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Environmental Sustainability and Vision of Turkey

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Abstract: Most people may have a negative impact on the environment in which they live. In large part, this is due to rapid population growth as well as water, air, and soil pollution. In recent years, the magnitude of this problem has grown. While some resources are renewable, replacing many others with new resources may be difficult or even impossible. Laws, regulations, and institutions have been created and are being executed with the goal of protecting the environment for the purpose of environmental remediation and leaving behind a livable environment for future generations. In doing so, these instruments must meet the needs of the present generation and consider the needs of future generations. "Sustainability" generally has three dimensions: social, economical and environmental. Although social and economical dimensions have been studied extensively, consideration for the environmental dimension has recently been gaining more importance. This consideration in developed countries has become prominent. But developing countries, such as Turkey, have not prioritized environmental issues. In this paper, the existing state of affairs concerning sustainability in Turkey is analyzed.

Key words: sustainability; environment; environmental sustainability; Turkey
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1. Introduction

1.1 The Concept of Environment

The environment is a complex system made of physical, chemical, biological, cultural, social, and economic components (Toros et al., 1997). A variety of definitions of environment exist, including: An environment can be defined as a total system which consists of people and the other creatures, the nature and things made by the people (Ertürk, 1994). An Environment is a process and a place that ensures all creatures are able to live and proliferate, and continuously affect the community or biosphere (Özbuğutu & Karahan, 2014). An Environment according to the environmental law is a biological, physical, social, economic, and cultural ambient (backdrop; background; landscape) where living creatures interact together. It can be said that the environment is ambient where animate and inanimate beings live together (Karpuzcu, 2004).

1.2 Sustainability Concept

Since sustainability is primarily a global concept, the question arises as to whether it has any application at the corporate or regional level (Gray & Milne, 2002). The use of the concept of sustainability increased in popularity after the 1980s. It was derived from the Latin word, *sustinere*. Although it can be translated in many

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ways, it actually means “to sustain, provide, support, exist and continue” (Ergün & Çobanoğlu, 2012). Briefly, sustainability means the characteristic of a process or a situation that can be maintained indefinitely at a certain level (Tokgöz & Önce, 2009). Sustainability emphasizes not just an efficient allocation of resources over time, but also a fair distribution of resources and opportunities between the current generation and future generations, as well as a scale of economic activity relative to its ecological life support systems (Gray & J. Milne, 2002). Sustainable development according to environmental protection law is a development and process that guarantees a healthy environment for environmental, economic and social objectives on the basis of the establishment of equilibrium for present and future generations.

In the Bruntland Commission’s report, “Our Common Future”, sustainable development is defined as “the kind of development which meets the needs of the present generation without compromising the ability of future generations to meet their needs.” Currently, the economic activities of some people endanger the welfare of those living in other regions of the world. Given that there is absence of social justice even among those living at the same time, it is impossible to achieve intergenerational justice. Continued deforestation will lead to the extinction of unknown species in the biologically diverse Amazon basin. Greenhouse gases produced by industrial countries will lead to global warming and this will cause the displacement of the islands by flooding and impoverish all nations (Sounnotina & Sheram, 2000). Development is sustainable if it does not reduce the average quality of life. In this sense, sustainability requires justice between generations. The main objective of sustainable development is to provide social solidarity, to increase economic capability, and to develop ecological responsibility (Sarıkaya & Kara, 2007).

1.2.1 Dimensions of Sustainability

Different definitions provided by both policy makers and academics show that although the concept of sustainability cannot be clearly defined, it affects the global community of the present and future. The common definition of this concept is that sustainability has three dimensions: economic, social, and environmental, which must be considered simultaneously. Often, these dimensions form objectives which conflict with one another under the concept of sustainable development (Altuntaş & Türker, 2012).

Economic Dimension: This dimension relates to the use of the scarce resources (Akman et al., 2013). An economically sustainable system must be able to produce goods and services continuously, maintain the manageability of governmental and external debts, and should avoid sectorial imbalances that damage agricultural and industrial production (Harris, 2011).

Social Dimension: This dimension is important in ensuring the continuity of social and cultural systems (Akman et al., 2013). It should support and develop a socially sustainable distribution of equality, the realization of a sufficient level of social services, including the participation of political responsibility as well as health, education and gender equality (Harris, 2011). Struggles against poverty, civil society organizations, gender and development are the social dimensions of sustainability dimension (Rogers et al., 2006).

Environmental Dimensions: Biological and physical systems must be stable. The goal of environmental objectives is to ensure that ecosystems adapt to changing conditions in a particular manner (Gürlük, 2010). Environmental investments and the exploitation of renewable resources should not be impeded by the holding of a resource base. At the same time, nonrenewable resources should only be consumed if enough investments have been put into place to compensate for them. Though an environmental system does contain economic resources, it must take into account biodiversity, the protection of ecosystems, atmospheric stability, and other factors (Harris,

2011). Planning, implementation, and managing development prevent environmental pollution and support life[1]. Such initiatives will not be sufficient unless they include people's social needs who live in that environment (Tutulmaz, 2012).

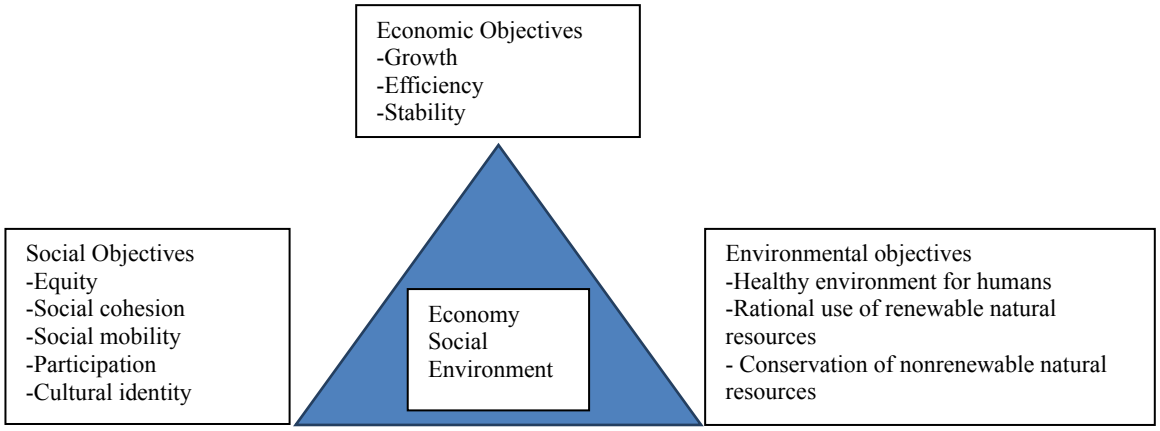

Figure 1 Objectives of Sustainable Development

Source: Tatyana P. Soubbotina (2004), *Beyond Economic Growth an Introduction to Sustainable Development* (2nd ed.), USA: World Bank, p. 9.

2. Environmental Sustainability

Environmental sustainability examines the environmental aspects of sustainability. The level of use of natural resources should not exceed the rate of their self-renewal. Human health, biodiversity, the protection of animal life, plant life, air, water and soil quality all fall within the bounds of the environmental sustainability (Kaypak, 2011). According to environmental law, a sustainable environment represents the process of development, protection, and recovery of all the environmental values that make-up the environment of today and the future which preclude endangering the presence and the quality of the sources that will be needed by the future generations[2].

The factors which most effect environmental sustainability are industrialization, urbanization and rapid population growth. Rapid population growth began in the 18th century and caused environmental problems. Use of natural resources increased with the development of technology. The pool of resources once accepted as free and limitless turned out to be limited as a result of increased production activities in contemporary society (Traş, 2012). Within the framework of renewable resources for the sustainability of the environment, the level of use of resources should never exceed the level of regeneration of resources. Protecting natural capital requires that resource stocks must remain constant over time. In the case that exhaustible resources approach depletion, they must be compensated for by an increase in renewable sources and man-made capital (Çetin, 2006).

Ten important points related to sensitive production to the environment are defined as follows (Jeswiet, 2007, pp. 29-30):

(1) Environmental problems will occur because people need and demand the products.

(2) The number of consumers will not drop sharply and consumption habits will not change instantaneously.

(3) Mass production is a steward in modern society.

(4) All products are designed.

[1] http://ab.immib.org.tr/web/eklenti/Rio+20-Taslak-Mevcut-Durum-Raporu.pdf, 2014.
[2] http://www.mevzuat.gov.tr/MevzuatMetin/1.5.2872.pdf, 2014.

(5) All designs are produced.

(6) Each product design has an environmental effect.

(7) Each production process has an environmental impact.

(8) It is important to make the right design at the beginning of the work.

(9) Throughout the design phase, designers must consider the possible environmental effects.

(10) If we don't treat nature fairly, we must suffer the consequences.

In the 1970s, the relationship between economic development and environmental degradation entered into the international community's agenda for the first time with the United Nations Human Environment Conference held in Stockholm in 1972[3]. After the conference, the 5th of June was distinguished as a day of celebration for the World Environment, and the "react and treat" strategy gave way to a "predict and prevent" strategy (Traş, 2012).

Not only are efforts to reduce the environmental impact of business not prohibitive in terms of costs, these efforts also often have positive consequences in terms of profitability. In an earlier study 639 public manufacturing enterprises were examined regarding the relationship between environmental and financial performance and it was found that the companies with a low environmental performance also had a low financial performance (Yavuz, 2010).

One significant negative consequence of manufacturing products is the resulting waste and hazardous materials. Economic growth provides the financing of expenditures for clean technologies and environmental protection. The structure of a country's energy resources, the intensity and variation of energy use, are some of the main factors affecting the sustainability of economic development and environmental development. The use of energy which causes pollution can be reduced through taxes. Deterioration of ecosystems and climate change caused by transportation can be reduced by technological advances. Agricultural reforms which prevent the loss of biodiversity and do not overburden farmers should be encouraged such as a reduction or even elimination of excessive nitrogen-phosphate fertilizer use and insecticides (Kaypak, 2011).

3. Environmental Sustainability in Turkey

3.1 International Level

Turkey is a party to the following International environmental conventions[4]:

- European Landscape Agreement (Florence Convention)
- European Convention for the Protection of Wildlife and Natural Habitats (Bern Convention)
- Marine Environment of the Mediterranean Sea and the Coastal Region Protection Convention (Barcelona Convention)
- Regulation of Whale Hunting Agreement (Whaling Convention)
- United Nations Convention on Biological Diversity
- United Nations Framework Convention on Climate Change (United Nations Climate Change Convention)
- Land-based Pollution Prevention from the Sea Convention (Paris Convention)
- Prevention of Pollution from Ships of the Sea Convention (Marpol 73/78)
- Convention on the Protection of the World Cultural and Natural Heritage (World Heritage Convention)

[3] http://www.unicankara.org.tr/today/3.html#3t, 2014.

[4] http://izindenetim.cevreorman.gov.tr/izin/AnaSayfa/birimler/uluslarasiKuruluslar/uluslararasiSozlesmeProtokolAnls/TurkiyeninTarafOlduguCevreSozlesmeler.aspx?sflang=tr.

- Stockholm Convention on Persistent Organic Pollutants to the (Stockholm Convention)
- Convention on the Protection of the Black Sea Against Pollution (Bucharest Convention)
- Convention on the International Trade of Endangered Wild Animals and Plants (CITES Convention)
- Convention concerning the Protection of the Ozone Layer (Vienna Convention)
- The United Nations Convention for Striving Desertification in Countries exposed Serious Drought and/or Desertification (Convention to strive against Desertification)
- The Convention on Wetlands with International Importance for Waterfowl Habitat (Ramsar Convention)
- International Convention Related to the Civil Liability of Losses arising from Oil Pollution (Civil Liability Convention)
- International Convention related to the Establishment of a Fund for Compensation of Damage from Oil Spill (Fund Convention)
- Convention on the Control of Trans boundary Shipment of Hazardous Wastes and their Disposal (Basel Convention)
- Convention on Long-Range Trans boundary Air Pollution

During the UN World Conference on Environment and Development in 1992, how sustainable development can be achieved was documented and a concrete global action plan, "Agenda 21", was adopted by Turkey. At the end of 1997, local agenda implementations in Turkey gained momentum with the project "Promotion and Development of Local Agenda 21 in Turkey"[5]. In 1998, Turkey developed the first and only national environmental action plan, The Local Environmental Action Plan (YEÇEP), with financial support from the World Bank. YEÇEP includes the development of an appropriate action plan which emphasizes environmental priorities[6]. Turkey became a party to the Kyoto Protocol in 2009. The protocol has brought a binding greenhouse gas emission limitation and reduction commitment to industrialized countries[7].

3.2 At the National Level

Though the first two steps regarding environmental sustainability at the national level in Turkey do not contain data related to the environment, they are included in Turkey's overall development plans. In the Third Five-Year Development Plan (1973-1977), a separate section on the environment considers environmental issues and discusses solutions for the presented problems[8].

The Fourth and Fifth Five-Year Development Plans also discuss environmental issues (1985-1989). In 1983, the 2872 Law on Environment was introduced. In this law, a framework of principles for a sustainable environment and sustainable development principles were laid out[9]. In 1989, the Prime Ministry of Environmental Affairs and Special Environmental Protection Agency was established[10]. A sustainable development approach was adopted in the Sixth Five-Year Development Plan (1990-1994)[11]. The Seventh Five-Year Development Plan (1996-2000), the Environmental Impact Assessment Directive came into force[12]. In the Eighth Five-Year

[5] http://izindenetim.cevreorman.gov.tr/izin/AnaSayfa/birimler/ uluslarasiKuruluslar/uluslararasiSozlesmeProtokolAnls/Turkiyenin TarafOlduguCevreSozlesmeler.aspx?sflang=tr.
[6] http://www.rec.org.tr/dyn_files/22/1422-yerel-cevre-eylem-planlari-turkiye-strateji-raporu.pdf.
[7] http://iklim.cob.gov.tr/iklim/AnaSayfa/Kyoto.aspx?sflang=tr.
[8] http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/6/plan4.pdf.
[9] http://www.mevzuat.gov.tr/MevzuatMetin/1.5.2872.pdf.
[10] http://www.mevzuat.gov.tr/MevzuatMetin/4.5.383.pdf.
[11] http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/4/plan6.pdf.
[12] http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/3/plan7.pdf.

Development Plan (2001-2005), National Environmental Action Plan was developed (NEAP)[13].

In 2004, the National Sustainable Development Commission was established on the premise of using natural resources as prescribed by sustainable development with the participation of all concerned parties to ensure a dynamic sustainable development and a means for monitoring that development[14].

An amendment made in Environmental Law in 2006 ensures protection in accordance with sustainable environment and sustainable development principles without jeopardizing the existence and quality of the resources needed by future generations and so forms the body of values for both today and future generations' in all areas (social, economic, physical, etc.). The breeding, conservation, and development process was defined as "sustainable environment". Development and growth on the basis of the establishment of equilibrium among environmental, economic, and social objectives as well as guaranteeing to live in a healthy environment for present and future generations was defined as "sustainable development"[15].

In the Ninth Five-Year Development Plan (2007-2013), it was noted that rapid population growth and the industrialization process was increasingly at odds with the sustainable use of natural resources[16]. Turkey's First National Notification on Climate Change was made in 2007[17]. In the Tenth Five-Year Development Plan (2014-2018), it was mentioned that significant progress on climate change and related environmental policy developments in biological diversity should be developed and emission efficiency provided for[18]. From 2007 to 2023, the EU Integrated Environmental Compliance Strategy is a prerequisite for entry into the EU to ensure compliance with EU environmental legislation and its effective implementation[19].

Civil society organizations in Turkey have made significant strides on the environmental sustainability. Founded in 1991, the Technology Development Foundation has been active for the purpose of protecting the system and offering a sustainability perspective in an efficient manner. Research and Development fosters Innovation and Competitiveness with Sustainability, Eco-innovation and Environmental Management. The Eco-efficiency (cleaner production) program, the EU 7th Framework Program, the Sustainable Consumption and Production (SCP) Project and the Global Environment Fund (GEF) Energy Efficiency Project are significant projects[20].

Founded in 2010, the Turkey Sustainable Energy Financing Program is a program that gives support to the companies that want to invest in energy efficiency or renewable energy projects[21].

A cooperation agreement was signed between the Istanbul Stock Exchange and the Ethical Investment Research Services Limited (EIRIS) in order to calculate the BIST Sustainability Index which is based on social and corporate governance's performance. Its purpose is to provide guidance to companies during policy-making processes. In this index, the environment is subject to valuation according to biodiversity, climate change, human rights, board structure, bribery, occupational health and safety criteria. 15 companies were included in the index when it was launched on November 4th, 2014 and the companies were identified in the BIST Sustainability

[13] http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/2/plan8.pdf.
[14] http://ab.immib.org.tr/web/eklenti/Rio+20-Taslak-Mevcut-Durum-Raporu.pdf.
[15] http://www.mevzuat.gov.tr/MevzuatMetin/1.5.2872.pdf.
[16] http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/3/plan7.pdf.
[17] http://www.mgm.gov.tr/FILES/iklim/ulusalbildirimtr.pdf.
[18] http://www.kalkinma.gov.tr/Lists/Kalknma%20Planlar/Attachments/12/Onuncu%20Kalkınma%20Planı.pdf.
[19] http://www.ab.gov.tr/files/SEPB/cevrefaslidokumanlar/uces.pdf.
[20] http://www.ttgv.org.tr/tr/cevre-faaliyetleri-genel-bilgi.
[21] http://www.turseff.org.

Index[2223].

3.3 Strengths and Weaknesses of Turkey Regarding Environment and Sustainability, and the Resulting Opportunities and Threats

Turkey's strengths related to environmental sustainability are as follows[24] (Toprak, 2006, p. 164):

- Natural resources and the environment are not completely contaminated.
- There are many young people whose awareness of the environment is increasing.
- The presence of sufficient scientific, technical, and human resources which could work for the prevention of environmental pollution.
- Due to its special geographical location, Turkey is located on the energy corridor where potential for new and renewable energy sources is high.
- The industry established for new technology transfers also transfers environmental and international production standards with it.
- Turkey has qualified man power with regard to the protection of its historical, cultural, and environmental heritage.
- The country's regional differences are of sufficient variety that is has the capability of creating and sustaining relationships with nations and peoples across ethnic, religious, and cultural boundaries.

Weaknesses related to Turkey's environmental sustainability are as follows:

- Not enough attention is given to environmental issues.
- Rapid pollution of natural resources.
- Available resources related to environmental investments are not used properly.
- The data and information relating to the environment are not recorded systematically.
- Data collected and recorded do not have certain standards in terms of validation, evaluation, and transformation of knowledge.
- Environment-related research and development are not given the necessary support.
- Economic inefficiency does not allow the use of adequate resources for environmental protection investments.
- Resources existing for environment-related investments are not used purposively and sufficiently.
- Economic structure does not foster liquidation of technology that has outdated and polluting characteristics.
- Organized, adequate and reliable data are not available for pollution prevention. The same situation is also the case for our natural resources, cultural and historical values.
- In some sectors, procurement of new technologies is dependent upon conditions outside Turkey.
- There are contradictions and conflicts respecting corporate powers and responsibilities in legislation. Legal infrastructure has not been harmonized with international commitments.
- The importance of environmental information and the environment are not prioritized enough in all layers of society including decision makers.
- Adequate infrastructure for the effective use of environmental management tools, resources, knowledge, and fluency are not available.

[22] http://www.borsaistanbul.com/endeksler/bist-pay-endeksleri/surdurulebilirlik-endeksi.
[23] http://www.borsaistanbul.com/duyurular/2014/11/04/borsa-istanbul-bist-30-dan-15-sirketin-yer-aldigi-bist-surdurulebilirlik-endeksini-hesaplamaya-basladi.
[24] http://www.tubitak.gov.tr/tubitak_content_files/vizyon2023/csk/CSK_son_surum.pdf.

- A method for monitoring environmental indicators of sustainable development which are necessary for the fulfillment of international commitments has not been established.
- The high leakage on water and energy distribution networks leads to an unnecessary increase in production costs.
- Existing legislation does not promote protection of the environment but instead punishes polluters after contamination.
- Uncontrolled population growth and migration is causing unplanned urbanization and land use.
- Efforts to enable the development of environmental awareness and participation process could not succeed.
- Policies providing privileges for road transport have been implemented and discourage the use of rail transport which causes less environmental problems and consumes less energy.
- "Decor qualified protection" work to prevent "originality", in other words "history".

Threats related to environmental sustainability in Turkey are as follows:

- Issues related to the environment are not perceived as forming a discipline which requires experience, expertise, and knowledge.
- Environmental problems are not priority in the formation of government policy.
- The society does not trust authorities regarding pollutants and there is a belief that the problems cannot be solved in a manner which involves the authorities.
- There is a lack of audits and major misconceptions about the investment costs in the creation and allocation of resources.
- Controlling agent's knowledge compared to pollutants is weak and inadequate in terms of experience and financial resources.
- Price to be charged for the protection of the environment cannot be used in accordance with its purpose, thus this causes large errors in creating investment costs and the allocation of resources.
- Dependence on foreign energy will gradually increase.
- Pressure to complete projects quickly, inadequate regulations, and a lack of monitoring and control mechanisms may increase the authority confusion.
- The notion that environmental concerns are a barrier to international trade may continue.

Opportunities related to environmental sustainability in Turkey are as follows:

- Turkey has a strategic geographic location in terms of geopolitics. As a result, it has a chance to compose and conduct many international and regional studies in the field of Environment and Sustainable Development.
- It has an opportunity to work on research and technology development as a partner with the member states in the European Union 6th Framework Program.
- Turkey's wealth in terms of natural resources and biological diversity places them in a position to respond to and implement protective measures. This is a significant advantage and should be considered good.
- Energy potential of Turkey is high.
- The development of waste management awareness is an opportunity for the formation of a waste management services sector, the development of R&D, of technology and of new employment opportunities.
- It already has existing environmental technologies.
- Industry established for clean technology also transfers environmental and international production standards with it.
- Competition in the international market is resulting in the adoption of quality control and environmental

systems in industrial activities. As such, there is a trend towards cleaner production technologies and environmentally friendly products.

- As a country where the majority of the current population is young and increasingly aware of environmental issues, Turkey has the possibility to have power over decision-making in the next twenty years.

4. Results and Assessment

While some of the resources of Turkey are renewable, some face the danger of extinction. Ensuring the sustainability of these resources will provide a more comfortable environment for both present and future generations. To this end, studies have examined the environmental dimension of the sustainability concept. As is known, sustainability has three dimensions: the social, the economic, and the environmental. The point is that a framework for sustainability in Turkey must include the social needs of the people who live in that environment.

Given Turkey's development plans at the national level, laws, programs, civil society organizations, and the agreements signed at the international level, environmental sustainability has gained momentum in recent years. Of these measures, one of the most important steps in recent years is the agreement that Istanbul Stock Exchange has signed for the calculation of the sustainability index for companies in 2014. Environmental criterion is a priority for calculation and implementation of this index is a positive step for environmental sustainability. As mentioned earlier, the strengths and opportunities associated with the environmental sustainability of Turkey should be capitalized upon, while the weaknesses and threats and should be mitigated to the furthest extent possible. Finally, considering that resources related to environmental sustainability will be consumed, awareness should be encouraged and continued sustainability should be ensured by prioritizing environmental aspects of sustainability on national and international bases for individuals and companies.

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