

THE POSSIBILITIES AND CHALLENGES FOR SUSTAINABLE TRANSPORT IN ALBANIA (CASE STUDY: SHKODRA CITY)

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ABSTRACT

The latest global developments have highlighted the importance of transport sector in the free trade economy and relation between states and people. After year 1990, Albania emerged from the long period of isolation with the collapse of communist regime which was replaced with democratic system and established the free trade economy. The importance of transport sector increased in the whole country and especially in Shkodra city. In this period most of the investments in the main cities of Albania and in Shkodra were to the construction sector, especially in the construction of road infrastructure.

This paper aims to analyze the growth and development of transport sector in the last 28 years focusing on its evolution and the socio-economical and environmental impact in the city of Shkodra. Assessing the importance and complexity of this topic, this paper first addresses the concepts of sustainable transport and then analyzes its indicators for Shkodra city as a case study, highlighting the dynamics of this sector in line with the main principles and objectives of sustainability. Through the analyze of the main indicators for sustainable transport in the case of Shkodra city we aim to determine whether its transport sector and service is moving toward sustainability or unsustainability. The planning and strategies for sustainable transport should aim to reduce the risks from air pollution, accidents, land use etc., and bring great benefits for every person.

In this paper have been used different scientific methods: collecting and analyzing data on infrastructure from different institutions for many years; field interviews and surveys; comparison of the data from Shkodra city with other cities in Albania etc.

The results from this study can serve as an input in the designation of local and national strategies for sustainable transport in the future.

Keywords: Sustainable transport, sustainable indicators, Shkodër

INTRODUCTION

In Albania the period of political changes after 1990s has been followed by huge changes in the life of Albanian society. These changes did not affect only the political system structures, but also the organization of economy and society in Albania, which opened the way for development in different directions and especially for the development of transport sector. Since 1990, Albania has been working to transform and develop the transport infrastructure making it a priority of its socio-economic development. The transport infrastructure inherited by the communist period was not good so the efforts of the public and foreign investments are concentrated to improve it and construction of new roads as a prerequisite for the economic development of the whole country [5].

The growing interest for the development of sustainable transport in Albania has influenced the drafting of new policies and strategic plans from local to national level and bringing new approach to the conception, management and use of urban area in relation to transport activity [3]. Especially in the local level is much emphasized the development of sustainable transport as they are in the focus of the policies and initiatives as well as main contributors to the process.

The city of Shkodra has a great natural and human potential. Its geographic position, socio-economic development and the local government play a very important role in determining the interaction of these resources in the development of transport in this city. The sustainable use of these resources ensures a secure path of development for Shkodra city not only in short periods but also in long periods and serve as a guarantee for future generations.

STUDY AREA

Shkodra city is situated in the north west of Albania. It is one of the 11 administrative units of Shkodra municipality which are: Shkodra, Ana e Malit, Bërdica, Dajçi, Guri i Zi, Postriba, Pulti, Rrethinat, Shala, Shoshi and Velipoja.

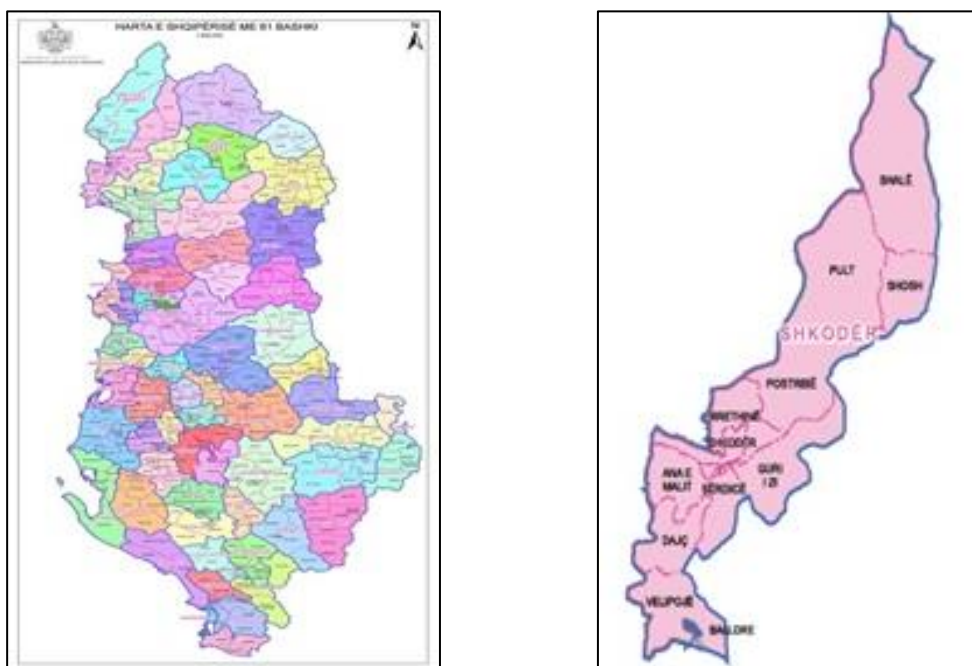


Figure 10. Map of Albania and Shkodra City

Shkodra is a well-structured city with a medium density of urban development with a well planned road infrastructure and pedestrians, with green spaces and buildings with traditional architecture. The road traffic is moderate except of some roads or pedestrians in the rush hours. The public transport service is very limited in the frequency and geographical spread. In Shkodra city the population moves mostly on foot, by bicycle, small cars and urban buses in the area where it is available [9]. In 2017 Shkodra city had 39 812 vehicles [6]. According to the Road Code of Albanian Republic the urban roads are classified in: Primary; Secondary and Third Urban Roads. The roads in third category are also named "Local Roads" and "Roads of the Municipality" in the Road Code [7]. Shkodra city has roads of the three categories as follows [8]:

- *Primary Urban Roads* - These roads are the main arteries of the city and are high-capacity streets and designed to cope with medium to high traffic load and to connect the city center with the main regional roads in the peripheries of Shkodra city.
- *Secondary Urban Roads* - These are high and medium capacity roads which help in the relieving of the traffic load from the primary roads and others with no high traffic load. They also connect most of the important areas around Shkodra city.
- *Local Roads* – These are low-capacity roads and connect city's neighbourhoods with each other and with the secondary and primary streets and with various institutional, commercial and cultural units.

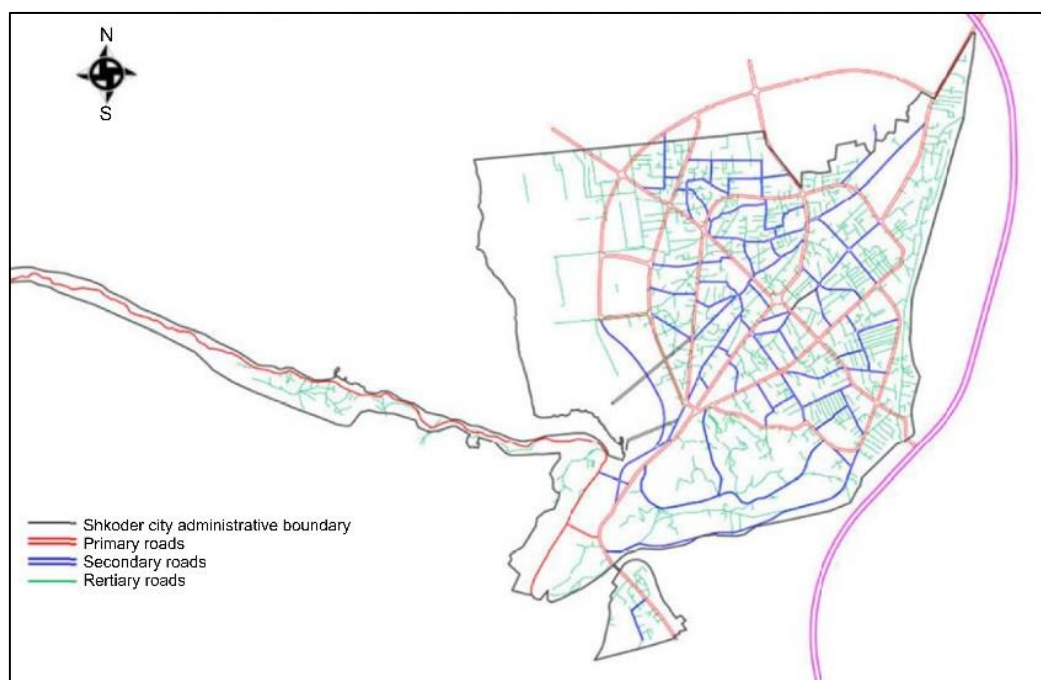


Figure 11. Map of road network in Shkodra city [8]

THE CONCEPT OF SUSTAINABLE TRANSPORT.

Indicators' analyze for Shkodra city

Sustainable transport as an integral part of general sustainable development has its own definition, principles and indicators which are very important and should lead the planning in every level from national to local. One of the most accepted definition of sustainable transport defines it as the sector that allows the basic access needs of individuals and societies to be met safely and in a manner consistent with human and ecosystem health, and with equity within and between generations. It must also be affordable, to operate efficiently, to offer choice of transport mode, and to support a vibrant economy. In this definition it is stressed out also the importance of limiting the emissions and waste from the transport within the planet's ability to absorb them and to minimize consumption of non-renewable resources. In order to achieve sustainable transport certain norms or sustainable criteria should be fully met and are measured by the indicators of sustainable transport efficiency such as: 1. Energy used in transport; 2. Greenhouse gas and other transport emission; 3. Injuries and fatalities; 4. Movement of

people and fright; 5 Travelling by car of plane; 6. Household spending on transport; 7. Energy and emissions intensity etc [1].

The focus of this paper is analyzing most of these indicators for Shkodra city with the aim of identifying and determining if the transport sector in this city is going to be more or less sustainable and which indicators are performing better and which need improvement and investments to be sustainable. The data collected in different institutions dealing with transport, from surveys with citizens and interviews with road policemen etc. have been analyzed for each indicator to help the local government and community to understand the state of transport in Shkodra city and to give solutions for the drafting of new policies toward sustainable transport.

ANALYZE

1-Energy used in transport- This indicator analyzes the type of energy used in transport, if it is renewable or non-renewable and if both are used, which is more used and what is the future tendency. This indicator is important because the sustainability promotes the use of renewable energy in transport to minimize the use of non-renewable energy sources as well as the air pollution that they cause. The surveys with Shkodra citizens showed that from 59 individuals' with personal vehicles in use, 54% of them had used petrol, 32% gasoline and 14% gas (Fig. 4), which are non-renewable energy sources and pollute the air. For the first indicator, according not only in the results of the surveys but also other statistics and interviews the first indicator for Shkodra city is unsustainable and it is not seen any attempt to improve it.

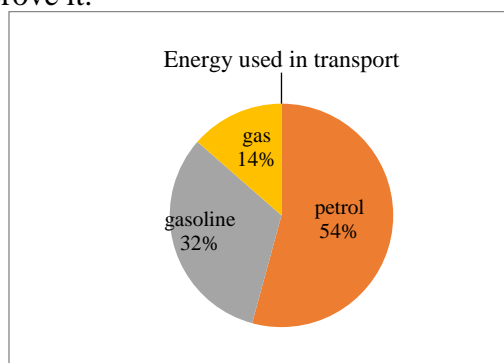


Figure 3. Energy used in transport

2- Greenhouse gas emission – This indicator measures the emission of greenhouse gases in the atmosphere and its impact in the air quality. According to the Final Report of Shkodra municipality on the Strategic Environmental Assessment the main air pollutant in Shkodra city are [4]:

- transport;
- industrial, energetic, agricultural and tourism activities;
- mismanagement of urban waste;
- construction activity without protective measures for dust discharge;

Transport is the main factor of urban air pollution in Shkodra city. After 1990, when people could afford to by personal cars (during the communism every vehicle was state property) the number of them in Shkodra city was over 30 times higher than in 1990. Most of them were/are old cars which do not meet the combustion parameters, the fuel quality has always been a problem and the discharge of significant amounts of CO and NOx is particularly high [4]. According to the Final Report, transport is ranked the main

factor to cause air pollution due to the high quantity of the greenhouse gases it discharges in the atmosphere.

3-Injuries and fatalities - This indicator measures the number of injuries and deaths occurring in the transport activity and analyzes the roads safety to identify the factors that cause accidents and the measurement to be taken to reduce them in the future. The data collected show the trend of injuries and fatalities in the road accidents in the period 2015-2017 in Shkodra city (Table 1).

Table 5. Road accidents in 2015-2017 in Shkodra city [2]

Total number of accidents	Years	No. of accidents	No. of vehicles involved		No. of fatal deaths		No. of heavy injured		No. of light injured	
			Insured	No insured	Males	Females	Males	Females	Males	Females
	2015	133	106	73	17	4	34	7	79	28
	2016	110	85	56	19	1	28	9	64	16
	2017	41	45	14	18	1	10	1	14	6

The data show that the number of accidents has decreased significantly from 133 in 2015 to 41 in 2017, but there is a light increase in the number of fatal deaths in males. The number of males involved in the road accidents is higher than the females because in Albania the male drivers are also higher in number than females. Another factor is the style of life of males which in difference from females consume more alcoholic beverages as well as light and heavy drugs. It is important to stress out also the fact that males tend to be more hot blooded and get involved in hassles faster than females.

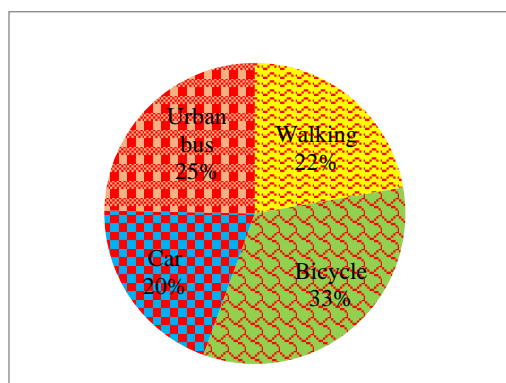


Figure 4. Movement of people in Shkodra city

The positive trend in the reduction of road injuries and fatalities for the period 2015 to 2017 according to the policeman H. Muça, which works in Shkodra city is the result of the measurements taken by the State police to ensure road safety and prevention of accidents. Some of the measures taken by the state police that have had a positive impact on the number of road injuries and fatalities are: awareness campaigns for all citizens to strictly follow the road traffic rules; improvement of road signage by adding vertical and horizontal signals, especially in the hot spots of road accidents; awareness campaigns, enforcement of law and application of heavy fines for the drivers who don't use seat belts.

4-Movement of people – The people in Shkodra city use different modes of transport and are known as the city with the highest number of bicycle users in Albania, especially during the communist period when their number was very limited. From the survey it

resulted that the people use a lot the urban buses and a high percentage of them walk to their destinations in the city. The cars are used from 20% of the peoples interviewed, which is not a high percentage compared with other modes of transport and movement [12].

Table 6. Inventory of the road network in Shkodra city 2006 [11]

Road type	Length in km	Surface in m ²	No. of roads
Paved (asphalt)	37.9	271,470	57
Not paved	35.7	191,175	73
Squares		97,000	
Total	73.6	559,645	130

The citizens admit that they would use more the urban buses if they covered a larger areas with the service and if they were more frequent. The lack of bicycle lanes and in most cases of the sidewalks too are other reasons why people tend to choose cars for transport. If there are sufficient investments in the urban buses lines and area coverage, in the right infrastructure for the bicycle and sidewalks the citizens in Shkodra city would use these transport modes which are healthier and move toward sustainable development.

5- Urban Use of Land and Length of Roads – Both these indicators measure the surface of the urban territory used for transport activities and facilities, calculating not only the territory occupied by the existing roads or streets but also by the ones that are planned to be built. The sustainable transport system tends to minimize the land use, but as transport infrastructure has direct use of land the construction of roads, sidewalks, squares etc., it is important to calculate the volume of construction intensity and to maintain it as sustainable as possible. This calculation is also important in the case study of Shkodra city (Table 2 & Table 3).

Table 7. Inventory of roads network in Shkodra city 2017 [10]

Administrative Unit	Length of urban roads in km	Surface of urban roads/streets in m ²	Surface of urban squares in m ²	Surface of sidewalks in m ²	No. of roads
Shkodra city	200.5 km	799,561	37,420	27,000	438

The road inventory data for Shkodra city in 2006 and in 2017 show the big differences in the length of paved roads and urban territory used for the transport infrastructure. The main changes are in the length of paved roads which have increased six times and also in the surface of urban squares which on the other hand has decreased by 60,000 m² which is not a positive trend. The total number of roads and the surface they occupy has also increased significantly. The surface has changed from 559,645 m² in 2006 to 799.561 m² and the number of roads has tripled for the same period.

RESULTS AND RECOMMENDATIONS

The main indicators analyze for sustainable transport in Shkodra city helps the local government and city planners to identify which indicators are moving toward sustainability and which not.

- The data for the first indicator of sustainable transport in Shkodra city show that most of the energy used for transport is from non-renewable sources and there are no use of renewable resources or any attempt to use them in the future. This indicator is not sustainable.

- The second indicator shows that transport is the main contributor in the air pollution in Shkodra city due to the high emissions of greenhouse gases. The quality of air has aggravated by the increase in the number of cars, the bad quality of the fuels etc. The second indicator is also non sustainable in Shkodra city.
- The third indicator in contrary to the first ones has marked positive trend in the decrease of the number of injuries and fatalities on the roads. This indicator is moving toward sustainability, but still is much work to be done for the road safety in Albania and Shkodra city.
- The fourth indicator has also marked positive trend toward sustainability as citizens in Shkodra city move more on foot or with bicycle and urban buses. This indicator can be improved by investments in urban buses service, in infrastructure for bicycles and sidewalks.
- The fifth indicator shows an increase of the urban land surface used for transport activity representing a movement away from sustainability.

Most of the indicators analyzed for the transport in Shkodra city are not moving toward sustainability and this is a situation to change. The local and central government should invest more in sustainable projects and in the raise of awareness of people toward sustainability. Although two or three indicators had positive results it is still too much work ahead to achieve a sustainable transport in Shkodra city and in whole Albania.

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