

Technological environment of turkey



The field of management requires practical knowledge in addition to the theoretical knowledge gained in the classroom this report has been prepared in accordance with the guideline of Patel group of institution of for MBA curriculum. We are studying in the 3rd semester of MBA programmed during this year.

We are completed our Global/Country project report on Technological Environment" on Turkey have been prepared by our thoughts, ideas and an experience.

I have tried to try to include all the important information in present report

Acknowledgement

The work presented here is not a single effort as each and every person associated with this project has contributed in the successful accomplishment of this piece of work and is being thanked for their efforts.

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1. 1 Introduction

Overview on TurkeyModern Turkey was founded in 1923 from the Anatolian remnants of the defeated Ottoman Empire by national hero Mustafa KEMAL, who was later honored with the title Ataturk or " Father of the Turks." Under

his leadership, the country adopted wide-ranging social, legal, and political reforms. After a period of one-party rule, an experiment with multi-party politics led to the 1950 election victory of the opposition Democratic Party and the peaceful transfer of power. Since then, Turkish political parties have multiplied. Turkey joined the UN in 1945 and in 1952 it became a member of NATO. In 1964, Turkey became an associate member of the European Community. Over the past decade, it has undertaken many reforms to strengthen its democracy and economy; it began accession membership talks with the European Union in 2005.

Turkey's position and role in the world has become a more pivotal one. Its geographical position, wedged between the European landmass, Russia and the Middle East, has given it a new strategic importance.

Turkey has an especially significant place in the Muslim world. Thanks to the legacy of Ataturk, it is a rare example among Muslim countries of a functioning secular democracy. Compared with much of the Arab world, it has been hugely successful in economic, diplomatic and military terms.

Turkey has also made the most of being an energy corridor between east and west. A decade of confrontation over oil and, especially, gas between Russia and the West has enabled Turkey to act as a buffer. Oil and gas pipelines already snake across Turkey from Azerbaijan via Georgia. The Turks have also signed up to the ambitious Nabucco gas-pipeline project, which is intended to bypass Russia. Oil began to flow through the Baku-Tbilisi-Ceyhan pipeline in May 2006, marking a major milestone that will

bring up to 1 million barrels per day from the Caspian to market. Several gas pipelines also are being planned to help move Central Asian gas to Europe Via Turkey, which will help address Turkey's dependence on energy imports over the long term?

Mr. Dervis, a World Bank economist became Turkey's finance minister in March 2001. He was responsible for devising and adopting financial and fiscal reforms as part of an IMF program which provided a new framework for Turkish monetary and fiscal policy, which has stood the country in good stead. The economy suffered badly in the global recession of 2009, but over the previous five years it had been vigorous, and it bounced back so quickly that in 2011, it is likely to grow faster than those of almost all other European countries. Turkey experienced GDP growth of 8.9% in 2010, the fastest of all OECD economies. It was the world's fastest growing economy in the first quarter of 2011.

The reforms strengthened the country's economic fundamentals and ushered in an era of strong growth - averaging more than 6 per cent annually until 2009, when global economic conditions and tighter fiscal policy slowed growth to 4.7 per cent, reduced inflation to 6.5 per cent - a 34-year low - and cut the public sector debt-to-GDP ratio below 50 per cent. Turkey's well-regulated financial markets and banking system weathered the global financial crisis and GDP rebounded strongly to 7.3 per cent in 2010, as exports returned to normal levels following the recession. It is on the verge of acquiring an investment-grade credit rating; inflation is in single figures.

In the 1990s foreign direct investment was running at less than \$1 billion a year, but ten years later, before the GFC briefly sent it back down again, it was closer to \$20 billion. The banks have been transformed and the country has a strong financial sector.

In the 1990s Turkey's GDP grew by an annual average of just 4 per cent. In 2002-08 that rose to an average of about 6 per cent before the recession hit in 2009. Inflation, running at an average of 75 per cent a year in the 1990s, is down to 9 per cent in 2010. The public debt is back below 50 per cent of GDP.

The OECD published a report on the Turkish economy in September 2010, which pointed out that Turkey would be the organization's fastest-growing member in 2010/11 and likened its performance to that of the emerging-market BRICs. There are signs that over the next seven years Turkey's growth will match or exceed that of any other big country except China and India.

Turkey's economy is increasingly driven by its industry and service sectors, although its traditional agriculture sector still accounts for about 30 per cent of employment. An aggressive privatization program has reduced state involvement in basic industry, banking, transport, and communication, and an emerging cadre of middle-class entrepreneurs is adding a dynamism to the economy.

Turkey's traditional textiles and clothing sectors still account for one-third of industrial employment, despite stiff competition in international markets that resulted from the end of the global quota system.

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1. 2 Demographic profile of the country

Population

79, 749, 461 (July 2011 est.)

Age structure

0-14 years: 26. 6% (male 10, 707, 793/female 10, 226, 999)

15-64 years: 67. 1% (male 26, 741, 332/female 26, 162, 757)

65 years and over: 6. 3% (male 2, 259, 422/female 2, 687, 245) (2011 est.)

Median age

total: 28. 5 years

male: 28. 1 years

female: 28. 8 years (2011 est.)

Population growth rate

1. 197% (2011 est.)

Birth rate

17. 58 births/1, 000 population (2011 est.)

Death rate

6. 1 deaths/1, 000 population (July 2011 est.)

Net migration rate

0. 5 migrant(s)/1, 000 population (2011 est.)

Major cities – population

Istanbul 10. 378 million; ANKARA (capital) 3. 846 million; Izmir 2. 679 million;
Bursa 1. 559 million; Adana 1. 339 million (2009)

Sex ratio

at birth: 1. 05 male(s)/female

under 15 years: 1. 05 male(s)/female

15-64 years: 1. 02 male(s)/female

65 years and over: 0. 84 male(s)/female

total population: 1. 02 male(s)/female (2011 est.)

Infant mortality rate

total: 23. 07 deaths/1, 000 live births

male: 24. 13 deaths/1, 000 live births

female: 21. 96 deaths/1, 000 live births (2011 est.)

Life expectancy at birth

total population: 72. 77 years

male: 70. 86 years

female: 74. 78 years (2011 est.)

Total fertility rate

2. 13 children born/woman (2011 est.)

Nationality

noun: Turk(s)

adjective: Turkish

Ethnic groups

Turkish 70-75%, Kurdish 18%, other minorities 7-12% (2008 est.)

Religions

Muslim 99. 8% (mostly Sunni), other 0. 2% (mostly Christians and Jews)

Languages

Turkish (official), Kurdish, other minority languages

Literacy

definition: age 15 and over can read and write

total population: 87. 4%

male: 95. 3%

female: 79. 6% (2004 est.)

School life expectancy (primary to tertiary education)

total: 12 years

male: 12 years

female: 11 years (2008)

Education expenditures

2. 9% of GDP (2006)

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Maternal mortality rate

23 deaths/100, 000 live births (2008)

Children under the age of 5 years underweight

3. 5% (2004)

1. 3 Geographical profile of the country

Map of the country

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Official name - Republic of Turkey

Capital City - Ankara

GDP - purchasing power parity \$906. 5 billion*

GDP Per Capita - purchasing power parity \$12, 000*

Location:

South eastern Europe and south western Asia, bordering the Black Sea, between Bulgaria and Georgia, and bordering the Aegean Sea and the Mediterranean Sea, between Greece and Syria.

Geographic coordinates: (39 00 N, 35 00 E)

Area: Total: 780, 580 sq km, land: 770, 760 sq km, water: 9, 820 sq km

Land boundaries:

Total: 2, 627km, border countries: Armenia 268km, Azerbaijan 9km, Bulgaria 240km, Georgia 252km, Greece 206km, Iran 499km, Iraq 331km, Syria 822km

Coastline: (8, 333km)

Climate:

Temperate; hot, dry summers with mild, wet winters; harsher in interior

Terrain:

Mostly mountains; narrow coastal plain; high central plateau (Anatolia)

Elevation extremes:

Lowest point: Mediterranean Sea 0 m, highest point: Mount Ararat 5, 166m

Natural resources:

Antimony, coal, chromium, mercury, copper, borate, sulphur, iron ore

Land use:

Arable land: 32%, permanent crops: 4%, permanent pastures: 16%, forests and woodland: 26%, other: 22% (1993 EST.)

Irrigated land: (36, 740 sq km)

Natural hazards: Severe earthquakes, especially in northern Turkey

1. 4 Economic overview of the company

The Turkish economy is dynamic and growing. It is a blend of traditional agriculture, modern industry and commerce. One-third of those employed in

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industry work in textiles. However, textiles are not the main export. This sector has been overtaken by the rapidly growing automotive and electronic industries. Turkey also has an awakening science and innovation sector, though it lags behind most OECD countries in this area. With rapid growth rates and a young and increasing population of over 70 million, Turkey has the potential to be the largest economy in Europe after Germany and the most populous if it should be accepted into the EU. Turkey is now a member in the G20 club of important economies, and it is almost on par with the emerging giants of the BRIC club. Some forecasts even suggest that during the next decade Turkey will grow faster than any other country besides India or China.

Economic growth in Turkey has confronted many obstacles over the past decades. Historically since the 1950s, the country has suffered serious disruption to its economy about every 10 years. In 1994 due to excessive public spending and deterioration of macro-economic fundamentals, the country's economy faced one of its worst recessions up to that time, bringing an end to 13 straight 3 years of growth. However, the economy bounced back strongly over the next 3 years, growing by over 8 percent (OECD, 2010 fact book). In 1998, slowdown returned as a result of the Asian and Russian financial crises.

In 1999, two disastrous earthquakes, measuring 7.4 and 7.2 on the Richter scale, hit northwestern Turkey right in the middle of its industrial heartland, causing Turkey to suffer its worst contraction in several decades. Ten years ago Turkey's economy was once again in turmoil. Inflation was extremely high and its banks were on the verge of collapse. By the 2000-1 liquidation

crises, the nation's currency collapsed, the banks had to be rescued, public debt amounted to 74% of GDP IMF, World Economic Outlook Database), and for the 18th time, the IMF was asked for assistance.

Since then, Turkey's economy has entered an era of high growth and structural reform. A comprehensive reform program, which encompassed an exchange float rate, financial-sector supervision and privatization, led to significant economic growth with an annual GDP growth rate of 6.8% between 2002-2008, compared to an annual average of 4% in the 1990s. The private sector grew considerably in recent years, but the government still plays an important role in leading industries such as banking, transport and communications. The inflation rate fell to historic lows, reaching 6.4% in the past year compared to 75% in the 1990s (Turkish Statistical Institute, "Turkstat"). Significant improvement in budget management was introduced, and government debt declined significantly from 76% of GDP in 2001 to about 35% in the second quarter of 2010

Turkey's political arena

The political situation has improved as well. Turkey's politics used to be unstable and highly volatile. Parties would form and quickly disappear, politicians would abruptly be banned, and several times the army interfered and removed the ruling government. However, all this changed after the election of November 2002, when the single party government, led by the mildly Islamist Justice and Development (AK) party of Mr. Erdogan's, was formed. It has been in power ever since. After over eight years of rule by Mr. Erdogan's AK party, an array of impressive political and economic reforms was implemented. In addition, last September, Mr. Erdogan won an

important referendum enabling him to increase government control over the army and judiciary system. The part that Turkey's political stability plays in Turkey's overall market improvement is unquestionable. Yet, the results of the September referendum have revealed that the country remains deeply divided. Mr. Erdogan has also proved highly partisan and intolerant of criticism. Freedom of the press in the past years is no longer taken for granted. This was apparent in the government's handling of the country's biggest media group, known as Dogan. After a few unfavorable articles, the media group found itself the object of unusually vigorous tax inspections, reminiscent of Russia's treatment of the Yukuse oil company. Since then, journalists realize that it is unwise to criticize the AK party. In its 2009 progress report, the European Commission reprimanded the government over this episode. .

Turkey has traditional strong ties to the Arab and Muslim world which have been growing stronger under the leadership of the current government. These ties relate to domestic issues, for instance, the removal of the ban on wearing a veil in state institutions and universities, and to foreign issues such as the deteriorating relations with Israel. Turkey, which was largely ignored for many years, now has a stronger presence in the region, which has proven advantageous to economic growth. Traditionally Turkey has relied mainly on exports to the West, especially Germany and the rest of Europe. But although the EU is still Turkey's biggest market, its share is falling, and exports to the Middle East and Iran increased significantly. This has given Turkey access to more diversified markets and lowered Turkey's dependence on the economic recovery in Europe.

Turkey and the global financial crises

Turkey's economy was hit by the recent global financial crises mostly through trade channels, setting back trade with Turkey's main trading partners in the European Union, and it resulted in a sharp fall in exports. Although capital inflows contracted, and private investment and the consuming of durable goods declined, there was no fundamental damage to Turkey's economy. Due to the reforms in the Turkish financial sector and tighter regulation, Turkey's economy recovered swiftly, and growth in 2010 was estimated at over 8% (IMF), mostly attributed to growing domestic demand. Inflation was just below the 2010 target, and capital inflows intensified driven by wide interest rate gaps and increased political certainty. In the 1990's, foreign direct investment was running at less than 1\$B a year but by 2007 foreign direct investment reached an all-time high of 22\$B. However, the high levels of FDI have declined and amounted to less than 9B in the past year (OECD). A significant rise in FDI in the near future is not likely as more than 80% of FDI comes from European countries. Whereas FDI has declined, other yet more volatile investments (portfolio investments and debt securities investments) have risen due to low CDS spread. In the Istanbul stock exchange more than two-thirds of the stocks are now owned by foreign investors. Although this is a sign of global confidence in Turkey's open markets, it also raises the prospect that foreign money is fueling an investment bubble that could end badly if foreigners exit the market as quickly as they entered.

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2. 1 Introduction

Since 2005 Turkey has been in a negotiation process with the European Union and within the country there is a high interest to accede to the European Union respectively to advance the cooperation with the EU. A further approach of Turkey to the EU will also implicate an increased implementation of EU environmental technical standards resulting in a corresponding demand on environmental technologies. Irrespective of an accession to the EU, Turkey as a threshold country is confronted with a range of environmental topics being put on the spot in the coming years. This concerns above all the construction of new power plant capacities, raising energy and commodity prices, the protection of potable water resources as well as safeguarding the quality of the bathing water and an attractive landscape for tourism.

The country has a population of 74 million, features a stable economic growth and thus represents an enormous market for Austrian environmental technology. Beyond it, due to the immigration of Turkish foreign workers to Austria in the 1960s and 1970s, there are intensive economic and cultural relationships between Austria and Turkey. The existing bilingualism of many Austrians with Turkish migration background creates excellent conditions in order to overcome cultural and lingual barriers when carrying out environmental technology projects in Turkey. At administration level a co-operation already exists between Austria and Turkey in terms of an EU-twinning project in which the Federal Environmental Agency as well as the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management are involved.

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The aim of this study is a better assessment of the potential of this market for Austrian companies by presenting a detailed analysis of national environmental policies as well as of the corresponding volumes of investment. Small and medium enterprises often do not dispose of the means for an ongoing market observation thus this study can be regarded as a guide and assistance when assessing the future market development in the environmental sector.

Due to the scale of the subject area - starting with energy and climate policy and ranging from waste materials, water and sewage to air pollution control - this report can only give a review about country policies and market potentials in the environmental technology sector. Presenting the relevant national documents in a list together with indexed key words, contacts and reference sources, the reader obtains a guidance when searching for detailed information. The actual figures of planned investments concerning environmental infrastructure, as described within the study, will vary strongly in regard to further political developments between the EU and Turkey. None the less, from a current view, Turkey will implement most of the environmental infrastructure-measures due to the need for action, even without joining the EU.

2. 2 Economy and technology in Turkey

Continuing Economic stability and advancing structural reforms

Turkish economy has made important gains after the 2001 crisis. Leading among these are the achievements in growth, inflation figures, improved budgetary balance and increases in foreign direct investments. A favorable international economic atmosphere and a period of financial abundance have played a part in this achievements, as much as did the introduction of structural reforms, decisive implementation of the economic program, strict observation of the budgetary discipline, political stability and progress toward full membership to EU.

Despite these achievements, unfortunately, no progress has been made in solving the problems regarding the competitiveness of the industrial sector. Structural and micro reforms that would buttress competitive strength could not be undertaken. During the same period the over-valuation of Turkish currency has also inhibited the industrial competitive strength. Despite these negative factors in play, the industrial sector nevertheless managed to increase exports and become the locomotive of economic growth. However, this achievement has been in turn shadowed by the fact that imports have increased faster than the exports; and by an unprecedented figure of trade deficit.

During the second half of 2007, a payments crisis in US real estate's sector emerged, causing anxiety in global markets and provoking a setback in the positive expectations that had been prevalent for some time. Two important elections - presidential and parliamentary - held in Turkey in the same year relegated the economy to a secondary position; and, compared to previous years, a relatively bleak picture emerged as a result. For the first time in the post-2001 period, the growth objective was underachieved: whereas the

aimed annual figure was 5 %, the realization was at 4, 5 %. Even though the trade deficit decreased proportionally, it surpassed the aimed figure of 54, 7 \$ billions and reached 62, 8 \$ billions. The trade deficit contributed to the current account deficit and the latter broke a record by reaching 37, 4 \$ billions. Furthermore, during the last two years, hard times began with regard to the anti-inflationary struggle, and both in 2006 and 2007 the objectives were underachieved: 9, 7 % instead of 5 %; and 8, 4 % instead of 4 %, respectively. All these demonstrate that a critical period is now reached in the economy.

In the international scale, pessimist prospects have emerged as weaknesses in many markets

persisted, deepened, grew and spread, to the effect that expectations about worldwide growth have fallen down to lows unprecedented during 2000s. Without doubt, Turkish economy is much more fortified and stronger now than in the past. Nonetheless, it should not be forgotten that fragility still exists. The recent growth has been mostly dependent on foreign financial inflows. Therefore, possible negative developments with regard to monetary liquidity in international markets may affect Turkish growth figures negatively by hindering inflows. The situation is exacerbated by the fact that global negativities are now being accompanied by question marks about domestic political stability. In order for this dire strait to be left behind with the least possible harm, greatest attention should be paid to the economy and measures should be taken swiftly, prioritizing the competitive strength above all. The gains that have been made since 2001 would be at risk unless such measures are put into effect without any more delay.

Sustainable development and energy supply security

One of the most important objectives of statecraft should be to facilitate the conditions of sustainable development. Sustainable development refers to three aspects of sustainability - in economic, environmental and social welfare terms. It expresses a relationship between these three complementary aspects and a necessity to build a balance between them. In terms of sustainable development it is of utmost importance to achieve justice in income distribution, to protect the environment and to meet the increases in the demand for energy in a way that such a balance would be kept. Securing energy supplies for the long term is of primary necessity. Energy supply security can be provided by a diversification in supplying countries and supply mechanisms as well as in the types of fuels and relevant technologies.

Turkey's special geographical position provides various opportunities in this regard. Firstly, various resource correlations are rendered possible by the availability of various resources. The fact that 70 % of the known energy resources reside in the east and south of Turkey (in Caucasus, Central Asia and Middle East) whereas an important share in the consumption takes place in Europe, puts Turkey in a position of transit route. It gives the opportunity to Turkey to build an energy corridor between east and west. In addition to this, since many energy transfer lines intersect in Turkey and they are directed to new destinations thereafter; and since Turkey also provides them with port terminals; Turkey also has the opportunity to build energy hubs of worldwide importance.

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Turkey has to decrease its current import-dependent position. Energy resources should be diversified; hydraulic, solar and wind powers should be exploited to a greater extent; and search for new fossil fuels should be given a greater attention. Moreover, increased transfer of fossil fuels from the Middle East, Caucasus and Central Asia, their processing in certain energy terminals and their transport to Europe through maritime or pipelines would contribute not only to the agenda of energy supply security but also to Turkey's economic development; and increase its geopolitical importance.

Attention should be paid to the fact that international prestige would accrue to Turkey if efforts toward the development of new energy technologies like hydrogen power could commence and come to fruition in Turkey.

Development of energy technologies should therefore receive their respective share in the resource allocation.

3. Scientific and Technological Progress

Scientific and technological progress has historically contributed to the economic development of nations and has thus been an important element in their competition. In the future as well, scientific and technological progress is expected to follow the destination provided by economic policies and competitive strategies. Of fundamental importance in this context are the construction of the infrastructure necessary to build an informational society as well as increased care devoted to strategic Technologies like Information and Communication Technologies; Nanotechnology; Biotechnology and Genetics; Energy and Environmental Technologies; Material Technologies; Mechatronics; Design Technologies; and Production Process Technologies.

In order to realize technological progress and secure its articulation into economic development; scientific publications, patent acquisitions, high-tech industrial branches, information-led services and high-tech exports should be encouraged. Harmonization of scientific and technological research with the “real sector,” to the effect that it is responsive to the challenges of economic development, is needed. “Techno-economy Institutes” should be founded in order to achieve an integrated design of economic policies and scientific and technological policy; as well as to train able personnel (techno-economists) that would administer such a process. Techno-parks, which now boast the number of 30 country-wide, should be further multiplied, with an effort of increased cooperation between the university and the industrial sector.

If suitable conditions are provided, Turkey can also claim a share in the relocation of transnational companies' R&D (research and development) activities, as part of a worldwide economic move "into the East." Such conditions could only be established with continued political stability and economic growth; and with an effort to solve regional problems through peaceful diplomatic measures.

2.3 Environmental Technologies

Investments in environmental technologies are highly supported by government in Turkey. Attracting environmentally friendly investments is also a key objective of the Investment Support and Promotion Agency of Turkey (ISPAT).

Local municipalities in Turkey also play an important role in recycling, water purification, waste-sewage treatment, environmental remediation and solid waste management.

Energy efficiency is an essential part of the environmental policies in Turkey. Turkey has implemented most of the European legislation on energy efficiency.

Renewable energy is an important segment of environmental technologies. Turkey's primary energy sources include hydropower, geothermal, wood, animal and plant waste, solar and wind energy. Turkey's geographical position has several advantages for extensive use of most of these renewable energy sources. The Renewable Energy Law was enacted in 2005 in order to encourage renewable energy generation in competitive market conditions.

According to Vision 2023, the Turkish National Technology Foresight Program, Turkey has developed strategies on environmental technologies mainly renewable energy, waste management, hydrogen technologies and water treatment.

Turkey is an active partner of Agenda 21 which provides an action plan for a global partnership in the field of sustainable development.

The new incentive regime introduced by Turkey includes interest support for environmental investments.

Turkey possesses a substantial amount of rivers and lakes that offer ideal opportunities for small as well as large-scale energy companies.

Increasing the share of renewables in energy generation to 30 percent

Full utilization of hydropower, more than doubling the existing capacity of hydropower

Increasing wind power to 20, 000 MW (up from 1, 694 MW in 2010)

Power plants with a capacity of 600 MW geothermal, 3, 000 MW solar energy

Making Turkey one of the top 10 countries in solar energy worldwide

Renewable Energies and Energy Efficiency

The largest potential for environmental technologies in Turkey can be found in the area of renewable energy and energy efficiency. Actually, Turkey is able to cover only 28% of its energy demand from domestic sources. At the

same time prognoses state an annual increase in consumption of primary energies with 6. 2% p. a. and of electricity with 8. 1% p. a. This seems fa