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INVESTIGATION OF THE LEVEL OF ROAD AND ROAD NETWORK AND ATMOSPHERIC POLLUTION OF KHANKA DISTRICT.

Qalandarova Maftuna Murodbek qizi

Urganch State University Technical Faculty, Department of Construction 222-2nd-level master's degree in the field of urban transport and communications

Abstract: The road transport system has been developed at the urban and interurban level creating appropriate networks in order to service traffic safely and efficiently. The increase of urban traffic flows leads directly to a rise of the externalities associated with motorized traffic. One of the major impacts is the atmospheric damage caused by pollutant and greenhouse gas emissions from vehicles contributing to negative atmospheric phenomena, global warming and climate change. Traffic emissions pose a serious threat because although they do not cause large numbers of direct victims, serious consequences may arise in the long term which are both local and universal in character. This article provides information about the research of the road network of Khanka district and the level of atmospheric pollution.

Keywords: emissions, transport externalities, traffic characteristics, greenhouse gases, sustainability, urban mobility.

Khanka district is a district in the Khorezm region of the Republic of Uzbekistan. The territory of the district is located in the lowland on the left bank of the Amudarya, average score. 100 m. These places are in the middle of the Amudarya. is a delta, and there are many river branches that change their course even now. The climate is sharply continental, with cold winters. When arctic air enters, the temperature drops sharply. Faced with complex air pollution and traffic congestion, the road area ratio has gradually gained great importance in society and government. It is the ratio introduced from the field of road design and road engineering, but to study the efficiency of city planning and transportation recently. However, few studies have been conducted to study the relationship between urban congestion and pollution in the view of improving road area ratio. In addition, the road area ratio can be further decomposed to explore the inner logic of pollution from congestion. Thus, we also explored whether the insufficient network density or width caused the pollution from congestion. We found that an increasing urban road area ratio significantly reduced air pollution, regardless of whether or not the impact of surrounding cities is included. Moreover, only an increased road density can increase traffic efficiency and reduce congestion emissions, which should be the priority of future traffic construction. The effect of increasing road width is not significant. Outdoor air pollution is a major environmental health problem affecting everyone in low-, middle-, and high-income countries. Ambient (outdoor) air pollution in both cities and rural areas was estimated to cause 4.2 million premature deaths worldwide per year in 2019; this mortality is due to exposure to fine particulate matter, which causes cardiovascular and respiratory disease, and cancers. WHO estimates that in 2019, some 37% of outdoor air pollution-related premature deaths were due to ischaemic heart disease and stroke, 18% and 23% of deaths were due to chronic obstructive pulmonary disease and acute lower respiratory infections respectively, and 11% of deaths were due to cancer within the respiratory tract.

Serious efforts are nowadays directed towards the identification and minimization of the environmental problems emerging from motorized urban mobility and emission estimation

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models constitute a useful tool for a sustainable transportation planning, evaluation and policy making. Towards this aim, an assessment of the impact of urban mobility on the environment is attempted for the city of Thessaloniki, where rising car ownership combined with non-integrated transport planning and lack of adequate law enforcement apply constant pressure on the urban road network. In this context, traffic data were collected from representative road segments of the categorized urban road network in order to generate reliable and systematically acceptable data for CO2, CH4, N2O, NOx and PM10 emissions after the appropriate processing with the COPERT4 emission estimation model. Then, for each selected road segment an on-site recording of the local functional and traffic characteristics is conducted and the data collected are stored in a database for further reference. Traffic counts, field or remote, are conducted for each selected road segment in order to collect data concerning the peak and off-peak traffic (i.e. volumes, composition, speed), followed by the primary data processing that includes the hourly traffic volumes and the average peak and off-peak traffic speed calculation and the formation of an electronic database for all the selected road segments for further reference. The data gathered through the previous steps are recorded in spreadsheets and are then used for the preparation of the COPERT4 suite input files, according to its requirements. The data are processed through the COPERT4 model and greenhouse gas and particle emissions are estimated for each road segment during the peak and off-peak period respectively. Finally, the results from the use of COPERT4 are exported and correlated to the functional and traffic characteristics of the selected road segments; the overall evaluation of their environmental performance is examined leading to conclusions.

Many scholars have investigated the impact of urban transport infrastructure construction on air pollution , while few studies focused on the emission based on the low-quality and low benefit of urban road operation. That is to focus on the low level of the “road area ratio”, a key economic and technical index representing the relative road capacity and the efficiency of the road in improving traffic, which means the ratio of urban road area^2 to the total area of the built-up area. This ratio used to be the hotspot of transportation planning and municipal construction research , and a reasonable indicator of urban traffic operation and road capacity in nowadays. Due to the historical features (wide main road and blocked communities) and realistic development needs (the rapid increase of transportation demand) of road construction, the road area ratio has become the key indicator of urban traffic development. Overall, air pollution kills 7 million people worldwide each year or shortens life expectancy (by 2.9 years), making it the world's biggest environmental threat with no significant progress since at least 2015. Indoor air pollution and poor urban air quality were cited as two of the world's most toxic pollution problems by the Blacksmith Institute in the World's Most Polluted Places 2008 report. The scale of the air pollution crisis is enormous: 90 percent of the world's population breathes some degree of unclean air. Although the adverse health consequences are wide-ranging, the approach to the problem is largely haphazard or neglected. Loss of productivity and deterioration of quality of life caused by air pollution cost the world economy $5 trillion annually. Various pollution control technologies and strategies are available to reduce air pollution. Several international and national laws and regulations have been developed to limit the negative effects of air pollution. When local regulations are properly implemented, significant health gains have been made. Some of these efforts have been successful at the

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international level, including the Montreal Protocol to reduce emissions of ozone-depleting chemicals and the 1985 Helsinki Protocol to reduce sulfur emissions, with the exception of international action on climate change. Addressing air pollution, which is the second highest risk factor for noncommunicable diseases, is key to protecting public health. Most sources of outdoor air pollution are well beyond the control of individuals and this demands concerted action by local, national and regional level policy-makers working in sectors like energy, transport, waste management, urban planning and agriculture.

The territory of the district passes through the Urganch-Tashkent highway, the Tashkent-Urganch-Volgograd-Moscow international railway. Buses and route taxis run from Khanka to Urganch, Bogot, Hazorasp, Tortkol and other cities and settlements. Among the architectural monuments, Sayed father mosque and mausoleum, Gavdonboy house (1910-1914; renovated in 1994) have been preserved. Since 1931, the district newspaper "Khonka Life" (previously known as "Kurilish", "Mash'al") has been published (number 1000).

Conclusions. From the above analysis the following findings concerning the impact of road characteristics on the traffic emissions were derived. Concerning the traffic characteristics, traffic volume plays the main role in the emission of gaseous pollutants from the vehicles, as in all cases emissions rise accordingly to the traffic volumes. An important observation is also that along the road sections where traffic volumes are not significantly different, emissions depend on traffic composition with heavy vehicles (trucks and buses) having a noticeable effect on the emission of gaseous pollutants; high percentage of heavy vehicles in traffic composition has a significantly negative effect on emissions, while two-wheelers hardly affect total traffic emissions. Traffic speed is another important traffic characteristic which significantly influences traffic emissions. More specifically, emissions are reduced when there is a regular traffic flow and increase along with vehicle deceleration and acceleration (stop and go). Regarding the functional characteristics, in the ten selected road segments the emissions are proportional to the road category. More specifically, emissions are particularly high on main arterials, while on secondary arterials emissions are generally limited. In addition, the road direction has a serious impact as the majority of the roads that are unidirectional, have more limited emissions compared to bidirectional roads, because the former support the development of higher and more stable speeds and facilitate decongestion, resulting in lower emissions.

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