

SUSTAINABLE TRANSPORTATION AND TURKEY

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Summary: *Human is a social creature. The community of human is possible by means of the interaction and communication of individuals with each other. All kinds of social, cultural and productional processes that require people come together, inevitably require transportation. Human has to reach for his individual needs and at the same time has to be accessible.*

“Transportation” is a public service area, and its investments depend on demographic structure, geopolitical location, international transportation needs, geographical structure, environmental impact and similar variables.

The most important vehicle that provides the connection of a country both within its borders and with the world is transportation systems. While the existence of qualified transportation system is important for the socio-economic development of countries, it is also a requirement of economic development and prosperity. With each passing day, the increase of traffic congestion, accidents, traffic noise, air pollution causing by vehicles and other environmental problems occurring in many metropolises around the world has brought the sustainable transportation concept to the agenda.

1. INTRODUCTION

It is necessary to prevent the automobile from being the primary means of transportation in urban transportation. As a matter of fact, automobile air pollution, noise pollution, road safety, deterioration of the urban landscape and restrictions on the rights of those who do not use cars cause damage to the cities and the environment. As an alternative to the car, pedestrian rides and bicycle use need to be expanded (Council of Europe, 2008).

2. WHAT IS SUSTAINABLE TRANSPORTATION?

Sustainable transportation can be defined as meeting the transportation needs without harming the health of individuals and society, at the same time without creating a negative impact on the ecosystem, diversifying non-renewable resources with renewable resources and using renewable resources more intensely than renewal rates. (Yalınız ve Bilgiç, 2007).

According to Minken, the benefits of sustainable transportation are as follows; It provides efficient access to goods and services to all inhabitants of the urban area, protects the environment, cultural heritage and ecosystems, and it does not jeopardize future generations' possibilities of present-day prosperity including the natural environment and cultural heritage (Minken 2003:42).

The policies implemented for sustainable transportation in Europe are as follows; They pay taxes according to the negative effects of road vehicles on the environment. Extending and modernizing railways, widespread use of sea and waterways, increasing service levels, ensuring integration between systems, use of metro, light rail, tramway, bus routes, bringing solutions that prioritize light rail, tram and bus systems in traffic, pedestrianization, pedestrian roads, Designing pedestrian-priority urban areas, bicycle paths, bicycle parks, bicycle-priority traffic solutions. Reducing driveway capacity by widening sidewalks. limiting car park capacity in central areas. Charges for entering certain parts of the city by car. Making use of communication technologies (Sutcliffe 2013).

2.1 SUSTAINABLE TRANSPORTATION AND PLANNING

Although there are more efficient transportation methods such as metro, tram, ferry, bus in the context of public transportation, various geographical and physical difficulties and low population density prevent the possibility of adding public transportation lines to some points. As a result of such reasons, taxi can be seen as a type of transportation that supports public transportation in terms of not being connected to any route and ease of access (Sevginer et al., 2011).

It is possible to define sustainable transportation as the energy spent per unit person. While more people can be transported with less economical cost and less energy use by public transport, the use of cars allows less people to be transported with more energy and cost. When we look at the use of pedestrians and bicycles, the cost is almost negligible compared to other transportation types (Sevginer et al., 2011).

Internalization of external costs in the form of insufficient infrastructure, accidents, air and noise pollution in railways is of great importance. Likewise, external cost concepts such as congestion and traffic accidents in the highway sector and their calculation methods differ with the infrastructure inadequacy and railway accidents in the railways. However, the information and methods for internalizing externalities related to air pollution and noise pollution are valid for both sectors (Taban, 2009: 28).

2.2. SMART TRANSPORTATION SYSTEMS

In the White Book Document prepared by Japan in 2009, the subject of smart transportation systems was first mentioned under the title of "International Standardization of Intelligent Transportation Systems".

In Japan, traffic information, route information with public transportation options and fees are provided through map-based search engines. In the study carried out by Spain, goals such as reducing the death rate by 37%, reaching zero death rate in vehicles in urban areas,

reducing the death and accident rates of motorcycle users by 20%, reducing the number of light vehicles exceeding the speed limit by 50% were included.

In Turkey, targets and actions regarding Intelligent Transportation Systems have been included directly and indirectly in many policy documents, especially in the Ninth Development Plan. For example, Istanbul Metropolitan Municipality Mobile Traffic provides instant density information to its users with its density map and live camera images in Istanbul.

Turkey's Strengths can be given as follows;

- A population structure that can easily adopt new technologies
- Willingness of the relevant institutions
- Turkey is an important base in the automotive industry
- Widespread and modern communication infrastructure
- Speed of Turkey on the way to becoming an information society
- Investments made in the IT sector

Turkey's opportunities are as follows;

- Rapid highways, tunnels and bridges create need
- Continuous increase in urbanization and demand for transportation
- Increasing mobility in business life
- Energy efficiency, environmental awareness
- Geographical proximity to markets

Developing administrative and technical legislation for planning and integration across Intelligent Transportation Systems in accordance with national and international needs is the creation of a globally competitive industry. In addition, increasing the traffic safety by spreading across the country, the access of those with limited mobility to transportation vehicles and services by road, and the reduction of road-borne fuel consumption and emissions.

2.3. GREENHOUSE GAS EMISSIONS IN TURKEY

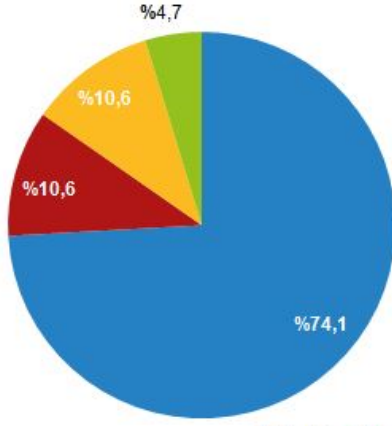
Turkey Statistical Institute has offered a summary of environmental statistics since 2014. According to the greenhouse gas emission inventory results, the total greenhouse gas emission in 2008 was calculated as 387.6 million tons (Mt) CO₂ equivalent (eq.). In 2018, it was calculated as 520.9 million tons (Mt) of CO₂ equivalent. In 2018, energy-related emissions had the largest share in CO₂ equivalent with 71.6%, followed by agricultural activities with 12.5%, industrial processes and product use with 12.5% and waste with 3.4%.

Graphic. 1 Greenhouse Gas Emissions in Turkey

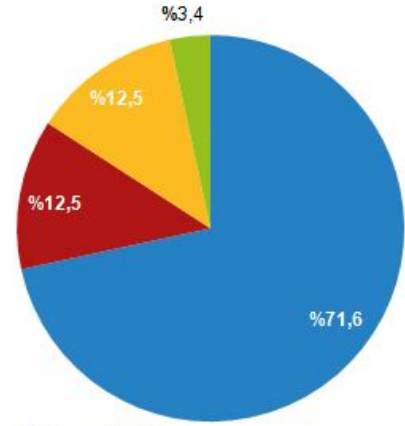
Gas emissions by sectors, 2008

Greenhouse gas emissions by

Sektörlere göre sera gazı emisyonu, 2008



Sektörlere göre sera gazı emisyonu, 2018



Energy
Waste

Industrial processes and product use

Agriculture

Source Address: Turkish Statistical Institute

2018 CO₂ equivalent emissions per person in Turkey to 6.4 tonnes / person, and also the greenhouse gas emission intensity was determined as 0.14 kg CO₂ eq. / GDP (TL).

CONCLUSION

Developments in the fields of health, education, communication and transportation have made a significant contribution to the progress of societies. The increase in the use of information technologies has increased the power of countries in the global competitive environment, the welfare and development level of that country.

In terms of microeconomics, the level of utilization of information technologies affects the ability of producers to mobilize most of the mechanisms of strategic business management and the producer's competitive power.

It also prevents the inefficient use of time and energy, which are among the purposes of Intelligent Transportation Systems. While it encourages public transportation, it helps its development. At the same time, the presence of smart stops is increasing.

In the Climate Change National Action Plan Document, it is stated that one of the two sub-sectors that cause the highest greenhouse gas emissions in the transportation sector is the highway sector and it has an important share in emissions in urban transportation.

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