



Turkey's  
Sustainable  
Development  
Report  
**Claiming  
the Future**  
2012



This Report is prepared within the context of national preparation process which has been coordinated by T.R. Ministry of Development since September 2011 with the participation of 1300 people from 55 institutions and organizations in;

- 2 information meetings,
- 3 participatory workshops,
- 4 regional meetings,
- Several dialogue meetings with NGOs and private sector,
- 4 roundtable meetings,
- 1 panel, 1 forum and 1 conference at international level,
- 1 press conference,
- Selection of “best practices”,
- Green growth analytical study,
- Stocktaking analysis of last 20 years.

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Report  
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# FOREWORD



We are going through a process, in which global problems require global solutions.

Nowadays, problems of countries cannot be kept within the boundaries; getting beyond the limits, they affect the region, and even the whole world. Today, in our world, the problems attracting more attention as poverty, hunger, epidemic diseases, environmental pollution, climate change, drought, war and conflicts, though affecting the local, are waiting for global solutions with a global perspective. We are living in a world where solidarity is of vital importance, more than ever. Obviously, we are undergoing a test of humanity, where globalizations of conscience and conscientious responsibilities have become urgent needs besides capital.

We have been entrusted the world we live in, from the former generations. In the future, our children, our grandchildren, and the next generations will be living on this world. If we cannot leave a world as we have been entrusted; or even a better one as a legacy, we will be unfaithful both to past and next generations. On behalf of our children, our grandchildren, today, we have to take and implement all the precautions determinedly.

Turkey shows a highly sincere, solution-based, law and justice-oriented approach to both regional and global issues. We are approaching to international issues, global and regional matters with human-centered, conscience-oriented principles advocating the supremacy of law, not the law of the superiors. Besides prevention of ongoing war and conflicts, and establishment of peace, Turkey attaches equal importance to sustainable development, equitable distribution, solidarity and particularly the alliance of civilizations and believes wholeheartedly that a different world could be built with a belief in the richness of the differences.

As Turkey, we will celebrate the 100th anniversary of our foundation in 2023. We are in a great endeavor for the year 2023 and to reach our goals. We will achieve these goals with sustainable development, green growth and human-centered development principles. This report puts forward Turkey's growth vision for 2023 and then for 2030.

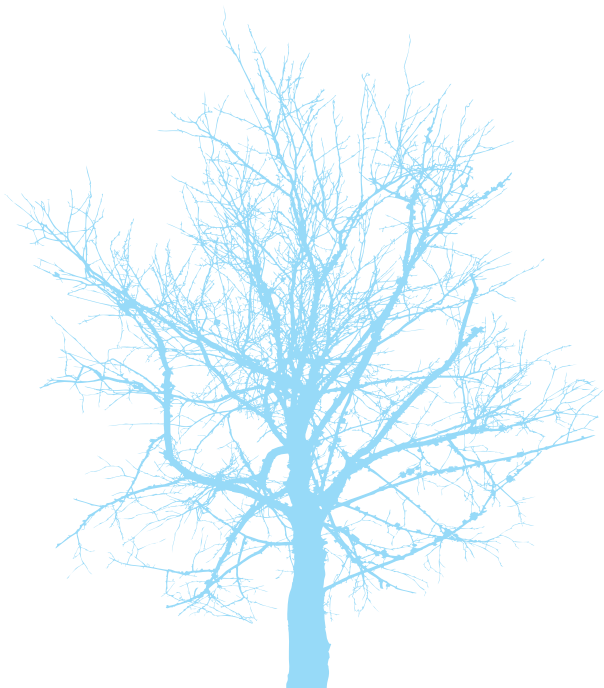
We are aware that we will achieve national goals with international solidarity and collaboration besides a national vision. Essentially, we are emphasizing solidarity in all issues, particularly for the global economic crisis. We know that 2023, then the 2030 targets could be reached with such kind of a solidarity, and we are working accordingly.

Our biggest goal and ideal is a more prosperous, livable world than today, and even than yesterday, for our children.

With this understanding, I wish Rio+20 will be a new beginning for embracing the future for the whole world and for Turkey.

**Recep Tayyip ERDOĞAN**

T.R.  
Prime Minister



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## Abbreviations

<b>EU</b>	: European Union
<b>R&amp;D</b>	: Research and Development
<b>ASDEP</b>	: Family Social Support Program
<b>UN</b>	: United Nations
<b>CNG</b>	: Compressed Natural Gas
<b>FATİH</b>	: Movement to Increase Opportunities and Improve Technology in Education Project
<b>GDP</b>	: Gross Domestic Product
<b>KEP</b>	: Kilograms Equivalent Petroleum
<b>SME</b>	: Small and Medium Enterprise
<b>KÖYDES</b>	: Project for Supporting the Infrastructure of Villages
<b>SIA</b>	: Small Industrial Areas
<b>LCD</b>	: Liquid Crystal Display
<b>OECD</b>	: Organization for Economic Cooperation and Development
<b>OIZ</b>	: Organized Industrial Zone
<b>PPP</b>	: Purchasing Power Parity
<b>SODES</b>	: Social Support Program
<b>NGO</b>	: Non-Governmental Organization
<b>SUKAP</b>	: Drinking Water and Sewer Infrastructure Program
<b>TBMM</b>	: Grand National Assembly of Turkey
<b>TEP</b>	: Tons of Equivalent Petroleum
<b>TL</b>	: Turkish Lira
<b>CTF</b>	: Clean Technology Fund
<b>NSDC</b>	: National Sustainable Development Commission



# INTRODUCTION

It has been a quarter of a century since sustainable development was defined by the Brundtland Report and 20 years since world leaders reached a consensus on a more sensitive approach to environment and development. Within this period, while certain developments were achieved in areas such as;

- preventing the loss of biological diversity and desertification;
- combating climate change and adaptation to it;
- sustainable use of natural resources;
- fighting poverty by improving income distribution and creating employment opportunities;
- improving the quality of education and health services and increasing accessibility to these services;
- increasing the accessibility to clean water, safe energy sources and food;
- supporting the disadvantaged segments of the society, especially women and youth, for an honored life,

it is not possible to say that global, national and local improvements are sufficient enough. It is a fact that “sustainable development” agenda created by world leaders in 1992 is still valid for the needs of today’s world. Nevertheless, developments and changes in the world in last two decades point out the need to strengthen and support this agenda. The necessity to improve global common understandings and collaboration in order to put sustainable development in the center of economic and social policies more strongly still exists.

With the impact of globalization, any problem in a corner of the world affects lives in other geographies easily; the benefits of globalization can spread rapidly if right policies are developed regarding the opportunities of globalization. The problems like economic crises, environmental problems, natural disasters and infectious diseases are not local anymore. Advanced transportation and communication technologies affected social and economic life deeply; knowledge and experience can be shared easily; and it is possible to increase the quality of many services, prevent accidents or take precautions earlier with the help of these technologies. Advancements in science and technology have served to increase the quality of life. On the other hand, despite the precautions taken until today ecological boundaries of the world, which are degraded by human activities, still face serious threats. These improvements did not change the rationale of the sustainable development attempt accepted in 1992; on the contrary they necessitated determining new methods and instruments for fighting against the problems.

Turkey has prepared for the United Nations Conference on Sustainable Development (Rio+20) assembled in Rio de Janeiro in June 2012, being aware of the fact that Turkey is an actor which should be more sensitive and effective to solve global problems based on its rapid change and development trend especially in the last decade.

Turkey's Report, entitled as "Turkey's Sustainable Development Report: Claiming the Future" is prepared with a participatory and transparent process. With this aim, meetings with broad participation were held both at local and central levels; active dialogues were developed among stakeholders by making use of information and communication technologies.

During the preparation process of this Report, particularly Turkey's experience of sustainable development during recent years is examined with the help of indicators. The reforms realized in the last decade primarily in economics as well as in environment, education, health, energy and local governments, and advancements on institutional structure in public administration are assessed with a sustainable development perspective. All these changes and developments are complemented with a study in which "best practices" about sustainable development in Turkey are identified. 24 practices out of 181 applications were identified as country's "best practices" through an independent evaluation process and are shared with the global community in this report. Those applications make it also possible to indicate the fields in which Turkey is successful and has potential as well as the fields which require more attention.

The **aim of this report** is to assess the actions which Turkey has realized during its sustainable development process, to reveal the policies which Turkey will apply in the future, to determine its national "vision" and to evaluate the possible contribution of Turkey to solve global problems. In addition, the report intends to determine Turkey's opportunities and threats about implementing green growth as an instrument for sustainable development, and to discuss the fields which green growth may contribute to the creation of integrated policies for economy, society and environment.

While determining its "green growth" vision, Turkey has discussed the subject with the representatives of public and private sector, academia and nongovernmental organizations (NGOs), benefited from researches on this topic as well as its sustainable development experience gained throughout last 20 years.

*Turkey believes in a "human" centered development.* Sustaining the existence of human beings in a strengthened way is only possible by realizing the principles of equity and sustainability. Based on this notion, *green growth can only be a meaningful part of national and international agenda if it presents a more honored life to people.* In other words, an economic structure which places more emphasis on environmental values can only be acceptable and applicable to the extent that it contributes increasingly to human development for present and future generations.

Turkey will strengthen green growth on her sustainable development path, based on its "respective capabilities" in the short term. In the medium and long term, Turkey will give priority to;

- evaluate the opportunities and risks in all sectors and fields,
- provide an enabling and manageable environment for these opportunities and risks,
- develop instruments appropriate for national circumstances,
- increase the benefits of this approach especially at local level.

It is possible to create opportunities to protect the environment and secure the rights of next generations within the economic and social life. Turkey, as a developing country, will maintain its growth by increasing social benefits of sustainable development and by establishing economic and social policies compatible to the environment. For that reason, Turkey will show highest sensitivity to take precautions which minimizes the negative environmental impacts of various activities. In line with this, Turkey will increase the competitiveness and efficiency in energy, transportation, industry, agriculture and services sectors.

On the other hand, there is a strong connection between sustainable development and education. While the environmental awareness and sustainable consumption approach of the future generations is ensured by courses to be added to the curriculum; realizing sustainable production and consumption will be accelerated by supporting the young generation who will be the actors

of the professional life in the near future through formal and non-formal education programs. In order to increase the awareness of the whole society on this matter, support of NGOs and media will be ensured and information and communication technologies will be used. Thus, shifting the production and consumption patterns which increases environmental awareness and benefits will be realized.

Since adoption sustainable development requires internalization of integrated perspectives and dynamic way of thinking in the society, it is essential that the knowledge, experiences and good practices are shared and disseminated while sustainable development concept is adopted and owned by whole society. Institutional mechanisms which facilitate dialogue and collaboration among public, private sector, NGOs, local administrations and scientific community will be strengthened.

Highest importance and priority will be given to sustainable development vision in the use of current financial instruments of public and private sector. The role of private sector as the most important player in attaining this vision will be supported by introducing new financial instruments.

Turkey's preparation process for 2012 UN Conference on Sustainable Development has been an important opportunity to increase the awareness and to strengthen the dialogue among stakeholders on each level, accordingly, to claim the future from now on.

While reviewing the capabilities at national level, Turkey also expresses her expectations from the global society. In this context, Turkey will continue contributing to the negotiation platforms for more livable, equitable and resilient world.

In order to overcome global environmental, economic and social problems through the UN system, countries should act collectively with determination for the sake of humanity and the planet. It is clear that in taking complementary decisions to strengthen the existing mechanisms abiding by "common but differentiated responsibilities", "respective capabilities" and "equity" principles of 1992 Rio Declaration. However, the share of responsibilities according to these principles should be based on a dynamic structure which may be updated regularly in line with the changes in the respective capabilities. In this manner, the mechanisms under the UN system can be used to monitor sustainable development.

Turkey, as an emerging economy, will continue contributing to the realization of global sustainable development goals in line with the principles of "common but differentiated responsibilities" and "respective capabilities".

Within this understanding and determination, the first part of the Report following this chapter presents Turkey's green growth approach together with its opportunities and disadvantages. The second chapter summarizes the developments in Turkey regarding the components of sustainable development after 1992 with a special emphasis on implementations and policies applied in the last decade. In the third chapter, tools and methods that can be used to realize green growth in sectors which have potential to decrease environmental impacts of the economy according to national priorities, capacities and limitations are reviewed. The last chapter includes Turkey's perspective on cooperation and coordination to integrate national efforts with international mechanisms, and expectations from Rio+20 Summit in this direction.

Turkey will further enhance the economic and social transformation programs applied in the last 10 years which are compatible with and contribute to sustainable development goals in the forthcoming period. Within this framework, Turkey will maintain her important mission to accomplish global targets for sustainable development by conveying the benefits of its increasing income and prosperity to whole country by giving importance and priority to relatively disadvantaged segments of the society, and offering its experience and knowledge on sustainable development through bilateral and multilateral cooperation and aid programs to the world, especially in her close region.



# 1. TURKEY'S GREEN GROWTH APPROACH FOR SUSTAINABLE DEVELOPMENT

1. In order to achieve sustainable development goals Turkey will make use of all relevant instruments consistent with national special circumstances including green growth.
2. **Turkey, by taking its power from its deep-rooted history and cultural heritage, will continue to be a country which claims the future by adopting a human centered development which;**
  - Contributes to the solution of global problems by considering national circumstances,
  - Equally distributes the welfare created by development ,
  - Gives priority to strengthen the vulnerable parts of the society,
  - Ensures equal opportunities to provide basic needs such as energy, water and food, and access to services like education and health,
  - Strengthens the employment structure with qualified labor force and decent jobs,
  - Manages risks effectively with a strong social structure,
  - Regards intergenerational equity during utilization of natural resources ,
  - Conserves and sustains cultural heritage by considering protection-utilization balance,
  - Minimizes environmental degradation,
  - Utilizes and improves technology efficiently,
  - Gives priority to resource efficiency in production and consumption.
3. Turkey's experiences of last decade revealed that existence of economic and political stability is vital for sustainable development. Strong and well-designed macroeconomic structure guarantees social and environmental improvements while this trio triggers each other. For that reason, Turkey considers economic, social and environmental improvements as an integral part of development rather than partial alternatives.
4. Turkey has integrated sustainable development principles into her development policies and national documents substantially together with high levels of political ownership. However, a holistic approach among the elements of sustainable development in all levels and areas cannot be fully achieved. On the other hand, institutional and legal framework is available for supporting the aforementioned perspective.

5. An enabling environment is available for institutional structuring of public administration, division of duties and responsibilities among public authorities and ownership at local level.
6. Environmental protection, increasing innovation and employment are considered as main prerequisites of increased competitiveness of the economy and the institutional structure is strengthened accordingly.
7. In Turkey, the legislative framework which supports sustainable development is mostly created. However, there are various bottlenecks in the implementation of this legislation. Therefore, for effective implementation further revisions is needed. It is especially necessary to strengthen supervision mechanisms, create incentives, take preventive measures, raise awareness, and provide a common understanding among different parts of the society.
8. Existing structure is an important opportunity to realize sustainable development in Turkey. However, the empowerment of private sector with necessary abilities and skills is essential in that regard.
9. Industrialization is still continuing in Turkey. In this process, while strengthening the industrial infrastructure related to marketing of high value added products, environmental pollution will be reduced or prevented and, employment will be raised in line with green growth approach.
10. The continuation of industrialization is an opportunity for innovation and development of new technologies. Within this process, Turkey will increase its competitiveness by developing technologies and create new opportunities for green growth.
11. Turkey's energy supply based on fossil fuels and dependency on import is a critical threat for sustainable development. This threat may be overcome with increasing use of renewable energy sources and extending the energy efficiency applications. This will ease the realization of green growth, creation of new business areas, and improvement the national balance of payments.
12. The agriculture sector in Turkey has a strategic place in terms of rural development and food safety despite its decreasing share in the economy. Since agriculture is highly depend on water, energy and soil, any improvement in the sector will also serve green growth.
13. Improving the quality and quantity of transportation and communication infrastructure as important sectors of the economy, can contribute to sustainable development process by ensuring passenger and cargo safety while reducing environmental pressures. Environmental impacts of the transportation sector such as greenhouse gas emissions, air and noise pollution can be turned into opportunities with infrastructure improvements, introducing new vehicle technologies and use of information and communication technologies.
14. Forestry, having a significant role in combating climate change, constitutes opportunities with regards to green growth by supplying ecosystem services, contributing to rural development and food security and providing renewable energy sources through its residues.
15. A comprehensive urban regeneration program has been initiated recently in order to increase the quality of life in urban areas and to create healthy and safe living environments on the areas under disaster risk and remaining areas where building safety is poor. Implementation of the program is an important opportunity for achieving sustainable development goal with the regeneration of the urban areas by improving existing building stocks and by creation of new living areas.
16. Turkey's adaptation needs in terms of climate change require program implementation in several areas such as energy, agriculture, forestry, disaster and water, that will also support sustainable development.



17. Turkey has to extend implementations to increase productivity for reducing greenhouse gas emission intensity. While doing this, improvements in the use of technologies, production inputs and natural resources as well as extending the recycling will be a good potential for green growth.
18. In addition to the improvements in the income distribution, Turkey continues taking measures to reduce unemployment. For that reason, the additional employment created by green growth is considered as crucial in terms of strengthening the social dimension of development.
19. Young population of Turkey is an important opportunity for sustainable development. However unemployment among young people should be reduced. It is necessary to improve the abilities and skills of youth for green job opportunities created by green growth.
20. Tourism sector in Turkey has a dynamic and competitive nature. It is growing rapidly with country's rich natural, cultural, social heritage and values. Turkey has important advantages which may realize a sustainable tourism model with a wide range of alternatives as an important destination. Tourism can support green growth by giving priority to the use of thermal, health, nature and winter tourism potential.
21. Ongoing efforts for increasing the awareness of the society about consumption patterns are important opportunities which will accelerate the transition to sustainable production patterns.
22. Since speeding up sustainable development requires mobilization of financial resources, it is necessary to use existing financial sources in an effective and productive manner as well as benefiting bilateral and multilateral finance opportunities.



## 2. ECONOMIC, SOCIAL AND ENVIRONMENTAL DEVELOPMENTS

23. Turkey as a country using and managing her resources efficiently, improves the environmental sensibility of social and economic life. In this manner, economic, ecologic and social potential has been utilized for improving the living standards and wealth of both today's and future generations. Therefore, raising the economic well-being, respecting the social equity and protecting the environment are handled as a balanced and integrated way.

### 2.1. Economic Developments

24. Turkey has succeeded to achieve a competitive economic structure based on information and innovation, improve the living standards of society, providing high-quality employment opportunities through reforms realized in public administration and economic management during last decade. Policies and implementations targeted for raising economic welfare of the society inevitably contribute to all pillars of sustainable development.

25. In this context, structural problems of the economy were overcome and significant improvements were achieved in economic indicators such as GDP growth rate, GDP per capita, borrowing requirement and public finance, inflation, balance of payments and employment.

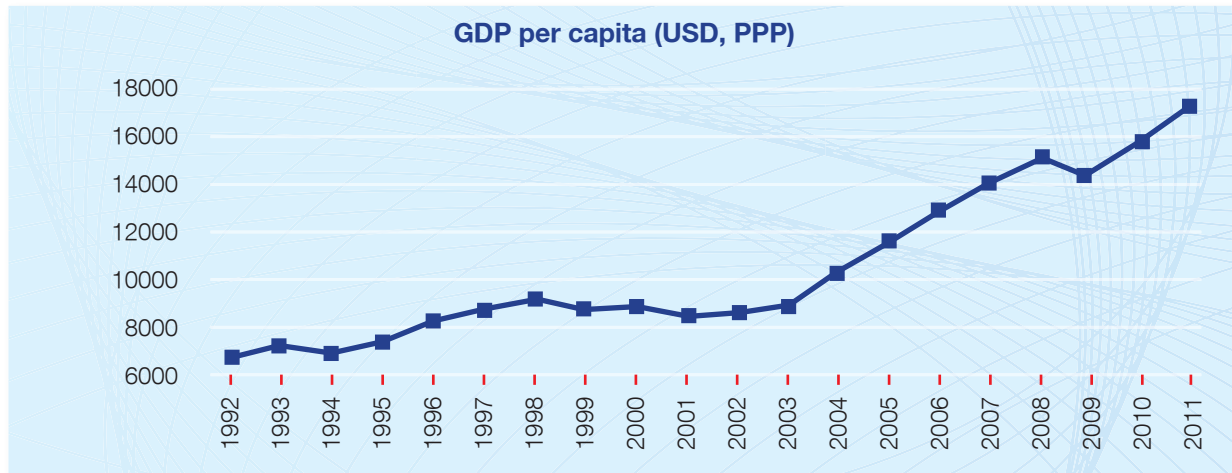
26. In 1990s, a period with accelerated globalization and rapid increase in world trade, higher public deficits, high inflation and debt-interest vicious circle have emerged as the basic economic problems in Turkey. This structure resulted in a deep economic crisis in 1994 and a series of measures were taken to overcome economic problems. 1997 Southeast Asia Crisis and 1998 Russia Crisis adversely affected the fragile economy, and with the earthquakes in 1999 in Marmara region, which has an important share in Turkey's production, the economy narrowed down drastically in 1999. 1990s was a period when Turkey's economy grew less than the potential because of the unstable growth performance, which was recorded as 3.7 percent on average annually.

27. Turkish economy experienced a deep economic crisis at the beginning of 2000s as a result of the structural problems in the economy and the weaknesses in the financial sector. A serious transformation process in the economy has begun with the Transition to a Strong Economy Program which was put into implementation with the aim of making macroeconomic stability permanent and providing the economy an efficient, flexible and productive structure. In this context, along with the achieved political stability, policies aiming at efficiency in public finance, strengthening the financial sector, permanent decrease in inflation rate and increasing the competitiveness of the economy have been implemented successfully. The most important one of these policies is adoption of floating exchange rate regime. In addition to structural reforms, tight fiscal and monetary policies provided positive results in the economy in promptly and annual average GDP growth rate was realized as 6.8 percent during 2002-2007 period.

After the serious global financial crisis in 2009, strong growth trend has maintained again with sound macroeconomic policies and structural reforms and Turkish economy has been one of the fastest growing economies in the world in 2010 and 2011 with 9.2 percent and 8.5 percent growth rates, respectively.

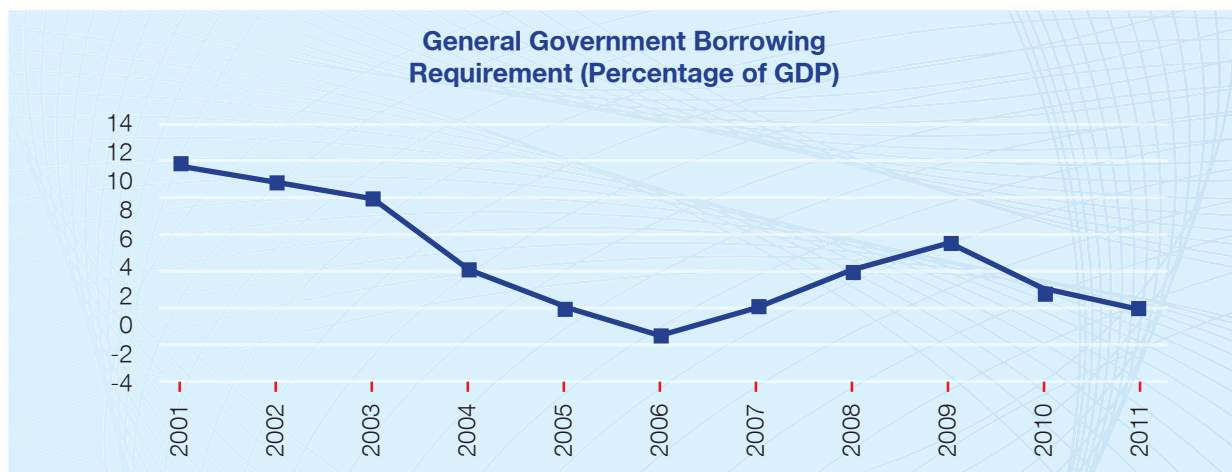
28. In this framework, per capita income in Purchasing Power Parity (PPP), which was 6,406 USD in 1992, and 8,613 USD in 2001, has reached to 16,838 USD in 2011.

**Graph 1: Per Capita Income**

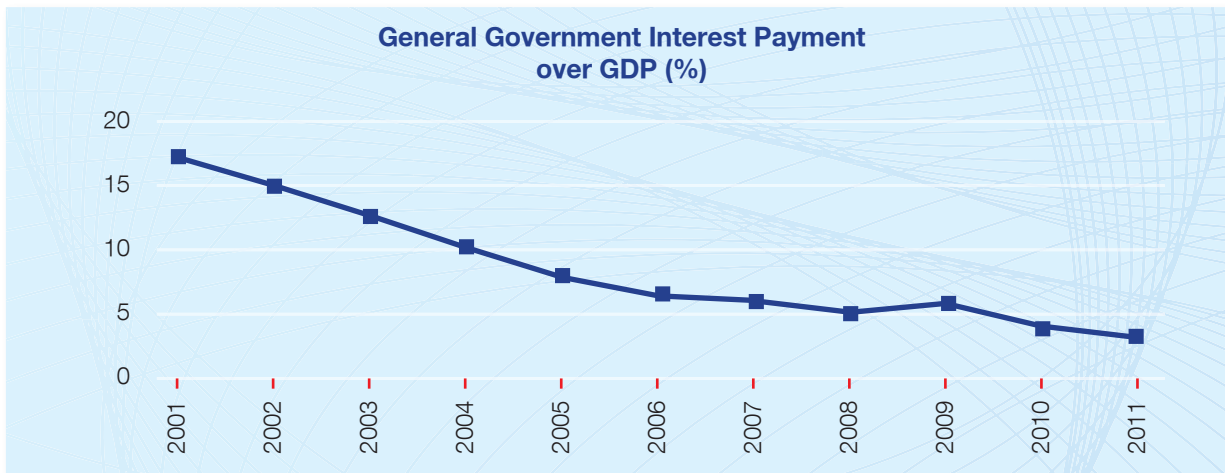


29. Decisive implementation of tight fiscal policy, after year 2000, has been one of the main elements in achieving sustainable development. A rapid recovery in the public sector balances was witnessed parallel to the implementation of tight fiscal policies in 2000s. General government borrowing requirement has started to decline and in 2006 general government budget run a surplus. The stimulus package implemented to eliminate the negative effects of the global financial crisis in 2009, caused a temporary rise in the budget deficit. The deficit started to decrease with the tight fiscal policy in the following period and by the year of 2011. General government budget recorded a deficit around 0.3 percent of GDP. The rapid fall of interest payments after 2002 which decreased to 3 percent of GDP in 2011, that used to have a considerably large share in the budget in 1990s, had positive effects on these developments.

**Graph 2: General Government Borrowing Requirement**

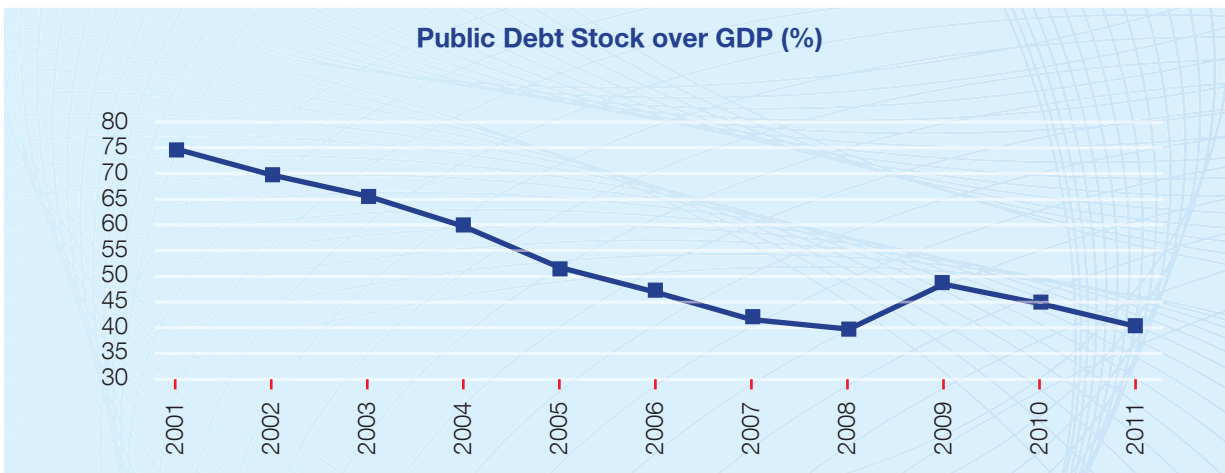


**Graph 3:** General Government Interest Payment



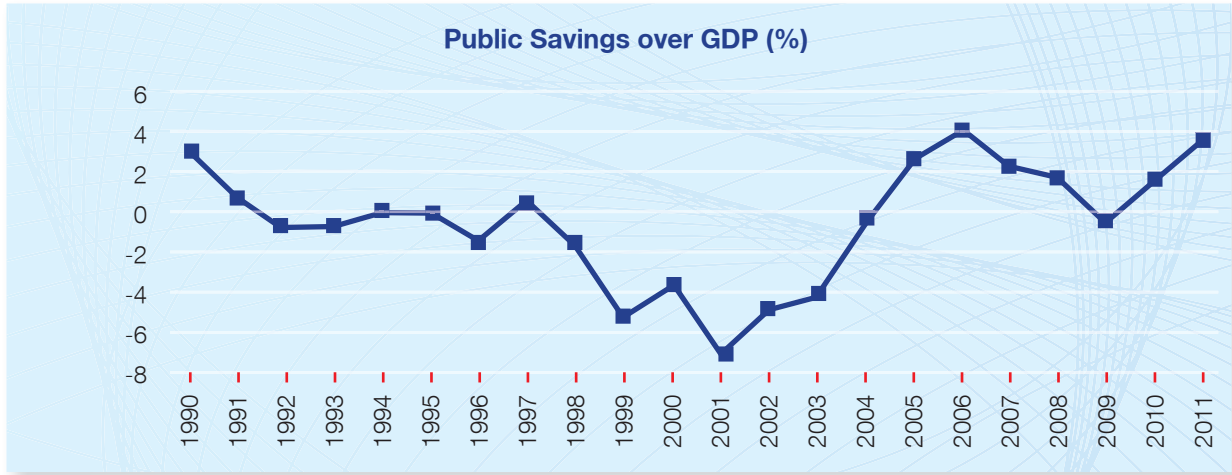
30. After 2001, public sector balance was improved by achieving high primary surpluses as result of tight fiscal policy. As a result of the confidence achieved in the economy and high growth rates, as well as the banking sector reform after 2001 crisis, public debt stock permanently decreased. The ratio of public debt stock/GDP decreased from 75 percent in 2001 to 40.8 percent in 2011. The progress in the debt management lessens the risks of transferring the debt burden to future generations. On the other hand, fiscal consolidation was also effective in the success of the disinflation process. In this period, the share of the government in the economy was successfully reduced with the accelerated privatization. This also contributed to increase the economic efficiency.

**Graph 4:** Public Debt Stock



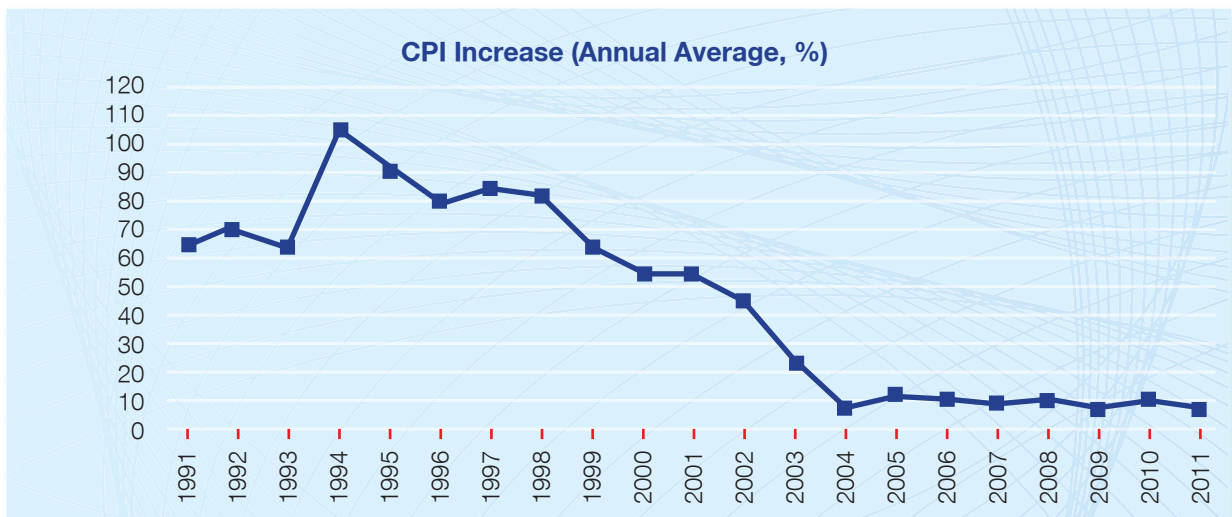
31. In 1990s, public saving rate followed a fluctuating path with a negative realization. Positive public saving rate was effective to undertake required infrastructure investments by the government. Realization of these investments in adequate quantity and quality will provide sustainability of the development. The explicit increase in public saving rates since 2002, parallel to the improvements in public balance, is a positive incident in this regard.

**Graph 5: Public Savings**



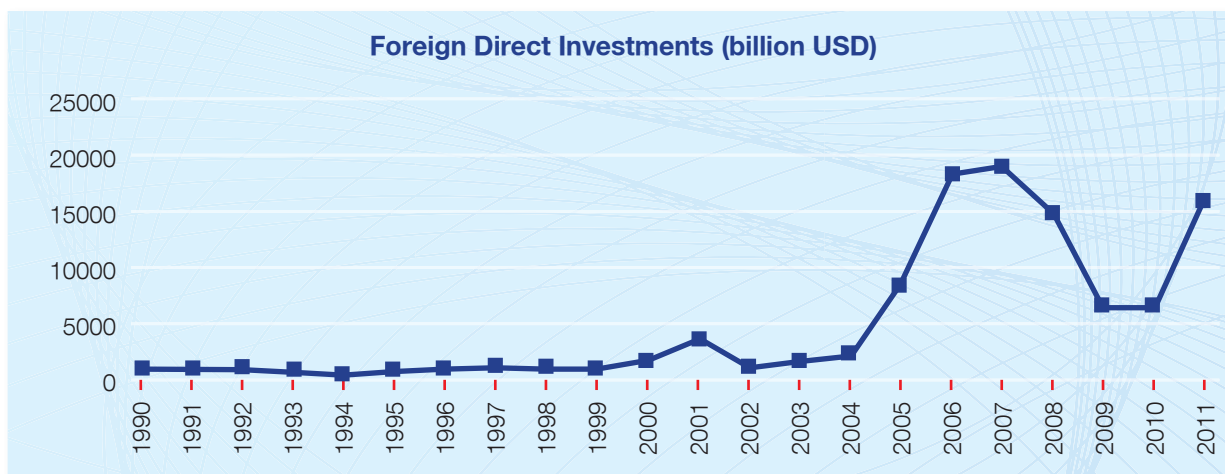
32. Even though, the role of the public sector has been decreasing in production sectors, the share of expenditures in national income and regulatory role of public sector have been growing consistently in Turkey. In this context, it is important to sustain public sector expenditures consistent with development targets with a long-term perspective.
33. One of the most important aspect in ensuring fiscal discipline is the regulations on the issues of accountable and transparent fiscal management based on strategic management and performance based multiannual programming and budgeting.
34. In Turkey, regulations that ensure effective, economic and productive creation and utilization of public resources, accountability and fiscal transparency resulted in effective government expenditures consistent with short and long-term economic targets.
35. In 2001, the Central Bank gained autonomy by law which enabled to implement monetary policies without undesired interventions. With this law, the primary objective of the Central Bank is set as achieving and maintaining price stability. Consequently, inflation has decreased rapidly to single digit levels. Financial stability and effective implementation of monetary policies have been positively affected by structural and institutional arrangements related to banking sector since 2000.

**Graph 6: Inflation**



36. At sectoral level, average annual growth rate of agriculture, industry and services sectors between 2001 and 2011 were 1.6, 4.6, and 5 percent, respectively. During last 20 years, the share of agriculture and industry sectors within the economy decreased whereas the share of services sector increased. Thus, in 2011, the shares of services, industry and agriculture sectors have been 68.2, 22.6, and 9.2 percent, respectively.
37. The 2000s was a period in which Turkish economy has integrated rapidly with the world economy. Depending on the increasing productivity level, lower levels of real labor costs and strong global demand since 2002, exports have displayed a very strong performance in spite of real appreciation of the TL. Exports which were 27.8 billion USD in 2000 have realized as 134.9 billion USD in 2011. Rapid recovery of domestic demand following the achievement of confidence environment in the economy, appreciation of TL and increasing dependence of exports on imports, resulted in remarkable increases import in this period. Imports which were 54.5 billion USD in 2000, reached to 240.8 billion USD in 2011.
38. In 2000s, foreign trade deficit increased considerably, together with increasing service income especially tourism. Tourism income which was 7.6 billion USD in 2000 with a rising trend reached to 23 billion USD in 2011. By supplying opportunities for sustainable development, tourism sector also influenced social and environmental developments positively.
39. Depending on robust economic growth performance and increasing oil prices, energy imports caused current account deficit to reach high levels in the last decade. The ratio of current account deficit to GDP was realized as 10 percent in 2011. External dependence of Turkey in the energy sector affects sustainable development process negatively.
40. Foreign direct investment inflows to Turkish economy increased rapidly especially after 2004 with the effect of macroeconomic and political stability, as well as reforms made for improving investment environment and the start of negotiations for full membership to the European Union.

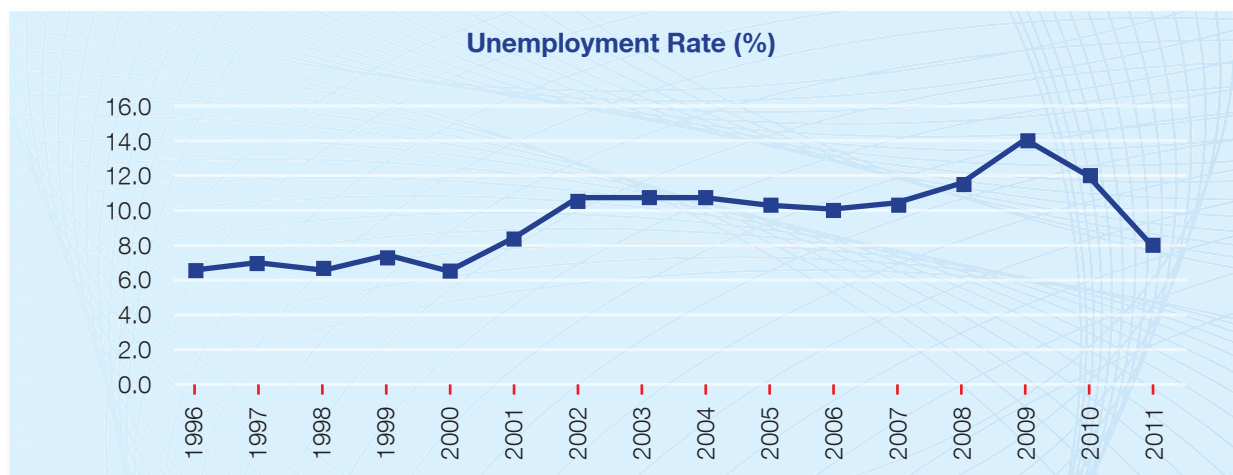
**Graph 7: Foreign Direct Investments**



41. In 2001-2005 period, annual average increase in employment was realized as 0.5 percent and the unemployment rate became 10.6 percent at the end of the period. Economic growth depending on investments and rapid increase in productivity together with limited growth in non-agricultural employment resulted in high unemployment in this period. As a matter of fact, while agricultural employment decreased by 15.2 percent, increase in non-agricultural employment was realized only as 10.6 percent in 2001-2005 period.

42. A series of regulations known as “employment packages” have been enacted between 2006 and 2011 in order to increase employment and decrease unemployment. According to these regulations, measures to decrease labor costs, increase the employment of young population, women and disabled people, develop active labor programs, increase unemployment payments, strengthen the relation between education and employment, decrease informal economy, arrange subcontractor relations and decrease the formalities of starting a business were enacted. Positive effects of these reforms on employment are expected to increasingly continue in the forthcoming periods. Unemployment rate which was 10.2 percent in 2006 reached to 14 percent in 2009 as a result of the global financial crisis. With the rapid growth and increase in employment in the following period, unemployment rate decreased to 11.9 percent in 2010 and 9.8 percent in 2011.

**Graph 8:** Unemployment Rate



43. The scope of active labor programs has been extended and the resources allocated have been increased considerably in order to improve occupational capabilities of unemployed people, especially young and women, and provide them with the qualities matching the demand in labor market. Within this framework, during 2008-2011 the number of people benefitted from active labor programs increased from 32 thousand to around 250 thousand while the resources were increased from 35.6 million TL to 221 million TL in the same period.

44. For effective and efficient implementation of active labor programs, job and vocational counseling was initiated for every unemployed person. In this context, 2,817 counselors started to work in 2011.

45. Labor participation rate, which was 53.9 percent in 1992 decreased to 47.9 percent until 2009, and started to increase in 2010 and reached 49.9 percent in 2011.

46. With the constitutional amendment in 2010, Economic and Social Council was established and collective agreements with public employees were enabled. This provides an important opportunity for improving social dialogue and establishing social consent for labor peace.

47. Turkey laid the foundations of long term sustainable development, especially with the structural transformation programs in the economy applied in last decades, and set up resilient conditions for the future generations.



## 2.2. Social Developments

48. While giving a special emphasis on economic development of the society within sustainable development, Turkey also copes with all kinds of discrimination. In this scope, equal opportunities for whole society are provided and cultural diversities are regarded by protecting basic rights. Policies and approaches that encourage the equitable, safe, healthy, inclusive and democratic social structure are realized. Thus, considerable progress was made towards social inclusion and equity.
49. In this context, considerable achievements regarding poverty eradication, better income distribution, extension of social protection measures and services for disadvantaged, provision of equal opportunities to access basic services such as education and health were recorded through implementation of project and policies.
50. In Turkey, an important model was created which regards human development, along with economic development, as the fundamental dynamic of medium and long term development in the last 10 years. This model has been realized through 3 channels;
  - i. With macroeconomic policies, implementations have been realized in many fields such as inflation, tax, social security and aids and wages in order to make disadvantaged and poor people active members of the society.
  - ii. With sectoral policies, equal opportunities were provided for poor and disadvantaged people with applications in education, health, housing, energy and infrastructure. Priority is given to rural areas especially by increasing the quality of services provided with the principle of “positive discrimination”.
  - iii. With direct social aids programmes for the poor, basic daily needs are covered as well as skill acquisition and business development programs were applied. Hence, the disadvantaged part of the society is well equipped to sustain their lives on their own in the medium and long term.
51. Thus, important measures were taken which prevent next generations from facing with similar unequal circumstances caused by inadequate income, coverage of basic needs and access to services.
52. While empowering disadvantaged people to make them enabled for a livable future, thus they were also recognized their contribution to the society with a higher quality of life.
53. With the constitutional amendment in 2010, positive discrimination principle in favor of women, children, elderly and disabled people, widowers and orphans was accepted.
54. Significant developments have been recorded in the institutional structure, social services and financial sustainability in order to improve the social security system. By means of the social security reform, main aim of which is to reach an equitable, accessible, fiscally sustainable social security system, a substantially comprehensive reform was realized by introducing one pension and healthcare system encompassing the whole population, incorporating the social security institutions and providing unity in standards and norms. Hence, significant contribution is provided with regards to better income distribution and poverty reduction.
55. It can be seen that important progress was achieved in poverty reduction in the last decade as a result of economic growth and increasing income in Turkey. While the population whose daily expenses was less than 2,15 USD was 3 percent in 2001, it became 0,2 percent as of 2010, and while the population whose daily expenses was less than 4,3 USD was 30 percent in 2002, it became 3,7 percent in 2010.

56. Within the scope of poverty reduction, new aid programs were initiated and social aid amounts per capita in all social aid programs were increased considerably. While the ratio of public expenses on social aid to GDP was 0.3 percent in 2002, it increased to 1.2 percent in 2010. The diversity and quality of the services provided to the disabled people were increased, and support programs were initiated in order to provide home care for the disabled people in need. Free course books and milk were distributed at schools and free transportation were provided for the students in rural areas within the context of education and health support programs. This will contribute for preventing the transfer of poverty to the next generations as well as making the children of poor families more educated and healthy.
57. Instead of demand based social protection system, a system based on equity and supply principles has been adopted. Family Social Support Program (ASDEP) was initiated. ASDEP aims to determine the families and individuals who need social protection and have difficulties in reaching public services such as education, health and employment, to provide access to those services, and thus to increase their quality of life and prosperity.
58. In 2008, Social Support Program (SODES) has been initiated in underdeveloped regions of Turkey as a people oriented program which activates local dynamics, regards individuals as a value and offers opportunities, with which they can express themselves, improve their abilities and exhibit their skills. This incentive attempts to prevent poverty culture with the aim of enabling sustainable human development of the poor.

**Box 1:**

### **SOCIAL SUPPORT PROGRAM (SODES)**

The aim of Social Support Program (SODES) which was initiated in 2008 with the motto “Tiny Touches, Realizing Dreams” is to;

- share prosperity among different parts of the society in a more equal way;
- enable the participation of different parts of the society into development;
- improve social capital;
- provide social integration.

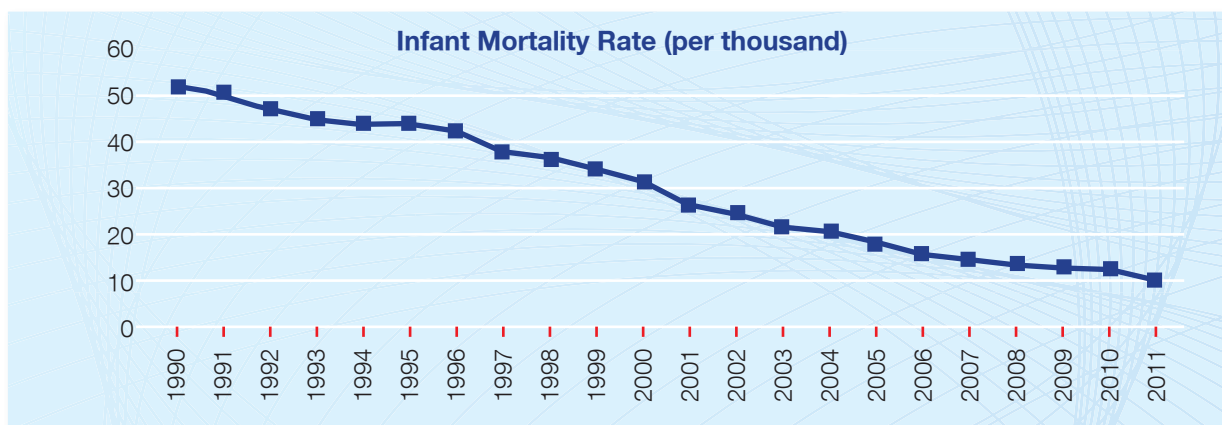
SODES which was initiated in 9 cities in 2008 and is extended to 30 cities in 2012. During 2008-2011, 4,200 projects have been applied in order to increase participation in social life and employment opportunities with the projects created by local actors on local level and to help children, young people and women express themselves better with cultural, art and sports activities.

Within the scope of SODES, occupational education and guidance programs for children, young, women, disabled and poor people who have difficulty in participating in social life are supported, micro loan applications and social utility programs have been developed. With the study centers and courses which were formed in order to provide equal opportunities in education, the educational success of tens of thousands students have been increased. Within the frame of SODES, courses in the fields of culture, arts and sports, culture and art centers, libraries, movie theaters and sports fields have been built and sports tournaments, festivals and activities have been organized. Especially the children, women and the young people had the chance to exhibit their abilities, their self confidence was strengthened and they acquired habits both good for themselves and the society.

59. Since 2002, the income distribution has been improved considerably in Turkey; Gini coefficient has been decreased from 0.44 in 2002 to 0.38 in 2010.

60. Due to the improvements in the education and literacy levels of women, active labor programs and employment incentives for women, the participation of women in labor has been increased from 23.3 percent to 28.8 percent between 2004 and 2011.
61. Despite the last global economic crisis, Turkey has been one of the countries which decreased unemployment and increased employment most rapidly. The improvements in employment contributed in the successful management of fight against poverty.
62. The population of Turkey which was 57 million in 1992 has increased to 74.7 million in 2011. While this increase in population provides important opportunities such as meeting employment and labor, it also creates pressure on both economy and environment as well as natural resources because of the growing needs for health, education, housing, food and energy.
63. While the young population in Turkey (15-24 ages) constituted 20.5 percent of the total population in 2000, it was 16.8 percent in 2011. Despite this fall, Turkey still has a young population structure with an average age of 29.7.
64. The share of the population over 65 of age in total population has been increased in recent years. While the rate of the population over 65 in total population was 6.8 percent in 2000, this rate increased to 7.3 percent in 2011. The increasing number of the elderly people results in extending the health and social services that they need. While the number of service provider institutions and the number of the people who benefit from them increase, related expenditures increase as well.
65. With the transformation programs in health, quality, quantity and accessibility of services have been increased together with rising satisfaction. These improvements can be traced in the improvement of fundamental health indicators.
66. During 2003-2011, important progress has been made in health services. The number of intensive care beds has been increased to 20,977 from 2,214 and the number of full-time beds has been increased to 38,272 from 6,839. With only public investments, 544 hospitals and new buildings and 1,467 first step health facilities have been established. While the accessibility to health services and medication was improved, costs were decreased considerably and in this period the number of people who pay their medicine and health expenses themselves decreased to 11.1 percent from 32.1 percent.
67. Family doctor system which was initiated as a pilot application in 2005 is extended to the whole country as of 2011.
68. As a result of making access to health services easier, initiation of general health insurance system and improving the social and physical infrastructure, the number of applications to doctors reached 7.7 as of 2011 which were 3 in 2002.
69. With the improvements in access to health services, physical infrastructure, number of health employees and the quality of services, the ratio of public health expenses to GDP reached 4.5 percent in 2010 which was 3.8 percent in 2001.
70. In this frame, financial resources which were allocated for protective and fundamental health services were increased considerably. Budget allocation to health in 2011 was increased 2.7 times compared to 2002. All these implications in national health policy are compatible with sustainable development.
71. Protective and fundamental health services were improved considerably during 2003-2011. In this period infant mortality rate was decreased to 0.09 percent from 0.29 percent and mother mortality rate was decreased to 15 per thousand from 61 per thousand. The rate of births at hospitals has been increased to 94 percent from 69 percent, infant monitoring has been increased to 99 percent from 62 percent and vaccination rate has been increased to 97 percent from 78 percent. As a result of these improvements in health indicators, expected life span at birth has increased to 75 years from 70 years.

**Graph 9:** Infant Mortality Rate



**Box 2:**

## HEALTH TRANSFORMATION PROGRAM

Health Transformation Program was initiated in 2003 in order for effective, productive and equitable health services and to enable financial sustainability for health system. Within this scope;

- 112 emergency services extended to rural areas for free.
- The capacity of ambulance system was increased and sea and air ambulance systems were established.
- Emergency and intensive care services became free in all hospital including private hospitals.
- National Medical Rescue Team was established.
- Family doctor application was initiated.
- First step health services became free.
- The scope of vaccination program was broadened.
- Free mobile health services became available in all rural areas.
- The scope of newborn screening and support programs were extended.
- Free nutrition supplements support for pregnant women and babies were provided.
- Logistic support was provided for pregnant women in rural areas to give births in hospitals.
- “Community based” mental health service was initiated.
- Cancer screening centers providing free services were established in all cities.
- In order to prevent non-infectious diseases, control programs for cardiovascular health, obesity, diabetes, tobacco use, respiratory diseases and mental health were initiated.

- Elimination phase was reached in infectious diseases such as measles, typhoid and malaria.
- Public hospitals were reorganized under an umbrella management system.
- The number of public health service employees was doubled.
- Complementary health services provided for poor people.
- Citizens were enabled to benefit from private hospitals with their health insurance.
- At least one Mouth and Teeth Health Center was established in each province.
- Performance based wage system was established for health employees.
- Full time working in public health services was initiated.
- Quality of patient room and services were increased.
- Medicine and medical equipments supports were provided for hospital patients.
- Mobile pharmacies were established in rural areas.
- Appointment systems were improved in hospitals.
- Right to choose doctor is adopted.
- Patient rights units were organized.
- “184” health aid telephone line was established.
- Health care at home application was initiated.
- Reference price system in medicine and medicine tracking system was established.
- Public-private partnership model began to be implemented in building hospital campuses.

As a result of these, satisfaction from public health services increased to 76 percent from 39.5 percent during 2003-2011.

72. Important progress has been achieved in the quality and quantity of education services in order to improve human capital which is one of the most important concerns of sustainable development. Within this frame, the proportion of the budget allocated from public resources for all stages of education to GDP was 2.25 percent in 2001, this rate increased to 3.56 percent in 2011. The biggest share in the public budget has been allocated to education services for last 4 years. Compulsory education was increased to 8 years in 1997 and 12 years in 2012 which was 5 years in 1992. Thus, it is anticipated that the duration of education reaches 10-11 years which is 6.1 years currently. Moreover, a system was developed which enables lateral and vertical transfers based on lifelong education principle according to the general and occupational education preferences after primary education.
73. Within the scope of improving physical infrastructure in education, the number of classrooms was increased considerably with the contribution of public budget, local governments and philanthropists. Within this frame, enrollment rates increased in preschool, primary and secondary education.

74. Enrollment rates in primary and secondary education which was 89 percent and 53 percent respectively in 1997, reached 108.4 percent in primary education and 92.5 percent in secondary education in 2011-2012 educational year. Considering the positive influence of preschool education in the later stages of education, preschool education was privileged and 4-5 age preschool schooling rate which was 11.2 percent in 2002 reached 45 percent in 2011. This rate for 5 years-old kids is 65.7 percent in 2011.
75. Important progress has been achieved in terms of access and enrollment rates in higher education level. In addition to the existing ones, 50 public universities and 39 foundation universities were founded during 2003-2011. Total number of universities reached to 165; in which 103 are public and 62 are foundation universities. In 2001-2011, the seat capacity of formal higher education was increased by 110 percent. Following these developments, formal enrollment rate in high education reached 38 percent in 2010-2011 educational year which was 12 percent in 2001. If open higher education is added, the same rate is 72.5 percent.
76. Along with the expansions in higher education, considerable progress has been achieved in terms of the capacities of accommodation, scholarship and loan allocations. Within this scope, the total capacity of dormitories has been almost doubled and reached to 506,000 in 2011 from its level of 275,000 in 2001, and the amount of monthly scholarships and education loans multiplied 8 times.
77. In terms of increasing the quality of education, important developments have been realized such as updating the curriculum, improving teacher employment and on-the-job training, decreasing the number of students per classrooms, establishing an effective guidance and counseling system, harmonizing vocational training with the labor market and effective use of information and communication technologies at schools. In this context, FATİH Project which aims to equip every student with a tablet PC and every school with a panel type interactive smart board with unlimited broadband internet access will enable equity in opportunity for the effective use of information and communication technologies in school.

### Box 3:

#### MOVEMENT TO INCREASE OPPORTUNITIES AND IMPROVE TECHNOLOGY IN EDUCATION (FATİH)

One of the steps taken in order to increase the quality and productivity of the human capital, which is one of the most significant elements of sustainable development, is the start of FATİH Project.

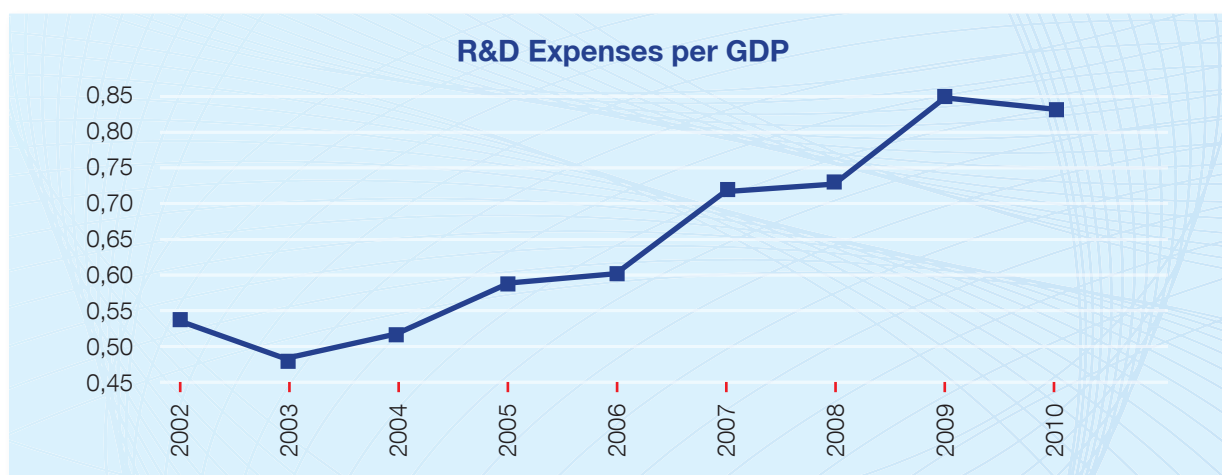
The main objective of this project is to improve the quality of education and training and to provide equal opportunities. In this context, it is targeted to make information and communication technologies one of the main tools of educational process. Hence, students are being acquainted with the technology and its practices at an early age as well as making them use these technologies efficiently.

FATİH project is not only an education project. This project will also accelerate the process of transformation into information society. In the long run, it will facilitate the transition to high value-added elements, R&D and innovation.

The project encompasses establishing hardware and software infrastructure in more than 42,000 schools and 570,000 classrooms. In these schools interactive smart boards and broadband internet access will be installed. At the same time, e-training and audio-visual materials will be developed together with necessary e-content management and system software. By supplying tablet computers, the interactive training between students and teachers will be improved.

78. In order to provide equal opportunities and increase access to education, mobile education system and regional primary boarding schools have been established. In addition to that, various programs for ensuring girls' attendance to primary schools which are outside the education system hence providing gender equality in education.
79. EU Education and Youth Programs have been carried out since 2004 in order to contribute to sustainable development by improving mobility, awareness and international cooperation related to education, youth and culture.
80. A national qualification system is being formed and national occupational standards are being determined in order to increase complementarity of vocational education in Turkey to the demands of business market. Within this frame, 651 vocational standards have been determined until today.
81. By considering that science, technology and innovation are determining factors of competitiveness and sustainable socio-economic development; R&D expenses are increased to 0.84 percent in 2010 which constituted 0.53 percent of GDP in 2002. During 2002-2010, the increase in the R&D expenses and the number of researchers in Turkey were the second highest in the world.
82. Within this frame, with the R&D incentives provided for the private sector, physical infrastructure and human resources were improved considerably. More than 300 research centers, 103 of which is owned by private sector, were founded.
83. Resources allocated for R&D and innovation activities in Turkey was 3 billion USD in 2002 according to purchasing power parity, it reached to 9.6 billion USD as of 2010. The number of R&D personnel increased to 82 thousand in 2010 which was 29 thousand in 2002.

**Graph 10:** R&D Expenses per GDP



84. The number of small and medium sized enterprises (SME's), which enable all parts of the society to contribute in sustainable development as manufacturer and also to benefit from the raised welfare, is 3.3 million. They constitute 99.9 percent of total business in Turkey.
85. Building of Organized Industrial Zones (OIZ) and Small Industrial Areas (SIA) as part of planned industrialization and urbanization, provide opportunities to reduce the environmental impacts of industry, to provide better manufacturing conditions which increase competitiveness of SME's. As of the end of 2011, 147 OIZ and 445 SIA are operational.
86. Providing access to suitable finance for SME's is among the privileged policies. After the 2001 financial crisis, availability of finance for SME's is improved considerably with the influence of

the reforms in banking system and economic structure. With the interest support applied since 2004, SME's are qualified to have loans from banks with zero or low interest. During 2000s, the rate of SME loans among total amount of credits increased from 5 percent to 25 percent.

87. 26 Development Agencies were founded in Turkey with the aim of increasing the competitiveness of the regions and their contribution in national development by activating local and regional development dynamics, reducing differences of development levels among the regions and extending participation and good governance at local level.
88. Information, promotion and training activities as well as digitalization and restoration works for protecting the cultural heritage and transferring to the future generations continue increasingly.

## 2.3. Environmental Developments

89. Turkey is highly aware of that her economic and social development could only be achieved by protecting and improving the quality of environment. Therefore, to secure the limited natural resource base for next generations, necessary policies and implementations are being realized.
90. In this regard, important progress has recorded in emission control, use of renewable energy and energy efficiency, effective waste management, expansion of water and waste water services together with quality improvements, extending forests and increasing protected areas, and conservation of biological diversity.
91. In order to reach policy targets which were determined in development plans and strategy documents, many legal, institutional and financial arrangements serving sustainable development are realized. With the amendment made in the Environment Law in 2006, sustainable development principles are integrated into legal framework.
92. Opening of the chapter on environment in EU accession negotiations accelerated achievements for a cleaner environment and higher standards.
93. Energy consumption per capita, which is considered as an indicator of development, has been increased in Turkey in recent years along with the economic growth. Energy consumption which was 975 kilograms equivalent petroleum (KEP) in 1992 increased 52 percent in 2010 and realized as 1,482 KEP. In the same period, the total energy supply increased to 109,266 tons of equivalent petroleum (TEP) from 56,604 TEP.
94. The share of renewable energy resources in final energy use in Turkey has shown a partial increase in recent years. While 10,002 thousand TEP of total energy supply was based on renewable energy resources in 1992, it reached to 11,661 thousand TEP in 2010. However, the share of renewable energy resources in total primary energy supply has been reduced proportionally since the energy demand increased continuously due to the economic growth and increasing population. While the share of renewable energy in total energy supply was 17.7 percent in 1992, this ratio decreased to 10.6 percent in 2010. Rapid decrease in the use of biomass as energy source in the last 20 years had an important effect in this decrease. While the rate of those resources in the production of renewable energy was 79 percent in 1992, it reduced to 39 percent in 2010. The share of hydraulic resources in the production of renewable energy increased considerably in the same period. Hydraulic energy production, which was 24.2 TWh (billion kWh) in 1992, increased 114 percent and reached 51.8 TWh in 2010. While there was not electricity production based on wind in Turkey in 1992, 2.9 TWh wind energy connected to the system in 2010. Similarly, while heat and electricity production from geothermal energy was 18 thousand TEP in 1992, it reached 1,966 thousand TEP.



#### Box 4:

### RENEWABLE ENERGY

Turkey has an important potential in renewable energy which is predicted as;

- 43,000 MW (165 billion kWh/year electricity) in hydraulics,
- 48,000 MW (130 billion kWh/year electricity) in wind,
- 31,500 MW in geothermal ( 600 MW of which is suitable for electricity production),
- 8.8 MTEP in biomass (1.3 billion kWh/year electricity),
- 80 MTEP in solar energy (380 billion kWh/year electricity)

Some of the incentives created in 2007 in order to activate this potential are:

- Exemption from license fees,
- Easing in renting and sharing rights in land allocations,
- Discount in system connection fees,
- Discount and exemptions for various taxes and duties,
- Obligations for distribution companies on purchasing renewable based electricity,
- With “feed-in tariff” application, exemption provided to individual entrepreneurs for establishing renewable energy production facilities less than 500 kW and obligations introduced for distribution companies to buy this electricity.

With the regulations, it is guaranteed to buy the electricity produced from renewable resources with type based pricing. It is planned to support energy production from forestry residues, while providing alternative livelihood sources and employment to forest villagers. Incentive system to use domestic equipment in renewable energy production facilities is established.

95. Greenhouse gas emission, which causes climate change, is the result of the increasing energy consumption and economic activities which boost after the Industrial Revolution in 19th century. For that reason, the amount of greenhouse gases accumulated in the atmosphere should be evaluated according to historical responsibilities in that amount. Within this frame, historical contribution of Turkey in the greenhouse gas emission in the atmosphere is only 0.4 percent.
96. The amount of greenhouse gas emission per capita, which is an important indicator in climate change, reveals the responsibility of countries related to emission reduction. While greenhouse gas emission per capita in Turkey was 3.6 tons/person in 1992, this value increased to 5 ton/person in 2010. The main reason of this increase is that economy and energy consumption are growing faster than the population growth.
97. Turkey has contributed to controlling climate change the process with its own potential and policies applied in industry, transportation, energy and waste management directly or indirectly. If Turkey had persisted on applying the policies in 1990, it would cause cumulatively 1.4 billion tons more greenhouse gas emission. In other words, Turkey provided 20 percent emission reduction during 1990-2007 when compared to business as usual scenario. In the same period, GDP of Turkey increased 171 percent and intensity of emission was reduced to 0.36.

98. Located in the Mediterranean basin, Turkey is one of most vulnerable countries to climate change. Climate change creates pressure on forest, water and land resources and hence affecting economic and social life adversely which is already indicated by recent droughts, floods and extreme weather conditions. For that reason, Turkey gives special attention to taking immediate precautions for climate change adaptation. In this context, studies and pilot projects for adaptation to climate change on water resources management, agriculture and food safety/security, ecosystem services, biological diversity and forestry, natural disaster risk management and human health have been initiated in cooperation with public and private sector, NGOs and academia.
99. Turkey faces natural disasters such as flood, overflow and earthquake which cause deaths and property loss. Mitigating the negative impacts of disasters on development and unwanted results, precautions for risk reduction especially in urban areas become more urgent.

**Box 5:**

## DISASTERS AND DISASTER POLICY IN TURKEY

Turkey is a country under natural disaster risks such as earthquake, flood, landslide and drought because of its tectonic, geological, topographical and meteorological features. Since most part of Turkey is located on first degree earthquake zone, studies about natural disasters have been conducted for many years.

Turkey had experienced three severe earthquakes since 1992. In Erzincan earthquake in 1992, 653 people had died. In the earthquakes which took place in Marmara region, where 23 percent of the population lives and 35 percent of GDP is created, 18,243 people had died and 48,901 people had been injured on 17 August and 12 November 1999 (Marmara Earthquakes). In Van earthquake occurred in October 2011, 644 people died.

The damage in Marmara Earthquakes and its negative impacts on economy indicate the necessity of disaster risk reduction towards sustainable development. Precautions for damage and risks reduction were taken, institutional structure for disaster management is reorganised and strengthened, and a number of comprehensive and integrated projects and programs were realized. Within this scope;

- Institutional structure was strengthened by integrating institutions which have different responsibilities to provide unity of disaster management,
- Compulsory insurance system for disasters has been initiated,
- National Earthquake Strategy and Action Plan were adopted.

With the studies for disaster risk reduction and emergency preparedness in Istanbul, especially public buildings, schools, hospitals and dormitories were strengthened. Moreover, regulations related to rehabilitation, resettlement and renovation were enacted for prioritizing areas according to risk levels, strengthening the existing buildings, spatial planning, and transformation of areas under disaster risk to more healthy and livable settlements.

100. Urbanization process in Turkey has been accelerated with the rapid population growth especially after 1960s and urban population reached to 75.5 percent in 2010 from 15 percent in 1950s. While the need for natural resources increases with industrialization and population growth, pressure on environment rises together with urbanization. Cities carry out many opportunities for sustainable development throughout physical plan decisions, improvements in infrastructure and direction of the attitudes of citizens. Within this frame, local administrations are supported legally and institutionally and sustainable city concept is internalized with projects and programs.
101. While the amount of solid waste generated per person was 1.1 kg/day in 1994, it became 1.14 kg/day in 2010. Despite the changing consumption patterns and economic growth, this amount has not changed considerably. The main reason for that are measures taken for reducing the waste at source.
102. The ratio of people who benefit from waste disposal and recycling service in total population has been improved considerably during 1994-2011. While this figure was 5 percent in 1994, it raised up to 58 percent in 2011. These improvements are the result of the increasing municipal investments in waste management. There are still opportunities to accomplish sustainable development targets in this field.
103. Considerable changes occurred in the recycling of packaging wastes in 1992-2010. Although the recycling rate which was 47 percent in 1992 reduced down to 30 percent in 2003, this rate increased up to 153 percent in 2009 due to an increasing awareness on its economic value. Even the waste produced in previous years recycled or reused.
104. Most of the hazardous waste, which was estimated 1.12 million tons annually, is either disposed by burning or landfilling or recycled. 451 tons of waste batteries and 59,400 tons of accumulators were collected and recycled or disposed in 2011.
105. This situation indicates that the awareness of reusing, recycling or recovering in waste management has increased.
106. Providing healthy drinking water for more people and sustainable use of water has been primary policies of Turkey in 2000s. While the ratio of municipal population who benefit from drinking and usage water supply was 88 percent in 1994, this ratio increased up to 99 percent in 2010 due to extending investments in that area.
107. Because of the pollution in water sources, the need for water treatment facilities has raised. While 1 billion m<sup>3</sup> of water was treated out of 3.2 billion m<sup>3</sup> municipal water supply in 1994, 2.5 billion m<sup>3</sup> (53 percent) out of 4.8 billion m<sup>3</sup> municipal water was treated in 2010.
108. It can be seen that the water drawn per person did not change considerably despite the growing population. While the amount of water drawn by municipalities per person was 211 liters a day in 1994, it was 217 liters a day in 2010. It is estimated that about 55 percent (including loss/leakage) of the water cannot be charged. It is still important to reduce the losses and leakages in water supply network and use water resources effectively.
109. Watershed management approach is being accepted in order to provide efficiency in water management. Watershed protection plans are prepared and implementations are monitored. In these plans, determination of current surface, ground and coastal water levels, quality, pollution level and impacts created by urban, industrial, agricultural and economic activities, preparation of water quality maps and determination of environmental infrastructure are included. 11 watershed protection plans out of 25 water basins were prepared. River basin protection plans of 25 rivers in Turkey will be completed. They will indicate the duties and responsibilities of different institutions and organizations as a whole.

110. When the rate of using sewerage system is considered, while 69 percent of municipal population benefited from these services in 1994, it increased up to 88 percent in 2010.
111. Waste water treatment services of municipalities improved considerably in recent years. While the municipal population served with water treatment systems constituted 13 percent of total municipal population, this ratio multiplied 5 times and reached to 62 percent in 2010. Increasing environmental awareness and improvements in environmental regulations are the basic reasons behind that success. Beginning from 2010, all institutions, organizations and business enterprises, which fulfill the obligation of waste water treatment, are provided with energy incentives up to 50 percent.

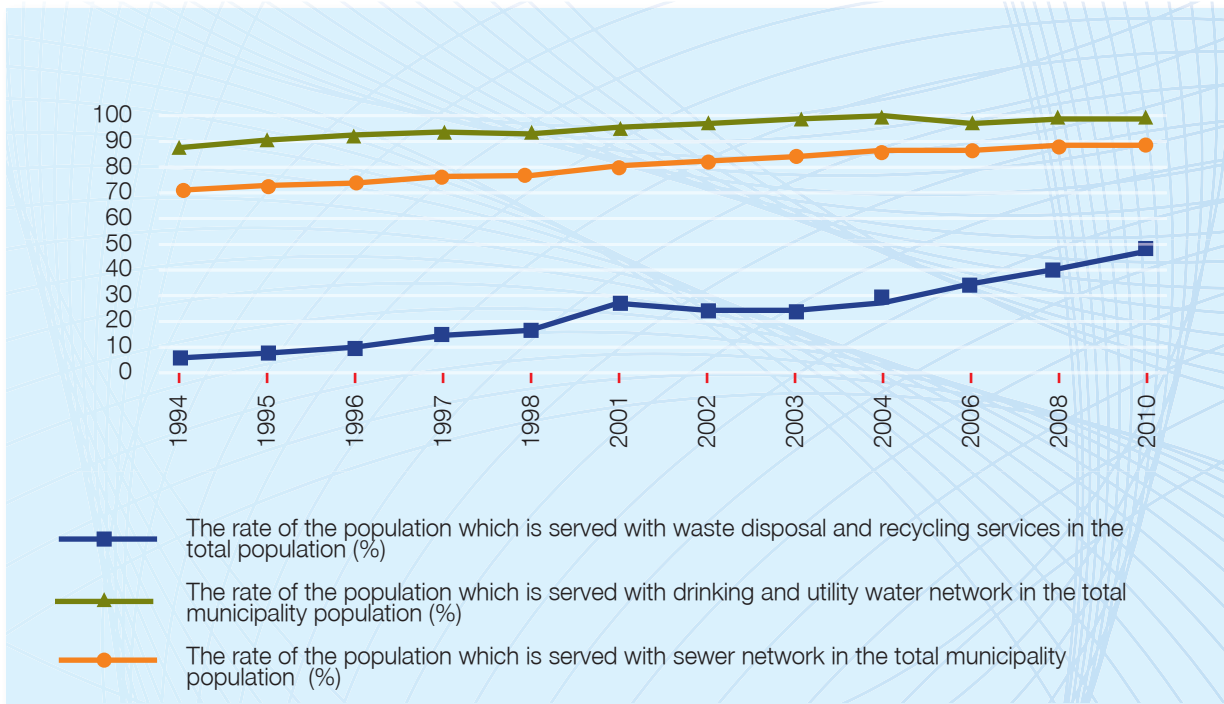
**Box 6:**

## **DRINKING WATER AND SEWER INFRASTRUCTURE PROGRAM (SUKAP)**

As an outcome of series of studies, urgent but financially challenged drinking water and sewerage projects were defined in 2010. In 2011, information about 2,107 urban infrastructure projects belonging to 1,617 municipalities was gathered and budget allocation for first year of implementation was ensured.

This allocation was used for providing grant at the rate of 50 percent for drinking water and sewerage projects of municipalities with a population of 25,000 or less. The remaining 50 percent is loaned with appropriate conditions. For municipalities with a population higher than 25,000, loans with appropriate conditions became available for infrastructure projects. With SUKAP, it is aimed to improve drinking water networks, increase the quality of water, and prevent the pollution caused by waste water by meeting the needs of especially small municipalities for sewerage networks as well as waste water treatment facilities. Thus, prevention of the factors threatening human health, especially infectious diseases and provision of healthy and modern drinking water and sewerage infrastructure for all municipalities in Turkey till 2023 is targeted.

**Graph 11:** Environmental Indicators



112. The need for drinking water supply and sewerage network has been reduced except for new settlements and maintenance works of the existing networks. In addition to this, the need for drinking water and waste water treatment facilities continues.
113. Inadequacy of water sources forces the use of treated waste water. In this context, the use of treated water for irrigation purposes is supported. For example, with the use of treated waste water for irrigation of 2.7 million square meter area in Akarçay Basin, agricultural activities are diversified while sustaining the effective use of natural resources and contributing to rural development.
114. It is aimed to carry out agricultural activities in watershed areas by attaining efficient use of natural resources together with increasing the productivity at lower cost. In this regard, existing irrigation systems are being rehabilitated and local people are trained in a participatory process. For example, in Denizli, irrigation of 1,400 decaire area by open duct irrigation system from two ground water drillings of 140 Lt/sec flow rate transformed into closed system. At the end, 2,150 decaire area started to be irrigated with 55 percent water saving. Similar irrigation activities held by cooperatives also enabled a large area irrigation with the same amount of water.
115. In addition to infrastructure improvements in urban areas, rural infrastructure, especially drinking water and roads which are considered the fundamental elements of rural development have been completed to a wide extend.

## Box 7:

### PROJECT FOR SUPPORTING THE INFRASTRUCTURE OF VILLAGES (KÖYDES)

KÖYDES Project was initiated in 2005 in order to provide drinking water and to increase standards of the roads in villages that are in need. The aim of KÖYDES Project is to increase the quality of life and provide economic and social development in rural areas.

Within the scope of the Project, 97.4 percent of the 101,986 planned projects have been completed and 63,666 village road, 35,199 drinking water, 486 small scale irrigation and 28 waste water projects have been realized. Drinking water facilities were built in 3,970 villages and the facilities which are not sufficient have been renewed in 39,117 villages. Thus, more than 12 million people are provided with clean and sustainable drinking water.

116. Removal of old vehicles used in passenger and cargo transportation from the traffic contributed in reducing the emissions, which cause air pollution and climate change especially in urban areas. Thus, greenhouse gas emissions caused by transportation reduced 5 percent during 2003-2004. With renewed vehicles, traffic security is increased, fuel and maintenance cost and noise pollution are reduced.
117. With the improvement of road network, 1 million liters fuel and 171 million hours were saved in 2001-2011. Moreover, 2.2 million tons greenhouse gas emission is saved annually. With increasing in traffic safety, accidents and deaths are prevented. Also, these contribute to economic and social pillars of sustainable development by increasing the accessibility among the regions.
118. In relation to developing public transportation in cities, subway, light rail and tramways are put into operation.
119. Air pollution in Turkey is monitored in 122 automatic stations. As a result of extended use of natural gas in urban areas, the concentration of sulphur dioxide is reduced 50 percent and the amount of particulate matters in the air is reduced to 36 percent in 2007-2011.
120. Forestlands in Turkey have been extending since 1992. The coverage of forestland was 25.7 percent in 1992 and increased to 27.4 percent in 2010. Among the fundamental reasons behind the change in the area covered by forests are afforestation and reforestation studies in areas where there are no longer any human pressure.
121. Turkey which is located on the crossroads of three continents has a rich marine and terrestrial biological diversity because of its geographical position and structure. There are around 11,000 plant types, one third of which are endemic. More than 100 types are varied widely and there are 5 micro-gen centers where economically important plant types such as culture plants and medical herbs are saved and recorded.
122. Within this scope, in order to protect and improve the rich biodiversity nature protection areas were declared according to national and international protection status. The surface area of these areas reached 4.1 million hectares in 2008. The rate of protected areas to total area of the country reached 5.05 percent in 2008 while it was 3.02 percent in 1992.

## Box 8:

### FORESTRY AND AFFORESTATION CAMPAIGN

The fundamental aim of Turkey's forestry policy is protecting forestlands against all kinds of danger, providing development in harmony with the nature, management of these lands in ecosystem unity and regaining to society with its different functions. During 1992-2011, tree afforestation and rehabilitation activities have been conducted in 2 million 585 thousand hectares to improve forest resources. In the same period, afforestation activities were carried out in 648 thousand 776 hectare areas to combat erosion that treats 54 percent of forestland.

Total forestland which was 20.7 million hectares in 1997 reached to 21.6 million hectares in 2011.

The capacity of fighting against forest fires have been increased with the improvements in land and air response fleet and observation and control systems. As a result of this, damaged area per fire, which was 7.5 hectares in 1991-1996, was reduced down to 4.4 hectares during 2003-2011.

Since forests protect the land, contributes to clean water supply and serves as recreational area and carbon sink, ecosystem based functional forest planning approach was developed in order to manage economic, ecologic and social values in systematic, participatory and sustainable way. In order to monitor forests ecosystems systematic observatory network, a database developed for monitoring and reporting.

On the other hand, forest villagers are supported for diversity and sustainability of means of livelihoods as well as for better management of natural resources. Among the supported activities are installation of solar energy systems, greenhouse cultivation, bee culture and stock breeding.

During 2008-2012, 2.3 million hectare area were afforested and rehabilitated under afforestation and erosion control campaign which aims 181.4 million tons of greenhouse gas capture in next coming 20 years. It is also targeted to provide 300,000 employments for 6 months annually in rural areas.

With this program Turkey succeeded as one of the countries extending forest areas during 2000-2010 at highest rate (at 1.1 percent).

123. Noah's Ark Biological Diversity Database has been established to monitor the biological diversity of Turkey with criteria such as species, spatial distribution, population and change in time and protected areas. This database will strengthen the decision-making mechanism on environment protection and area management in Turkey, which has rich sources of plant and animal species.
124. Turkey is surrounded by seas on three sides and has 8,333 km of shoreline with high productivity, economic value and rich ecological structure. Marine and coastal areas in Turkey are under the pressure of human activities such as fishing and tourism and pollution created by domestic and industrial waste as well as sea vessels. Within this frame, special emphasis is given for preventing degradation in marine ecosystems caused by land based polluters particularly in Special Environmental Protection Areas.

## 2.4. Sustainable Development Policies

### 2.4.1. International Developments and Cooperation

125. In the United Nations Conference on the Human Environment in 1972 the desire for protection of the environment and a clean world turned into an international issue. With the “Brundtland Report” published in 1987 a new concept namely “sustainable development” on the axis of environment, economy and society entered into the international terminology. Rio Conventions opened for signature in 1992 was the most important global step in the application of sustainable development. Turkey closely follows the international agenda of sustainable development.
126. Turkey has become a party to the international conventions issued after 1992 and has made the necessary legal and institutional arrangements in order to transpose of these conventions into national legislation. In line with this, Turkey has reflected international decisions and principles into national policy documents.
127. Implementation of sustainable development policies in Turkey became more important with the European Union (EU) membership process which was accelerated in 1999. In the adoption process, meeting political and economic criteria, transposition of the Community legislation, necessary administrative and institutional arrangements, and improvements in implementation were primarily dealt.
128. Within this scope, EU integration process enabled important steps to be taken regarding environmental policy and legislation. A number of studies are being conducted in relation to the required technical and institutional structure, necessary environmental improvements and arrangements with an aim to adoption of environmental acquis and effective implementation of the legislation. Alignment with the acquis resulted in environmental benefits particularly in terms of waste management, protection of biological diversity and the quality of water and air.
129. In the customs union process which is an important stage of the partnership relations of Turkey associated to EU membership, private sector started to give importance to environmental commitments on the international level in order to sustain its competitiveness. This situation enabled private sector to consider environmental and economic policies together.
130. Turkey with her established institutional structure, claims sustainable development issue as a member of the Organization for Economic Cooperation and Development (OECD), and contribute to the global processes with researches on the subject.
131. Sustainable development has been important topic in the agenda of G-20 summits since 2008. Turkey, as a member of G-20 platform, ensures the compatibility of her national policies with decisions taken.
132. Turkey, being a candidate country pursuing accession negotiations with the EU, a member of G-20 and OECD, is following a multi-dimensional, proactive, constructive and future-oriented foreign policy. In addition, Turkey is targeting to contribute to the improvement of security, stability and welfare both in the near regions and in a wider geographical area. Without discriminating among countries, regions and matters, Turkey is making effort for political dialogues, the right of security for all, regional embracement, complementarity, mutual economic interdependence and cultural harmony, and tolerance to take roots both in her region and also in far geographies. Turkey is working to put forward solution-oriented visionary approaches instead of crisis-oriented ones, and to implement these in an efficient manner. Again in this framework, she is making all kinds of effort for the purpose of developing cooperation in all fields and reinforcing mutual confidence with all countries sharing common ideals and objectives. Parallel to economic and democratic progress, Turkey is actively contributing to and participating in efforts for peace, stability, serenity and welfare in a global scale thanks to the increased and diversified tools of foreign policy. Turkey will continue to mobilize her increased opportunities and capabilities in line with sustainable development targets.



133. Sustainable development is one of the main topics in the bilateral and multilateral cooperation activities of Turkey. For example, sustainable development is privileged in the partnership strategy formed with the World Bank and in the development cooperation strategy and developed with United Nations (UN). Moreover, sustainable development is included as a component when international financial resources (GEF, World Bank, EBRD, etc.) are utilized.
134. Loans obtained from bilateral/multilateral development banks and international funds become more and more important resources to finance renewable energy and energy efficiency investments in Turkey. Turkey has obtained about 2.4 billion USD (based on commitments) external finance in order to be used in the renewable energy and energy efficiency investments of the private sector. Within this frame, it is regarded as an important progress that Turkey is the first country to use Climate Investment Funds (CIF) which consist of two separate funds as Clean Technology Fund (CTF) and Strategic Climate Fund (SCF) which were established for creating finance for the investments of developing countries to combat climate change with the initiatives of the World Bank. Total amount of the loan provided to Turkey from CTF is 171.7 million USD (based on commitments). It is planned that this amount will rise up to 250 million USD to the end of 2012.

## 2.4.2. National Policies

135. Development policies in Turkey have progressed towards sustainable development in parallel with international developments within the frame of economy-environment-society interactions. This situation was reflected in Development Plans, mandatory for public sector and directive for private sector, prepared with a multisectoral, holistic and participatory approach. These plans determine the fundamental purposes and priorities for development in economic, social and cultural areas, and set the frame for institutional and structural arrangements.
136. In the Sixth Development Plan (1990-1994), prevention the over consumption of natural resources and protection of the environment are elements of economic and social development.
137. Policies which give priority to the integration of environment and economy in accordance with the perception of sustainable development were included in the Seventh Development Plan (1996-2000).
138. In the Eighth Development Plan (2001-2005), a sustainable development approach based on protecting human health, ecological balance and historical and aesthetic values while realizing economic and social development was adopted.
139. In the Ninth Development Plan (2007-2013), sustainable development principles were mostly integrated into the development targets and fundamental strategic purposes were defined as development axis and an integrated perspective was adopted. Priorities of Turkey which correspond to its national circumstances were included in this plan and Medium Term Programs, which have been prepared since 2006, in accordance with “common but differentiated responsibilities” principle.
140. Sustainable development approach which was integrated into Development Plans takes place in many sectoral and thematic strategy documents.

**Table 1:** Sectoral and Thematic Strategies

<b>The name of the strategy</b>	<b>Time period</b>	<b>Aim</b>
National Environment Strategy and Action Plan	1998-2018	To increase quality of life, develop environmental awareness and sensitivity, improve environmental management and provide sustainable economic, social and cultural development.
Turkey's National Action Program to Combat Desertification	2005-2015	To prevent and/or reduce the effects of desertification and draught by determining the factors which cause desertification.
Tourism Strategy of Turkey	2007-2023	To increase employment and make tourism a leading sector in regional development in a sustainable manner.
EU Integrated Environmental Approximation Strategy	2007-2023	To create a healthy and balanced environment in which the basic needs of present and future generations are met, quality of life is increased, biological diversity is protected and natural sources are managed in a rational perception with sustainable development approach.
National Biological Diversity Strategy and Action Plan	2008-2017	To protect and sustain use of biological diversity and genetic resources.
Wastewater Treatment Action Plan	2008-2012	To build wastewater treatment facilities in accordance with the country's needs and priorities, to maximize the benefits of wastewater investments, and to optimize the basin management by reusing treated wastewater.
Waste Management Action Plan	2008-2012	To manage domestic and industrial waste in accordance with the principle of sustainability.
National Afforestation Action Plan	2008-2012	To sequestrate 181.4 million tons carbon from the atmosphere into forest in 20 years by afforestation and breeding.
Lifelong Learning Strategy and Action Plan	2009-2013	To increase people's employment capabilities in line with the changing and developing economy and labor force market.
Integrated Urban Development Strategy and Action Plan	2010-2023	To strengthen economic, social and cultural structures of the settlements via integrated approach to the subjects of planning, settlement and structuring on the national level, and to increase the livability levels and qualities of places and lives.
National Climate Change Strategy	2010-2020	To contribute the combat with climate change in accordance with the sustainable development policies within the frame of common but differentiated responsibilities principle and national circumstances.

National Rural Development Strategy and Rural Development Plan	2010-2013	To improve working and living conditions of rural people locally in accordance with urban areas and to ensure sustainability, by utilizing local potential and resources and protecting natural and cultural values.
The Strategy and Action Plan for Strengthening Employment and Vocational Training	2010	To provide vocational and technical training in line with the labor market needs, to strengthen the relationship between education and employment, to efficiently implement active labor market policies, to eradicate the problem of not having any profession and to increase the skills and abilities of the labor force to be employed.
Climate Change Action Plan	2011-2023	To limit greenhouse gas emission in the combat with climate change, to adapt to climate change and minimize the effects of climate change. s
National Science, Technology and Innovation Strategy	2011-2016	To increase the progress accomplished in improving R&D and innovation capacity in the recent years and to make it sustainable.
Turkish Industrial Strategy Document	2011-2014	To increase the competitiveness of the industry and accelerate the transformation into an industrial structure which takes more share from world exports, in which high value added and high technology goods are produced and which has more qualified labor and at the same time is more sensitive about the environment and society.
SME Strategy and Action Plan	2011-2013	To enhance the production level, amount of investment, value added and growth of SMEs.
Care Services Strategy and Action Plan	2011-2013	To increase the quality of care services provided to the disabled and to ensure the sustainability of these services.
Energy Efficiency Strategy Document	2012-2023	To reduce the energy intensity of the economy with energy efficiency and thus strengthening supply security in energy, to reduce the risks of import dependency, to minimize costs, to combat climate change and to protect the environment.
National Earthquake Strategy and Action Plan	2012-2023	To prevent or reduce physical, economic, social, environmental and political damage and losses caused by earthquakes and to create new places which are resistant, safe, well-prepared to earthquake and sustainable.

141. Legal, institutional and financial instruments are introduced in order to achieve the goal of sustainable development defined in Development Plans and Strategy Documents. With the amendment in the Environmental Act in 2006, the aim of the Act was based on the principle of sustainable development.
142. Turkey's sustainable development goal is also supported by the Grand National Assembly of Turkey (TBMM). Accordingly, in 1992 a specialized commission namely Environment Commission was formed to deal with environmental legislation permanently and continuously within TBMM. Additionally, in 2008 an ad-hoc working commission was established to analyze environmental problems to implement sustainable environmental policies and define necessary precautions to be taken.
143. In 2000s, a public administration reform taking into account principles of sustainable development was put on the agenda in order to restructure central and local administrations. With the arrangements, especially considering transparency, accountability and participation elements of good governance, the duties and responsibilities of central and local administrations were rearranged.

**Box 9:**

## LOCAL ADMINISTRATION REFORM

Within the scope of regulations on the basis of sharing duty, authority and resources between central and local administrations and their service relations;

- Special provincial administrations are authorized to carry out services such as educational infrastructure, agriculture, health, industry and trade, public works carried out by the central government institutions in the provinces and services for rural areas and outside the municipalities such as settlement, road, water, sewerage, solid waste, environment, emergency and rescue, culture, tourism, youth and sports, supporting forest villagers, afforestation and recreation.
- Criteria for establishing a municipality are rearranged; area of duty of municipalities are generalized in terms of local public needs and the responsibilities of metropolitan municipalities are extended in every aspect, especially in terms of settlement, transport and licensing. Arrangements which enable municipalities to improve their relations with public institutions, private sector and nongovernmental organizations were made, and mechanisms were developed which increase the effectiveness of the services provided by municipalities and they are enabled to adopt more flexible and effective policies on human resources.
- Processes of establishment of and participation in a unity of local governments, when it is required by projects on infrastructure services such as water, wastewater, solid waste, etc. and related to the protection of environment and ecological balance, are regulated.
- The share of resources to be allocated to local administration units from General Budget tax incomes in order to improve the income structures of local authorities and municipalities and allocation principles were rearranged; in addition to population criteria, new criteria such as development index and surface area of the provinces, the number of villages and rural population were added for local authorities.

144. Local Agenda 21 prepared associated with the Agenda 21 which is an output of 1992 Rio Conference, led up to important changes in the approach to governance and local administrations, and was implemented successfully in Turkey. Within the frame of Local Agenda 21 program, "City Councils" were established as decision-making and implementation mechanism.

**Table 2:** Public Institutions and Their Duties Regarding Sustainable Development

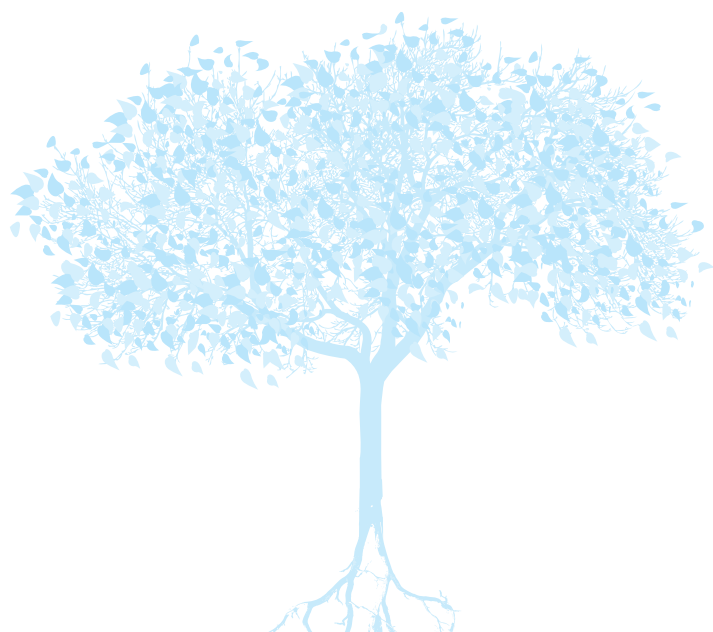
<b>Institution</b>	<b>Fundamental Sustainable Development issues</b>
Ministry of Family and Social Policies	Reducing poverty, provision of social services and aids, policies related to families, child and women empowerment, and old and disabled people
Ministry of Justice	Justice services
Ministry of European Union	Approximation to the EU
Ministry of Science, Industry and Technology	Policies on science, industry, technology, innovation, productivity, product safety and organized industrial sites and SMEs
Ministry of Labor and Social Security	Labor health and security, social security, employment, unemployment, gender equality in employment, preventing child labor
Ministry of Environment and Urbanization	Environmental policies, management and control, protecting natural sources, preventing pollution, combatting climate change, physical planning, settlements, urban and rural development, urban regeneration
Ministry of Foreign Affairs	Foreign policies
Ministry of Economy	Foreign trade of goods and services, and investment incentives and foreign indirect investments
Ministry of Energy and Natural Sources	Energy planning, renewable energy policies, energy supply and demand, energy market, energy efficiency
Ministry of Food, Agriculture and Livestock	Agricultural policies, rural development, food security
Ministry of Interior Affairs	Democratic participation processes, auditing and controlling local administrations, internal security
Ministry of Development	Development Planning, developing policies, observation of the implementation, coordination, consultancy, national coordination of sustainable development
Ministry of Culture and Tourism	Protecting the cultural heritage and tourism
Ministry of Finance	Finance policies, public finance
Ministry of National Education	Education and learning services
Ministry of Forestry and Water Affairs	Management of forestry and water resources, protecting the nature, combatting desertification and erosion
Ministry of Health	Public health, preventing and treating health policies
Ministry of Transport, Maritime Affairs and Communications	Transportation, maritime affairs, communication policies
Under Secretariat of Treasury	Economy policies, finance policies, external loan and grant implementations
Turkish Statistical Institute	National statistics
Bank of Provinces	Urban infrastructure investment projects, finance to local administrations
Development Agencies	Regional planning, regional development
Municipalities	Urban planning and implementation, infrastructure investments
Local Authorities	Protecting natural resources, employment, land using decisions

145. Since sustainable development requires a multi-sectoral and multi-stakeholder perspective, it has aspects related to the responsibilities and duties of different public institutions. Ministry of Development, which administers the planning and programming process among these institutions, is the national coordination authority of sustainable development in Turkey.
146. In order to provide an integrated perspective to the diversified institutional structure, National Sustainable Development Commission (NSDC) was established under the Ministry of Development in 2004. The coordination, monitoring and assessment of sustainable development became partially possible with Climate Change Coordination Board, National Committee for Combatting Desertification, Energy Saving Coordination Board, Energy Efficiency Coordination Board, High Commission of Environment, National Biological Diversity Committee, High Commission Disasters and Emergency, High Commission of Science and Technology and Economical and Social Council. In spite of high level of representation from respective government institution, private sector and NGOs in these commissions, it is necessary to functionalize NSDC in order to establish high level of political property.
147. High Planning Commission, which is chaired the Prime Minister, and whose secretariat is under the Ministry of Development, functions as a political mechanism for integrated decision making in terms of policy formulation and for integrating sustainable development principles into implementation.
148. In Turkey, participation of different stakeholders such as public institutions, local administrations, academia, NGOs, private sector and individuals in the policy formulation and implementation regarding sustainable development is ensured to a certain extend. Improving dialogues especially among women, children and young people is important for providing participation at highest level for sustainable development.
149. The vision and responsibilities for sustainable development of the private sector as producers of goods and services are important at every levels. The main principal is to increase productivity and competitiveness by minimizing input costs. This will contribute to the protection of natural resources. In Turkey every effort has been made to utilize legal and financial instruments to increase productivity and competitiveness of private sector.
150. Turkey is aware of the fact that NGOs have a great potential for extending sustainable development perspective to all levels of the society and that it is necessary to ensure mechanisms that will trigger this potential.
151. Within the scope of Rio+20 national preparation process, different stakeholders are invited to share their projects that aim at sustainable development. 181 applications from public institutions, private sector actors, NGOs and academia are submitted. With the help of independent assessment process, projects' contribution to sustainable development is rated in two-staged evaluation so that 24 "best practice examples" are defined. This study indicates successful implementations and fields having high potential and areas that Turkey has to give more priority. The summaries of this "best practice examples" are listed in the annex of this report and detailed information are presented in the CD provided with this document.

**Table 3:** Best Practice Examples of Sustainable Development in Turkey

	<b>Best Practice Example Name</b>	<b>Project Holder– Web page</b>
<b>PUBLIC SECTOR PRACTICES</b>	Parallel Development of Industrial Productivity and Environmental Performance on the Level of SMEs	Ministry of Science, Industry and Technology <a href="http://vgm.sanayi.gov.tr/">http://vgm.sanayi.gov.tr/</a>
	Clean Environment Project with Natural Treatment Facilities	Bursa Special Provincial Administration <a href="http://www.bursaozelidaresi.gov.tr/">http://www.bursaozelidaresi.gov.tr/</a>
	Energy Efficiency Policies	Ministry of Energy and Natural Resources <a href="http://www.enerji.gov.tr/">http://www.enerji.gov.tr/</a>
	Sustainable Electronic Waste Management Project in Istanbul	Istanbul Metropolitan Municipality <a href="http://www.ibb.gov.tr/">http://www.ibb.gov.tr/</a>
	Rural Development with Organic Strawberry Production	Konya Special Provincial Administration <a href="http://www.konyaozelidare.gov.tr/">http://www.konyaozelidare.gov.tr/</a>
	Enhancing Forest Protected Areas Management System in Turkey Project in Küre Mountains National Park	Ministry of Forestry and Water Affairs <a href="http://www.kdmp.gov.tr/">http://www.kdmp.gov.tr/</a>
<b>PRIVATE SECTOR PRACTICES</b>	Waste Heat Recovery Power Generation Plant	Akçansa <a href="http://www.akcansa.com.tr/">http://www.akcansa.com.tr/</a>
	Sustainable Agriculture Program	Anadolu Efes <a href="http://www.anadoluefes.com/">http://www.anadoluefes.com/</a>
	Cactus Dishwasher	Arçelik A.Ş. <a href="http://www.arcelikas.com/">http://www.arcelikas.com/</a>
	Innovation Competition	Coca Cola Beverage (CCB) <a href="http://www.cci.com.tr/tr/">http://www.cci.com.tr/tr/</a>
	Waste Heat Recovery At Ceramic Kilns	Vitra Karo Sanayi ve Ticaret AŞ <a href="http://www.vitra.com.tr/">http://www.vitra.com.tr/</a>
	Environmental Management Process, Environmental Performance Index and Sustainability Activities	Ereğli Iron and Steel <a href="http://www.erdemir.com.tr/">http://www.erdemir.com.tr/</a>
	Sustainable Environment Friendly Automotive Production	Ford Otosan <a href="http://www.fordotosan.com.tr/">http://www.fordotosan.com.tr/</a>
	Sustainable Water Management	İçdaş <a href="http://www.icdas.com.tr/">http://www.icdas.com.tr/</a>
	Waste Vegetable Oil Collection System	Lipesaa Ltd. <a href="http://lipesaa.com/">http://lipesaa.com/</a>
	ECOcredit / Loan for financing energy saving & efficiency projects by individuals and enterprises	Şekerbank <a href="http://www.ekokredi.com.tr/">http://www.ekokredi.com.tr/</a>

<b>NON-GOVERNMENTAL ORGANIZATION PRACTICES</b>	Establishment of a Sustainable Packaging Waste Management System in Cooperation With Industry, Local Authorities and Customers in Turkey	Environmental Protection and Packaging Waste Recovery and Recycling Foundation <a href="http://www.cevko.org.tr/">http://www.cevko.org.tr/</a>
	Wise Use of Water Resources and Adaptation to Climate Change in Konya Closed Basin	World Wildlife Fund-Turkey <a href="http://www.wwf.org.tr/">http://www.wwf.org.tr/</a>
	Campaign for Preventing Fry Fishing	Greenpeace-Turkey <a href="http://www.greenpeace.org/turkey/tr/">http://www.greenpeace.org/turkey/tr/</a>
	Kaçkar Mountains Sustainable Forest Usage and Conservation Project	Turkish Foundation for Combating Erosion, Restoration and the Protection of Natural Habitats <a href="http://www.tema.org.tr/">http://www.tema.org.tr/</a>
	Eco-Efficiency (Clean Production) Program	Technology Development Foundation of Turkey <a href="http://www.ttgiv.org.tr/tr/">http://www.ttgiv.org.tr/tr/</a>
<b>ACADEMIA PRACTICES</b>	Evaluating the Applicability of Ecological Criteria on Cotton Textile Goods	Boğaziçi University <a href="http://www.arastirma.boun.edu.tr/">http://www.arastirma.boun.edu.tr/</a>
	METU/Technopolis Membrane Treatment Facility	Middle East Technical University <a href="http://www.metu.edu.tr/tr/">http://www.metu.edu.tr/tr/</a>
	Research, Application, Production and Training Centre for Biological Pest Management	Süleyman Demirel University <a href="http://www.sdu.edu.tr/">http://www.sdu.edu.tr/</a>





# 3. TURKEY'S GREEN GROWTH ROADMAP FOR SUSTAINABLE DEVELOPMENT

152. The fundamental philosophy of sustainable development is to ensure equitable opportunities regarding development benefits for current and future generations by evaluation of the interactions between environmental, economic and social issues in an integrated manner.
153. Within the past 20 years in which sustainable development approach was accepted internationally, there was not enough progress to achieve the expected goals completely although countries endeavored much for this purpose.
154. Economic growth has always been the most important subject in the agenda. Even though the importance of environmental and social issues for development has been recognized; these issues are mostly neglected. It has also been a matter of debate whether existing growth approaches are sufficient for achieving sustainable development goals.
155. While sustainable development principles have been adopted widely, it is clear that its implementation is fall behind.
156. It is necessary to enable existing mechanisms and instruments, and to develop new and additional instruments towards establishing a development perspective which gives more importance to environmental values while providing economic growth for human development. This necessity became more evident with the globalized problems in recent years such as economic crises, poverty and climate change.
157. Green growth, which is one of the two main subjects of Rio+20 Conference, is not a new approach. It is one of the concepts which is part of actual debates and believed to accelerate the current attempts to achieve sustainable development targets.
158. There is not one accepted definition of green growth; it is seen as an economic development and growth instrument which natural resources are used efficiently, environmental degradation is prevented, social welfare and employment is increased while reducing poverty, and supporting innovative, efficient and clean technologies.
159. There is no consensus on contextual framework of green growth. Instead of accepting green growth paradigm beyond all questions, each country should contribute to the global sustainability within its respective capabilities and opportunities by creating its own "green growth" scenario/strategy.
160. Although Turkey has made considerable progress in terms of sustainable development in the last two decades, the achievements can be further accelerated. Though there is a considerable progress in political and legislative level, the implementation should be further improved. Additional arrangements should be introduced for effective implementation and strong supervision.

161. In the Ninth Development Plan of Turkey, priority areas were defined as development axes and programmatic intervention areas were analyzed. Thus, the progress achieved in the last 10 years is considerable.

162. In this report, while the capabilities for green growth are assessed, sectors which have opportunities for realizing sustainable development vision are determined. In this study, sectors which;

- create pressure on the environment with their activities,
- may progress by additional measures (technology renewal, rehabilitation, awareness raising, incentives etc.),
- use natural resources intensively,
- have high competitiveness and export capacity,
- support employment and has interconnection with small and medium sized enterprises (SMEs),
- will be influenced by the approximation process to EU environment legislation,

are taken into consideration. In addition, official policy and strategy documents as well as related studies on this subject are used.

163. Within this framework, targets are determined by assessing opportunities in the following sectors;

- Energy
- Transportation
- Agriculture
- Industry
- Services.

### 3.1. Energy

164. Increasing population, rapid urbanization and development cause high and continuous increase in energy demand, and this demand is satisfied mostly via importation. About 70 percent external dependency of in energy supply distorts balance of payments and consequently competitiveness is negatively influenced in the energy intensive sectors. In addition, high share of fossil fuels in energy supply negatively affects the environmental policy performance of Turkey.

165. ***Turkey is determined to utilize all the opportunities to increase the share of domestic and renewable energy resources in energy supply, to enhance energy efficiency in energy generation and consumption process, and to provide a transition into clean production technologies by improving R&D.***

166. Within this framework, it is targeted to:

- increase the share of renewable energy in total electricity generation to 30 percent until 2023 and also contribute to the green growth by encouraging renewable energy investments,
- reduce energy intensity of Turkey by at least 20 percent in 2023 compared to year 2011,

- save 20 percent energy with the energy efficiency applications that will be carried out in public buildings and facilities until 2023,
  - save energy in all new buildings through insulation and arrange energy labeling documents for old buildings until 2017,
  - encourage energy saving in industry with voluntary agreements that will be signed between industrial establishments and governmental agencies,
  - support energy efficiency investments in manufacturing industries,
  - provide market transformation of electrical appliances exceeding minimum energy efficiency standards together with limiting the sale of products with inefficient energy usage,
  - increase the combustion efficiency of existing coal-fired thermal power plants by rehabilitation and modernization activities, thus reduce their total emission values,
  - encourage the efficient electricity use with graduated tariffs designed according to the amount of energy and power, multiple tariff meters and smart grid applications, and fulfill demand side management.
167. Turkey's richness of natural resources enables an opportunity to use the potential of the renewable energy sources such as solar, wind and geothermal, etc. Clean production and eco-efficiency applications in manufacturing sectors will contribute to raising competitiveness while preventing environmental pollution.
168. In order to realize the aforementioned opportunities and priorities, R&D supports will be increased and various financial support instruments such as crediting, incentives, etc. will be extended. It is necessary to calculate environmental costs incorporate them into decision making processes and integrate them with implementation policies for reducing the pressure of energy sector on environment and natural resources.
169. Individuals have important responsibilities for achieving desired goals particularly in energy efficiency. Accordingly, in order to raise the consumers' awareness, instruments such as labeling, certification and pricing will be extended.

## 3.2. Transportation

170. Transportation sector is an important element of the economy with highways, railways, airways, maritime lines and communication network and influencing the society.
171. ***Turkey is determined to create a sustainable transportation system which provides safe, accessible, comfortable, fast and environmentally sensitive services and contributes to the increase of competitiveness and quality of life.***
172. Within this framework, it is targeted to:
- increase the share of railways up to 15 percent in cargo transportation and 10 percent in passenger transportation as of 2023;
  - decrease the share of highways below 60 percent in cargo transportation and to 72 percent in passenger transportation as of 2023;
  - control the emissions caused by the use of private vehicles in urban transportation.

173. Public transportation was prioritized by improving railway infrastructure. In this respect, intercity high speed train and electrified tracks were extended, vehicles were renewed and signalization systems were improved in order to increase the quality of railway services.
174. Optimization of flight routes and modernization of air traffic system contributed to the increase in the energy efficiency and minimization of environmental effects in Turkey.

### 3.3. Agriculture

175. Agricultural sector in Turkey has strategic importance because of its contribution to rural development and employment generation besides being a labor intensive and natural resource dependent sector. For this reason, increasing productivity and quality in the sector will support development process and green growth approach of Turkey.
176. Agriculture depends on biological diversity and natural resources such as water and soil. While agricultural activities create pressure on these resources, degradation of these resources affects agricultural activities negatively. For that reason, the priority of Turkey in agriculture sector is to arrange this relationship as to serve rural development within the frame of green growth.
177. Implementations in agricultural sector need to be directed to prevent income, productivity and employment loss, especially considering climate change which will affect water sources and biological diversity in Turkey.
178. It is important to create income and employment structures and new activity areas for forest villages in line with sustainable development, as well as increasing the efficiency of the sector.
179. ***Turkey is determined to create a sustainable agricultural sector with high level of competitiveness, which protects biological diversity, water, land and forests and transforms them to social benefits, while providing food safety and security with increasing efficiency, quality and quantity.***
180. Within this framework, it is targeted to:
  - protect and register gene resources,
  - protect carbon capture areas such as pastures, forests and agricultural lands for combating climate change,
  - raise awareness of producers and consumers in terms of food safety,
  - prevent land fragmentation for the effective and efficient use of agricultural fields and conduct land consolidation,
  - enable efficient use of water resources with effective irrigation methods,
  - provide energy for agricultural production from renewable resources as much as possible,
  - accelerate works on basin rehabilitation, flood prevention and combating erosion in order to protect agricultural lands,
  - create balance in utilization of resources in all sub activities of agriculture (fishing, forestry, livestock breeding, plant production, etc.),
  - provide agricultural and rural development supports considering the protection of the environment,

- extend forestry certification,
- decrease the pressures on natural forests by extending industrial afforestation,
- increase the income generation from forestry products and services, and promote the production of value added products.

181. In order to achieve the mentioned targets, sustainable land use and product planning; application of right agriculture methods; extending agricultural support with rural development programs which encourage environmental protection on agriculture lands; improving training and broadcasting services for raising the consciousness of the producers; creating branded products; extending good and organic agriculture applications; providing effectiveness in the use of resources with support and investment policies; modernization and rehabilitation of irrigation systems; enabling food security with labeling and certification and improving agricultural R&D will be enabled.

### 3.4. Industry

182. Sustaining industrialization process is essential for Turkey due to economic reasons as well as social reasons.

183. Continuation of industrialization process enables renewal of existing technologies and adoption of clean technologies in new enterprises in order to increase resource efficiency, and to reduce the pressures on environment and natural resources.

184. ***Turkey is determined to develop new and high value added products and industrial branches which will create employment by using environment friendly technologies; to ensure that all parts of the society benefit from the welfare created by an highly competitive industrialization process by respecting rights of future generations.***

185. Within this framework, it is targeted to:

- develop new products with high market value and create employment opportunities,
- provide productivity and sustainability in production,
- extend the use of clean technologies, particularly among SMEs,
- assess the environmental sensitive technology transformation needs of industry,
- extend methods as recycling and recovery in industry

186. In order to increase resource efficiency for achieving these goals and contributing to green growth, incentives for renewal of existing technologies will be developed, and R&D and innovation based development will be supported.

187. Encouraging and deterrent financial measures and effective audit and monitoring systems will be utilized for realizing green growth opportunities in industrial branches which create pressure on environment.

188. Education programs will be developed for increasing women and youth employment in order to improve the labor quality of the industry.

189. Awareness raising activities and consultancy services will be strengthened for extending clean production which will provide resource efficiency particularly in water and energy.

190. A sustainable production structure will be developed with management (reduction, recycling, reusing, etc.) of all kinds of waste for preventing and/or reducing pollution created by industry. Moreover, 384,000 tons of waste was used as additional fuel where 53.6 MW energy was produced in 2011. This energy amount is equal to the energy need of a settlement with 550,000 people. Thus, waste will be used as a complementary source for the energy need of industry.
191. Within this frame, SMEs, as an important element of social and economic life with their employment capacity, will be informed about sustainable production, strengthened financially and provided with the required consultancy services.
192. When the young population of Turkey is considered, it is apparent that there is a necessity to support innovative fields which require qualified labor force.
193. When the subsectors of the industry are examined, it can be seen that many sectors have green growth potential. In this report, white goods, electronics, automotive, iron-steel, machinery and construction sectors are dealt in detail. These sub sectors are the sectors which stand out in the existing policy documents and strategies of Turkey, and whose production processes should be reviewed due to their pressure on environment. The measures to be taken in accordance with the green growth approach in these sectors contain opportunities both for economic growth and strengthening social structure. Attractiveness of these sectors for foreign investments and interaction with foreign markets also bring out important opportunities.
194. **White goods** sector emerged as an assembly industry in Turkey with foreign partners but in time it reached a peculiar position in world markets by manufacturing its own design and technology. With 1 percent share in GDP and 3.9 billion USD export in 2011, it is a sector contributing significantly to Turkish economy. With the influence of global competition, innovation and R&D investments in the sector have increased.
195. The exports of the sector during 2000-2010 has increased 8 times by using high technology in production, increasing R&D investments, adaptation to international quality standards, and establishing a production structure, marketing and service network which takes customer satisfaction and market preferences into consideration.
196. White goods sector is an important production base with its installed capacity of 25 million large white goods and offers environment friendly products to the market.
197. The sector contributes to the economy with its employment potential while increasing its competitiveness and production volume.
198. **White goods sector is determined to be the leader in the market with its qualified and competitive product and service structure.**
199. Within this framework, it is targeted to;
  - apply quality and maintenance programs for increasing product quality,
  - design energy efficient and low cost products with R&D and innovation,
  - prevent environmental pollution while reducing production costs with energy efficiency, recycling and reusing,
  - improve market research and increase brand and product promotion,
  - limit the sale of the energy inefficient products and activate market control,
  - reduce emissions and wastes, especially greenhouse gases, with environmental sensitivity in production processes and products.

200. While these targets are achieved, the potential of the sector for creating green jobs will rise with the increase in R&D activities and production towards green growth. With its improving structure, the sector will increase the need for qualified labor in its subsidiary industries.
201. Realization of the targets in the sector will be accelerated by encouraging the use of efficient white goods; supporting SMEs in the sector in terms of R&D and technology development; raising awareness of the consumers about efficient use of white goods.

**Box 10:**

## ENERGY EFFICIENCY IN ELECTRICAL HOUSEHOLD APPLIANCES

The electricity consumption patterns of Turkey in houses vary widely according to living conditions of the family and device infrastructure, and most of the electricity consumed in houses is used by electric and electronic devices. The highest share in household electricity consumption belongs to refrigerators. The energy consumption of electrical household appliances reduced considerably; the best refrigerator saves 75 percent energy compared to the models in 1990, washing machines save 44 percent energy and 62 percent water compared to the models in 1985. Similarly, while a dishwasher used 2 kWh energy at 60 °C in 1980, the energy consumption is less than 1 kWh and water consumption is less than one third today. Turkish electrical household appliances market transformed into appliances with A class or higher labels. In addition to this, it is necessary to concentrate on replacing the existing appliance stock with the new efficient appliances in order to reduce the energy consumption of electrical appliances.

In recent years, other important energy consuming sources in Turkey are widescreen liquid crystal LCD and plasma TV sets and split air conditioners. With the increase in temperatures in summer in these years, sale of window type air conditioners especially in southern parts of the country increased causing a rise in electricity demand that peaks during the daytime. Solving this problem which is expensive for our energy system depends on the steps to be taken in energy efficiency, especially in demand side. The key factor in replacing the inefficient electrical appliances with the efficient ones is the period in which the investment will repay itself and it is determined by the electricity prices. Moreover, efficient appliances are 10-20 percent more expensive than the inefficient ones. Unless efficient appliances are encouraged, it is difficult for them to compete with the cheaper and less efficient ones.

202. **Electronics** industry has acquired an important position by improving its production, which was started with license agreements with foreign companies, in terms of innovation, quality and competitiveness after 1980s. Electronics sector constitutes 1.5 percent of GDP as of 2010 and increased its export about 4 times during 2000-2010 and reached 5.6 billion USD in 2010. In the field of consumer electronics, especially export-oriented television production has made a considerable progress. This progress was observed especially in CRT televisions and important market share was achieved in European market (more than 50 percent). However, this share has shown a diminishing trend with the LCD panel technology after 2004.
203. Although the sector is appropriate for R&D and innovation due to its structure and competitiveness, R&D expenditures are not sufficient in Turkey. However, it has potential for technology transfer and high applicability of productive methods since it attracts foreign investors.
204. The sector has a potential for green growth due to its production structure appropriate for environment and product security standards. However, shortening product life and use of hazardous materials as production inputs require better waste management. In 2011, 8,500 tons of electric and electronic waste composed of precious minerals such as gold and copper in addition to hazardous substances were collected and recycled.

205. ***Turkey is determined to increase value-added and competitiveness of electronics by adopting rapidly changing technologies and using these electronic appliances for green growth.***

206. Within this framework, it is targeted to;

- extend the range of products and application areas compatible with new technologies,
- develop environmentally sound products,
- develop environment-friendly alternatives of hazardous materials used as inputs to support green growth,
- increase the variety of products in response to rising quality demand in domestic and foreign markets and enable branding,
- extend recycling and recovery applications.

207. This sector has advantages such as dynamic domestic market, improved quality context and lower labor cost and flexibility for adapting to new technologies. Additionally, various instruments are required to be developed in order to benefit from green growth potential of the sector. Within this scope, R&D and innovation will be prioritized in order to develop products and production processes which will contribute to green growth. Consumer information and awareness will be ensured through eco-labeling. In order to achieve these targets, access to appropriate financial resources will be facilitated. With the purpose of providing skilled labor that sector is in need of, training programs, particularly for youth will be extended.

208. ***Iron and steel*** sector in Turkey has a critical importance for the overall performance of the manufacturing industry with its inputs to the other sectors and increasing production capacity, and high exportation and employment potential. While the sector contains green growth opportunities in terms of energy and input usage, the competitiveness of the sector is affected negatively due to high energy prices, external dependence on raw material supply and adaptation costs in terms of environment.

209. ***Turkey is determined to increase the competitiveness and productivity of iron and steel sector by taking measures in terms of combating climate change, effective use of natural resources and reducing pollution while respecting country circumstances.***

210. Within this framework, it is targeted to;

- complete technological transformation for energy efficiency,
- extend the reuse of waste heat created during production processes,
- extend the use of the environmentally least harmful inputs during production,
- increase the share of high value added products in the production,
- reduce the environmental pollution caused by the sector.

211. Concentrated energy structure of Iron-Steel and other environmental problems it caused may be transformed into opportunities in terms of green growth with a perspective based on R&D and technological transformation. Attempts such as reusing the waste, precautions to reduce pollution (chimney filters, fuel optimization, etc.), transformation of production technology and especially energy productivity will be extended.

212. The ***automotive*** sector, which completed restructuring and integration process with global industry for competitiveness in 1990s, has moved into sustainable global competition process with world market oriented design and production by creating a higher value added in 2000s.



- The leading dynamic structure and the production and export volume of the sector increase the importance given to the R&D and development of design culture and innovative approach.
213. Steps contributing to green growth in production process and product range are taken in parallel with the growth in the sector.
214. ***Turkey is determined to increase the environmental sensitivity of production process and product structure while making the sector a center of excellence and R&D base in the region by increasing its competitiveness as well as improving public transportation systems.***
215. Within this framework, it is targeted to;
- develop environmental friendly vehicle technologies (low CO<sub>2</sub> emission, bio-fuelled, hybrid and electric engine technologies),
  - plan production processes and inputs as not to damage environment and human health,
  - encourage cooperation with other industrial branches in the use of waste and residual materials.
216. Automotive sector has the opportunities to reduce the amount of impacts on environment with its activities and products along with growth potential. These impacts can be reduced by taking measures in areas such as energy efficiency, waste management, chemical usage while increasing contribution of the sector in economy and social life.
217. New job opportunities will be created in areas such as subsidiary industry, support services and alternative fuel suppliers (charging stations, CNG distribution network, etc.) in parallel with the targets of automotive sector.
218. The awareness of the society will be increased for using environmental friendly vehicles and studies will be carried out to encourage the use of these vehicles.
219. In the ***machinery*** industry mostly consisting of SMEs, annual average increase in production and exports were 6.5 percent and 21.4 respectively, between 1990 and 2011. The actors of the sector have the ability to respond changing economic conditions and technological developments more flexibly and rapidly. The sector has a structure in which all parts and accessories may be produced with high quality and competitive prices.
220. ***Turkey is determined to use its infrastructure in the machinery sector to produce main and subsidiary products which serve to green growth.***
221. Within this framework, it is targeted to;
- Support infrastructure for green products with high value added and brand value,
  - Design and commercialize qualified, safe and efficient products which are compatible with sustainable production criteria.
222. R&D, training and finance support will be provided to SMEs for product development, technological transformation, innovation, energy efficiency, waste minimization, regeneration and reuse. Furthermore, guidance service will be provided for marketing.
223. The ***construction*** sector in Turkey has a high multiplier effect since investing in real estate is accepted as an investment instrument and the sector has an important role in meeting accommodation as well as the sector makes a considerable contribution to the economy. The value added created and employment opportunities provided by the construction sector and subsidiary sectors makes the sector a driving force in the economy. The shares of construction sector were 5 percent in GDP in 2010 and 5.6 percent in employment as of February 2012.

224. Construction industry puts considerable pressure on the environment in terms of resources used and pollution created both because of its outputs (public buildings, commercial buildings, dwelling, roads, power plants, etc.) and inputs (cement, iron-steel, land, etc.). In addition to this, the sector has a high potential in terms of considering environmental concerns in relation to outputs and during the production process of its inputs.
225. ***Turkey is determined to increase economic, social and environmental benefits by making buildings resistant to every kind of risks and minimizing negative impacts of construction sector on the environment through reduced pollution with qualified and environmental friendly materials and resource efficiency.***
226. In this report, the construction sector is considered in terms of building and cement sectors.
227. The need for buildings increases in Turkey with the increasing population, urbanization and industrialization. However, the sector embraces opportunities to minimize the pressure on the environment with design approaches and materials used during construction.
228. In Turkey, 35 percent of the total sectoral energy consumption belongs to buildings. Moreover, buildings have impacts on the environment in terms of water consumption, solid waste creation and land use. Since the building stock was created without considering these factors, the existing buildings will create a field of opportunity in transition to green growth, particularly as regards energy efficiency and usage of renewable energy besides new buildings to be constructed.
229. ***Turkey is determined to adopt the concept of environment and nature friendly building in existing and new buildings.***
230. Within this framework, it is targeted to;
- ensure that at least one fourth of the building stock in 2010 are sustainable until 2023,
  - extend environmental friendly design and construction methods in the urban regeneration and mass housing projects; encourage the usage of systems for central heating and renewable energy resources,
  - save 20 percent energy with the energy efficiency applications that will be carried out in public buildings and facilities until 2023,
  - save energy in all new buildings through insulation and arrange energy labeling documents for old buildings until 2017,
  - extend the use of construction materials, technologies, designs and methods which enable energy efficiency, waste minimization, recycling and savings.
231. In order to achieve these targets, the use of instruments will be considered such as extending the retail credits for the consumers making environmental friendly building transformation, developing certificate system for buildings, directing sustainable urban development by physical plan decisions, encouraging the use of green products as construction materials and implementing pricing policies for reducing pollution and waste.
232. Although the **cement** sector, which provides the most important inputs for the construction sector, is mostly modernized, there are still some measures to be taken for efficient use of resources and reducing pollution.
233. ***Turkey is determined to reduce the negative environmental impacts of the cement sector with studies on modernization and resource efficiency.***

234. Within this framework, it is targeted to;

- use alternative energy resources and increase energy efficiency,
- increase the recovery of waste heat,
- extend the use of recycled materials and waste for alternative energy generation,
- reduce air polluter emissions, especially greenhouse gas emissions caused by burning fossil fuels and production processes,
- use qualified raw materials.

235. In order to reduce the pressure of the sector on the environment it is important to provide R&D support and incentives for investments of enterprises to reduce energy intensity and emission of air polluters.

### 3.5. Services

236. Services sector in Turkey has progressed in the recent years. The sector embraces opportunities for green growth and sustainable development because of its labor oriented structure which creates less pressure on the environment. The development of subsectors such as health, education, urban infrastructure, tourism, finance, information technology and consultancy includes applications towards sustainable development.

237. ***Turkey is determined to accelerate green growth by increasing the social and environmental benefits of the developments in the services sector.***

238. Within this framework, it is targeted to;

- ensure sustainable use of natural resources and reduce pollution in sectors like tourism and urbanization,
- improve tourism infrastructure which is compatible with the environment, natural and traditional life and protects local fauna and flora,
- increase the standards of urban infrastructure services,
- increasing awareness of consumers,
- ensure efficiency in the use of limited resources such as energy and water and activate waste management in facilities like hospitals, schools, care homes, restaurants, hotels, recreation and commercial areas,
- Considering sustainable development criteria in the use of public and private sector resources,
- Using sustainability criteria in financial crediting.

239. In order to achieve these targets, labeling and certification instruments will be extended in the services, sustainability criteria will be determined for budget and crediting systems, information technologies will be used for sharing information, increasing awareness as well as monitoring and evaluating. Moreover, sustainability principles will be supported with physical plan decisions.



## 4. CONCLUSION

240. In this report, the progress that Turkey made in the fundamental elements of sustainable development in the last 20 years and developments in the leading sectors of the economy. Moreover, opportunities for sustainable development were also elaborated within the national preparations for 2012 UN Conference on Sustainable Development (Rio+20). It is aimed to minimize the pressure on the environment caused by human activities considering these opportunities.
241. In this regard, Turkey will continue to increase its contribution to achieve global sustainable development goals by maintaining its economic, social and environmental development.
242. This process will increase the productivity and competitiveness in all sectors of the economy, while it will require additional costs and sacrifices along with its benefits. However, by a development approach which was designed with right measures and incentive policies, positive externalities of the increasing productivity and competitiveness will be over and beyond the short term costs. For that reason, existing and additional financial sources will be mobilized to reduce the pressure on the environment and to increase economical benefits.
243. Aiming for sustainable use of natural resources, financial instruments regarding incentives and disincentives for reducing and preventing pollution will be handled in an integrated manner.
244. Further precautions will be taken in line with the principles of “user-pays” for pricing natural resource use and “polluter-pays” for controlling the pollution caused by solid waste, wastewater, greenhouse gas and air pollutant emissions. In this scope, investments and expenses on green growth will be supported.
245. Financial resources for green growth will be made available for creating new jobs which enable environmentally sensitive economic growth, and for supporting R&D and innovation. Thus, the increasing trend in GDP will be further sustained while effective management of natural resources will be ensured by efficient use of energy and water, waste reduction and emission control.
246. Sustainable development and green growth attempts of Turkey will focus on primarily to energy, water, food and industry sectors and will be supported through R&D activities and related expenditure. In this scope, it is aimed that the share of R&D expenditures in GDP will be increased to 3 percent in 2023 which was 0.84 percent in 2010.
247. Protection of agricultural lands, efficient use of water for irrigation, productive use of soil resources and rational agricultural product planning will be realized to support sustainable development process. In this context, rural development and green growth potential of agricultural industry will be supported as much as possible.

248. The basic principle of Turkey is not to create any additional burden on disadvantaged people and to guarantee their social inclusion and honored living conditions. Within this frame, it is important that the benefits of growth are directed to improve income distribution, to meet basic needs and to provide equal opportunities in access to these services.
249. Turkey is aware of the fact that a human centered, equitable and inclusive sustainable development should be strengthened with democracy, human rights and good governance.
250. In that direction participatory structure will be enhanced through upgraded democratic maturity, social consensus and integration as well as strengthened contribution of private sector and non-governmental organizations. Valuing and internalization of individual freedoms, social tolerance and democratic maturity principles will be enhanced among the society.
251. Turkey regards and supports the formation and continuity of democratic institutions on the basis of peace, security and freedom; global sustainable development; harmonization of internal and foreign policies with sustainable development principles. In this regard, Turkey considers protection of fundamental rights for all, assurance of intra and intergenerational equity and guarantee open and democratic society as well as participation as indispensable principles of good governance and sustainable development.
252. Turkey improves legislation, strengthens institutional framework, establishes and implements plans and programs with an increasing awareness at all levels, in order to realize sustainable development principles as well as to fulfill her international commitments. Thus, Turkey contributes to the global sustainability in accordance with her respective capabilities and extends her international and regional cooperation.
253. Valuing the importance of international cooperation in poverty eradication Turkey contributes to global sustainable development through official development assistance, with a portfolio of more than 1.3 billion USD only in 2011. Within the scope of technical and economical cooperation package for least developed countries (LDCs), Turkey aims to increase the investments of just private sector cumulatively to 10 billion USD in these countries until 2020. Turkey will continue to share its sustainable development and green growth experiences with these countries in the context of development cooperation activities.
254. Turkey contributes to raising awareness and advocacy on sustainable development by hosting international activities. Within this frame, Second UN Conference on Human Settlements (Habitat II Summit) in 1996, Regional Meeting of Millennium Development Goals in 2010, United Nations Conference on Least Developed Countries, 2<sup>nd</sup> International Entrepreneurship Summit in 2011 and Global Human Development Forum in 2012 were held in Istanbul.
255. Among these international meetings, Global Human Development Forum, held on 22-23 March 2012 was one of the milestones towards Rio+20. The Forum brought different stakeholders together and the Istanbul Declaration entitled as Towards an Equitable and Sustainable Future for All was adopted. The Declaration underlines that equitable and human centered sustainable development should be the core of global development.
256. Turkey recognizes the importance of determination and cooperation for sustainable development. Hence, Turkey invites and urges world leaders gathering in Rio de Janeiro in June 2012, to reaffirm their determination to and take responsibility for;
- Considering global sustainability and equity principles when using right to develop,
  - Ensuring that good governance principle and applications are inseparable parts of sustainable development process on the basis of democracy, human rights and equal opportunities,
  - Establishing, monitoring and reporting global goals for sustainable development,

- Ensuring contribution/sacrifice from each country depending on its level of economic development and respective capabilities, and creating an equitable and dynamic country classification system for that,
- Redefining the role of private sector, promoting private sector initiatives and enhancing public-private partnerships for sustainable development,
- Mobilizing partnerships and assistance at each level, particularly at regional level, and ensuring information and experience sharing for sustainable development,
- Improving the institutional framework of sustainable development at each level,
- Providing equal opportunities and accessibility to international finance mechanisms,
- Considering cumulative environmental damages in sharing responsibilities,
- That green growth attempts do not create trade barriers to communities and countries.





# ANNEX: BEST PRACTICES ON SUSTAINABLE DEVELOPMENT

Below are the summaries of alphabetically listed 24 best practices which are identified out of 181 applications proposed for the nationwide call for application through an independent evaluation process. More detailed information could be found in the attachment of this report.

## Waste Heat Recovery Power Generation Plant - Akçansa

The implementation regarding alternative energy sources is conducted by recovering waste heat emitted in the production process in the cement factory of Akçansa in Çanakkale. With the recovery facility in a capacity of 15.2 MW, annually 105 million kWh of energy is recovered as thermal and electric energy. Thus, about 26 percent of the total electricity consumption of the factory can be fulfilled. It is calculated that the investment cost will repay itself within 5 years. With the energy saving, an annual reduction of 60,000 tons of CO<sub>2</sub> was realized.

<http://www.akcansa.com.tr/>

## Sustainable Agriculture Program - Anadolu Efes

As a result of the R&D studies related to the development of malt barley and hop varieties which are the basic inputs of the production, 32 new varieties which are compatible with changing climate conditions and provide higher yield and quality were developed and registered. Some of these malt barley varieties provided 12-24 percent saving in electricity, 18-22 percent saving in fuel and 40-47 percent saving in water consumption during the process of malt production. The target of the facility is to reduce the amount of water used per liter by 25 percent until 2015 in comparison to 2010. With the help of developed hops varieties, productivity during cultivation has increased by 25-30 percent. On the other hand, with the “contractual agricultural production” method free seeds were distributed to the farmers in return for products, and price advantage is provided in purchase according to the quality standards. As of 2010, around 3,000 farmer families, 2,100 of which are contracted, earn income by cultivating malt barley with integrated production approach. A business volume of 30 million USD is created in the agriculture sector with cultivation of malt barley. As an indication to the role and contribution of hops production to agricultural production and rural development, only in Bilecik – Pazaryeri district around 15,000 people directly or indirectly provide livelihood through hops production.

<http://www.anadoluefes.com/>

## Cactus Dishwasher - Arçelik A.Ş.

The aim of CACTUS project is to design and produce a more efficient dishwasher in terms of energy and water consumption by R&D activities and supplying it to the market.

The highest class dishwasher (62105-H) in A energy class with 1.05 kWh energy consumption is the machine which has the least water consumption with 7 liters and lowest sound level with 39 dBA in the world. As a result of the CACTUS project, a dishwasher has been developed which has 0.68 kWh of energy and 6 liters of water consumption per run.

If it is assumed that 4 million dishwashers have the energy consumption values of 62105-H product, in other words, when these devices are replaced with the recent efficient device developed, 414.4 million kWh of energy saving and around 210,000 tons of CO<sub>2</sub> emission reduction would be provided in a year. When the average water consumption of the existing dishwashers in Turkey is assumed as 15 liters and if these are replaced with the new products, 22 million tons of water would be saved in a year. This amount is almost equal to the water consumption of 500 thousand people in a year. Besides water and energy efficiency of the product, with a change in the isolation material, it became possible to further increase the water saving and CO<sub>2</sub> reduction during the production process.

<http://www.arcelikas.com/>

## Evaluation of Ecological Criteria for Cotton Textile Products - Boğaziçi University

With the clean production approach in the pilot textile processes, 40 percent water was saved during production t-shirts. The use of chemicals was reduced by 8.5 percent and energy consumption decreased by 39.5 percent. As a result of these improvements, the amount of wastewater produced decreased by 40 percent, pollution diminished by 18 percent and treatment costs cut by 25 percent. If the traditional t-shirt and eco-t-shirt productions are compared in terms of its life cycle (value chain); production eco-t-shirt provides reductions of 15-17 percent in climate change potential, 16-24 percent in acidification potential, 73-75.5 percent in eutrophication potential and 23-34.5 percent in land eutrophication potential compared to the production of traditional t-shirt.

<http://www.arastirma.boun.edu.tr/>

## Clean Environment Project with Natural Treatment Facilities - Bursa Special Provincial Administration

With the project, collection of wastewater of rural households by a sewer system and treatment by natural treatment systems were realized where conventional wastewater is disposed in septic tanks. Conventional (physical-mechanical-biological) wastewater treatment systems were used in 22 among 74 villages, which are operated by Bursa Special Provincial Administration. Natural treatment systems were used in the remaining 52. The service capacity of natural treatment systems established is about 45,663 persons.

Natural treatment systems, which are able to use the solar energy in the environment and replenish themselves, do not need expensive equipments and additional energy. Moreover, their maintenance, repair and operation are easier. For these reasons, natural treatment systems with low costs are preferred in rural areas. In addition to these, quality of treated wastewater by artificial wetlands fulfills the criteria for irrigation purposes.

<http://www.bursaozelidaresi.gov.tr/>

## Inventor Competition - Coca Cola Beverage

Water management, sustainable packaging, and energy efficiency and combatting climate change were identified as major focus points of environmental impact management of Coca Cola Beverage (CCB). "CCB Inventor Competition" initiated in 2007 as a system which enables realization of environmental and innovative projects as a part of corporate culture and rewarding the project owners. Submitted projects focus on creativity, applicability, savings and conservation of natural resources. As of the end of 2011, 325 projects were recorded in total and concrete improvements were achieved in many fields with the recommendations of the "inventors" such as:

- Cardboard minimization (2010 Innovation Winner), İzmir Factory: 192,000 TL/year financial saving, 256 tons of cardboard (3,584 trees) reduction.
- Decreasing cost of carboy bottle (2010 Innovation Runner-up), Sapanca Factory: the amount of total saving was 16,895 Euro in 2010 and the amount of polycarbonate waste was reduced by 19 percent.
- Continues efficiency of two-door coolers (2010 Innovation Third Place), Ankara Factory: saved 20,000 TL/year from condenser cleaning, 25,000 TL/year from reduced compressor breakdowns due to polluted condensers.
- CO<sub>2</sub> evaporation (2009 Innovation Winner) İzmir Factory: Consumption of electricity for cooling reduced by 3-5 percent. CCB had the right to have a patent with this project.
- Reducing pressure standards in plastic bottle production is awarded as the "Best Practice" by Coca-Cola worldwide. With the application, the amount of energy used per bottle reduced by 40 percent in İzmir Factory and total saving realized was 471,892.14 Euro (electricity saving was 830 million kWh/year and reduction in carbon emission was 360,000 tons/year).
- Reducing water consumption (İzmir Factory), saving was 100,000 m<sup>3</sup>/year = annual water consumption of 500 4-membered families.

Total saving by implementing the 398 projects produced benefits in 2009 and 2010 was;

- 10.5 million TL
- 84 thousand tons of water (equal to the annual consumption of 1,000 houses)
- 1,632,000 kW of energy saving (equal to the annual consumption of 590 houses).

<http://www.cci.com.tr/tr/>

## Establishment of a Sustainable Packaging Waste Management System in Cooperation With Industry, Local Authorities and Customers in Turkey - Environmental Protection and Packaging Waste Recovery and Recycling Foundation (ÇEVKO)

Through activities of ÇEVKO implemented between 1991 and 2004 with the cooperation of local administrations, 1 million people were reached and 100,000 tons of packaging waste was collected separately from organic waste.

Between 2005 and 2011, about 14 million people participated in separate collection of packaging waste activities of ÇEVKO-local administration partnerships, in 96 municipalities of 25 cities throughout Turkey. The number of organizations for clean and efficient collection of packaging waste increased considerably which led to creation of additional employment. Following the introduction of the licensing requirement for this service in 2000, the number of licenses reached 50 in 2005 and about 400 in 2011.

With the cooperation of local governments and licensed companies, about 2.5 million tons of packaging waste was collected between 2005 and 2011. In this context, more than 12 million barrels of petroleum were saved. This amount constitutes about 5 percent of Turkey's annual petroleum consumption which is 236 million barrels. Similarly, with the recycling of paper/cardboard and similar packaging waste, about 16 million trees were saved.

About 400,000 tons of packaging waste recovered to the economy in 2011. Thus, about 2.7 million trees were saved and a reduction of 2 million barrels in the use of fossil fuels is achieved. Total economical saving in only 2011 is about 1 billion TL.

Only in 2011, more than 2 million people were informed and more than 83,000 students were trained in schools in the implementation areas. Scavengers were integrated to the system as much as possible considering the need of disadvantaged groups.

<http://www.cevko.org.tr/>

## Waste Heat Recovery Project - Vitra Karo Sanayi ve Ticaret AŞ

The project carried out in Vitra ceramic facility in Bilecik uses residual energy as an alternative energy source to create energy saving. The facility produces construction materials and constitutes 46 percent of the energy consumption of Eczacıbaşı Group. Measurements in the facility revealed that there is a thermal power potential equivalent to 8 MW in all heat outlets of the facility. With the implementation conducted waste heat recovery, 1,484,000 m<sup>3</sup> of natural gas was saved and greenhouse gas emission equal to 3,000 tons of CO<sub>2</sub> was eliminated in a year. The investment repaid its costs within a year.

<http://www.vitra.com.tr/>

## Environmental Management Process, Environmental Performance Index and Sustainability Activities - Ereğli Iron and Steel

The implementation of the integrated iron and steel facility which meets its own water and energy needs itself in Ereğli, is based on monitoring, supervision and reporting of all production and management processes in terms of environmental aspects. Accordingly, Environment Management Process-Environmental Performance Index system is utilized in order to use clean production technologies, increase recycling at the highest possible level, minimize air, soil and water pollution and increase environmental awareness and performance. Sustainable production activities are monitored with the Environmental Performance Index which was developed as an internal management process in the facility which also got a TS EN ISO 14001 Environment Management System Certificate in 2004. The index provides guidance for environmental investments and rehabilitations, waste management, management of natural resources, training of the employees, energy efficiency investments and carbon certification studies.

<http://www.erdemir.com.tr/>

## Sustainable Environment Friendly Automobile Production - Ford OTOSAN

The implementation of Ford OTOSAN facility, which started its operation in 2001 in Kocaeli, includes environmental friendly spatial design and production processes in which the use of hazardous chemicals is reduced.

Emissions which cause pollution and smell nuisance were minimized through lowering solvent emissions by using water-based paints in the facility. At the same time, heavy metals were eliminated in the paint shop of the facility by using unleaded paint and technologies which do not contain Cr<sup>+6</sup>. The facility is designed as not to destroy nature of the area on which it is built. 350,000 m<sup>2</sup> of weed area and 22,000 m<sup>2</sup> of natural wetland in the facility are protected. This wetland which is on an important bird migration route, become the only place where migratory birds stop, which cannot find another spot to rest in the region because of industrialization.

<http://www.fordotosan.com.tr/>

## Campaign for Preventing Fry Fishing - Greenpeace

Proper management of natural aquatic resources is an important concern for the sustainability of livelihood of fishermen as well as for food safety. The purpose of the campaign subject to the award is to prevent the loss of fish stock caused by increasing illegal and excessive fishing, and to stop fry fishing and sale by creating public awareness. As a result of the campaign, a legal arrangement was put into force which prohibits catching of 2 specific species having a length of less than 45 cm, from which on these species lay eggs for the first time. The Ministry of Food, Agriculture and Livestock changed the legal fishing length of bluefish under the threat of extinction as 20 cm. As a result, the awareness of people on fry fishing is increased.

<http://www.greenpeace.org/turkey/tr/>

## Sustainable Water Management - İÇDAŞ

The progressive implementation of the project between 2007 and 2010 consisted of three main components: i. Extraction of fresh water from sea, ii. Electricity production from cooling water and iii. Fish production in the cooling water.

The facility used to utilize groundwater from 32 water wells. However, because of the increasing extraction pressure on the groundwater and the penetration risk of salty sea water inside the land, water began to be provided from sea. By supplying daily water need of 12,000 m<sup>3</sup>, including drinking water, from the sea 7,000 m<sup>3</sup> ground water was saved daily. It is aimed to compensate some of the high energy costs resulted from pumping more than 12,000 m<sup>3</sup> of cooling water to the facility daily, with the energy recovered during its discharge to the sea. In 2009, four hydroelectric production plants with 450 kW each were installed on the cooling water outlets of iron and steel facility, and thermal power plant. 19.9 million kW of energy is generated from the facility in a year which constitutes about 21 percent of the energy used for water pumping. The economic equivalent of this generation is 3.05 million TL. Moreover, 100,000 fish has been grown in the pools on the final discharge point of cooling water since 2008.

<http://www.icdas.com.tr/>

## Sustainable Management of Istanbul Local Electronic Waste Project - Istanbul Metropolitan Municipality

The aim of the project is to recycle electric and electronic wastes which increase day by day and hence to prevent the threats created for the environment and human health by hazardous substances contained in electronic waste.

In this context, a 500 m<sup>2</sup> area is allocated to handle electronic wastes by Istanbul Metropolitan Municipality. From the establishment of the collection system and activation of the area, 12,341 units of computer waste was collected and recorded in the project database until the end of the project. 9,288 of these units were processed and 8,553 of them were sent to recycling while 735 units were stocked as reusable. 350 computers were granted to educational institutions and people in need.

<http://www.ibb.gov.tr/>

## Rural Development with Cultivation of Organic Strawberry - Konya Special Provincial Administration

In 2007, 300,000 strawberry seedlings and mulch plastic were provided to Yaylacık Village of Seydişehir town in Konya whose irrigation infrastructure was completed with the drip irrigation project conducted in 2005-2006 to initiate organic strawberry production. Thus, annual income for an area of 2 decares, where organic strawberries were cultivated instead of wheat, is multiplied by 60 times. Cultivation of organic strawberry turned out to be a successful model for the region and adopted as a development model in 80 more villages. As a result this model study, the demands from Konya Special Provincial Administration of the villages that does not have drip irrigation infrastructure has increased considerably. Konya Special Provincial Administration conducted 74 drip irrigation projects in different villages on an area of 59 thousand decares with an investment amount of 18 million TL between 2007 and 2011. In order to meet changing consumer preferences and solve the market problems of the producers, Municipality of Meram and Konya Special Provincial Administration began to build an organic market place.

<http://www.konyaozelidare.gov.tr/>

## Waste Vegetable Oil Collection System - Lipesaa Ltd.

Waste management and recycling of waste are essential to reduce the impacts on the environment. Thus, it is necessary that acceptable and practical infrastructures are provided for waste producers in order to increase recycling. In the application, by supporting local entrepreneurship, a Waste Vegetable Oil Collecting Automat (BAYTOM) was developed in order to facilitate the collection and recycling of waste vegetable oils. As a result of R&D activities of 2 years, Useful Model Certificate was taken for the equipment. Necessary studies for serial production were completed in 2011. As a result, a great convenience will be provided to local authorities and companies collecting this waste and facilities storing waste oil.

<http://lipesaa.com/>

## METU/Technocity Membrane Treatment Facility - Middle East Technical University

A vacuum rotating membrane bioreactor facility was initiated in 2005 and has been in operation since then. It is proved that the system, which was on the experimental level, is one of the feasible treatment options using membrane technology in the future. The use of this technology is complemented with recovery applications of treated wastewater. The facility is a quite economical solution for METU Technocity Administration which had high irrigation costs. Electricity cost of the facility is about 13 Euro cent/m<sup>3</sup> (30 kuruş). Assuming the life time of membrane as 10 years, the cost of 1 m<sup>3</sup> of water is estimated as 50 Euro cent/m<sup>3</sup> (1.15 TL). Technocity purchasing 7.2 TL for water in the industry tariff saved more than 5 TL per m<sup>3</sup> by the help of the facility. Annual water saving of the administration is more than 50,000 m<sup>3</sup> and 275,000 TL is saved annually. The expenditures for additional facilities repaid themselves within a year. Technocity administration is planning to extend the use treated wastewater in rest-rooms of the office blocks to be built in the future because of the economic gains of the approach.

<http://www.metu.edu.tr/tr/>

## Energy Efficiency Policies - Ministry of Energy and Natural Resources

Important steps have been taken in the field of energy efficiency by the Ministry of Energy and Natural Resources in order to strengthen the policies and legislative framework and to ensure the implementation. Within this framework:

- Management structure for planning and coordination was developed with the foundation of Energy Efficiency Coordination Council.
- Energy efficiency service sector was formed. The number of the authorized energy efficiency consultancy companies reached 38.
- Within the scope of energy management program, energy managers were appointed and energy management studies were initiated in more than 500 industrial facilities and 20 organized industrial zones.
- More than 4,500 people were certified as energy managers within the framework of energy management trainings, survey and consultancy services and 218 people were trained within the scope of international energy manager training programs.
- Energy managers were appointed to 40 electricity generation facilities with more than 100 MW installed capacity.
- 113 public institutions which are obliged to appoint energy managers have made their energy surveys or have it made until today.
- Regulations about minimum energy requirements for the energy consuming products were put into force.
- Systems to control ambient temperatures and to distribute heating expenses according to the amount used with central heating systems was started to be installed.

With the implementation of the policies:

- Each year 13,000 TPE of energy and 11.5 million TL will be saved by the 32 projects which are supported to increase efficiency in the industry.
- Each year 44,000 TPE of energy and 32 million TL will be saved in 22 industrial institutions by reducing the energy intensity of the industry.

On the other hand, promotion and awareness activities were carried out within the scope of demand management. 2008 was declared as the “year of energy efficiency” and the movement of “national energy efficiency” was initiated.

<http://www.enerji.gov.tr/>



## Enhancing Forest Protected Areas System in Turkey Project Implemented in Küre Mountains National Park - Ministry of Forestry and Water Affairs

Küre Mountains, one of the most important ecotourism centers of Turkey, has been declared as national park in 2000. Within the framework of the project, better management and protection of the national park with a surface area of 37,753 hectares were provided. Sustainable forest management plans were established and implementations initiated in the buffer zone of 134,366 hectare out of which 80 percent is forest. Progress on sustainable management of natural resources was achieved in 172,119 hectare area.

In order to create alternative sources of income and to manage the possible pressure of visitors on the ecosystem, Sustainable Tourism Development Plan and Visitor Management Plan were formulated for the National Park and surroundings. For this purpose, "Visitor and Information Centre", "Information Centre" and 8 gate control units were established in Bartın and Kastamonu. Infrastructure and guidance studies and introductory, informative and direction boards were installed in the scope of visitor management. Following the trainings on "Boarding House Keeping in Ecotourism", 15 of the people who attended the trainings were supported for arranging one room of their house as boarding houses in Bartın. About 300 families were supported with social credits for solar heating systems in order to reduce the use of firewood and thus 14.6 hectare oak forest was saved, and emission of 821.82 tons of carbon dioxide was prevented within 2 years. Moreover, related activities of NGO's were supported through a grant scheme.

<http://www.kdmp.gov.tr/>

## Parallel Development of the Industrial Efficiency and Environmental Performance at SMEs Level - Ministry of Science, Industry and Technology

Within the study, in order to increase environmental performances of 5 pilot SMEs production processes, environmental indicators specific to each facility and efficiency indicators were identified. With these arrangements in the context of clean production/eco-efficiency the environmental impacts of the facilities were reduced and corporate productivity was increased:

- As a result of a study on clean production/eco-productivity in a metal coating facility, per unit of product 65 percent saving were obtained in water use and up to 60 percent saving was achieved in use of some chemicals.
- In an aluminum profile manufacturing facility, the amount of water added to the hot bath after application reduced by 42 percent and the amount of natural gas used to heat this bath and hence CO<sub>2</sub> emitted reduced by 60 percent.
- In a metal processing facility, the amount of annual cooling oil decreased by 24 percent, the amount of water used for cooling liquids declined by 25 percent and the total amount of waste liquids diminished by 46 percent.
- In a food enterprise, 7,000 TL of natural gas saving was achieved monthly and the amount of the CO<sub>2</sub> emission per unit product decreased by 26 percent.
- The amount of tube used in a welding enterprise decreased by 42 percent and related CO<sub>2</sub> and argon emissions dropped considerably.

It was observed that the return periods of the investments were less than a year. Moreover, the findings of the pilot implementations were compiled in and disseminated by “Eco-productivity Guide for SMEs” which also includes basic measures appropriate for national circumstances and may be applied by SMEs without requiring big investments.

<http://vgm.sanayi.gov.tr/>

## Centre for Research, Application, Production, Training for Biological Pest Control - Süleyman Demirel University

The aim of the center is to enhance biological pest control for reducing production losses in agriculture caused by diseases and harmful organisms. Within this scope, more than 20 beneficial organisms are grown together with their simulated environments. In this context, the producers and companies in Western Mediterranean region are supported for pest control. The studies of the center contribute to the improvement of food safety and security by reducing the use of chemicals which threaten human health; reduction of environmental hazards, and prevention of income losses caused by decreased yield.

<http://www.sdu.edu.tr/>

## ECOcredit / Credit For Saving Energy & Labor – Şekerbank

ECOcredit provides finance in a wide range of energy efficiency applications from increasing energy efficiency in buildings to transformation projects on the use of renewable energy sources such as wind, hydraulic and solar and to waste management investments.

In the insulation projects within the scope of ECOcredit, “Association of Thermal Insulation, Waterproofing, Sound Insulation and Fireproofing Material Producers, Suppliers and Applicators-İZODER” provides technical consultancy. Economic viability and employment of the construction sector are supported by providing finance to more than 20 thousand house isolations. 112,952 tons of CO<sub>2</sub> emission was eliminated with isolated buildings in return to 80 million TL finance provided in this scope. With the building isolations, up to 50 percent saving was recorded in the energy consumption of households.

Around 320 million TL credit was provided in the field of energy efficiency with ECOcredit up until today. Thus, more than 25 thousand people become aware of energy efficiency. As of January 2012, 386 SME's, 22,125 individual customers and 2,732 craftsmen, farmers and small enterprises benefited from ECOcredit.

Within the scope of ECOcredit, 83 protocols were signed in 47 provinces and towns with Chambers of Commerce and Industry, Chambers of Craftsmen and Chambers of Agriculture. Thus, awareness on energy efficiency and saving was extended to more than 45 thousand artisans, small enterprises and farmers.

The acquisition of energy identification certificate, which is a public application is simplified and the interest of the citizens it the certificate is supported.

<http://www.ekokredi.com.tr/>

## Kaçkar Mountains Sustainable Utilization and Conservation of Forests Project - Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats

The implementation was realized in Kaçkar Mountains Region, which is one of the most important regions in Turkey in terms of biological diversity. Management plans and strategies to ensure protection of nature and rural development simultaneously were prepared; people living in the area were provided with alternative sources of income. Degradation and loss of biological diversity in the forest ecosystems in the region have been reduced with instruments and activities such as ecosystem based forest management plans, multi-sectoral management plan, developing a proper governance structure and introducing additional sources of income for people. Ecosystem based forest management plans for 20 years have been prepared and initiated. As a result of project activities, people's need for firewood has been reduced by 10 percent, 17 percent of people started using modern isolation methods in houses and 18 percent started to benefit from the additional sources of income. Participatory sustainable tourism development strategy established and local tourism products have been developed for the region.

<http://www.tema.org.tr/>

## Wise Use of Water and Adaptation to Climate Change in Konya Closed Basin – World Wildlife Fund Turkey

According to scientific studies analyzing the impacts of climate change in the water budget of Konya Closed Basin and measures for minimizing these impacts in the short, medium and long term; temperature will rise and rainfall will decrease by up to 20-30 percent in 2030 in the basin. At the same time, 65 percent of surface water, 54 percent of underground water and 56 percent of total water will diminish and the deficit in water budget which is currently 1.6 billion m<sup>3</sup> will be more than 3 billion m<sup>3</sup> at the end of 2050s. It is identified that 2.4 billion m<sup>3</sup> of water can be saved annually by establishing modern irrigation systems and changing the crop pattern.

Within the Modern Irrigation Project in Konya Basin, pilot irrigation systems were used in an area of 46 decares where sugarcane and wheat were planted in 2008. As a result of the pilot studies in which 200 farmers have participated in, 47, 58 and 26 percent savings were obtained in water, energy and fertilizer usage, respectively, compared to traditional methods. Agricultural productivity has increased by 28 percent. In order to trigger the change and transition in agricultural production in the basin, about 3,000 farmers and representatives of agriculture sector were reached in 2010. In 2011, modern irrigation applications in 4 pilot fields, trainings and climate change meetings were organized. As a result of these pilot applications; 20,640 m<sup>3</sup> water and 10,470 kWh of energy were saved, agricultural productivity increased by 36 percent and the total income of farmers reached 16,818 TL. Through the pilot applications implemented within the scope of the project on an area of 175 decares, up to 50 percent savings were realized in water and energy usage and productivity increased by up to 36 percent. Moreover, fertilizer usage was reduced by 29 percent.

<http://www.wwf.org.tr/>



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