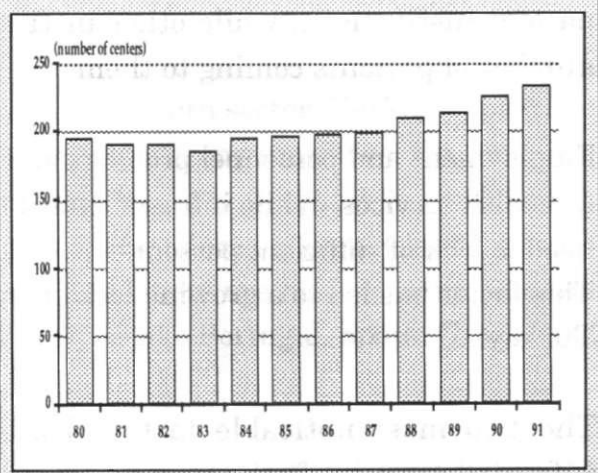
Source:Türkiye İstatistik Yıllıkları, DİE.

planning and the dominance of political maneuvering in regional development, leading to unequal distribution of health care facilities among regions. Even the distribution of health care personnel among geographical regions is affected by political alliances and lobbying groups.

For the occupancy rate of in-patient health care institutions to be below 70 percent while the Turkish health care sector is unable to provide efficient services demonstrates another deficiency in the health care system. Demand for health care facilities is inherently high throughout Turkey. For the occupancy rate to be so low while demand is so high brings out an important weakness of the overall system. Many institutions which have suffficient infrastructural resources are unable to supply services due to a lack of trained medical personnel.

An important part of the limited fininacial resources allocated to the health sector is in effect wasted due to a lack of planning and coordination. At the same time, priorities for the development of the sector as a whole have not been effectively set. For example, while high population growth is a problem that has plagued Turkey for many years, the development of effective family planning programs and

Mother-Child Health Clinics in Turkey



Source: Türkiye'de Sağlık Politikaları, Ministry of Health, 1992

related services has been slow and inefficient.

The first mother-child health clinic in Turkey was opened in 1952. In the following years, this number has risen to 240 clinics throughout Turkey. Taking into account the need for such facilities, especially in the more rural areas where other health institutions are not present demonstrates the inability of the health sector to serve the needs of the general public.

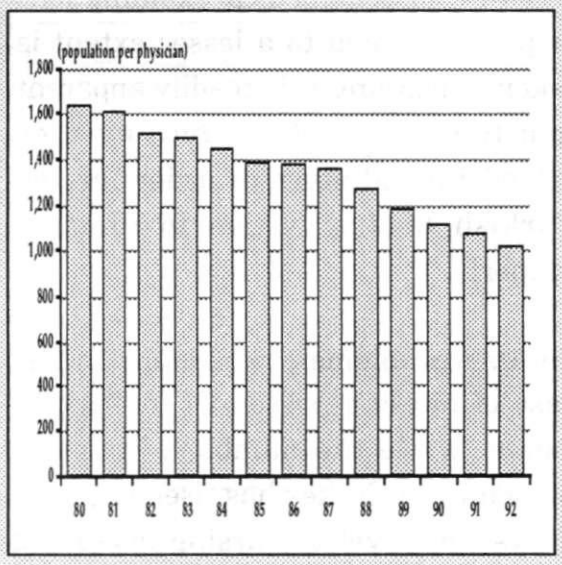
2.3. HUMAN RESOURCES IN THE TURKISH HEALTH SECTOR

Certain statistics, including population per physician and medical personnel are helpful in the comparison of health services among countries. According to these indicators, Turkey appears to be deficient in human resources in comparison to many other developing and industrial countries. Although developments have been made in recent years in the number of physicians and nursing personnel per population in Turkey, these values are still below international standards. Overall, Turkey has failed to reach the level of other countries with similar population and per capita income characteristics.

Population per physician has decreased steadily in Turkey over the last decade, indicating a rise in the number of physicians over that of overall population growth. On the other hand, Turkey is still behind most industrial and several developing countries in this aspect. Only countries like India, Thailand, South Korea and the Philippines have a higher rate of population per physician in comparison to Turkey.

Along with a lack of trained medical personnel in Turkey, there are also important differences in the number of medical personnel among geographical regions. While some regions resemble the Western European countries in terms of medical personnel, other less developed regions show a noticable similarity to countries like India in terms of related human resources.

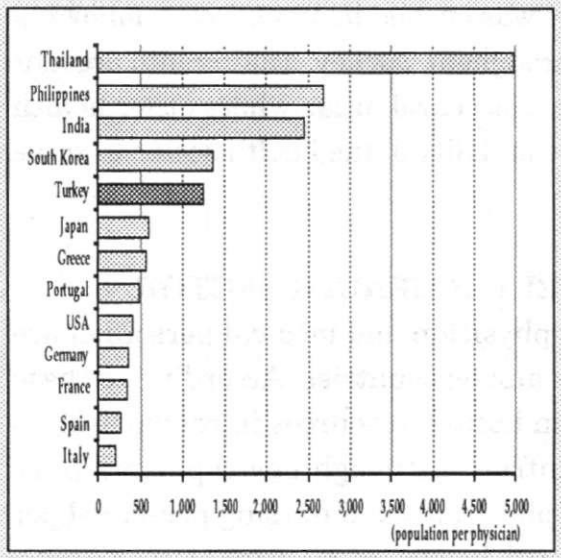
Population Per Physician in Turkey



Source: Türkiye İstatistik Yıllıkları, DİE.

The tendency of medical personnel to accumulate in the more developed regions is an important barrier to the effective distribution of medical

Population Per Physician in Selected Countries (1990)

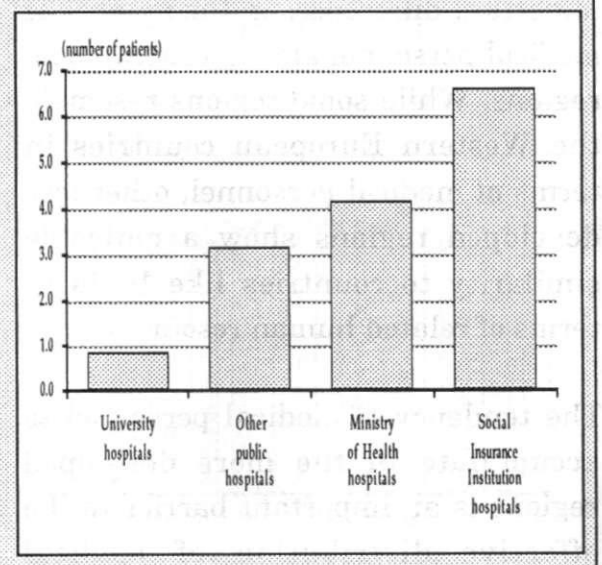


Source: World Development Report, The World Bank.

services. Because of the lack of sufficient facilities in the less developed regions, demand for services in the developed regions where physicians are located increases as patients travel to these areas for treatment. In the end, the accumulation of doctors in the developed regions leads to an increase in demand in these areas, and because of this increased demand, physicians in these areas must treat more and more patients. This incredibly high demand in turn leads to a decrease in the quality of services provided as existing facilities are over-utilized.

For the most part, physicians in Turkey are in fact not able to give patients the time and care they require. For example, assuming that physicians in Turkey spend an average of four hours per day performing medical examinations, and work 240 days throughout the year, a physician employed at a Social Insurance Institution hospital examines seven patients per hour. This number requires that the physician spend only 8.5 minutes with each patient, which rarely gives the physician the opportunity to actually examine the patient, much less make a diagnosis. While this number varies according to the type of institution, the same problem is present in all medical institutions in Turkey to a varying extent. If the fact that many physicians do not actually perform medical examinations or perform them to a lesser extent is taken in account, it is readily apparent that this is a problem which must be solved immediately in order for the Turkish health system to function properly.

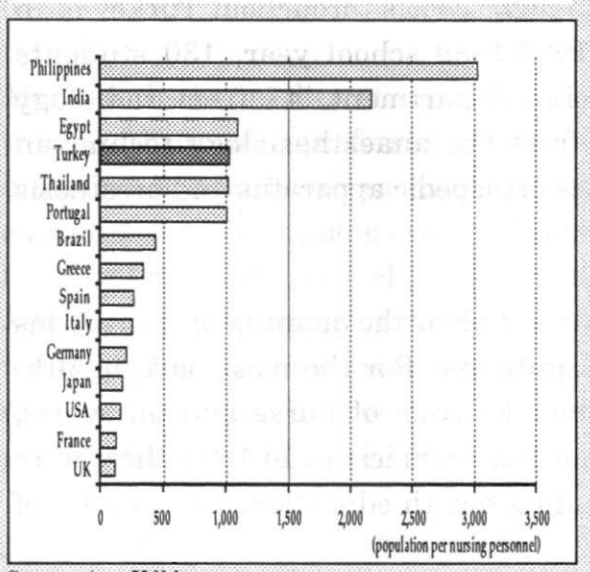
Number of Medical Examinations Per Phisician Per Hour



Source: Türkiye'de Sağlık Politikaları, Ministry of Health.

Similar problems are evident in the case of nursing personnel in Turkey. Again, while the number of nursing personnel in Turkey has risen in recent years, the level of nursing personnel per population has not reached

Population Per Nursing Personnel in Selected Countries (1985)



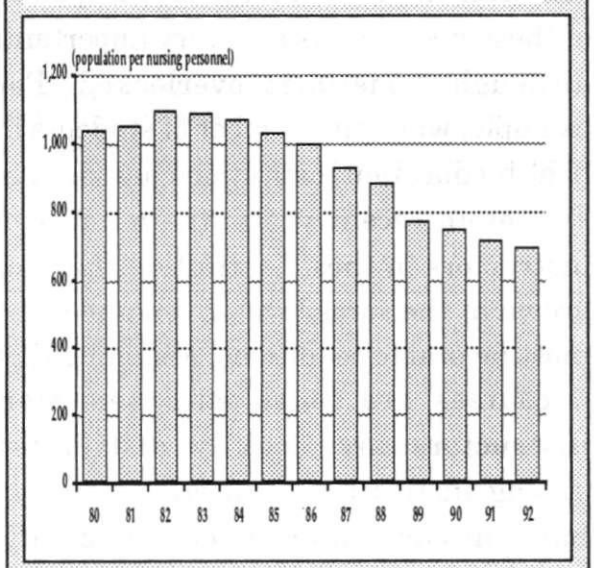
Source: Ana-Yıllık.

international standards. Turkey's level of population per nursing personnel is higher than that in countries like Thailand and Brazil, which have a higher total population and similar level of per capita income.

Although there appears to have been an improvement in the quantity of nursing personnel in Turkey, the same is not true of the quality of nursing services provided. In fact, nursing personnel refers to many types of medical personnel in Turkey. All persons graduated from institutions giving health education are termed as nursing personnel. The fact that such institutions may be at high school, technical school, university or graduate level leads to important differences in the quality and training of existing nursing personnel. If the population per nursing personnel were calculated according to those who are graduates of institutions of higher education, population per nursing personnel would be much higher in Turkey.

Assuming that all nursing personnel in Turkey are employed in health clinics and work eight hour per day, 240 days per year, there are 14 patients in in-patient institutions per nursing personnel in Turkey. Considering that nursing personnel attend to many other duties including administrative posts, surgery and midwife duties in addition to caring for patients, the insufficiency of the current nursing personnel becomes evident.

Population Per Nursing Personnel in Turkey



Source: Türkiye İstatistik Yıllıkları, DIE.

In addition to insufficiencies in the number of physicians and nursing personnel in Turkey, there are also problems with the availability of qualified health technicians. While population per health technicians in Turkey has decreased substantially in

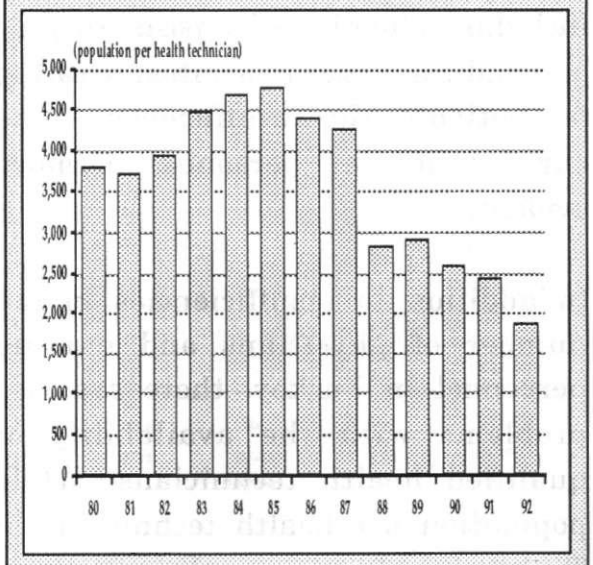
recent years, the special education that is required for technicians to specialize in a certain field is deficient in existing health education institutions. The number of students graduating from health-education high schools throughout Turkey is an indicator of this insufficiency. In the 1988-1989 school year, 130 students graduated from the laboratory technician department, 47 from radiology technician and 29 students graduated from the anaesthesiology technician department. There were no graduates of the orthopedic apparatus and prosthesis and oral prosthesis departments in this year.

All in all, the number of medical technicians as well as the quantity of institutions providing health education in Turkey is quite low. For the most part, health-education institutions concentrate on the education of nurse and midwives, creating an even higher need for qualified medical technicians. In 1990, there were 117 institutions throughout Turkey providing health education, with a total of 23,435 students.

Problems with human resources in the health sector lead to even larger bottlenecks throughout the system. Even though a hospital may have been equipped with the latest technology, machinery and equipment that can only be operated by trained technicians cannot be used as needed if there is a shortage of technicians available. In order for physicians to be able to implement the latest methods investment in infrastructure is meaningless without a similar investment in human resources. Similarly, subjects such as hospital management and health services financial management have become subjects requiring substantial expertise and training.

Along with the quantity of human resources in the health sector, the quality of these resources is also very important, although sometimes overlooked. For example, while the number of students in health-education institutions has risen in Turkey in recent years, the number of instructors in these institutions has not grown at the same level. Even under the most favorable conditions, assuming that 6 courses are taken each semester, instructors are equally distributed among institutions and all instructors have an equal number of courses, the student to instructor ratio in these

Population Per Health Technician in Turkey



Source: Türkiye İstatistik Yıllıkları, DİE.

institutions is close to 40. In reality, this ratio is much higher than is represented here, emonstrating the need for improvement in the quantity of instructors in this field.

Along with the quality of initial education, the continuation of education and training throughout professional life is also essential, especially in a field such as medicine in which advances are constantly developing. The continuation of education and training is essential not only for physicians, but for nursing and technical personnel as well, and should be an integral part of every profession. Although the need for continuous training is widely recognized, however, a heavy workload, limited financial resources and other regulations play an important part in preventing the appropriate development of training programs for health personnel.

2.4. SUGGESTIONS FOR AN EFFECTIVE HEALTH PROGRAM

Health Policy

The initial priority of a basic and effective health policy should be to aim at developing public awareness towards health issues, training qualified health personnel and developing modern and technologically advanced physical and institutional infrastructure. The establishment of a supportive and workable financial structure is also essential for the efficient development of a health program.

Development of Services	• Is physical infrastructure sufficient for the development of services? • Is health personnel qualified enough? • Are there problems in institutional infrastructure? • Are there any legal barriers to the development of services? • Are services performed with enough quality?
Increasing Availability and Effectiveness	• Are there differences among regions? • Is physical infrastructure equally distributed? • Are human resources equally distributed? • Is the institutional infrastructure well established? • Are resources being used efficiently?
Establishing Continuity	• Is the financial structure conducive to continuity? • Have investments in resources like physical infrastructure and human resource planning been made? • Is there cooperation and collaboration among institutions?
Preventing Increases in the Costs of Services	• Are there variances in the quality of services provided? • Are there variances in the prices of services? • Are institutions managed effectively? • Do appropriate check and balance mechanisms exist? • Can minimum and maximum prices for services be determined?
Eliminating Redundant Services	• Has physical infrastructure been carefully developed? • Does an effective informational system, allowing services to be followed through exist? • Do inter-institutional follow-up procedures exist?

The careful planning of health services is an important requirement for the development of the quality of health services and the ability of these services to meet the needs of the general public. In order for health planning to be fully effective, the major goals of the entire health program must be carefully determined. Because of its wide scope and the need for diverse goals, health planning is a particularly difficult subject to manage. At the same time that the definition of major goals can facilitate health services, the development of appropriate infrastructure and resources facilitates the meeting of the needs of the general public.

Health planning's basic goals should include; developing appropriate and affordable services, increasing availability and effectiveness, bringing prices and costs to an affordable and efficient level, and preventing redundancy in services provided.

In order for established goals to be properly met, subgoals geared toward infrastructure, human resources and institutional infrastructure must also be carefully determined. In tandem with these efforts, the establishment of medium and long-term goals for the continuation and development of services and coordination among all areas of the health sector are of utmost importance.

	Development of Services / **Increasing Availability and Effectiveness** / **Establishing Continuity** / **Preventing Increases in the Costs of Services** / **Eliminating Redundant Services**
Physical Infrastructure	• The adaptation and use of modern technology • Equality among health institutions providing similar services • Standardization of equipment according to type of service • Development of informational communication infrastructure
Human Resources	• Human resource planning • Employment of human resources of sufficient quality and quantity • Determination of required personnel according to type of service • Employment of qualified management personnel • Development of efficient and effective control mechanisms • Development of continuous training programs • Provision of health education in tandem with national development
Institutional Infrastructure	• Development of institutional infrastructure allowing a reduction in costs without a decrease in the quality of services • Introduction of protective measures in tandem with the growth in demand for such services • Establishment of institutions providing care for the young and the elderly • Reduction of costs of services to rural areas and other high-cost groups • The development of a competitive environment encouraging personal and organizational development

Financing Health Services

Human Resources and Physical and Institutional Infrastructure

The development of health infrastructure in conjunction with health planning is essential for the development of an effective health program. A modern and workable physical infrastructure is essential for the equal distribution of health services. Advanced technology allows institutions to follow the progress of procedures and to obtain feedback from other parts of the health sector. At the same time, it should not be forgotten that advanced technology can be effectively utilized only if human resources are trained in tandem. Institutional infrastructure should be open to change, adaptable and competitive, allowing for the development of an effective managerial system.

Due to the wide scope of health services, the public sector's financial contribution to the health sector can sometimes lead to problems in the coordination of financial support and health services. The development of the health system is, in effect, dependant on appropriate financial support. In order for health services to be provided effectively and efficiently, the careful and appropriate provision of health services should be the major goal of the overall health system.

The balanced development of infrastructure, determination of laboratory and equipment needs, and equal development of human resources should be of first priority in the provision of effective health services. At the same time, the establishment of equality among institutions providing similar services is necessary for the health sector to gain the trust of the general public. Of course, coordination between infrastructural development and human resources is of primary importance to the development of the health sector. In the end, health institutions, as providers of services to the public, must develop in tandem with the needs and desires of the society which they serve.

CHAPTER 3

EDUCATION IN TURKEY

Education is a social service directed towards increasing the creative strength of society, providing training possibilities to individuals in tandem with their abilities, instilling an awareness of social justice and equal opportunities and providing younger generations with the knowledge, skills and understanding they need to assume their place in society. As is the case in almost every country, the development of the Turkish educational system has been a subject of major discussion for many years.

Due in part to Turkey's high rate of population growth, the implementation of educational standards has required that more and more resources be allocated to the education sector. Although efforts have been made, this allocation of resources has not always been possible, as first priority is given to other developmental goals. As a result, problems resulting from a lack of sufficient resources have occured. While developments have been made in the actual amount of resources allocated to education, the distribution of these resources and the overall quality of services provided have not been managed as efficiently as possible.

Throughout the world, national educational systems are developed with the purpose of meeting the changing educational needs of citizens through socioeconomic development. The overall effectiveness of educational programs is dependant on their compatability with national, regional and local goals.

The general purpose of almost all educational systems is to develop students' level of knowledge while aiding them to develop themselves individually. Schools' functions are by no means limited to the development of cognitive skills, but are also very influential in the shaping of students' actions and thoughts, and guiding them through various stages of development. During the educational process, students are also taught cultural and social norms and ethical behavior, to value national culture and encouraged to develop into independent, participative and responsible human beings.

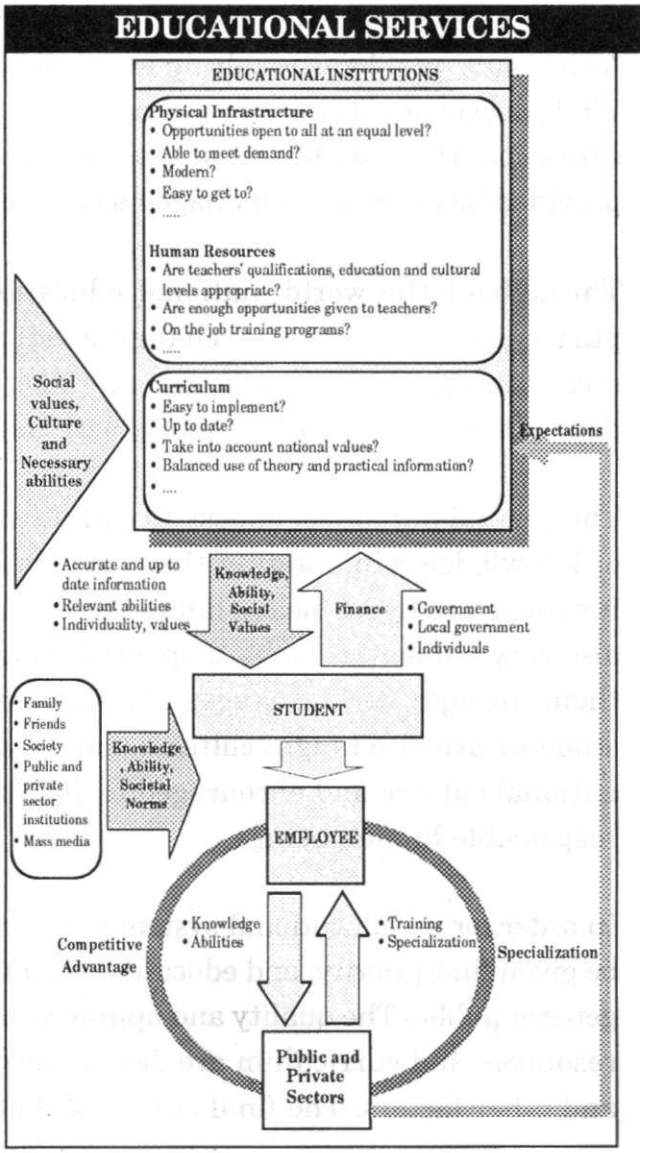
In order for an educational system to be truly effective, quality of education must be given first priority, and education must be percieved as a service provided to the general public. The quality and appropriateness of physical infrastructure, human resources and curriculum are determined by cultural norms, political interests and other factors. The final output of the educational system is students which

enter the workforce. For this reason, close interaction between educational institutions and public and private sector employers is particularly essential for the accurate dissemination of information to the student, increasing his ultimate competitive advantage in the workforce.

While certain data including the student to teacher ratio, number of schools, length of compulsory education and standardized tests all allow educational systems to be compared, such comparisons in fact leave the system out of context. The real evaluation of an educational system should be based on its ability to provide accurate and timely information to students in accordance with the requirements of public and private sector employers.

3.1. TURKEY'S EDUCATIONAL SYSTEM

In most national educational systems, school education is an integral part of social and economic goals and values. For just this reason, evaluating the overall quality of education is particularly difficult. For the most part, the ability of the educational system to meet both cognitive and noncognitive goals is used as an important and basic determinator of the overall quality of educational services provided. The comparison of educational systems and the quality and availability of education among different countries is made difficult because of the integral role the educational system plays in each country's overall economic and social programs. According to many factors including it's level of development, the social and economic context and socio-demographic beliefs and values, each country develops educational standards and goals specific to its own situation. All of these factors combine to form the overall context in which an educational system is developed.



Several types of data are used in the measurement of the quality of

TURKEY'S EDUCATIONAL SYSTEM

EDUCATIONAL GOALS

- To produce constructive, innovative and productive individuals.
- To introduce individuals to national values.
- To prepare individuals for the work force.

EDUCATIONAL STRUCTURE

- Schooling rate at the preschool level is around 5 percent.
- Compulsory education begins at age six and lasts 5 years, consisting of primary education. Plans exist to lengthen compulsory education to 8 years, including junior high school.
- The first level of secondary education lasts three years and is not compulsory.
- The second level of secondary education generally lasts 3 years. General high school, technical high school and vocational high school education is provided. Entrance into private, foundation-financed and some public high schools is contingent upon success in an entrance exam.
- Higher education consists of four-year university and two-year vocational education institutions. Entrance is contingent upon success in the Inter-University Entrance Examination.

MANAGEMENT AND FINANCING OF EDUCATION

- The management of the education system in Turkey is centralized, and financed generally by the central government.
- National education is generally financed through the general and consolidated budgets, with some outside sources providing additional financial resources.

EDUCATIONAL PERSONNEL

- Primary school teachers must be graduated from a Faculty of Education approved by the Ministry of Education.
- Secondary school teachers must either be graduated from a Faculty of Education or from the Faculty relevant to the subject which they will teach. These prospective teachers must go through teaching courses as well.

CURRICULUM DEVELOPMENT

- Education programs are developed and implemented entirely by the central government.

PROBLEMS

- The insufficiency of materials and infrastructure negatively affects the quality of education.
- The teaching profession has lost a great deal of its attractiveness and the most successful students are discouraged from entering into the teaching profession.
- Insufficiency of preschool education.
- The highly centralized educational system leads to problems in the implementation of the educational program..
- The deficiency of educational infrastructure lowers the overall quality of education.

education. These include the quality and availability of the financial, physical and human resources which drive the educational system. Time which is devoted to school (hours of daily instruction and required length of schooling), the quantity and quality of homework, and the structure and content of the lesson program are all examples of indicators used to measure the quality of education. At the same time, the use of standardized tests to measure students' comparative levels of performance is an important and effective manner of evaluation. The length and age limit of compulsory education, availability of preschool education, technical and academic facilities and opportunities are all factors that contribute to the differences found in the educational systems across the globe.

Although all of the above factors lead to a definite differentiation in educational goals and structure among countries, students' capabilities in standardized tests and projects dealing with universal subjects like science and math are important measures of the quality of education and the ability of educational systems to meet their goals. The emphasis put on these factors across countries and regions varies greatly, and the ability of the overall system to adapt itself to changes in global

settings will greatly affect the success of each individual educational system.

Educational Goals

The basic principles taken into account in the achievement of official educational goals in Turkey include: generalization and equality, meeting of the needs of individuals and society, orientation, the right to education, equal opportunity and continuity. Educational institutions in Turkey are open to all, without discrimination as to race, sex or religion. No privileges are granted to individuals, families, groups or classes. Services in national education are organized so as to meet the needs, abilities and desires of Turkish society. In this manner, individuals are directed towards institutions where they may be best educated based on their capabilities, talents and interests.

In order to develop along with economic and technological developments, it is becoming increasingly important that deficiencies in profitability, decision-making and effectiveness be done away with in the overall educational system. At the same time, the development of communication skills, team work, leadership and problem-solving techniques in students should be included in the overall goals of the educational system.

Structure of the Educational System

Preschool education in Turkey is generally run by private education institutions which are directly connected to the Ministry of Health. The programs and structure are developed in accordance with the standards drawn up by the Ministry of Education. For the most part, preschool education opportunities in Turkey are confined to the larger metropolitan areas. The overall schooling rate of children in the 3 to 6 year old age group is around 5 percent.

Compulsory education in Turkey consists of 5-year elementary school education. Although not yet implemented, plans exist to raise the required schooling level from five to eight years, including both elementary and junior high school education. Elementary education begins at age 6. The overal schooling rate at this level is 100 percent, with only 1 percent of students attending special schools at this stage.

Middle school education in Turkey is divided into two parts, junior high and high school, each lasting three years. In 1992, 58.9 percent of junior high school cohorts were attending school.

The second half of middle school education consists of general high school and vocational schools. 23.0 percent of those in this age group attend general high

schools, 17.7 percent attend vocational schools, making an overall schooling rate of 40.7 at this level. Only three percent of students at this level are registered at special schools.

Higher education opportunities in Turkey consist of four-year universities and two-year vocational schools. Entrance into these schools is dependent on students' success in a standardized entrance exam. In 1992, 21 new universities were established, bringing the total number of universities and institutes of higher education to 52 throughout Turkey. In 1992, schooling rate at the higher education level was around 16.0 percent.

Management and Financing

In general, all levels of the Turkish educational system are financed by the public sector. Funds use to finance the educational system originate primarily from revenues collected from national taxes. Other sources including foreign loans are secondary sources of revenue. Overall, sources leading to the financing of national education originate from the general and consolidated bugets and other sources.

The problem of financing national education was recognized as an important issue in the early 1980s. In 1986, discussions concerning making middle school education contingent to a tuition fee began. Efforts to restructure the financing of middle school education have been largely unsuccessful, leading to an ever-increasing need for such changes.

In general, all public schools, including universities, receive major support from the central government, which is responsible for all education expenses. At the elementary level, schools also receive some local support. Universities may also have other sources of income, such as property, investments and gifts. The government has established a maximum level for private school fees. In addition, international and regional organizations provide some assistance to Turkey for educational development.

Educational institutions in Turkey are financed in several manners; totally through public funds, through both public funds and student tuition, and entirely through student tuition and grants. Because of the widespread idea that the level of education provided at private schools is better than that at public schools, those in the higher income brackets tend to send their children to private schools. For this reason, a relatively higher quality of education is actually bought in private schools, while the general public takes advantage of public education provided to everyone free of charge, but seemingly at a lower level of quality. A similar development is

evident in almost all nations, both developing and industrial.

In the case of higher education, encompassing graduate, bachelor, master's and doctoral degrees, a tuition fee does exist. This fee encompasses a percentage of the true cost of the university education and varies according to the university and the faculty and department in which the student is registered. Successful students who lack financial means are generally provided with full support from both private persons and organizations as well as the state, allowing them to continue on in higher education.

Educational Personnel

The characteristics and qualities of both educational personnel and institutions educating such personnel have changed considerably since the formation of the Turkish Republic. At one time, faculties of education were not considered institutions of higher education, or were merely two-year higher education institutions.

At present, teachers for all levels of education are trained in four-year higher education institutions, academies and universities. The organization of teacher education allows for vertical and horizontal mobility. The Ministry of Education also provides inservice training for teachers through courses and seminars. Changes made in the university system in Turkey in the 1980s led to the development of the Higher Education Organization. This governmental organization regulates all university affairs and appoints professors for universities outside of the major cities.

Curriculum Development

At present, the Turkish educational system is structured not by a curriculum per se, but by an educational program. The development of this prorgam, which was once in the hands of local and regional educational authorities, has been nationalized and is now developed completely by the Ministry of Education. Individual schools are required to follow the program developed on a national level. In large part due to the national development of the educational program, problems relating to the adaptability, relevance and usefulness of the programs' framework and content arise frequently, requiring continuing discussions on these subjects. One of the major deficiencies of the curriculum development stage is the lack of collaboration between the public and private sectors. Because curriculum is developed largely on a theoretical basis, it is very often irrelevant to the real-world situation and especially the job market, which causes problems in the cooperation and collaboration between the two sectors. The diploma granted to graduates at all

levels becomes practically irrelevant in the work force.

One other important deficiency in the education program is its inability to provide students with an educational outline appropriate to their own specific interests, talents and needs. For the most part, the education system is quite structured, not allowing for the flexibilty that would optimally allow students to develop their own abilities and talents.

Problems

The insufficiency of materials and infrastructure in the educational system have a negative effect on the quality of education in Turkey. At the same time, the teaching profession has lost a great deal of it's attractiveness as salary level and a decrease in overall status have discouraged the most successful students from entering into the teaching profession. The number of students which enter into the teaching profession fully through their own will is decreasing yearly.

The quality and availability of preschool education facilities throughout Turkey is quite insufficient to meet demand. The need for children of this age group to develop a sense of discipline, individuality and social environment, and the part that preschool education can play in this process leads to the conclusion that the present deficiency in preschool education facilities will lead to problems in the development of children as they enter the higher levels of education.

Along with all other problems facing the Turkish educational system, the fact that the system is highly centralized complicates many problems in the system. Communication, slow level of adaptation to environmental change and the ineffectiveness of the system as a whole result from this over-centralization.

3.2. DEVELOPMENTS IN TURKEY'S EDUCATIONAL SERVICES

Educational Resources in Turkey

Because the great majority of educational services are provided directly by the government, the share of the public sector in Turkey's overall educational expenditures is quite large. Although incentive measures have been taken to encourage private sector expenditure in the education industry, private sector investments in this area have generally remained at a low level.

Comparing Turkey's education expenditures to that of other countries, it becomes readily apparent that Turkey's education expenditures as a percentage of GNP are quite high in relation to many developing and industrial countries. However,

Turkey's per capita education expenditures are below that in many developing and industrial nations. An increasing emphasis on education in recent years has led to a marked increase in educational expenditures, a development which has been especially noticable in the 1990s.

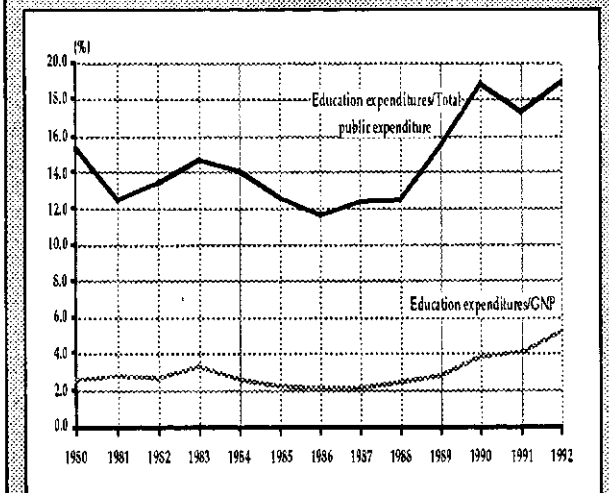
Current Expenditures : The share of public education expenditures in total public expenditures has increased steadily in Turkey since the mid-1980s, reaching high levels in relation to other public expenditures as well. In 1990 and 1992, education expenditures reached a level of close to 19 percent of total public expenditures.

The share of education expenditures in Turkey's GNP has increased dramatically since 1985. In 1985, education expenditures were 2.1 percent of GNP. This ratio doubled to 4.0 percent in 1992, indicating the growing importance of education in the Turkish economy.

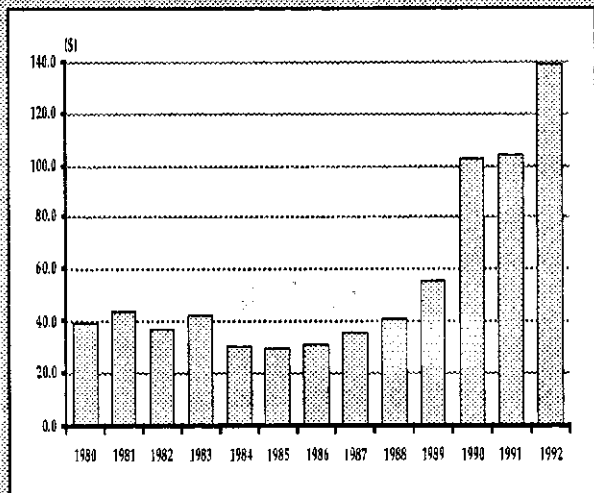
Looking at per capita education expenditures on a US $ basis also shows an increase in Turkey's education expenditure. This increase reached a particularly high level in 1990, and again in 1992. Although education expenditures undoubtedly have increased, because the US $ exchange rate has grown at a rate below inflation, the observed increases in per capita education expenditures are actually slightly lower than the level indicated.

The distribution of public education expenditures in Turkey is recognizably imbalanced. Close to 80 percent of public education expenditures goes to personnel expenditures. This finding does not, however, suggest that education personnel have inordinately high salaries. Turkey's growing population requires an ongoing

Share of public education in total public expenditures and GNP

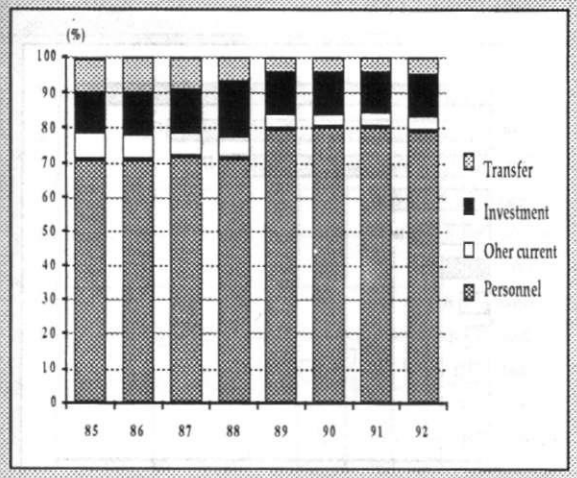


Per capita education expenditures



Source: Bütçe Gerekçeleri, Maliye ve Gümrük Bakanlığı; Türkiye Ekonomisi İstatistik ve Yorumlar, DİE.

Distribution of public education expenditures



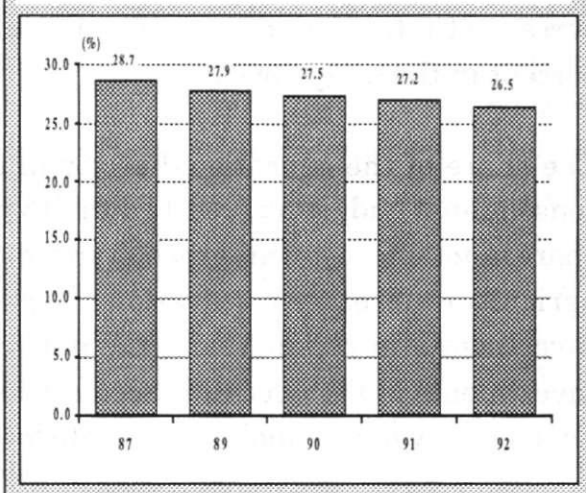
Source: Bütçe Gerekçeleri, TC Maliye ve Gümrük Bakanlığı

investment in human resources in order to successfully conduct educational services. In fact, close to one-third of all Turkey's public servants are employed in the educational sector, reflecting the high education personnel requirements and related expenditures.

Compared to many other developing countries, Turkey appears to have allocated a large proportion of resources to education, especially when looking at per capita public expenditure on education. However, it can also be said that Turkey's expenditures are insufficient in comparison to expenditures made by industrialized nations. In other countries where educational services are provided and financed by the central government including Sweden, Italy and France, a large proportion of the central budget is allocated to education, even though educational infrastructure is at the same time quite developed in these nations.

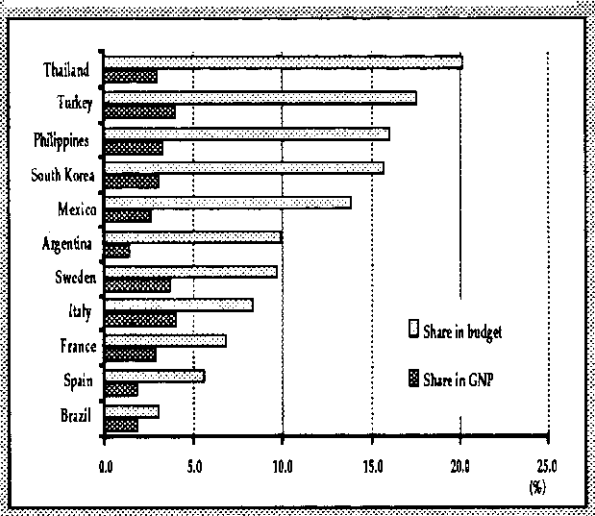
Although the great majority of educational expenditures in Turkey originate from the public sector, private sector education expenditures have also risen in recent years. According to the Income and Consumption Expenditure Survey conducted in 1987, 2.8 percent of private disposable income is spent on education and cultural activities. This percentage rises to 3.2 percent in urban areas, and makes up 1.2 percent of GNP. While this is an indicator of the growing interest of the private sector in the educational sector, however, it does not necessarily indicate that the income spent on education is aimed toward investment or raising quality. In fact, the large majority of this money is spent on courses and lessons near the end of elementary and secondary school education, when students must pass entrance examinations in order to be enrolled in the school of their choice at the next educational level.

Share of education employees in total public servants

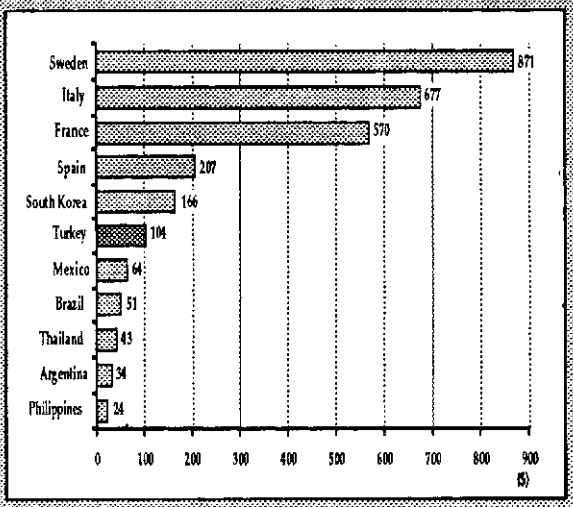


Source: Bütçe Gerekçeleri, TC Maliye ve Gümrük Bakanlığı

Share of education expenditures in GNP and budget in selected countries (1991)



Per capita public education expenditures in selected countries (1991)



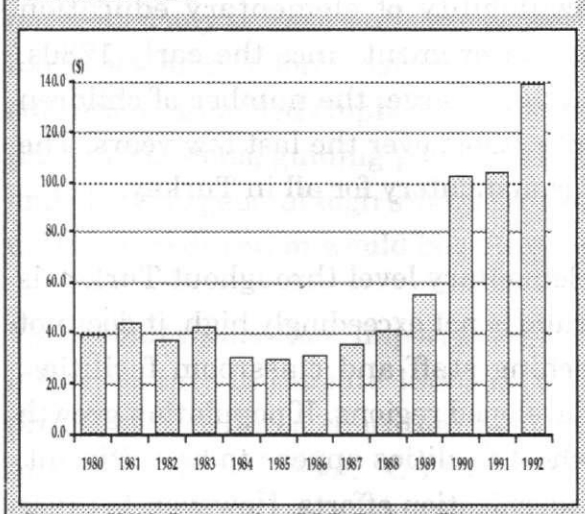
Source: World Development Report 1993, The World Bank.

Investments: As has been the case with current expenditures, the share of education in total capital investments of both the public and private sectors has increased in the last few years. After the share of education in total fixed capital investments remained around the 2.5 percent level for many years, this level rose to the 3.8 percent level in 1992.

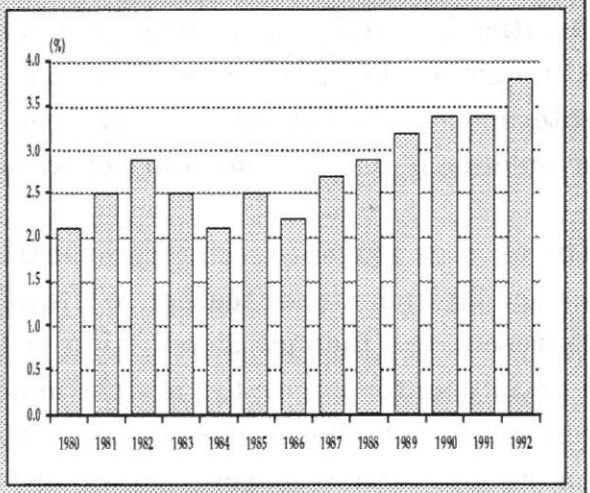
Although sizable incentives are provided by the Turkish government for investments made in the education sector, the private sector has not been active in this subject. Reluctance to make such investments is related not only to the relatively low profit level, but to the existence and inability to solve serious problems in the legal and regulational framework related to these investments as well. The share of private sector investments in the educational sector has historically been below the one percent of total private sector investments. On the other hand, public sector investments in the educational sector have risen from 3 percent of total public sector fixed capital investments to an average of seven percent in the early 1990s.

The share of the educational sector in total investment expenditures from the consolidated budget has reached the 15 percent level in recent years. Education's share in total investment expenditures in Turkey is second only to water works and agriculture-forestry-rural affairs services. Looking at the developments in investments in recent years, the public sector has made large increases in its investments in the education sector, while public sector investments in this area have not developed and remain quite low.

Education investment as a percentage of total fixed capital investment



Per capita public education investment



Source: Yıllık Programlar, DPT; Türkiye Ekonomisi İstatistik ve Yorumlar, DIE.

Average per capita education investment (both public and private) in Turkey, which fell to close to $4 per person in the early 1980s, has risen since 1986, reaching over $15 in 1992. However, while total educational investment was $15.70 per capita in 1992, the private sector's share totalled only around $1.40. Although this is a very low level, it is also possible to induct that there has been a sizable increase in private sector investment in the educational sector as well, as this value has risen to total over $1 per capita, providing reason for hope in the future.

Educational Infrastructure

Preschool Education: Preschool education can be organized as independent kindergardens, as well as kindergardens that are annexed to primary schools or other educational institutions. Although preschool education facilities in Turkey have shown a marked improvement since the early 1980s, they are still insufficient to meet national needs. With the establishment of preschool classes in some elementary schools in 1985, the number of schools providing preschool education and the student-teacher ratio increased substantially. Although this development did not continue in the following years, there has been an increase in preschool facilities recently, in part due to investments made by the private sector. Despite these developments, however, only around 5 to 6 percent of 4 and 5 year olds attend school in Turkey. As the importance of preschool education becomes widely recognized, the insufficiency of related investments in Turkey becomes readily apparent. Both the number of trained instructors and availability of facilities are both insufficient. The average student-teacher ratio at this level is around 16. While this level is sufficient at the present time, as the schooling ratio of preschool aged children increases, the requirement for infrastructural investments and services

will increase dramatically.

Elementary School: The quantity and availability of elementary education facilities in Turkey have shown a marked improvement since the early 1980s. Although Turkey's young population is relatively large, the number of children entering school-going age has remained quite stable over the last few years. The completion of 5-year elementary education is mandatory for all in Turkey.

The average student-teacher ratio at the elementary level throughout Turkey is around 29 students per teacher. While this ratio is not exceedingly high, it does not represent the inequal distribution of teaching staff and classroom facilities, especially in the large cities and the underdeveloped regions. If population growth can successfully be checked, elementary school facilities appear to be sufficient, taking into account routine renewal and modernization efforts. However, because education at this level is conducted on a rotating basis, with half the students attending school in the morning and half in the afternoon, it becomes readily apparent that elementary school facilities are indeed insufficient to meet demand. This lack of appropriate facilities leads to problems in the overall quality of educational services.

Junior High School: Plans to increase required schooling from five to eight years in Turkey will require a large investment in junior high school facilities and infrastructure. Although there has been a marked increase in the number of junior high schools throughout Turkey in the last few years, the distribution and capacity of these facilities as well as the large number of new students require a major investment in this area. At present, 58.9 percent of children in this age group attend junior high school in Turkey. If required education is extended to include junior high, making this rate 100 percent, without appropriate investment in infrastructure and services, serious problems will occur leading to a fall in quality of education at this level. On the one hand, raising the level of required education is essential as Turkey develops into an industrialized nation. At the same time, however, it is essential that infrastructure, teachers, facilities and overall quality be at a level to actually provide students with appropriate and useful education in the extra three years that they will be studying.

High School: 23 percent of high school cohorts attend high school in Turkey. At present, infrastructure and investments appear to be sufficient at this level. However, classrooms are very often large and the overall quality and usefullness of education is debateable in some cases. The fact that a very large percentage of students at this level study in general high schools in which technical and

professional education are not provided causes problems in higher education as well as in the work force, where there is an abundance of high school graduates who have not gained any sellable skills per se. As is true in the lower levels of education, there have been many efforts made to increase the quality and applicability of high school education. An added emphasis on vocational education which is more applicable to final professions, guiding potential high school students to vocational education and allowing general high schools to remain educational institutions preparatory to university education would be optimal in this case.

Vocational Education: Important investments were made in vocational education infrastructure in the late 1980s in Turkey. Overall, the increase in high schools providing vocational education was higher then the average increase in students attending these schools. On the other hand, however, the number of qualified teachers in these schools has reamined at a relatively low level.

Although the overall number of schools giving vocational education has increased, the distribution of these facilities is somewhat uneven. Schools in some smaller cities run below capacity, while there is a deficiency of appropriate facilities in the larger metropolitan areas, allowing only one half of students applying to these schools to actually attend. Vocational education, which is seen as a means of preparing qualified labor for the work force as well as diverting the large number of general high school students to other branches, is becoming more and more important in Turkey's educational system. The need for appropriate facilites and infrastructure will indoubtedly grow in the next few years as Turkey's young population enters this age group. The important role that vocational education will play in the development of Turkish society should be recognized and appropriate investments made immediately in anticipation of this increasing demand.

Higher Education: With the establishment of 21 new universities in 1992, the number of higher education institutions in Turkey rose to 52. The number of students attending higher education institutions in Turkey has risen steadily in the last decade. The number of faculty and administrators in these facilities has increased only at a level sufficient to meet the increase in students, leading to overcrowding of classes and a high student-teacher ratio. In the 1991-1992 school year, 469,302 students were registered in higher education institutions. The number of faculty during this same year was 11,829, for a student-teacher ratio of over 40. In order for education at this level to reach a larger proportion of the Turkish population while at the same time increasing quality and infrastructural facilities, sizable investments in higher education must be made.

Human Resources

Although repeated and well-intentioned efforts have been made throughout the years to alleviate the problems facing teachers and faculty members, these efforts have only been marginally successsful. Even though there has been an increase in the actual number of teachers in Turkey over the last decade, the overall student-teacher ratio has remained below the standards set in developed countries. At the same time, it has become increasingly difficult to make the teaching profession attractive to students and draw the most successful students to the teaching profession, which leads to an overall lack of quality in the educational system. In fact, some laws and regualitons put into effect in the past have actually served to lower the quality of teachers in the Turkish educational system. During these periods, the teaching profession was turned into a profession open to all who have attended a higher institution of education.

One of the most basic problems facing the teaching profession is the insufficient infrastructural, financial and human resources appropriated to education faculties. More and more, these faculties are seen as an appendage of the universtiy, and a subject in which potentially successful students are reluctant to enter. For the most part, the problems facing teachers and faculty members in Turkey have been recognized and addressed by numerous symposiums and committees. These efforts, however, have not gone very much farther than discussing the problems, and have certainly not produced effective solutions to the problems present. The problems faced by teachers in Turkey are undoubtedly similar to those present in other countries, both developing and industrial.

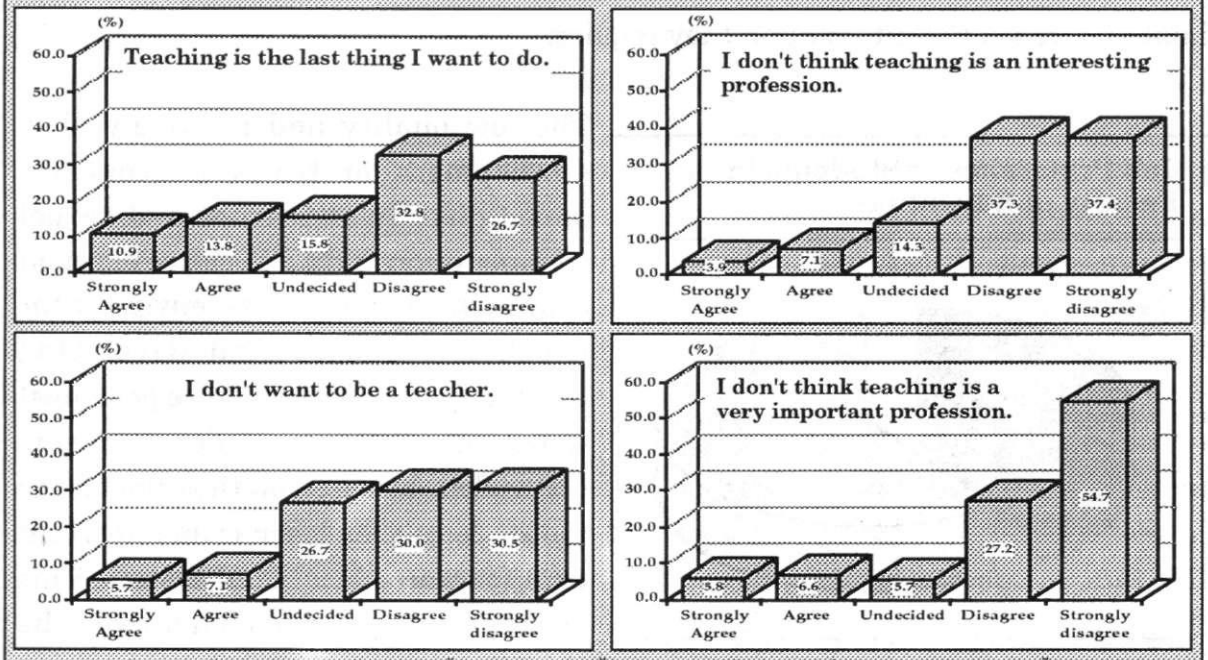
Salary Level: Although the salary level paid to teachers in public educational institutions in Turkey has increased in recent years, it is still well below the level allowing a comfortable subsistence. This situation has led many teachers to either change professions or take on one or more extra jobs, which they must carry on in order to continue teaching. The same situation is evident among faculty members at higher educational institutions, where many faculty members neglect their teaching and research duties in favor of consulting and other more lucrative jobs.

Status of the Teaching Profession: At one time, the teaching profession was considered one of the most respectable professions in Turkey. Unfortunately, this state of mind has changed drastically in the last few decades. Some reasons contributing to this change include: the increasing number of teachers who must take on extra jobs in order to survive as teachers, and the fact that the majority of new students entering faculties of education do so not because they actually desire to become teachers, but because they view teaching as an alternative to not

attending university at all. Quite a few studies have been conducted regarding this factor. In one such study, which was conducted among students attending the faculty of education at several universities, demonstrates that there are variations among students' thoughts regarding the teaching profession. While many students enter the faculty of education as a last resort, it is still clearly evident that students' respect and value for the teaching profession is quite high. Although many may not belive that the teaching profession is the best occupation for themselves personally, they do have faith in the profession as a whole. While 59.5 percent of respondents disagree to the statement "Teaching is the last thing I want to do," for 24.7 percent of prospective teachers to agree to this idea is by no means positive. The great majority (81.9 percent) of responents either disagree or strongly disagree to the statement "I don't think teaching is a very important profession." The high rate of students responding as undecided to many questions is an outcome that should be expected among any group of students learning about the pressures and requirements of their intended professions.

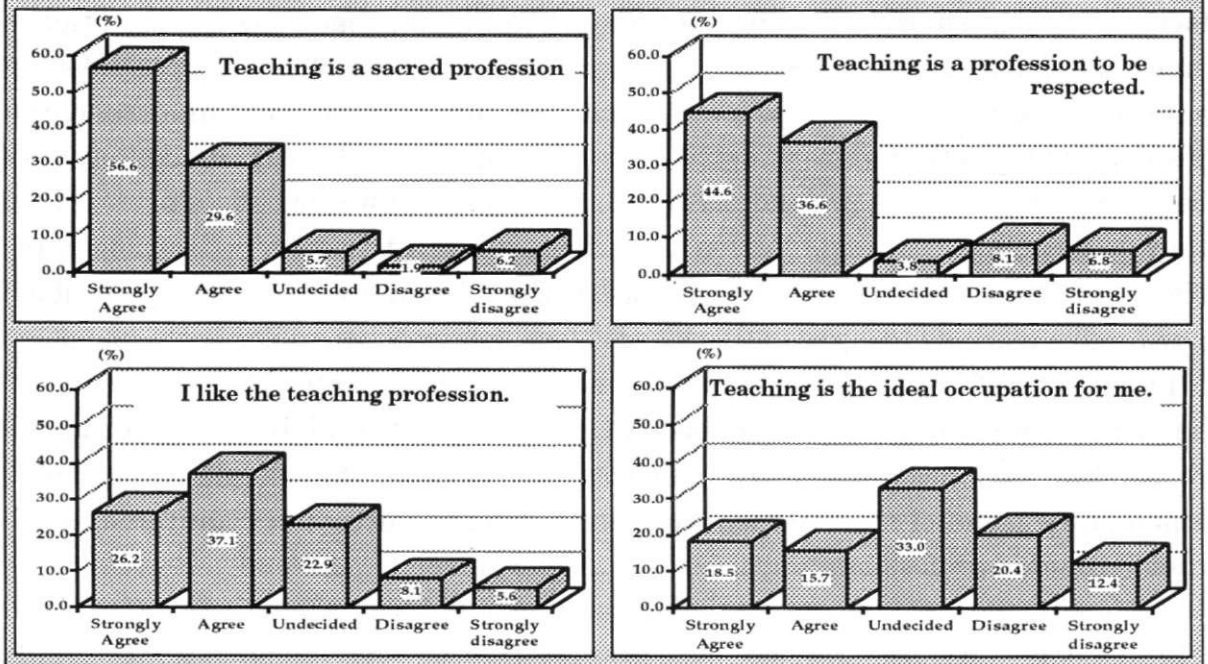
The transfer, promotion and evaluation of teachers in the Turkish educational system are controlled by the Ministry of Education. Inability to provide these serviecs in an equal and effective manner leads to important problems in the carrers of teachers, causing them to devote sizable time and effort in following their own files. For the most part, the evaluation system used by the Ministry of Education is dominated by negative evaluations and punishments. In a recent year, nine percent

Prospective teachers' reactions to negative statements regarding the teaching profession



Source: Ali Temel, "Fen-edebiyat Fakültesi Öğrencilerinin Öğretmenlik Mesleğine İlişkin Tutumları'na Öğretmenlik Formasyon Programının Etkisi, 1990."

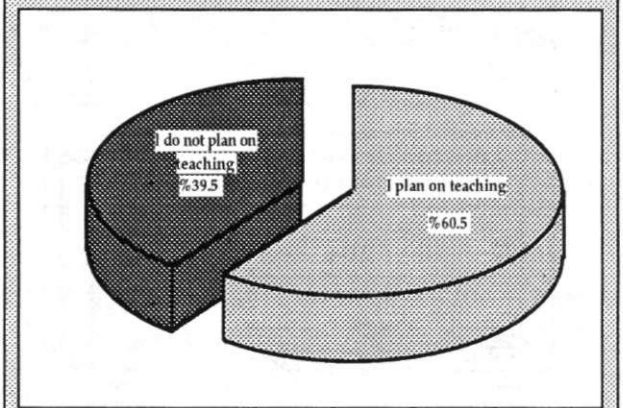
Prospective teachers' reactions to positive statements regarding the teaching profession



Source: Ali Temel, "Fen-edebiyat Fakültesi Öğrencilerinin Öğretmenlik Mesleğine İlişkin Tutumları'na Öğretmenlik Formasyon Programının Etkisi, 1990."

percent of total university expenses are dedicated to university libraries. This tends to make libraries overly dependant on donations and grants, which are not always possible. The lack of a sizable and stable income makes it difficult for libraries to subscribe to periodicals and has a negative effect on the abilities of these institutions to purchase new and up to date publications. This in turn leads to a negative effect on the quality of education, as students and faculty members are unable to reach the information they require.

Job Preference of Students in the Faculty of Education



Source: Semra Ünal, "Teknik Eğitim Fakültelerinde Okuyan Öğrencileri Öğretmenlik Mesleğine Yöneltme, 1991."

The low quality and relatively slow development of training programs aimed directly at teacher and school administrators have a negative effect on educational quality. In an environment which is changing and developing constantly, the ability of hese personnel to not only follow these developments themselves but pass on these factors to the students they teach is an important quality in an educational system. This quality is highly dependent on the timeliness of training activities.

It should by no means be forgotten that education has a very important role in the socialization and development of individuals making up a society. While it is important that the number of educational personnel be sufficient to meet demographic needs, the qualifications of these teachers is just as and in some cases even more important. No educational system can reasonably be expected to train students which are more qualified than the persons running that system. In the development of educational personnel, the emphasis should not be on how many teachers are produced, but how qualified the educators are.

Almost all countries, developing and industrialized, continue to make large investments in the education sector. In fact, the careful and qualitative development and training of teachers is the single most important factor determining the success of an educational system. In Turkey as in all developing nations, special effort should be taken to develop qualified and dynamic teachers with the purpose of aiding the country in overall socio-economic development.

Institutional Infrastructure

Educational services are provided to the student through preschool, elementary, secondary and higher education institutions. All of these institutions, including those financed by the private sector, are directly responsible to the Ministry of Education in all aspects including curriculum and program development, implementation, control and organization. In short, all aspects of education in Turkey are subject to a high level of centralization. This factor brings about problems in financing and management of educational issues, and plays an important role in the difficulties of dissemination of information and other related issues, making solutions to these problems even more difficult.

Attempts made to draw the private sector to the educational sector have been only marginally successful in Turkey. Private sector investments in education remain quite low overall. The reluctance of private sector investors to enter into the education sector at the time these incentives were implemented has led to an even greater tendency to centralize educational services and increase the public sector monopoly in this area.

The continuation of centralization policies, and the growing inability of regional and local authorities to play a part in the implementation and development of educational services has caused important problems for the sector and the institutions involved. Seemingly unimportant details like the transfer of personnel, regional investments, the opening and closing dates of school systems and vacation

time become important issues in this centralized system. The development of important issues like the development of curriculum according to regional characteristics and the training and development of qualified human resources become extremely difficult in this highly structured environment. In addition, important regional investments on information and technology have been either slowed down or prevented by this centralized management.

In the 1980s, higher education services were also subject to a serious centralization of activities, which connected all higher education institution directly to the Ministry of Education's Council of Higher Education. The quantity and availability of institutions providing higher education increased dramatically following this development. However, although these universities were undoubtedly founded with good intentions, they were established without appropriate planning and infrastructure, a development which continues to negatively affect the quality of education. In recent years, however, private sector investment in higher education institutions has increased, with several private-funded universities being established in recent years.

In the case of primary and secondary education, a two-tier system has been developed in which half of the students of a particular school attend classes in the morning session and the other half attend in the afternoon session. While this development has increased the capacity of existing school facilities, it has negatively affected the quality of educational services. The inability to switch to full day education because of lack of infrastructure and resources remains to be an important problem facing the Turkish educational system's services.

One very important deficiency in the Turkish educational system is the inability of the secondary schools to prepare students properly for the work force. Most schools at this level are aimed at preparing students for the university entrance exam, without providing them with useful skills that will be needed when they enter the job market. Taking into account the fact that schooling rate at the higher education level is only 16 percent, the importance of technical and vocational education in the development of a qualified and educated work force becomes increasingly noticable.

In summation, attempts to draw the private sector to invest in the education sector in Turkey have gone largely unsuccessful. Over-centralization, the lack of community spirit within local school systems and the declining status of the teaching profession in society are some of the factors which have combined to produce problems for the educational system. The increase of the role of regional

and local governments in the development and implementation of educational issues will truly benefit the Turkish educational system.

3.3. SUGGESTIONS FOR THE DEVELOPMENT OF AN EFFECTIVE EDUCATIONAL SYSTEM

One of the most significant characteristics of the educational sector is the crucial role it plays in the socioeconomic development of any society. The overall level of education in any country and the qualifications of its work force are particularly significant in the development of competitive advantage on an international level. The ability of the educational system to meet the needs of the society in general and the public and private sectors in particular is a direct measure of the effectiveness of the overall system.

Because of the educational sector's direct relation to overall development, programs intended to improve an educational system must be far-reaching and in direct conjunction with overall developmental goals and programs. The purpose of education overall and the specific goals for all levels of the educational system must be clearly defined and developed in conjunction with overall national priorities.

Close interaction between school systems and employers, especially at the secondary and tertiary educational levels, is crucial for the development of an effective educational program. Implementation of programs developing vocational education activities, the inclusion of training programs in the overall educational system, and the establishment of continuing lifelong education programs are all activities which can best be developed through the cooperation and collaboration of the public and private sectors with the local or national school system.

Some factors that are very often overlooked, especially in developing countries, are in fact crucial to the development of an effective educational system. One of the most important of these is the ameliorization of the status of the teaching profession in society. Improvement of teacher-education facilities, on the job training opportunities and other services and facilities for teachers is the first step in this process, with the aim of drawing more qualified students to the teaching profession. This is a particularly important factor, as human resources in the educational sector are of ever-increasing importance, even as technological advancements change the overall educational sector.

Another important factor in the development of educational services is the development of standards for the measurement of educational quality. These standards should be wide in scope and carefully developed so as to include all aspects

of education. The quality of human resources, curriculum and physical infrastructure should be periodically measured according to pre-developed standards.

CHAPTER 4

ENVIRONMENTAL ISSUES IN TURKEY

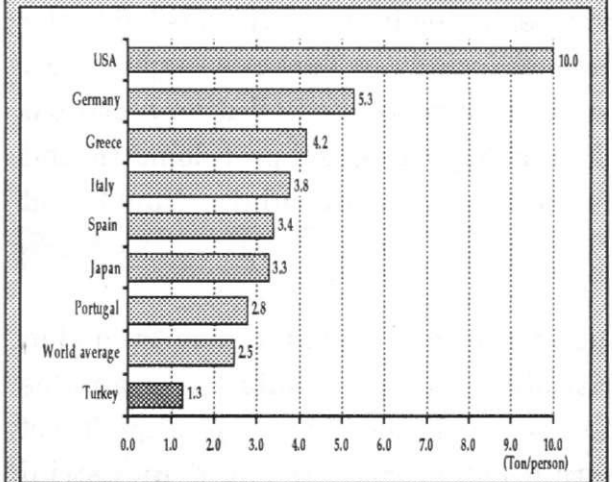
Debates over the effects of industrialization and development on environmental quality are becoming more and more pronounced throughout the world. These issues are by no means confined to the industrialized countries, but have had significant effects on developmental policies and industrialization efforts in developing countries as well, providing hope that these countries will learn from the mistakes made by the industrial countries in the past. Similar to all developing countries, Turkey must consider environmental factors in its policies regarding industrialization, population growth and economic development. Environmental issues in Turkey are a growing concern and domestic and international pressure is increasing for solutions to be developed.

4.1. AIR POLLUTION

More than all other types of pollution, air pollution originating in one region directly effects all other regions of the world. The burning of fossil fuels and other activities contribute to the entrance of pollutants into the atmosphere which are then carried to neighboring countries. Wind and other meteorological activities lead to the distribution of pollutionary particles and matter which are quickly transported to other regions.

The negative effect of the emission of various gases caused by human activities on the atmosphere has been complicated in the last few decades. These pollutionary gases have various effects, warming the atmosphere and changing climate, leading to a rise in sea level and the growing effects of greenhouse gases and acid rain. The sources of air pollution are varied and include energy use, cement production, solid waste, lignite and mining resources, natural gas leakages and various other industrial and consumer activities.

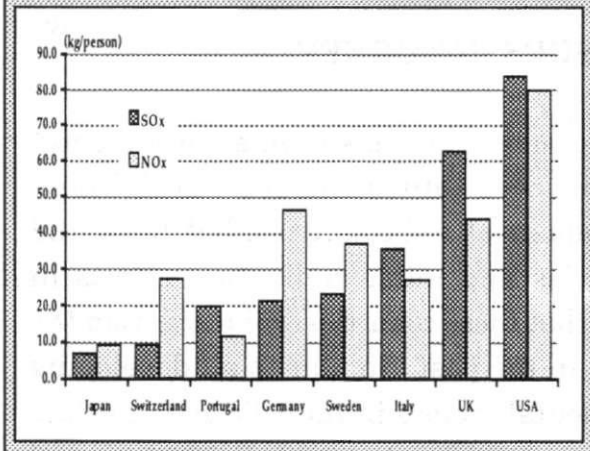
Emmissions of Greenhouse Gases in Selected Countries (1988)



Source: "OECD Environmental Indicators 1991," OECD.

Sulphur oxides, which are artificially produced through energy production and industrial processes, are one of the most common and detrimental pollutants found in the atmosphere.

Per Capita SO_x and NO_x Emissions in Selected Countries (1988)



Source: "OECD Environmental Indicators 1991," OECD.

These particles travel quickly through the air system, contaminating not only the environment in which they were initially emitted, but the overall atmosphere as well. The damage caused by sulphur oxides varies from region to region. While pollutant emission has been on a decreasing trend in industrial countries for the last few years, developing countries are only just beginning to add their share of pollutants to the atmosphere.

The reduction of air pollutant emissions in industrial countries has been quite noticable in recent years, as public awareness of the scope of the problem, and the desire of the public to contribute to solutions increase. More stringent restrictions have been established, and technological developments have enabled the reduction of pollutant emission.

While important developments have been made in the reduction of sulphur oxide pollutants, some other pollutants including nitrogen oxides continue to have very detrimental effects on the environment. Nitrogen oxides lead to photochemical reactions in the atmosphere. These substances are generally created through motor vehicle emissions as well as energy use and industrial processes. The continuing increase in nitrogen oxide levels produced by both industrial and developing countries leads to the conclusion that this type of air pollution will continue to effect the environment well into the future.

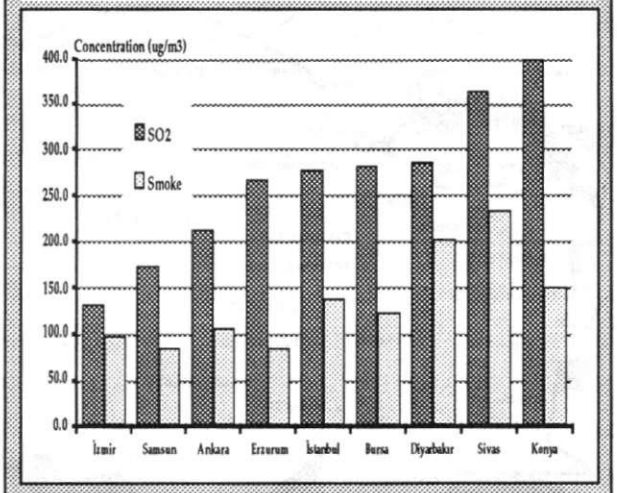
Air Pollution in Turkey

Rapid urban and industrial growth in Turkey beginning in the 1970s has led to the development of critical levels of air pollution, especially in Turkey's major cities. The combination of three major factors especially make air pollution a critical problem. These factors are poor quality fuels used in heating and poor domestic and industrial combustion technology, gases emmitted with vehicular exhaust, and industrial emissions.

Air pollution in Turkey is a particularly critical problem in the winter months and in the larger metropolitan areas. The majority of this seasonal pollution originates from heating systems, poor use of combustion materials and the very poor quality of both solid and liquid fuels used in heating both residential and industrial

structures. The heating fuel most widely used throughout Turkey is lignite coal characterised by low quality, high ash and sulphur content and low heat value.

Average SO_2 and Smoke Concentration Levels in Selected Provinces (Winter 1990-91)



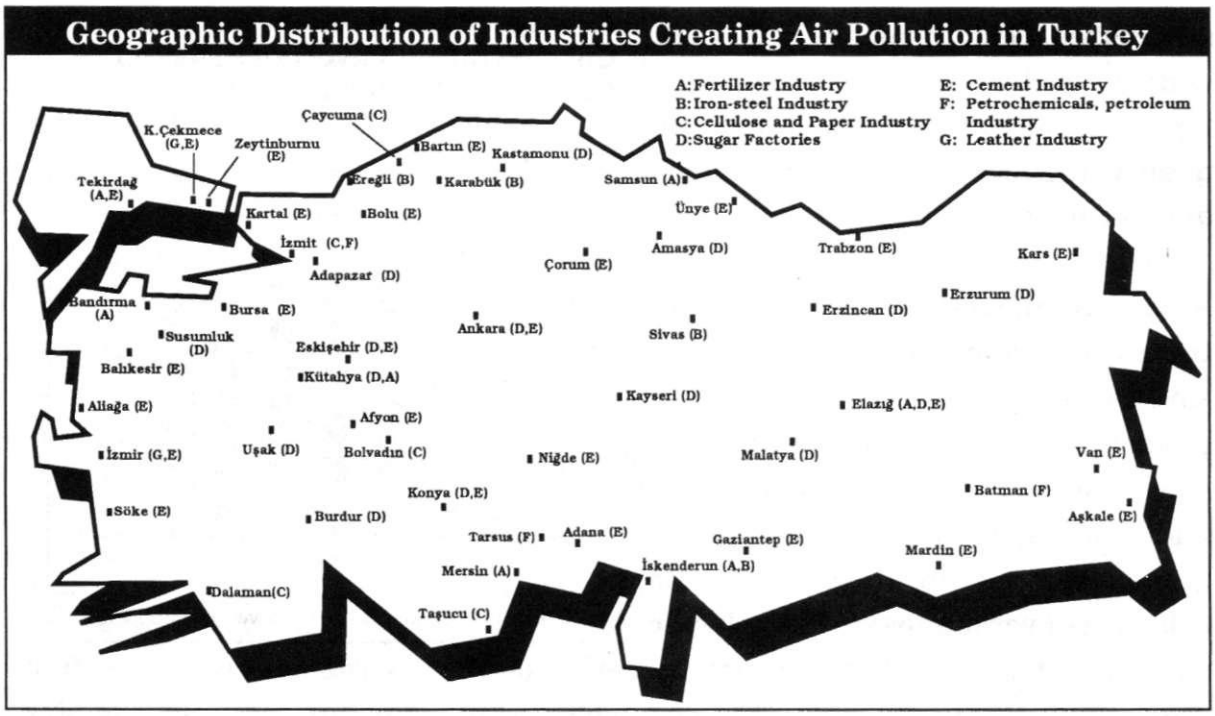
Source: Türkiye Ekonomisi İstatistik ve Yorumlar, SIS.

Air pollution, which once effected only the large urban areas of Istanbul, Ankara and Izmir, has become a problem for many smaller urban areas as well in recent years. Geographical and topographical conditions have a great effect on the incidence of air pollution in various areas. In the larger cities, rapid urbanization's detrimental effect on the environment can very often combine with geographic conditions to complicate air pollution standards. For example, during the 1992-1993 winter season, the province capital that had the highest concentration of SO_2 was not İstanbul, Ankara or İzmir, but the eastern town of Erzurum. The province capital with the highest concentration of SPM was another southeast Anatolian town, Diyarbakır. This factor represents the importance of topography and meteorological factors in air pollution. For example, although Turkey's Black Sea coast is not densely populated, several factors including the topographical makeup, the proximity of industry to urban areas and the fact that major roadways pass directly through town centers combine to make air pollution an important problem in these cities.

The contribution of motor vehicles to air pollution in Turkey has risen dramatically in the last decade. Carbon monoxide, hydrocarbons, hydrogen oxide and lead emissions have a definitive negative effect on the air quality. The fact that 51.5 percent of Turkey's motor vehicles are registered in the five major metropolitan areas serves only to compound the effect of emissions in these cities, as the environment loses its ability to self-clean. The number of registered motor vehicles in Turkey increases at an average annual rate of 8.3 percent. To complicate matters even further, the great majority of motor vehicles produced in Turkey are not fitted

The Effects of Motor Vehicles on Air Pollution in Turkey

- 51 percent of the motor vehicles in Turkey are registered in the İstanbul, Ankara, İzmir, Bursa or Adana provinces.
- The number of motor vehicles in Turkey increases at a yearly rate of 8.3 percent.
- 95 percent of new motor vehicles are produced in Turkey and are not fitted with a catalytic converter. The sale of unleaded gasoline is not widespread.
- Urban public transport is dependant on bus serviec. Because of financial problems, cities are unable to renew bus fleets or fit existing fleet with filter devices.
- Turkey's TIR and truck fleet are considerably outdated.



with catalytic converters and are unfit to use unleaded gasoline, indicating that this problem will continue to grow in the future.

Air pollution resulting from industry in Turkey has shown a positive relationship with the governments' policies to encourage industrial growth. Incorrect site selection and the emission of waste gases without adequate technical precautions are the main reasons for high industrial air pollution. In 1990, only 6.3 percent of plants were equipped with air pollution installations. Only one of Turkey's thermal power stations is fitted with filter devices. The major polluting sectors in Turkey are the fertilizer, iron and steel, paper and cellulose, sugar, cement, textile, petrochemical, pesticide and leather industries.

Both the widespread locality and the low length of smokestacks in the cement and sugar sectors lead to important air pollution problems in the lower atmosphere. Cement factories are surprisingly close in proximity to urban areas, leading to a sizable emission of dust and particles into the air. The great majority of the sugar and cement plants in Turkey are relatively old, and although they may have been located outside of city perimeters at the time of establishment, with rapid urbanization many of these facilities have become included in the center of urban areas, where they lead to important pollution problems. The fertilizer sector, which emits SO_2, H_2S, CO, NH_3, fluoride gases and PSM emissions in almost every region in which it is present, contributes to air pollution in Turkey.

The single sources causing the most detrimenting air pollution in Turkey are

undoubtedly power stations. Of liquid fuel, coal and natural gas power stations, coal stations emit the most pollutants into the ecosystem. In 1989, 7000 MW of electricity was produced in Turkey. Of this electricity, 16 percent was produced using liquid fuel, 21 percent with natural gas. The remaining 62 percent of power stations are powered with lignite coal, which is known to be an important contributant to air pollution. At the same time, the great majority of power stations that have been built in Turkey since 1989 are powered by lignite coal.

It is entirely possible for power stations to be run without producing adverse effects on the environment. The reduction of pollution caused by present and future power stations in Turkey is essential for the health and well-being of the entire population and ecosystem. Regulatory action in the form of systematic site selection and filtering facilities are only small factors that will help to reduce pollutionary effects in the future. It has been estimated that adapting existing power stations in Turkey, reducing harmful effects on the environment, would cost close to $4 billion.

4.2. WATER POLLUTION

Water, as one of the substanances essential for the sustenance of life on earth, can be a source of tension among groups. In fact, the lack of an international protocol relating to quality and quantity of freshwater resources has increasingly led to problems among nations. At the same time, pollutants which effect the quality of water resources have become important issues for industrial and developing nations alike. For these reasons, the protection and sharing of freshwater resources has become an issue almost as important as the existence of these waterways for many countries and regions.

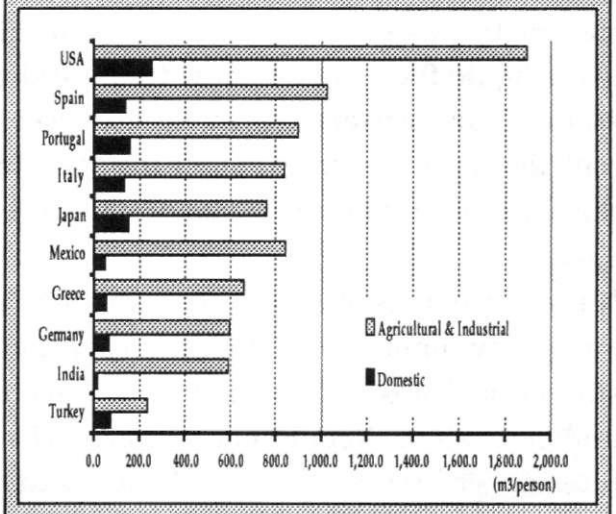
Water quantity can vary significantly from time to time and according to location. Water quality is also determined by a variety of factors including natural conditions, man's activities, land use development and treatment, and waste water disposal.

Water is used for residential, commercial and agricultural purposes. The level of water use varies from region to region and country to country, depending on many factors, including availability, quality and cultural habits.

The reduction in water resources has led to an imminent pressure to protect and even hoard existing resources. At times, especially during drought or in dry regions, overuse of water resources can cause irreparable damage to the surrounding ecosystem. It has been estimated that water resources have dropped close to 20 percent throughout the world in the last twenty years. Assuming that this trend

will continue, it is quite obvious that water resources will become even more valuable in the future.

Annual Per Capita Use of Freshwater Resources (1970-1989)



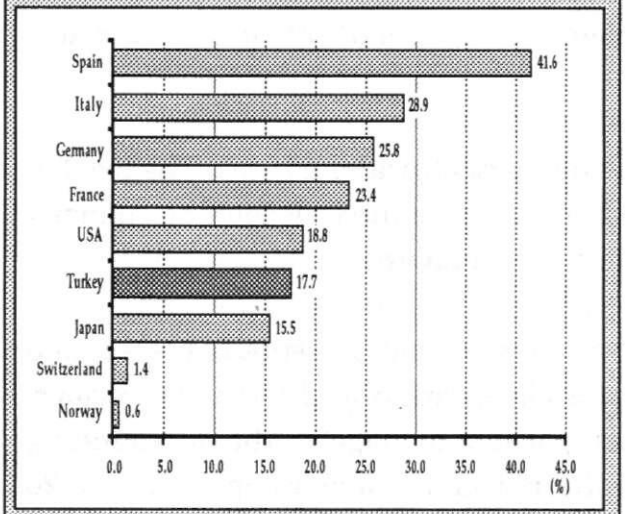
Source: "World Development Report 1993," The World Bank

In addition to the quantity of water resources, the quality of these resources is becoming more and more important. The release of waste waters into the water reservoir creates water pollution. Over the last twenty years, important measures have been taken to reduce the effects of water pollution. For example, the proportion of the population of OECD countries recieving water that has gone through treatment has risen from 34 percent in 1960 to 60 percent in 1990. Considering that the overwhelming majority of OECD countries are industrialized nations, with the most developed water distribution systems, and the small percentage that these nations have in overall world population makes it evident that the overwhelming majority of the world population does not in fact have access to water treatment facilities.

Water Pollution in Turkey

While it is not one of the richest countries in terms of water resources, Turkey is fortunate to have sufficient water resources. However, the irregular flow of freshwater leads to sizable differences in winter and summer water levels. The fact that a high percentage of Turkey's waterbeds dry completely in the summer months leads to important problems in water management. Turkey's average yearly gross water supply originating from rainfall totals 521 billion m^3. Due to the flow of water to neighboring countries or adverse topographical conditions preventing the storage of water in dams, along with the natural evaporation and depletion of water, Turkey's average annual usable water supply is around 104.5 billion m^3. 11.7 percent of Turkey's water consumption goes to domestic

Water Withdrawal as a Percentage of Gross Annual Availability (Late 1980s)



Source: "OECD Environmental Indicators 1991," OECD

use, 78.5 percent to agricultural use, and 9.9 percent to industrial use.

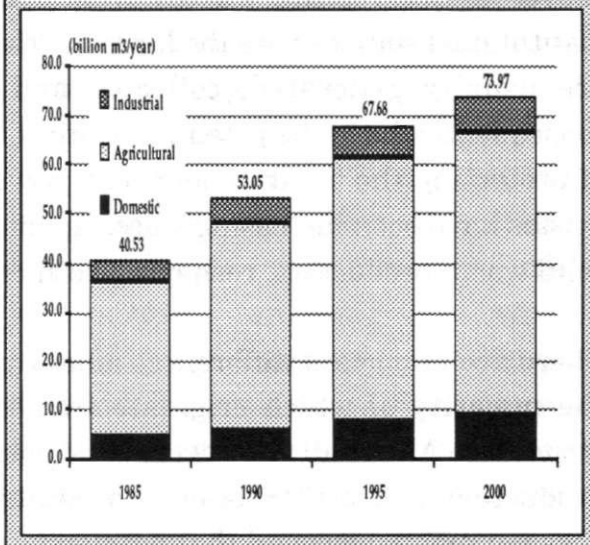
Water pollution is an acute problem in Turkey, especially in the urban/industrial areas around Istanbul-Izmit, Izmir and Ankara, and the touristic areas on the Southwest Mediterranean coast. Not only are the Sea of Marmara, Bay of Izmir and other waterways in close proximity to large metropolitan areas affected by pollution, but rivers and lakes in more rural areas have shown signs of water pollution as well. Pollutant infiltration currently affects 10 percent of the water drawn from the aquifier in Turkey.

The most important sources of water pollution in Turkey include the following:

- Rapid growth and construction of housing and tourist complexes without proper wastewater and solid waste treatment infrastructure,
- Discharge of untreated hazardous and solid waste into the water system from commercial enterprises and industries,
- Leakage from industrial and domestic solid waste dump sites into the aquifier,
- Agricultural runoff including chemical wastes from fertilizers and pesticides,
- Ballast, bilge waters and oil-related seepage from marine traffic.

Of the 2034 municipalities in Turkey, only 84 have sewerage systems, and, in 1984, only 56 percent of urban dwellings were linked to sewerage systems. Most municipal systems, including large parts of those of Istanbul, Izmir and Ankara, discharge into surface waters without treatment. The problem is made more severe by unplanned settlements on hillsides around urban areas. Seepage from cesspits, septic tanks and latrines leads to high levels of faecal coliform bacteria in the aqufier in Izmir, Istanbul and other areas. In recent years, rapid construction of high density summer-resort housing and tourist complexes without proper sewage treatment facilities has created pollution problems in regions formerly uneffected by these problems.

Turkey's Predicted Water Requirement



Source: V. Beş Yıllık Kalkınma Planı, DPT

Currently, most industrial establishments in Turkey do not operate full wastewater treatment systems, and discharge untreated or pre-treated effluent, hazardous and solid waste into municipal pipes or surface waters. Frequently, existing plants do not operate efficiently, due to faulty designs or lack of experienced personnel.

Industrial polluters include iron and steel works, paper mills, man-made textiles plants and tanneries.

In Istanbul and Izmir, faulty selection of garbage dump sites and site management techniques have led to leakage into the aqufier and stormwater run-offs. For instance, seepage from solid waste storage depots mixes with streams that empty into the Golden Horn, polluting this waterway.

Agricultural runoff includes chemical wastes from fertilizers and pesticides, which reaches rivers, inland lakes and coastal waters, affecting many freshwater sources for urban centers. In Izmir, the Bay of Izmit and other sites with oil terminals, ballast and bilge waters dumped from ships are a pollutant source. In the Bosphorus, one of the world's waterways with the densest marine traffic, accidental oil spills add to oil related pollution problems.

4.3. SOLID WASTE

The deficiency of present solid waste disposal methods is recognized worldwide. Throughout the world, the problem of waste disposal has becoming increasingly important and imminent to municipal and national governments as existing disposal areas and methods become insufficient. As population rises, the cost of solid waste disposal per capita rises disproportionately. These factors push countries to find alternative solutions to their solid waste problem. Many industrialized nations have even gone so far as to send their own solid waste to developing or underdeveloped areas.

Solid wastes produced by man consist of agricultural, mineral and residential, commercial and institutional wastes. Although agriculture is the single largest source of waste, the wastes from industrial, residential, commercial and institutional sources pose the largest social dangers. These nonagricultural wastes are usually generated, collected and disposed of in populous areas and, consequently, have the potential to affect large numbers of people. For the purpose of protecting the environment, the prevention, recycling and collection of solid wastes have been increasingly accompanied by efforts to reduce the overall level of solid waste production, reshaping both consumption and production patterns.

There are important differences among countries' attitudes towards solid waste, the majority of which originate from consumption, industrial and economic structure. All in all, however, it is possible to state that level of solid waste production is directly related to a country's level of economic development. This does not mean, however, that developing or underdeveloped nations do not or will

not have a problem with solid waste. To the contrary, these nations should lose no time in the development of effective methods to efficiently dispose of solid waste materials.

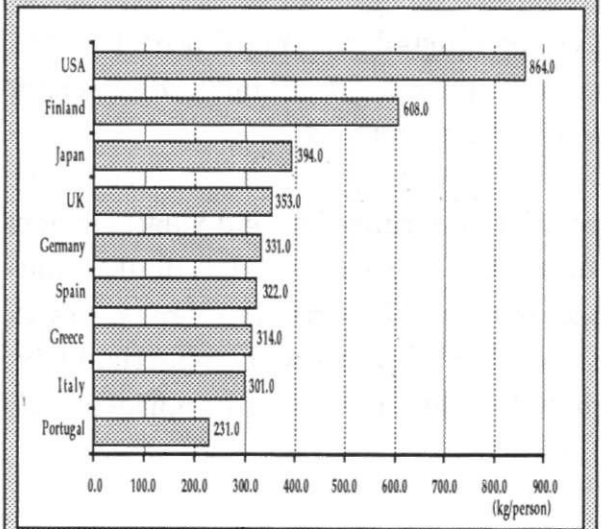
Solid waste collected and/or treated by local municipalities is termed municipal waste. Municipal wastes include large volume materials, residential, commercial and industrial waste, and waste materials originating in parks and garden areas. In many countries, municipal waste collection services reach close to the entire population, collecting solid waste in a collective area where this waste is disposed of or burned. In addition, many developed countries have begun efforts to reduce municipal waste altogether.

The principal method of waste disposal, often dumping, often creates health hazards and in turn pollutes the environment. Water pollution from the seepage from these dumps, air pollution resulting from gases and the possibility of fires are all common effects of the unsystematic disposal of solid wastes. Another solution for the disposal of solid waste is burning, using the resulting fuel to create energy. This method in turn often leads to air pollution if not controlled properly.

Solid Waste in Turkey

In recent years, developments in urbanization, changes in living conditions and increasing consumerism have led to a steady increase in the per captia production of wastes in Turkey. Yet while the disposal of solid wastes is of growing concern for municipalities, budgetary constraints and a shortage of appropriate dumping grounds within municipal boundaries have prevented the development of effective methods of collecting, transporting and treating wastes, and of efficient schemes for waste recovery, such as composting or recyling.

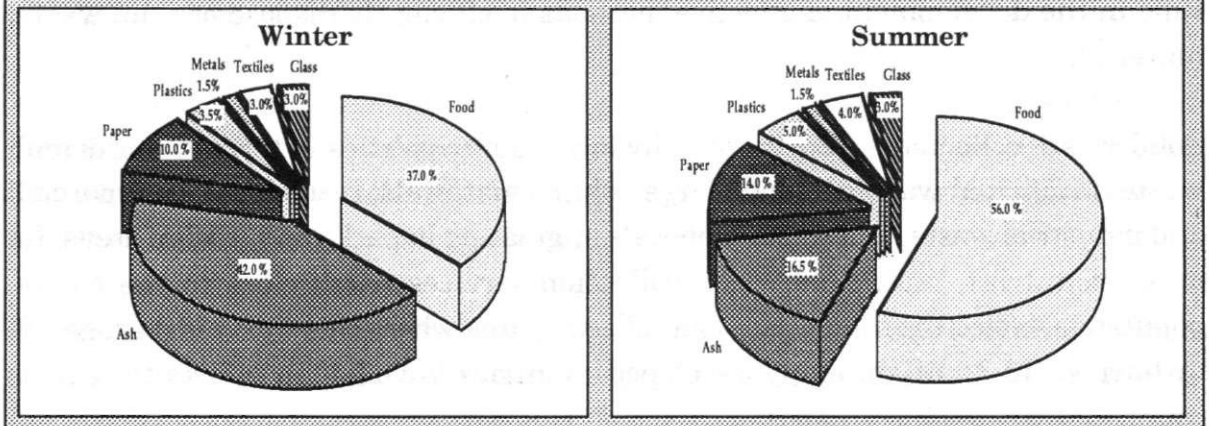
Amounts of Municipal Waste Generated Per Capita in Selected Countries (1989)



Source: "OECD Environmental Indicators 1991," OECD.

There are currently no separate procedures for managing or controlling hazardous materials at dumps in Turkey, where toxic and dangerous wastes including dead animals are disposed alongside domestic waste. Such practices lead to persistent fires, contiminate land, surface and ground water, and create breeding grounds for flies, rodents and

Physical Makeup of Solid Waste in Istanbul



Source: "Türkiye'nin Çevre Sorunları '91," Türkiye Çevre Sorunları Vakfı

scavengers. Housing areas are steadily encroaching on these dump sites. Municipalities are seriously concerned with this situation, but no hazardous waste management schemes have yet been implemented.

The systematic disposal of solid wastes is the only reliable and final method of doing away with pollution caused by solid waste. Even composting and burning of trash lead to waste in a different form and cause pollution in themselves. In Turkey, between 4 and 60 percent of all solid waste is composed of materials like glass, ash, metals and plastics which cannot be done away with through composting. The burning of solid waste in turn leads to the entrance of waste in the form of ash totalling up to 20 percent of the volume of the materials burned.

In Turkey, solid waste pollution is most acute in the large metropolitan and touristic areas. In 1990, average daily commercial and domestic production of solid waste totalled close to 4350 tons. In Izmir, average daily municipal waste totalled 1000 tons during the same year. During 1990, 525,000 tons of solid waste were collected in Ankara. According to studies conducted by the World Health Organization, the United Nations and several universities, Istanbul's solid waste production is expected to reach 5000 tons/day by the year 1995.

As is true throughout the world, the composition of Istanbul's solid waste varies between summer and winter seasons. In the winter, 42 percent of Istanbul's solid waste is made up of ashes. This ratio increases to nearly 80 percent in some parts of the municipality. The study of the composition of solid waste will be particularly important to municipalities as they attempt to find the most appropriate and efficient manner in which to dispose of solid waste.

It is estimated that in 1990 the daily production of industrial waste in the Istanbul

Metropolitan Area totalled around 2000 tons. This type of solid waste can be especially detrimental to the environment. In fact, fine ash and softened solid wastes discharged into waterways leading to the Golden Horn have caused riverbed erosion, leading to a high development of sludge content in the connecting waterways.

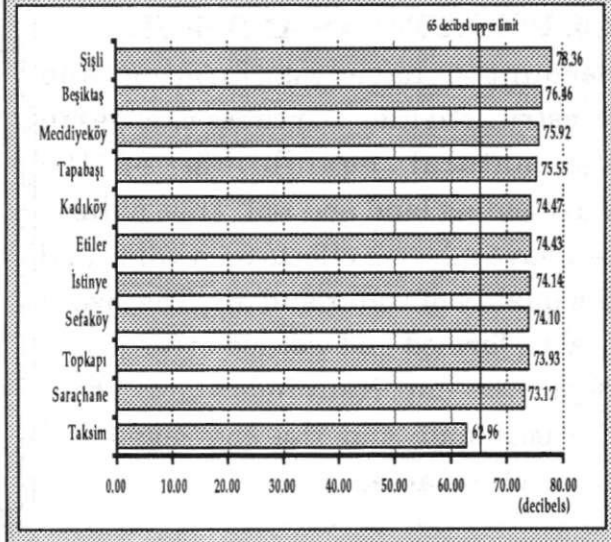
In an attempt to defray the costs of solid waste disposal in municipalities, an "Environmental Tax" has recently been issued in Turkey, levied on residents of the municipalities. Revenues from this tax will go directly to cover cost incurred by solid waste collection programs.

4.4. NOISE POLLUTION

In contrast to other forms of pollution, noise pollution is relatively easy to control with advancing technology and protective measures. Various measures have been taken in many countries in an attempt to reduce noise pollution. These include sound barriers along highways to reduce the negative effects of noise produced by passing vehicles on residential areas, and the insulation of new buildings located in high-noise regions.

For the most part, noise pollution seems to go hand in hand with economic development. As is true for almost all types of pollution, the reduction of noise pollution thus is immediately connected to the relative payoff of a related economic activity. The opportunity cost of giving up a polluting activity must be carefully evaluated, creating issues open to serious debate. For example: Should certain trucks be restricted from driving through certain areas at night? Should third shifts in factories located near residential areas be prohibited? Should the government require industries to keep noise control mechanisms? The response to these types of problems is quite difficult, and varies according to relative priorities in both developing and industrial countries.

Noise Levels in Central Points of Istanbul (1989)



Source: "Türkiye'nin Çevre Sorunları 1991," TÇSV.

Noise Pollution in Turkey

Until recently noise has not been regarded as an environmental problem in Turkey. However, noise is certainly the most common type of pollution felt in everyday life in Turkey. Even

modern office builings are being built without any noise or vibration insulation and traffic planning for existing or new structures (for roads, railways or airports) does not generally include noise mitigation measures.

As is the case throughout the world, industrial and commercial noise in Turkey leads to the discomfort and complaint of neighboring individuals. The Noise Control Regulation was developed with the aim of reducing this discomfort by restricting the hours of operation and noise levels of plants and industries. Although this regulation was well intended, lack of supervision and control causes the restrictions to go relatively unheeded.

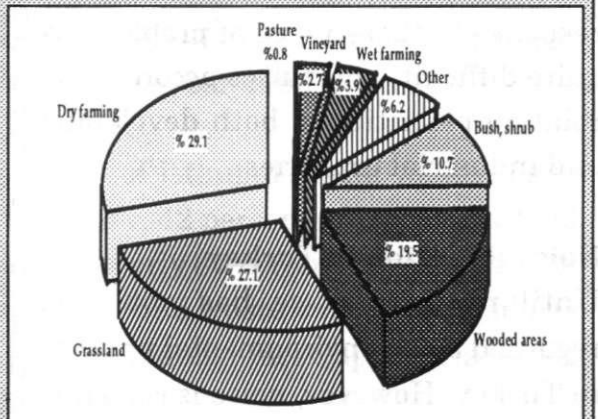
The proportion of the Turkish population disturbed by noise created by airport and airplane activities has risen in recent years. In Istanbul in particular, Atatürk Airport's close proximity to residential areas causes serious noise problems with the growth of the urban area. Although the airport was once quite far from the city center, the low price of land near the airport has led to rapid residential development in the area. At the same time, the coastal area near the airport is an important touristic area of Istanbul.

Several studies have been conducted with the aim of determining the noise level created by motor vehicles in the Istanbul metropolitan area. According to all of these studies, it has been determined that Istanbulites are quite negatively affected by noise pollution. In one of these studies, it was determined that all but one of the eleven city centers tested were subject to a noise level higher than the 65 decibel upper limit. Noise levels over 65 decibels can lead to negative reactions including high blood pressure, increase in breathing rate and sudden reflex movements, demonstrating the repurcussions of noise pollution levels in Istanbul.

4.5. POLLUTANTS AND SOILS

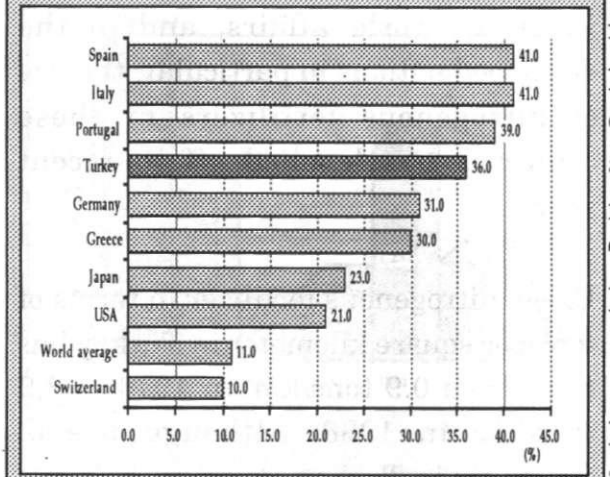
Seemingly harmless farming and forestry activities can cause changes in the natural equilibrium of the surrounding land and soil. This, in turn, can have adverse effects on wildlife and the quality of water and air. The size of arable, farmed and wooded areas in any region are important indicators of both the economic and the environmental value of the area.

Land Use in Turkey (1987)



Source: "Türkiye'nin Çevre Sorunları 1991," TÇSV.

Arable Crop Land as a Percentage of Total Land Area (Late 1980s)



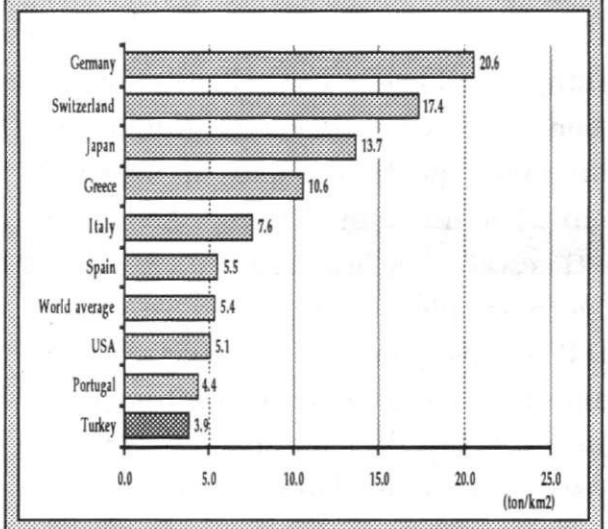
Source: "OECD Environmental Indicators 1991," OECD.

The increase in the use of mechanized agricultural tools beginning in the 1950s in Turkey, as well as a high rate of population growth have led to the destruction of grassland and wooded areas for the purpose of opening land for farming uses. Land used for farming in Turkey has increased at a dramatic and harmful rate from 11,677,000 hectars in 1934, rising to 22,808,000 hectars in 1955 and 27,837,000 hectars as of 1989. In 1989, wooded areas in Turkey totalled 20,199,000 hectars. The area of land considered grassland has decreased from 44,329,000 hectars in 1954 to 21,101,000 hectars in 1989. This fall in the area of pastureland in turn leads to an increase in the number of animals which graze per m^2. Similarly, many of the pasturelands which have been cleared for farming are hilly or sloping. Erosion has occured in many cases because these areas have been cleared without the necessary precautions. This has in turn had a negative effect on the land's productivity.

Use of Fertilizers

Nitrogen is an essential nutritional element for plants. However, the widespread use of nitrogen fertilizers in agriculture can have negative effects on the environment. Nitrogen and phosphate contained in fertilizers mix with the water supply and lead to water pollution, affecting plant and wildlife as well as humans.

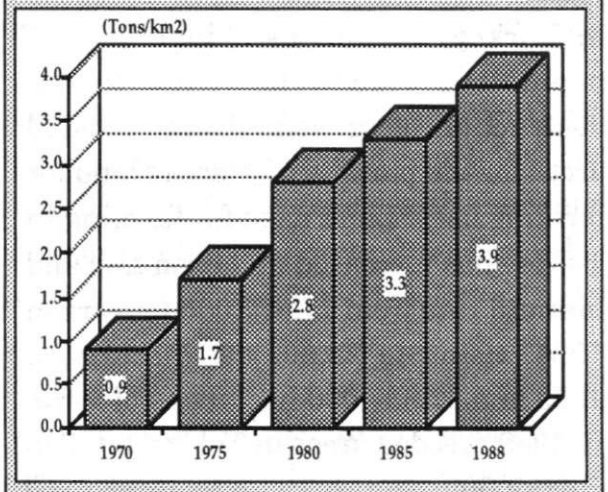
Nitrogenous Fertilizers Applied on Arable Land in Selected Countries (1988)



Source: "OECD Environmental Indicators 1991," OECD.

Intensity of use of nitrogenous fertilizers is indicated by the amount of fertilizer used per km^2 of arable land. During the last twenty years the use of nitrogenous fertilizers has increased dramatically throughout the world. This increase has been especially noticable in developing countries, as they develop the types of farming methods implemented in the

Use of Nitrogenous Fertilizer on Arable Land in Turkey



Source: "OECD Environmental Indicators 1991," OECD.

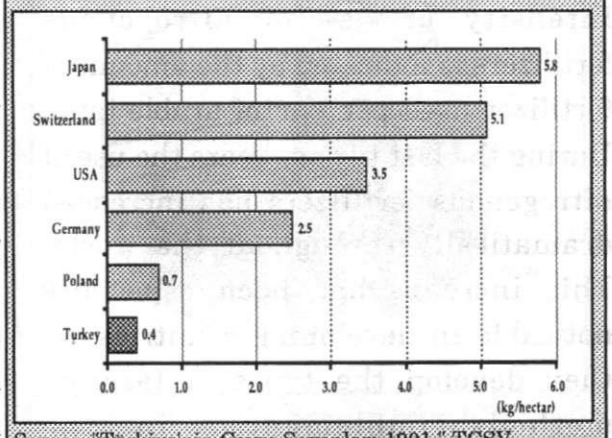
industrialized nations. With the increasing importance of environmental issues in world affairs, and in the developed nations in particular, the use of nitrogenous fertilizers in these countries has levelled off in recent years..

Use of nitrogenous fertilizer in terms of tons per square kilometer in Turkey has risen from 0.9 tons/km^2 in 1970 to 3.9 tons/km^2 in 1988. Although use of fertilizers in Turkey is currently below the world average, it is increasing yearly. The continued use of these substances without the necessary precautions will undoubtedly lead to an increase in related environmental problems in Turkey.

Use of Pesticides

As the negative side effects which the use of pesticides can have on the environment become more and more recognized, pesticide use has begun to decline worldwide. In the industrialized countries in particular, the effects of pesticide use on human and environmental health have been cause for public outcry. However, the reduction in pesticide use then brings along a reduction in crop productivity as a larger proportion of crops are destroyed by insects and diseases. In short, this issue brings about a debate over which is more important: the destruction of crops or negative effects on the environment. Research has been conducted throughout the world on the costs and benefits of pesticide use, and the debate continues to be under public scrutiny.

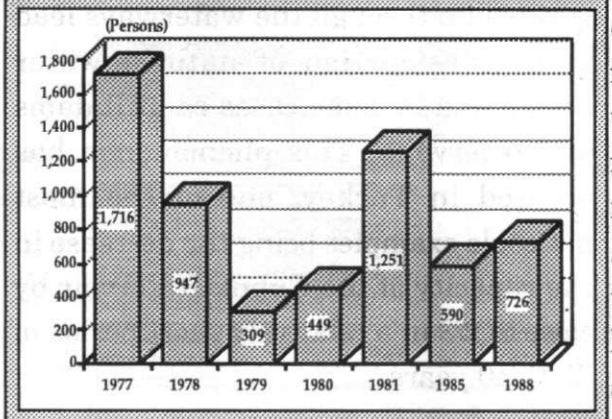
Pesticide Use in Selected Countries (1988)



Source: "Türkiye'nin Çevre Sorunları 1991," TÇSV.

A study conducted by the United Nations Food and Agriculture Organization compared pesticide use in selected countries, including Turkey. According to this study, the level of overall pesticide use (pesticide per hectar) in Turkey is well below that in countries using modern agricultural techniques. However, this does not mean that those pesticides used in Turkey do not have a negative effect on the environment. In

Poisonings Resulting from Pesticides in Turkey



Source: "Türkiye'nin Çevre Sorunları 1991," TÇSV

fact, deaths caused by poisonings resulting from pesticide use are encountered quite frequently, especially in the rural agricultural areas where these substances are very often not used in the proper manner, signalling the need for safety measures before, during and after the use of pesticides. Along with pesticides' direct effects on humans, wildlife, soil and water supply are also negatively affected by use of pesticides.

Erosion

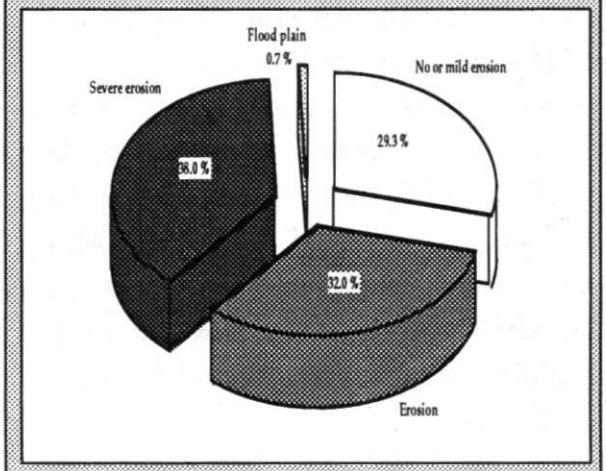
The displacement of productive topsoils, leaving less nourishing lower level soil on the surface of land areas through erosion is a growing problem faced by nations throughout the world. The damage done by erosion on an ecosystem is in most cases permanent, and in severe cases can turn once productive farmland to desert. It has been estimated that on the average, Turkey loses close to 500 million tons of productive topsoil yearly due to erosion. Some of the soil misplaced through erosion then produces deltas, changing the course of waterways and further disrupting both the ecosystem and human endeavors. One factor that compounds Turkey's erosion problem is the fact that 79 percent of Turkey's land area is at a slope of more than 10 degrees, a condition extremely conducive to erosion.

Erosion's effects on the environment are incredibly diverse, the most noticable of which is the disappearance of productive topsoils and the nutrients that are necessary for the sustenance of plant and wildlife in the area. The economic loss caused by lower agricultural output is secondary to this effect. Very often, the productivity loss caused by erosion is combatted with other techniques such as the use of fertilizers and other agricultural methods which serve to compound the negative effects on the environment.

The Extent of River Basin Erosion in Selected Areas in Turkey

Regions	Area (hectar)	Share in Region (%)
Middle Eastern Anatolia Region	6.735.611	83.0
Mid-Northern Anatolia Region	9.856.415	82.8
Black Sea Region	5.421.644	78.9
Aegean Region	7.705.127	78.7
Northeastern Anatolia Region	5.346.082	71.9
Southeastern Anatolia Region	7.786.913	69.2
Marmara Region	2.870.594	64.7
Mediterranean Region	4.958.522	61.4
Mid-Southern Anatolia Region	5.732.784	57.6

Extent of River Basin Erosion in Turkey (1988)



Source:" Türkiye'nin Çevre Sorunları 1991," TÇSV.

Erosion also has a destructive effect on dams and waterways. Sediments washed up through the waterways lead to the destruction of natural water routes and in some cases can fill dams and reservoirs. This phenomenon has occured in Turkey, one of the most noticable examples being the decrease in the capacity of the Çubuk Reservoir by close to 2/3 in a relatively short period of 35 to 40 years.

Data show that the Mid-northern Anatolian Region is in the most danger of the effects of continuing erosion. In addition, it has been estimated that close to 21 million hectars of land in Turkey is affected by severe river basin erosion, making up 38.0 percent of Turkey's overall river basins

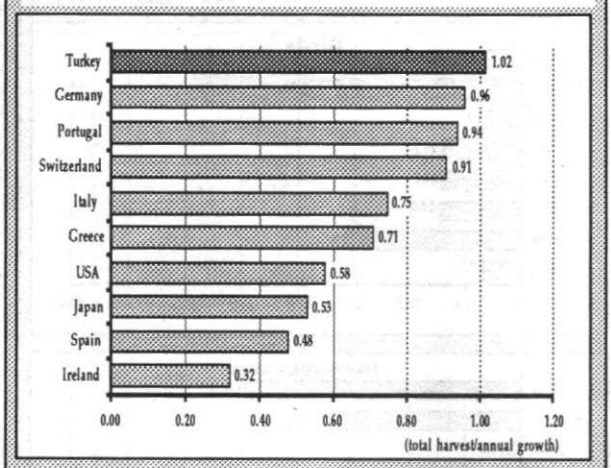
Although erosion is particularly severe in areas that are not arable, it can also become an important problem in arable land, as is the case in many regions of Turkey. This reality effects not only the environment but the national economy as well, as arable land is given up to the effects of erosion, leading to the loss of crops and livelihood. The repurcussions of erosion are so diverse as to require immediate and longlasting measures to be taken to alleviate this problem

Incorrect land use leads to annual soil losses due to erosion that are estimated to be around five million tons, and concern an area the size of the island of Cyprus. Incorrect agricultural techniques and the destruction of the plant cover through grazing and unsustainable exploitation of forest resources denude land and further erosion in agricultural areas. Reforestation measures are inadequate to cover levels that warrant a balanced water household and halt erosion. Rapid urbanization, growth in unplanned settlements on hillsides, and unfeasible choice of industrial sites are factors in the urban context which on the one hand facilitate erosion, and on the other cause the loss of high quality soil for agricultural use. Erosion in turn leads to sedimentation in natural waterways, irrigation systems and reservoirs, increases the risk of floods, and decrease the capacity of reservoirs for supply of irrigation waters and the generation of hydro-energy.

4.6. FORESTS AND WOODED AREAS

Forests and wooded areas are socially, economically and ecologically very valuable.

Intensity of Use of Forest Resources (1980-1985 average)



Source: "OECD Environmental Indicators 1991," OECD

The world relies on these areas for food, recreation, heating, shelter and life. At times, the ecological value of wooded areas can be overlooked as man exploits the economic value provided by these areas. This, in turn, has extensive ramifications on the environment and eventually the economic and social aspects of life.

The continuity and productivity of timber resources are demonstrated by several quantitative indicators. One of the most important of these is the total harvest of forest resources as a percentage of the forest areas annual growth. In the case that this ratio is over one, forest resources are being consumed at a rate higher than that at which they are being produced. The continuation of such trends leads to the destruction of forest resources.

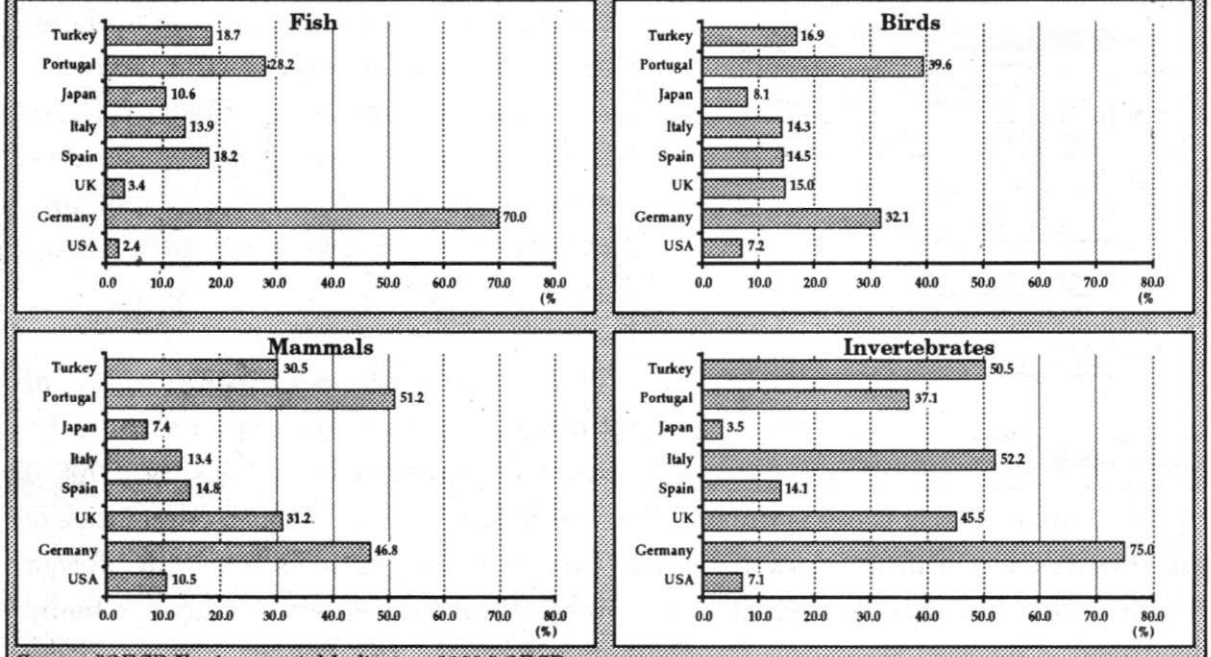
Lack of education and information is one of the most important factors leading to rapid deforestization in Turkey. In fact, there has been a marked increase in the rate of deforestization in recent years, as large areas are cleared for farming, logging, residential or other purposes. One factor that could help to alleviate this situation is the careful definition of wooded areas and forests, and the timely and effective dissemination of relevant information.

According to scientific research, it has been determined that an area of 18 millon hectars must be planted in Turkey in order for the area to return to its natural condition. Atleast 300,000 hectars of land must be returned to its original forest quality through protection and planting, and this must be begun immediately. Although Turkey was once fortunate to have important forest resources, the overuse and lack of planning has led to a depletion of these resources, effecting both the ecological makeup of the area and future economic gains. Turkey must protect and preserve its existing forest resources in order to protect its ecological habitat.

4.7. WILDLIFE

Man is dependant on wildlife for almost all things he does, so much so that wildlife has gone from being merely a natural resource to a valuable social, economic and political commodity. At the same time, biological diversity has become and will continue to be an even more important issue in domestic and international arenas.

Threatened Species as a Percentage of Known Species in Selected Countries (Late 1980s)



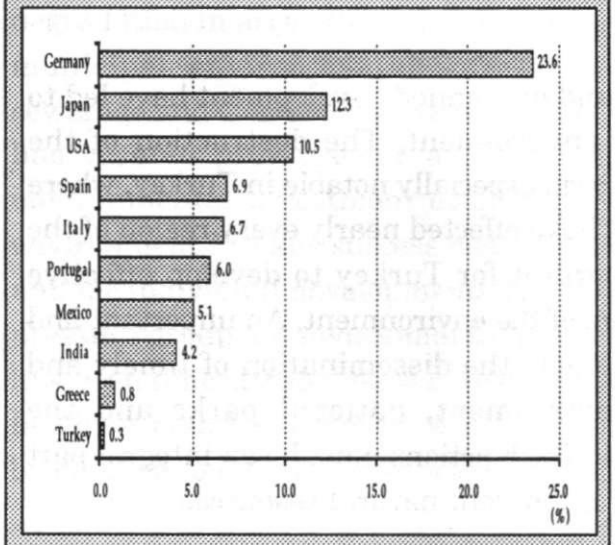
Source: "OECD Environmental Indicators 1991," OECD.

One method of measuring the biological diversity in the environment is the analysis of threatened species in an area as a percentage of known species in the same area. This indicator suggests that animals in Europe are under a larger threat than those in the North America and Japan. The growth of residential and urban areas to the detriment of wildlife, natural destruction, the depletion of natural resources through unlawful acts and outright pollution of the environment all combine to form an incredible threat on wildlife throughout the world.

Despite the declaration of natural parks and protected areas, Turkey's flora and fauna are under threat in many places. As has been the case throughout the world, with the development of the economy and industrialization, pollution of the environment and disruption of the ecological system have had definite negative effects on the flora and fauna in Turkey, even leading to the extinction of some species. Use of pesticides and fertilizers, industrial and commercial wastes, detergents, the emission of poisonous gases into the atmosphere have all been detrimental to nature and those living in it.

Clearing of wooded areas and pastureland for agricultural purposes or by accident through fire and natural disasters have threatened many animal species, destroying their natural habitats. Rivers, lakes and ponds have dried up in many cases due to man's interference, destroying the habitats of fish, mammals, birds and insects and eventually leading to extinction in some cases.

Protected Land as a Percentage of Total Land Area (1989)



Source: "World Development Report 1991," The World Bank

Protected Areas

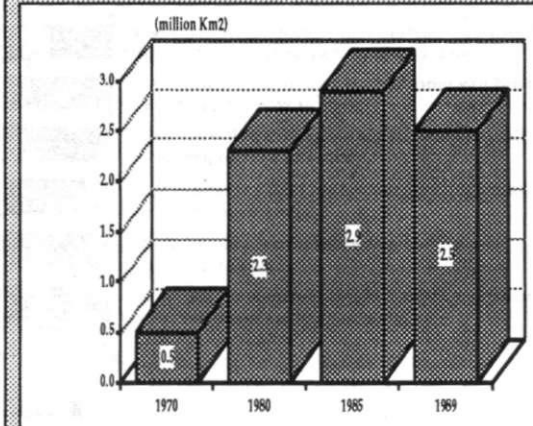
The protection of the environment has become an important issue throughout the world, and is a subject agreed upon by nearly all nation-states. The level at which the environment is protected varies according to the natural qualities of the region and policies of local and regional governments. Areas can be fully and partially protected, with authorities defining the scope of activities and actions in these areas. In some cases, authorities may encourage multi-faceted use of forest or arable land. All in all, authorities develop protected areas in an effort to preserve the natural flora and fauna of ecological systems, and play an important role in encouraging the public to feel responsible for the protection of the environment.

The definition of protected areas varies from region to region and from country to country. However, one common characteristic of all these areas is the restriction of human activity to some degree. These areas include land and marine areas defined as national parks, national treasures and natural resources, each of which has a separate purpose and definition. Public support for environmental protection has led to an increase in protected areas in both industrialized and developing countries.

In 1989, 7.1 percent of the total land area of OECD countries was termed as protected. This indicator is much lower in developing and underdeveloped nations, and around 4 percent of total land area throughout the world is protected to some degree.

The size of protected land area in Turkey has risen from the very low level of 500,000 km² in 1970 to over 2,500,000 km² in 1989. Although this

Protected Areas in Turkey



Source: "OECD Environmental Indicators 1991," OECD

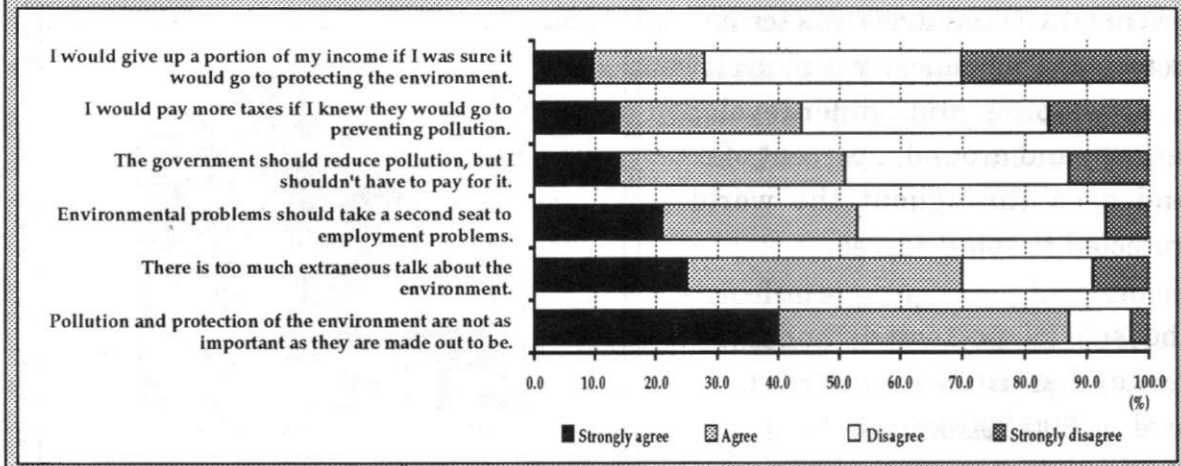
does signify a marked development, protected areas make up only 0.3 percent of Turkey's total land area. This ratio is not only below the average of OECD countries, but also well below the world average.

Rapid urbanization, changes in rural life and unplanned development have led to untold and irreperable damage on the environment. The destruction of the environment due to a lack of planning has been especially notable in Turkey, where longlasting effects of pollution and neglect have effected nearly every region of the country. It has become particularly important for Turkey to develop effective programs aimed directly at the preservation of the environment. An important and essential step in this direction is undoubtedly the dissemination of timely and relevant information regarding the environment, national parks and the preservation of nature to the general public. Such actions must be an integral part of national policy if Turkey is to preserve its current natural resources.

4.8. A STRATEGIC LOOK AT ENVIRONMENTAL POLLUTION IN TURKEY

In the last decade, Turkey has gone through a period of relatively high economic growth, which has had a negative effect on the environment as production of pollutants has increased substantially. The absense of effective laws and regulations relating to environmental protection have provided competitive advantages for some to the detriment of Turkey's environment. For example, the Turkish government's subsidized provision of lignite coal with high sulphur content to decrease Turkey's dependence on energy imports has had a definite negative effect on the environment. At the same time, many of the industries that emit the most pollution on the environment are in themselves state owned enterprises, compounding the pollution problem.

Views on Environmental Issues



Source: Türk Toplumun Değerleri, TÜSİAD, September 1991.

The development of the tourism industry in Turkey has had serious effects on the environment. Badly planned development complexes have accelerated coastal degradation in areas that run the danger of being overdeveloped, and overstretch municipal environmental infrastructures, especially waste management, sewerage and wastewater treatment facilities. At the same time, however, tourism has created pressure for a cleaner environment in tourist areas, and for environmental investment even in non-tourist projects. The fact that a clean environment is a key success factor for tourism both in international competition and for individual developments has turned tourism operators into a significant pressure group for environmental protection. Geographically, industry in Turkey has been concentrated on the west coast and Marmara region with access to port facilities, creating localized pollution problems. In recent years, many efforts have been taken to relocate these industries out of municipal areas to industrial estates.

As Turkey strives to become a member of the European Union in the long run, one of the most important factors that it must consider is the development of environmental awareness and relevant regulations. The effectiveness and efficiency of both regulations and relevant control measures must be developed in order for Turkey to take its place among industrialized nations.

In recent years especially, public opinion in Turkey has increasingly been focused on environmental issues. A study conducted in 1991 demonstrates the Turkish public's growing awareness of environmental problems. Close to 90 percent of those surveyed stated that they would be willing to give up a portion of their income if they were sure that it would go directly to environmental causes. Only a relatively small percentage of respondents believe that environmental issues are in fact not as immediate as they are made out to be.

All in all, the need to live in a clean environment is recognized by a large proportion of the Turkish population. This awareness will play an important role in the effective development of environmental programs in Turkey.

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