



## SUSTAINABILITY PROJECT

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**Abstract.** *Due to the increase of countries that have signed the Kyoto Protocol, there is a worldwide increase of companies that put forward sustainability projects. Countries obeying global principles within the sustainability framework have also tightened the external audits of the companies related to sustainability issues. Realizing that acting solely for profit prevents company growth, organizations are also making efforts to achieve the criteria of environmental sustainability indexes in line with their social responsibilities. In the Stockholm Conference, on June 16, 1972, for the first time, it was alarmed that the world resources have been rapidly depleted, and serious problems could be experienced if soon something will not be changed. Countries that have reached the level of danger were uncertain about further actions. The United Nations report, convened under the chairmanship of Gro Harlem Brundtland, published at the end of 1987, suggested for the first time tangible measures about the steps to cope with the situation. While expressing the activities to be taken in this report titled "Our Common Future" the word sustainability was pronounced and used in the literature for the first time. Sustainability can be defined simply as developing without harming the resources of future generations while consuming today's resources. Following this definition, a demand was imposed to all countries around the world for a joint solution for this issue, which represents a common problem of humanity.*

**Keywords:** *Sustainability Project; Kyoto Protocol; Natural resources; Reducing wastes harmful for the environment.*

### 1. INTRODUCTION

Cities that host the majority of the world's population have a key role in satisfying our basic needs and increasing the quality of life. Cities, the areas where we live, have become basic elements that determine our consumption and lifestyles. Hence, what we want to achieve while being residents in the city has become directly related to what kind of life we want to live, and it is related to:

1. Protection of agricultural land
2. Protection of natural and cultural identities
3. Protection of green areas
4. Waste management and environmental protection
5. Adapting to climate change
6. Development of sustainable transport
7. Development of urban infrastructure
8. Healthy development of cities
9. Ensuring active participation of stakeholders in decision-making processes
10. Supporting rural development
11. Creating ecologically literate municipalities

## **2. PROTECTION OF AGRICULTURAL LANDS**

The rapidly increasing population causes construction pressure on the agricultural lands in the periphery of the cities. Due to construction, we are losing our fertile lands, formed in thousands of years, very fast. In addition to this, the Law on the establishment of municipalities in metropolitan cities of the REPUBLIC OF TURKEY Law No. 6360, related to the establishment of new municipalities, many villages and town municipalities will be converted into neighborhoods that will pave the way for urbanization.

However, for newly developed areas, of all kinds of use, the necessary infrastructure is provided. Areas with fertile lands have been offered for construction. But, we know that there is no alternative.

Turkey is not as rich as it seems in terms of agricultural land potential. It has limitations in terms of characteristics and possibilities of the lands:

- The slope of two-thirds of the land across the country is more than 15%.
- Deep lands make up only 14.3% of the total, medium-deep 11.9%, and shallow lands participate with 67.7%.
- Two-thirds (67%) of our soil lacks organic matter.

Severe land erosion of 7.72%, moderate of 20%, severe of 36.4%, and very severe erosion of 22.3%, was observed. Therefore, the provision of fertile agricultural lands that do not have restrictions for crop production is extremely important.

## **3. PRESERVATION OF NATURAL IDENTITIES**

In addition to the physical, socio-economic, cultural, and historical characteristics of the settlements, green areas, natural assets, and ecosystem components are also significant elements that make the urban identity. The natural identity of cities includes natural assets such as green areas, wetlands, forests, water basins, agricultural fields, and ecosystems. Urban identity varies when it is destroyed from the situations when it changed due to construction and pollution reasons. As the memory of the society is of huge importance, during the development and transformation processes of cities, the municipalities are obliged to preserve their natural and cultural identities.

## **4. PROTECTION OF GREEN AREAS**

Green areas that allow integration with nature in a congested urban texture, in constructed settlements, are the places for people to rest, walk around and get closer to nature. In this context, green areas balance the deteriorating relationship between man and nature and improve urban living conditions and quality of life. For example, green designs can be created and not seen with a reserve where they can be open, but they should be continuously maintained and set as reference values.

Following the legislation in Turkey, the required active green area per person in the residential settlements should be 10 m<sup>2</sup>. For example, in Istanbul, according to the data of Istanbul Metropolitan Municipality from 2010, calculated green areas per person is 6 m<sup>2</sup>. However, green areas included in these calculations, can't be reached. Active green space definition is related to those that are in direct contact with people, such as parks, gardens, children's playgrounds. These are open areas for direct use, like roadsides, shelters, and forests. It does not cover all areas they should, but the features of the users need to be considered as well.

The amount of green space per person in developed countries is as follows: in Stockholm 87.5 m<sup>2</sup>, 45.3 m<sup>2</sup> in Rome, 26.9 m<sup>2</sup> in London, and 45.5 m<sup>2</sup> green area in Amsterdam.

## **5. WASTE MANAGEMENT AND PROTECTION OF THE ENVIRONMENT**

For the urban areas, it is essential to establish landfill facilities, systems for waste disposal and waste recycling, wastewater network and systems for wastewater treatment, and in addition to that, the adequacy and correct

operation of the systems. A common situation in the cities located near forests areas is to store solid waste in the vicinity of those areas. This can increase both, the risk of fire and disturbance of the ecosystem in the forest, which is of great importance for public health in the cities. Similarly, if a solid waste storage area or wastewater treatment plant is constructed on agricultural lands, there is a loss of fertile soils.

According to data of the Turkish Statistical Institute (TÜİK) 2010, only 54.4% of the collected municipal waste is in landfills, out of which 43.5% is called wild storage area and threatens the environment and human health. Again, if we look at the 2010 data of TÜİK, 24% of the wastewater isn't subjected to any purification treatment instead, it is directly discharged into the environment, in the recipients such as the sea, lakes, rivers, etc. 48.6% of the total wastewater is discharged to the rivers, and 32.2% of these is not treated. This situation, together with drought becomes an increasingly serious problem, threatening our resources.

Considering the solid waste disposal methods in the European Union member countries, according to 2009 data, e.g. Switzerland, close to 50% of the solid waste is converted to electrical energy, 30% is recycled and 20% is composted. In Austria, 30% of energy is produced, 30% is recycled, and 40% originates from compost.

## **6. ADAPTING TO CLIMATE CHANGE**

Already we started to see the effects of climate change, which is our biggest common problem in Turkey and all over the world. Due to the human-induced climate change in Turkey, there are significant material losses and financial losses caused by flood damages and earthquakes, respectively. The need to combat and adapt to climate change shows how important local governments are in saving our civilization.

75% of the greenhouse gas emissions in the world originate from the cities due to the electricity generation, heating, the use of fossil fuels in areas such as urban transport, etc. The disappearance of carbon sink areas such as lands is the reason cities to be considered as the most important factor in climate change.

However, more than half of the world's population and approximately 90% of Turkey's population live in urban areas. An increase in droughts and floods due to climate change negatively affects the infrastructure. Damage to infrastructure and extreme climatic conditions (extreme temperatures, extreme cold, floods, hurricanes, etc.) endangers public health. At the same time, if appropriate measures are not going to be implemented, many cities are at significant risk as a result of the rise in the sea level.

As a society, in order to combat and adapt to climate change, the adaptation of transport policies has been made, promoting energy conservation and usage of renewable energy. We demand the development of systems and the use of local authorities in landscaping.

## **7. IMPROVING SUSTAINABLE TRANSPORT**

Policies of transportation, air pollution in cities, traffic problems, climate change, the last in terms of quality of life, is an extremely important issue in terms of sustainability. Building only new roads to satisfy the transportation policies is not enough, but also an establishment of supply-demand balance in transportation, preferences of transportation type, land use are also very significant issues. Fossil fuel is considered to be the primary cause of climate change. Thus, the establishment of appropriate sustainable transport policies is an important part of the fight against climate change.

Considering the preferred modes of transportation in urban areas in European Union member countries (European Metropolitan Transport Authorities, 2011), 68% of transportation methods consist of bicycles and pedestrians, 11% belong to public transport, and 21% involve other motor vehicles. In Barcelona, 55.3% of all types of transportation belong to bicycles and pedestrians, 30.8% to public transport, and 13.9% to other motor vehicles. As can be seen, in the urban areas of the developed countries, people mostly use bicycles, or they prefer walking to their destination.

As a society, we want to develop public transport systems in an integrated way of different modes of transport. We demand planning and encouraging the use of bicycles.

## **8. DEVELOPMENT OF INFRASTRUCTURE**

Solid water networks protect water assets and prevent leakages encouraging innovative solutions such as a separation of sewage water from other streams. Improvement of electricity networks for energy efficiency and savings is also a demand in providing reliable infrastructure.

Firm infrastructure is vital for the healthy development of cities and increasing the quality of life. Cities that have not met their needs such as roads, sewerage, rainwater, and drinking water at a sufficient level, will not provide economic and social development, and they also become a great threat to nature. One of the most important problems in terms of infrastructure is the lack of detailed information about the infrastructure. In many cities, underground maps and routes don't provide evidence about water, wastewater, electricity, and telecommunication networks. For this reason, while construction is carried out, electricity lines, telephone cables, or water networks can be often damaged.

Water losses and water leakages in cities are at high levels. Water network structure losses are estimated to be between 40 and 45%. According to the data of the General Directorate, in 2011 total water network structure loss is 14.6%. According to 2008 data, water network structure losses in European Union member countries is about 6%.

## **9. HEALTHY DEVELOPMENT OF CITIES**

In terms of the health of cities, necessary planning integrating ecological and socio-cultural aspects of living is taking place, and after, these plans need to be realized. Rapid development in almost all cities in Turkey is taking place. As a result, by ignoring ecological and socio-cultural dimensions, we are facing projects that do not comply with initially transformation plans or upper scale plans. With these rapidly developing plans and projects, discussions on urban transformation are also increasing in our country, underlining the need of developing inclusive and solid projects.

## **10. ENSURING ACTIVE PARTICIPATION OF STAKEHOLDERS IN DECISION PROCESSES**

The main stakeholders in decision-making processes are the local governments and NGOs. The decision affects the whole society and individuals. Institutions such as universities need to ensure their active participation in the process of decision-making. With the United Nations Aarhus Convention (2011), "present and future generations", by the access to the information related to the environment where they live, by the provision of the healthy and safe environment, by the participation of citizens in decision-making, and by the possibility to appeal to the judiciary, the rights of the humans are guaranteed. Although Turkey is not yet a party to the Aarhus Convention, local governments apply the environmental democracy understanding of the Convention and ensure that the public and stakeholders can effectively implement the mechanisms of decision making.

## **11. SUPPORTING RURAL DEVELOPMENT**

Increasing poverty and hunger will lead to differences between rural and urban areas, between developed and underdeveloped regions and countries. Economic imbalances and injustices, pollution, and depleting natural resources, make the concept of rural development at the forefront of the agenda in most of the countries in the world. Expanding possibilities for production and marketing opportunities in the regions where urban services will be delivered, the foundation of local seed exchange networks and promoting local producers, by establishing local market systems with possibility for branding, provision of easy and short transportation, will lead to the support and increase in social opportunities in the country. According to data from the Turkish Statistical Institute (TUIK) from 2013, 91.3% of the population in Turkey lives in provincial and district centers. It is an indicator of a need the rural development in Turkey to be supported. Common goals are the approaches implemented in the development of rural areas, following the constant changes in the needs of customers, localization, and empowerment of local communities. In the countries such as Turkey, where a large part of the population lives in cities, one of the goals of the local authorities in the cities in the food supply to the urban areas complying with the sustainability demands.

The idea is, if the food is supplied from the rural regions that are closer to the cities, it will lead to the reduction of the carbon footprint caused by longer transportation.

## 12. Establishment of Ecologically Literate Municipalities

Ecology literacy is defined as “understanding the natural processes that make life possible on earth or knowledge about nature and understanding nature”. Ecology literacy provides the development of consciousness, learning the principles of nature, and communication with nature. Local governments are the most significant decision-making bodies that can create cities in harmony with nature. The task of the administrators in municipalities is to establish sustainable cities in harmony with nature, ensuring that employees understand nature and realize that they are a part of nature. As a society, we strive toward ecologically literate municipalities.

## 13. RESULTS

Participants in the United Nations Conference held in Rio, Brazil in 1992, rolled up their sleeves to take clear and more tangible steps on sustainability, Figure 1. The presidents /representatives of 178 countries signed the decisions entitled Agenda 21. With this signature, they committed to sustainable development. These 178 countries were primarily involved in the development of all the principles that are put in force later.



**Figure 1.** Participants in the United Nations Conference held in Rio, Brazil in 1992.

Some participating countries are as follows:Albania, Antigua & Barbuda, Argentina, Australia, Bolivia, Brazil, Bulgaria, Chile, China, Costa Rica, Denmark, Ecuador, France, Grenada, Haiti, India, Indonesia, Iran, Lithuania, Nepal, Nigeria, Norway, Portugal, Russia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Turkmenistan, Uruguay, Zimbabwe. [2]

Today, the number of countries that have signed the Kyoto Protocol worldwide is 189, Figure 2.



**Figure 2.** Countries that signed Kyoto Protocol [3]

After the commitments made, all countries have chosen to regulate their laws and procedures. In the light of the regulations made, 3 main strategies (principles) determined are: efficient use of natural resources, reducing wastes harmful to the environment, and making resources reusable.

Recently, the companies preparing sustainability projects have incorporated this innovative principle. This work deals with the historical background of the sustainable development concept. When the fact that countries cannot fulfill the principles they promise independently from companies came to light, especially multinational companies took steps in sustainability as a pioneer. In January 2002, under the leadership of the United Nations, 16 of the world's largest companies promised to create a business plan that will adhere to the principles of sustainability. This promise can be interpreted as a commitment that companies will be subject to the Global Compact. In this context, the content of this article can be summed as follows (as in the hierarchical order of the titles): "The Emergence and the Development of Sustainability Thought", "From Sustainability Thought to Sustainable Development": "The United Nations Environment Programme-The World Conservation Strategy (1980)", "The WCED Report of Our Common Future (1987)", "The 1012 Recep BOZLAĞAN \* Yrd. Doç. Dr., Marmara Üniversitesi, Sosyal Bilimler Meslek Yüksek Okulu. United Nations Conference on Environment and Development (Rio de Janeiro, 1992)", "The Fifth Action Programme of European Union (1992)", "The United Nations Conference on Population and Development (Cairo, 1995)", "The United Nations Conference on Human Settlements-Habitat II (İstanbul, 1996)", "Rio+5 Forum (Rio de Janeiro, 1997)" and the World Summit on Sustainable Development (Johannesburg, 2002).

Companies that want to prepare a sustainability project analyze the performances of the actors in the global market well and develop their own strategies in this direction.

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