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Encouraging the eco-mobility in context of sustainable urban mobility planning - Evaluating the EcoMobility capacities of Bozcaada island in context of sustainable transportation

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Abstract. Experiences show that urban mobility based on fossil fuels is not the way forward and cities that have prioritised private automobile mobility in their planning have turned out to be disadvantageous for people from a health, safety, and economic perspectives. It has been proven that building automobile friendly infrastructure will not solve the traffic challenges in cities. The development of sustainable urban transport systems requires a conceptual leap and paradigm shift. In this context, Eco-Mobility is a new application practice that covers all the policies and principles of sustainable transportation and as such, it is developed for the application of this transportation concept. The EcoMobility SHIFT’s 20 indicators will be used for measuring the sustainability and ecomobility level of our study case, Bozcaada Island, Turkey, thus by raising awareness of the existence of an instrument for assessing the level of EcoMobility of cities, it finally aims to prepare them for a transition towards sustainable and eco-friendly ones.

Keywords: Sustainability, Sustainable Transport, Eco-friendly City, EcoMobility, Urban Mobility

Introduction

As of the period of industrial revolution, people forced to live in urban areas separated in residence, commerce and industrial areas (Tuna: 2013) and to live away from their work places, as result they turned to use transportation facilities such as train and tram (Ragon: 2010). These mechanized cities, which were called as dormitory cities by Paquot (2011), have seen themselves in a situation that they can neither work nor live without the means of transport (Tuna: 2013). On the other hand; cities will contribute almost entirely to the increase in the world population, which is expected to rise to about 10 billion by 2050 (cited by Davis). Being considered as "the most important and biggest physical product that man has created to regulate his life and the surrounding structure that directs human life" (Cansever: 1996), most of the cities were built as if everyone was moving in the same direction at the same time. As a result of this approach and because of inefficient use of the infrastructure of the cities, the last ones have become characterized by congestion on the roads in the morning and jam in the public transport services from the residential areas to the work places (at the same time, opposite roads, buses and trains are empty). Except this; the transportation system is facing many difficulties worldwide and it is among the main problem areas of today's societies (Keleş, Hamame & Çoban: 2009). Blumenfeld (1996) relates the interest in the urban transport problem to the fact that people spend a significant portion of their income on transport, and buy mobility, a product of the transport industry, in return.
As the economic dimension of the challenges attracted the majority of attention, most of the strategies and policies tried to address the traffic congestion, as a result, proposed solutions did not go beyond building more infrastructure for automobiles. On the other hand, one should know that transportation sector is also responsible for a number of challenges (greenhouse gas emissions that result in climate change, early deaths due to traffic accidents, noise and air pollution, etc.) that cannot be solved solely by the construction of new infrastructure (UN-HABITAT: 2013). Further; while those who have the possibility of owning a private car and/or are able to use public transportation regularly see congestion and jam as a major concern, there are many people living in urban transportation poverty with walking as their only option for transportation (UN-HABITAT: 2013). Low-income groups, as well as women, young people, elderly, disabled, ethnic minorities and other vulnerable groups are among those living in transport poverty.

The development of sustainable urban transport systems requires a conceptual leap and a paradigm shift. The purpose of transportation and mobility is to provide access to the places (points), activities, services and goods willing to be reached. Access is thus the ultimate goal of all transport. Therefore, what needs to be done in this regard is that urban planning and design should focus on solutions that reduce the need for movement by bringing people and places together and should create cities that focus on accessibility rather than increasing the quantity of urban transport infrastructure or increasing the movement of people and goods. In this context, the form and functionality of the city emerge as a very important issue.

The sustainable urban mobility system, defined in the Brundtland Report of 1987 (cited by UN-HABITAT: 2013), is based on the principle of meeting the current mobility needs of cities without compromising the ability of future generations to meet their own needs. The idea of sustainability in urban mobility includes social, economic and institutional dimensions as well as ecology and natural environment dimensions. In this regard, a new approach, namely Organic transport is also to be considered. It’s a transportation system that places human mobility at the center, gives priority to transportation types such as walking & cycling and considers public transportation and automobile use together and in harmony. Organic transport, which is a tool for creating sustainable society, aims at sustainability by providing not only physical but also social change in traffic (Üstündağ, 2012). Thus, the Ecomobility, which is considered as “an integrated, socially inclusive and equitable, low-cost, eco-friendly and efficient mode of transport that gives priority to walking, cycling, public transport and shared transport” in the Johannesburg Declaration of the Eco-Mobility in Cities (Johannesburg Declaration: 2015) is addressed in this context.

**Ecomobility**

Dealing with topics as such as Green Logistics, Urban Transport, Travel Behavior and Renewable Energy Systems, the EcoMobility brings an innovative approach in economic, social and environmental areas. In this context, this approach aims to achieve a more sustainable development which uses new approaches to existing transport policies and legislation structure, by discovering new strategies in decision-making process and demand management as well as enabling more efficient use of infrastructure and resources (Carlsson and others: 2012). This approach aims to reduce the environmental impact of transport while increasing economic growth and accessibility (Jensen et al. 2012). The EcoMobility SHIFT, a project of the EU, aims to evaluate, develop and support environmental sustainability of cities (Carlsson et al., 2012). In this context, this project, which
was developed in the EU but its application is spread worldwide, is the first system that measures
the quality of urban transport. This system allows cities to evaluate the policies and actions they
have developed in order to achieve sustainability in the areas of environment, accessibility,
security and equality, and in this context, it appears as an assessment tool. It uses two separate
processes during the assessment: the first process that measures the performance of the city and
the second process that controls this performance. Cities can develop short- and long-term policy
and intervention actions using the results of both processes (ICLEI: 2015).

EcoMobility SHIFT Indicators

The EcoMobility SHIFT Scheme is based on 20 Indicators that emerged as a result of assessments with experts in the field of Urban Transport (ICLEI: 2015). This scheme measures and evaluates urban transport through 20 indicators - in the context of sustainability and EcoMobility, while mentioned indicators are divided into three groups, namely ‘Enablers’, ‘Transport Systems and Services’ and ‘Results and Impacts’. The scoring made in the context of evaluation shows the weight of an indicator in the total scores of the Eco-Mobility performance of the city. In order for a city to be considered successful in terms of Eco-Mobility, the total Eco-Mobility level of that city should be 70% and above. Otherwise, intervention suggestions are made for indicators that have not achieved at least 70% level.

Indicator Description

E1: User Needs Analysis: City management should analyze the mobility needs of both residents and visitors. E1 indicator aims to determine the level of knowledge of the city administration about the needs of pedestrians, bicycle users, public transport users and private car users. In these terms, analyzes covering at least the next 5 years should be conducted.

E2: Participation: The E2 Indicator investigates how city administrations involve citizens in decision-making process, in particular whether people with disabilities, pedestrians, bicycles and public transport users are involved. This indicator, which sees the meetings and their frequency as a very important factor, also cares whether the suggestions and feedback of the citizens involved in the decision-making process are taken into consideration.

E4: Human Resources (Personnel) and Financial Resources: The E4 indicator examines whether local governments (municipalities) have the personnel capacity to implement sustainable transport policies and practices, as well as the level and form of cooperation between management units.
TSS1: Planning of Development Areas: The TSS1 indicator aims to confirm the planning of areas that will reduce the dependence on private vehicle transport. According to the TSS1 indicator, which takes care that the planning of new urban areas is in line with the public transportation planning, all new developments in the ideal cities (level 5) should support Eco-Mobility.

TSS6-TSS7: Walking and Cycling Conditions: The TSS6 and TSS7 indicators analyze walking and cycling conditions and in this context aim to confirm whether walking and cycling paths (routes) are secure, accessible to all, attractive to pedestrians and cyclists and adequate for both of them.

TSS9: Usability of Public Transport: The ICLEI Report (2013) shows that when experts consider/evaluate the level of usability of the public transport, the level of information on network design, intermodality, price and availability of tickets, the ratio of monthly tickets to total monthly income, public transport vehicles and accessibility level of stations (stations) and so on elements are taken under consideration.

RI1: Modal Split: In order to measure the impacts of organic transport policies and practices, it is necessary to analyze the type of transport used by the city dwellers. In this context, the rate of travel made by private car in the ideal cities (level 5) should not exceed 40 percent of the total travels.

As a result, the results of the assessment made to Bozcaada within the framework of Eco-Mobility Indicators can be summarized as follows:

EVALUATING BOZCAADA IN TERMS OF ECOMOBILITY INDICATORS

BOZCAADA ISLAND – PROFILE

Bozcaada (Tenedos) Island is a small Turkish island with an area of 40 km², positioning in the northeastern part of the Aegean Sea, inhabiting about 2,700 people. It’s an extraordinary case due to low population & density, tourism-oriented specialization and the presence of external & internal geographical barriers (climate and hydrology). The main industries are tourism, followed by a low wine production and fishing. The island has been famous for its grapes, wines and red poppies for centuries (Üstündağ et al. 2017).

Having a standard public participation mechanism, Bozcaada has a low settled population (2730 people in 2017, with a big fluctuation varying from more than 10,000 people during summer to less than 1000 during winter months), underdeveloped inland infrastructure and absence of subcenters. In the present, the population of island community cannot be increased, neither registered population can be encouraged to stay there during the whole year due to service sector only, namely tourism business and due to uncontrolled privatization coupled with protection areas designed by local government.

In order to analyse the current situations and activities/actions planned in transport field, we’ve examined following plans and strategies: Turkey’s Tourism Strategy (2023), Balıkesir and Çanakkale 1/100.000 scale Environmental Plan, Bozcaada Tourism Master, “Bozcaada & Gökçeada: an Evaluation Report” and Bozcaada Urban Design Guide Draft. The main focus was on transport decisions in general and the provisions, strategies, actions and decisions concerning the Eco-Mobility Indicators.

Evaluating Bozcaada Island in Terms of Ecomobility Indicators
The researches and analysis conducted within the framework of a total of 6 indicators belonging to the Enabling Indicators group showed that; The User Needs Analysis required by the E1 Indicator is not made yet.

E4: Human Resources (Personnel) and Financial Resources Indicator research results showed that the Municipality of Bozcaada does not have an available staff to prepare necessary strategies and policies related to sustainability.

Researches and analysis conducted within the framework of 10 indicators belonging to Transportation Systems and Services Indicators group showed that:
- In Bozcaada there is no any public transportation system, apart from the dolmuş (a paratransit kind of transport), and the lack of such a projection in the near future is reflected in the decisions regarding new development areas.
- Apart from the results of the surveys, it can be said from the observations made during the fieldwork and from the information obtained from the interviews with the residents or visitors that the biggest problem damaging the safety of the roads across the Island is caused by the excessive speed of the vehicles using the main road (Çınar Çarşı Street).

When it comes to the Results and Impact Indicators group;
No data has been obtained from the authorities and / or all plans, strategies and reports on Modal Split, but the results of the surveys conducted with the residents of Bozcaada show that 33.3% of the trips within the Island are carried out by private vehicles. While 50% of the journeys are on foot, the remaining 16.7% are made by bicycles.

In order for Bozcaada to increase its Ecomobility level, detailed suggestions for future steps for each indicator have been made. But due to limited space of this paper, it’s not possible to elaborate them.

CONCLUSIONS

This study examines the current situation in transport and establishing the relationships between mobility and urban form prior to emphasize the need to place accessibility on the core of urban mobility planning.

Urban planners and decision makers should take initiatives and lead to a conceptual leap and a paradigm shift towards an urban planning and design which focuses on solutions that reduce the need for movement by bringing people and places together and creating cities that focus on accessibility rather than increasing the quantity of urban transport infrastructure or increasing the movement of people and goods.

Subsequently, the Eco-Mobility concept was examined in the context of the sustainable alternatives in urban transport, while the indicators of the mentioned concept were applied on Bozcaada case.

Through these detailely examined indicators, the current sustainability situation in our cities can be evaluated; in this context, their institutional capacity can be measured, the availability of sustainable transport approaches and policies in existing plans can be assessed, the level of integration between different types of transport and whether the planned new areas correspond to the public transport plans can be determined. The amount of budget allocated to sustainable transport is another important issue that can be measured in these terms. In addition, recommendations can be developed in all areas where indicators measure and evaluate.
References