
Abstract

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Topic: **Development of a Goal Concept for a Sustainable Urban Mobility and Accessibility in Ho Chi Minh City**
Entwicklung eines Zielkonzeptes für eine nachhaltige Mobilität und Erreichbarkeit in Ho Chi Minh Stadt

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The Motorcycle dependent city (MDC) Ho Chi Minh City (HCMC) is the largest city of the socialist republic of Vietnam. In 24 districts are currently living around 7.5 million people on an area of 2095.5km². Vietnam is a developing country which has also effects on the traffic. The accident rate is very high, officially recorded in HCMC alone, were 831 traffic fatalities in 971 accidents in 2011. The real figure is much higher. The street picture is characterized by motorcycles which account for the main share of traffic with around 78%. Public transportation is currently covered through buses. A Mass Transit System is planned to be constructed in the next few years.

The residents of HCMC mainly use motorcycles to reach their destinations. This has the consequence that the exhaust concentration in the city is extremely high, in addition to a high level of noise pollution emanating from vehicles on the one hand, but also from their horn signals that are used for overtaking and warning. Forecasts predict HCMC further growth and in the upcoming years, it will become part of the worlds megacities. This will lead to a further increase of traffic.

With assistance of this thesis, measures and approaches for a sustainable mobility and accessibility are presented, which can be derived from the developed goal system.

The work is divided into five chapters. The introduction is shown in the first chapter. It discusses the motivation of the work, as well as the methodology.

The second chapter provides a general goal system developed by a national and international literature review. The goals of urban and transport planning in relation to sustainable development of a city or region are outlined. The four main goals are efficiency, environmental protection, mobility and accessibility, and safety. Derived from these goals are objectives that identify the targets of urban and transport planning, as well as common targets. Each objective has specific assessment criteria, that can help to determine the fulfillment or non-fulfillment of the goals. Furthermore the connections between the assessment criteria and the stakeholders of government, community, public system users and operators, as well as commercial traffic operators are shown. All goals and relationships are universally valid and do not relate to a specific example.

The third chapter includes a household survey that was conducted in cooperation with the Vietnamese-German-Traffic-Research-Centre (VGTRC) in the summer of 2012 in the 1st and 9th District of HCMC. The aim of this

survey was to identify the urban mobility and accessibility of the population and to detect their basic needs and problems. Overall 163 individuals in 50 households were interviewed. The questionnaire is divided into four parts, one portion with general questions about education and social context, another one that collected data on the accessibility and connection to the public road network, as well as the modal split, in term of the mobility. The third part served to collect housing conditions, such as the size of homes and the type of residential areas. The last part with additional questions was related to possible future changes. It was questioned how a transportation shift from private to public transportation would be accepted and what daily expense the respondents are willing to spend per day for mobility and accessibility. The household survey shows that there are spatial, social and financial differences between center city (District 1) and suburban areas (District 9). Thus, the income of families in the center is significantly higher than in District 9. This is reflected, for example, in the age of vehicles. In both districts the connection to the main road is very good and provides a good basis to further infrastructure network extension. As another result the survey shows that 60% of all trips are done by motorcycles and only 6.5% by public transportation, although this would be possible more often. The respondents would prefer a further network infrastructure extension and an improvement of public transportation. However, the majority of respondents would continue to use the motorcycle.

The fourth chapter presents the development of the target concept for a sustainable mobility and accessibility in HCMC for the community stakeholder group. It outlines the goal conflicts of the goals and objectives, but also the positive influences of fulfilled goals on other goals. This is an important sector to be considered during the development of potential approaches and measures, because the fulfillment of a single goal will always influence other fields. For sustainable development also the long term effects must be considered. For the evaluation and weighting of each objective interviews were conducted with local experts, as the requests and needs of the population are strongly dependent on social context and surroundings. Here, safety and efficiency are top priority. It is important for the population to live in a safe environment where they can move well and cost efficient. Mobility and accessibility are closely following these two objectives and are also very important for the inhabitants of HCMC. Environmental protection in this context has a less important role. In a developing country like Vietnam, the population is mainly concentrating on their personal needs, such as road safety. The environment is irrelevant because it does not involve any obvious advantages for the individuals. But for the consideration of sustainable urban mobility and accessibility in HCMC, this aspect should not be left completely ignored. The minimization of exhaust gases, for example, has a positive impact on the quality of life of the inhabitants.

Measures for the implementation of the goal concept can be, among other things, the development of public transportation with the help of a comprehensive and reliable network of buses and also metros in the future. Another important aspect is the rehabilitation and extension of the road network. It increases the mobility and makes it safer at the same time. The partially unsealed and with deep holes damaged roads are a potential danger for the motorcycles. Another possible measure would be the introduction of a road toll for all road users, as it is conducted in other major world cities for example, Singapore, London, or Sydney. This may result in a modal shift,

to fewer private and more public transportation in the city. In addition, this would be a source of income to finance further improvements of the urban mobility and accessibility.

The fifth part presents the conclusions and recommendations. To integrate sustainable urban mobility and accessibility in HCMC, further investigations have to take place, which indicate, among other things, the reliability of measures through feasibility studies. Furthermore, it is important to investigate which goals are relevant for the other stakeholders and whether there may be conflicts among the goal fulfillment of the individual stakeholders. HCMC has a great opportunity to develop sustainably and to obtain an even more significant place in the world economy in the future. A sustainable urban mobility and accessibility is the first step towards a positive future.

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