
Abstract

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Topic: Parking Space Management Strategies for Major Cities in Vietnam

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Like many other large cities in Southeast Asia, Ho Chi Minh City (HCMC) and Hanoi are faced with high population density, limited public transit system, and high motorcycle ownership. This causes severe problems, such as congestion, traffic accidents, air pollution, and land consumption.

With a population of almost 8 million inhabitants and an area of 2,095 square kilometers, HCMC is the largest and most densely populated city in Vietnam. In some districts population density exceeds 45,000 inhabitants per square kilometer. The resulting problems can be revealed by analyzing the traffic situation. A high motorcycle dependence results from insufficient public transit. A total of 5.6 million motorcycles are registered in HCMC, accounting for a motorcycle ownership rate of 70 percent. Besides congestion, the high amount of motorcycles causes severe parking problems. In HCMC, as well as in Hanoi, parked motorcycles on sidewalks characterize the city. Hence, since walkability is limited, a chaotic parking situation compounds motorcycle dependence and the resulting problems.

With regard to the general trends *urbanization* and *motorization*, livability in Vietnamese cities can be seriously threatened, if no measures are taken.

Parking management can be one approach to solve traffic problems. In this thesis I shall develop parking management strategies, which contribute to counteract identified parking problems. The strategies should necessarily comply with a goal concept and enhance livability, taking into account all stakeholders.

The thesis is divided into six parts. The first part includes the introduction. The second part presents a comprehensive literature review. In the first chapter of the literature review general characteristics about strategic planning are identified. The strategic planning process in the context of business administration is analyzed in order to find approaches which can be applied in traffic planning. On the one hand this is the strict derivation of strategies from strategic goals and visions. On the other hand this is future-oriented strategy development,

called *foresight*. In traffic planning, foresight should also be part of the planning process in order to respond to future trends, which influence the traffic objectives, at an early stage.

In the second chapter of the literature review parking management measures being used in industrial countries all over the world are described in a structured way. Measures are divided into different groups: parking demand management, traffic demand management, parking supply management, and parking supply planning. On the basis of these measures the parking management strategies are developed in part five of this thesis.

In the next part, major problems caused by an insufficient parking management are identified in a problem analysis. Firstly, a goal system is set up, and general trends which can affect future development are analyzed. Moreover, the interest of relevant user groups and authorities is revealed. Secondly, the legal situation concerning parking regulations and the current parking practice in HCMC is described. Relevant data are gained from literature, site visits in HCMC and interviews. Finally, problems and causes are identified by comparing the situation with the strategic goals, which have been determined in advance. Blocked sidewalks can be identified as a severe problem, since they cause inconvenient and dangerous walking conditions. Thereby, social, economic, and ecologic goals are affected significantly. The following main causes have been identified (more causes are listed in a cause-and-effect diagram in chapter 3.5): high motorcycle traffic demand, mainly caused by an insufficient public transit; high motorcycle parking demand and inefficient use of parking space, mainly caused by low regulated parking fees; and a lack of motorcycle parking spaces, mainly caused by a car-oriented urban planning.

In the part “measure analysis” it is investigated if the identified measures are suitable for being applied in Vietnam, by assessing the effectiveness and applicability of the measures, using a multi-criteria assessment model. Effectiveness is measured by estimating the impact of a measure on the strategic objectives. The applicability of a measure is indirectly measured by estimating the difficulty of implementation. If a measure is already applied in Vietnam, I discuss possible modifications of the measure to improve suitability. The following measures achieved the highest effectiveness-value: deregulation of parking price and establishment of pedestrian and cycling zones. However, overflow parking and mobility management achieved the highest applicability-value.

In part five define two main strategies for HCMC are defined – one short-term strategy and one long-term strategy. The short-term strategy can be described as a “satisfying parking demand”-strategy, while the long-term strategy is called “decreasing parking and traffic

demand”-strategy. Strategies have to be socially, economically, and ecologically reasonable. The short-term strategy is developed for the situation that no mass transit exists in HCMC (except for the existing public bus network) i.e. there are no adequate alternative transport modes besides motorcycles, while for the long-term strategy an excellent metro system is taken for granted.

Hence, due to a lack of adequate alternative transport modes, the short-term strategy is focused on the satisfaction of parking demand in order to reduce sidewalk parking. However, it is not sufficient to focus solely on the increase of parking spaces, but rather to enhance efficiency of existing parking spaces, as well as reducing parking and traffic demand. The fundamental measure of the short-term strategy on the one hand is the establishment of on-street parking spaces for motorcycle curb parking, in order to counteract illegal sidewalk parking. On the other hand temporary motorcycle overflow parking spaces are established for matching peak demand, for example during special events. Hence, existing parking space need not to be sized for peak demand.

Taking an efficient mass transit system for granted, the long-term strategy focuses on restrictive measures and the reduction of downtown parking supply, since there is now an adequate transport alternative, making those measures socially and economically reasonable.

Parking price deregulation and abolishing parking subsidies are fundamental measures for the long-term strategy. The price mechanism is an efficient way to match parking supply with demand. All municipality-owned parking facilities should operate cost-effectively, setting prices in relation to demand.
