

Evaluating the Sustainability of a Transport Strategy for Hong Kong

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Abstract: Growing urban population and increasing economic development in Hong Kong have led to a rise in transportation problem. Some well-intended policies have been formulated and implemented to rectify those transportation problems in the area, however, they do not indicate the trend towards fulfilling sustainable transport agenda. Against this backdrop, this article reviews the evolution of transportation policy and public transport development in Hong Kong, and aims to evaluate the sustainability of the Comprehensive Transport Study (CTS-3), then suggests that the transportation development in other cities could draw on part of the experience of Hong Kong and toward a sustainable way.

Keywords: Sustainable transport; Policy; Hong Kong

1. Introduction

Sustainable development has been defined by United Nation's Brundtland commission as meeting the needs of the contemporary people while not damaging the needs of the future generation. The definition indicates that the successful application of the principles of sustainable development means setting goals, implementing practices and measuring results which balance the three aspects of sustainable development - economy, environment and the society of life (Zietsman 2011). Sustainability in transportation generally refers to transportation that contributes to the sustainable development of the community that owns and uses the system. It aims to emphasize the environmental efficiency resulted from growing need for transportation, and to improve the environmental performance of transportation sector (Hoyer, 1999).

Hong Kong is located on the South China Sea in the Pearl River (Zhujiang) delta region of China's south. The population was 7.06 million people in 2010, and it is expected to reach 7.59 million in 2018 (Planning Department 2009, 18). Hong Kong's total population density is about 6,500 people per km², the highly concentrated population led to the limited traffic space. About 90% of motorized trips for work, study and other personal reasons were made on train, bus, taxi, tram and ferry (Transport Department 2003, 14). In 2009 the average daily patronage of public transportation was 11 million people (Transport Department, 2010a). High-level use of public transport system is one of the outstanding achievements of Hong Kong in urban operations and management. In addition, private operators undertake the daily operations of public transportation, this is the only public transport system in the world without government financial subsidies. The role of government is to develop and formulate transport policies, maintain the balance

between efficiency and fairness. Hong Kong as a former colony of developed country, it has the unique attribute of having enjoyed the fruits of Western development in the past, and some of the benefits of China's economic rise in the current. It provides a window into the potential for sustainable development in the developing world and a unique perspective as a case study of sustainable transport.

2. Review on Transport Strategy of Hong Kong

The new Transport Department was set up in 1963, as a matter of fact, Hong Kong had no independent government departments responsible for the development of transport policy before that. It is indispensable to take a long-term approach to achieve sustainable transportation development in a holistic view. Over the past 40 years, Hong Kong government had carried out a lot of work in terms of road traffic management, cross-border traffic and transportation planning. The white paper on Comprehensive Transportation Research of Hong Kong has had a profound impact on the development of transportation.

Specifically, Hong Kong formulated a comprehensive transportation study every decade, three Comprehensive Transport Study namely enacted in 1976, 1989, 1999 (CTS-1, CTS-2, CTS-3), the framework was established regarding the whole transportation development and management strategies. Each CTS includes surveys, transportation modelling, forecasting future transportation demand and identifying key transportation development policies (Chow, 2001). The CTS aims to set a long-time vision for ensuring that Hong Kong's transportation system will be prepared for the sustainable development of environment, economy and society.

The first White Paper “Keeping Hong Kong Moving” and the second White Paper “Moving into the 21st Century” were issued in 1979 and 1990 separately. By contrasting the two previous White Papers, it pointed out that the two policy documents were similar without more innovative ideas, and the government had always focused on the significance of traffic infrastructures to stimulate the development of economy. However, in the third document released in 1999, circumstances had altered and it took into account of a host of new aspects in order to meet the demand of the public. This policy document “Hong Kong Moving Ahead - A Transport Strategy for the Future” provided a transport blueprint for Hong Kong until the 21st Century.

3. Transport Strategy in CTS-3

So as to develop the Hong Kong's future transportation, the third Comprehensive Transport Study (CTS-3) had been launched by the Transport Department in 1997. CTS-3 aimed at taking a sustainable transportation strategy to promote the accessibility of individuals and goods of Hong Kong in an ecological way to 2016 (Wilbur Smith & Associates, 1999). In CTS-3, several key transportation strategies for Hong Kong's long-term development were formulated: integrating land-use, transportation and environment planning; rail priority; strengthening public transportation services; supplying transportation infrastructures in a highly efficient manner; applying new technologies to transportation management; reducing the environment damage of transportation (Transport Department, 2005).

3.1. Integrated Approach for Land-use and Transport Planning

Transport planning needs to be considered highly related to land-use planning since it is recognized that the development of the city affects the transportation choices which are available (Hall & Pfeiffer, 2000). To reduce the requirement for trips, thereby decrease the demand for infrastructures and the environmental effect, it was essential to consider the land-use, transportation, and environment in a comprehensive way in strategic researches. CTS-3 was carried out on this theme and some fundamental measures were offered to achieve the target. Such as developing pedestrianization zone and separated walkway system; reducing the conflict between the use of cars and short walking; developing some eco-friendly transport modes like walking and cycling in specific areas.

3.2. According Priority to Railways

The feature of CTS-3 was that it emphasized the railway would be the main public transportation mode and ease the pressure on road system, particularly it could be provided to solve main concentrations of population and

employment. It asserted that railway was the ecological and efficient mode when contrasted with other road transportation modes, such as bus that was being suggested in the previous two studies. Considering the patronage, railway was predicted to deal with 40% to 50% of the overall boardings on public transport by 2016, growing from 33% in 1997 (Transport Bureau, 1999). Several key measures were adopted to achieve this strategy, like constructing more wide-ranging railway networks and improving trunk and feeder services to optimize railway usage, invest railways by using social resources.

3.3. Managing Transport with New Technologies

CTS-3 put a strong set of intelligent transport systems measures into place to ensure sustainable transport development, mainly including: passenger information system - to provide sufficient information for the public transport users and help them choose the appropriate path; driver information systems - to provide the latest traffic information and route guidance and avoid more traffic congestion on the road. After the CTS-3 White Paper, Hong Kong established journey time indication system in 2003, completed transportation consulting system in 2008, thereby strengthened the role of advanced technology in traffic management.

3.4. Timely Provision of Transport Infrastructure and Services

Regarding public transportation infrastructure, the goal of government was that “Public transport infrastructure should be operated efficiently by the private sector, or public corporations, and should be well coordinated to maximize efficiency.” (Transport Bureau, 1999). This strategy was mainly to improve the facilities and the quality of services to enhance the competitiveness of public transport. There were quiet a few key measures, such as furnishing flexible and comfortable transfer facilities at transportation pivots, improving public transport infrastructure for fulfilling the demand in the transportation area.

3.5. Need to Contain Environmental Impact

The significance of environmental considerations was addressed in CTS-3, it contained a strategic environment assessment as an important factor in the development of the transport framework. The strategic environmental assessment identified cumulative impacts of multiple territory-wide transportation development. A host of measures were adopted for improving air quality and the noise condition, like using alternative fuels such as diesel with low sulphur content for heavy goods truck and bus, limiting vehicle fleet age, developing stricter noise emission standards. All of this suggested a greater focus by

the government on transportation and its environmental consequences than occurred before the 1990s.

4. The Sustainability of CTS-3

Hong Kong's circumstances, which is characterized by high application of public transport and a wide-ranging, modern railway network, indicates that substantial progress for sustainable transportation in this region is possible. As for environment, CTS-3 had recognized that railway is a comparatively sustainable transport mode, due to the efficiencies achieved by mass transit and extremely low emissions as a result of most trains being powered by electricity. It also advocated that walking is an ecological way and the infrastructures for pedestrians should be integrated into transportation and land-use planning. This transport strategy had assessed the environment advantages and damages of various kinds of transportation development choices to serve appraise a transportation framework that would benefit sustainable development in Hong Kong. CTS-3 assessed alternative development scenarios at an early project stage, in contrast to project-based environmental assessments, which normally seek to minimize environmental and ecological damage only in a piecemeal mode (Ng and Obbard 2005). However, the CTS-3 method has been criticized for being too focused on mathematical models that are not appropriate for sustainable transport planning (Hung 2001,165). It is obvious that the key strategies of CTS-3 did not involve the social acceptability of transport policies and infrastructure projects. In addition to the transport supply and demand, other transport factors, like social equity and environmental damage, it is also hard to be measured quantitatively in CTS-3.

For instance, CTS-3 did not mention the equal accessibility of transport. In fact, the affordability of public transportation is important for pursuing social equity. While Hong Kong has an outstanding public transportation system, there are also some people call to make it more affordable. The proportion of revenue used to transport activities has been increasing. In 2000, household expenses on transport consumed 7.77% of total household expenses, rising to 9.09% in 2009 (Census and Statistics Department 2001; 2010c). Most Hong Kong residents, especially lower-income families, are dependent on the public transport for their daily travel. As a result, their freedom to move around has limited by the rising public transportation costs. The trade-off should better be made between social equity and efficiency for policy makers. Furthermore, CTS-3 also did not take social participant of transport into consideration. Public consultation is routinely conducted only after fundamental decision have taken made by the government department in Hong Kong (Leverett et al 2007, 109). There was plenty of evidence over the past two decades indicate that social participant would influence the local conditions (Stukas and Dunlap

2002). With apparent improvement in transport quality in recent decades, the individuals were pouring more attention to the sustainable development of environment and society. For instance, public objection to the Long Valley rail extension, the Central-Wan Chai Bypass reclamation, the Guangzhou-Shenzhen-Hong Kong Express Rail Link, and other projects or infrastructures that formerly had been deemed as essential for growth, this illustrated that the participation consciousness and environmental awareness of the public have been improved over time. For policy makers, putting economic growth ahead of environmental and social development may no longer be feasible in modern Hong Kong.

5. Conclusion

Undoubtedly, transport and mobility plays fundamental role in Hong Kong economic development. Although it is widely accepted that the transport sector has major ecological and safety effects but it promotes mobility that can be translated into economic growth. Traditional transport strategy shows problematic for a lot of reasons in many places not just in Hong Kong. It is hard to quantify the ecological impacts and social concerns (including fair access to travel). One critique of transport strategy is that environmental consideration are not given inadequate emphasis. Communication with the public and other stakeholders about transportation strategy is undermined when policy makers take excessively technocratic way. Transportation presents a host of challenges for sustainable development in the world. Thus, a holistic approach encompassing environmental, social and economic issues and the involvement of various stakeholders should be considered to ensure the successful promotion and implementation of sustainable transport.

References

- [1] He Dong.The research on integration of urban rail transit passenger transport system construction,[Ph.D. Thesis].July, 2011(3), 20-21
- [2] Yang Hong.The research on integration of railway and urban rail transit development.[Master degree thesis],December 2008(5),1-2
- [3] Wang Nan,Zhu Zhiguo,Hu Yan. Railway hub bus layout optimization under the condition of passenger dedicated line[J],Journal of Southwest Jiaotong University.March,2008(6), 398-403
- [4] Ye Hong.Rail transit and urban coordinated interaction development discussion[J]. Journal of Suzhou institute of science and technology ,March(9),2010, 68-71
- [5] Xie Xiaozhong,Li Shuqing,Feng Shaohai.Study on the relationship between the urban land utilization and rail transit construction[J].Traffic information security.May,2010(4), 46-49
- [6] Cai Wei,Hu Zhihui,Ye Xiafei.Research on Urban rail transit development benefit mechanism and influence scope[J].Journal of Railway.April,2006(8), 27-31

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- [7] Wang Zhi,Ye Xiafei. "Traffic guide development" mode study based on typical city rail transit at home and abroad.[J].City track traffic research.May,2009(7), 1-5
- [8] Chen Maoke,Zeng Yi.The significance and implementation route of integration in Beijing-Tianjin-Hebei's rail transit[J].May,2008(2), 3-5
- [11] Zhang Dianye, Black spot analysis and highway traffic accident[M].China Communications Press,2005,01.
- [12] He Yong, Guide for highway safety design[M].China Communications Press,2011,12.
- [13] Xiao Shen, Guo Xiucheng, Song Junmin. Study on road traffic accident black spot identification method [J]. Journal of Highway and Transportation Research and Development, 2003, 20(4) : 95- 97. (in Chinese).
- [9] Wang Xiuhua.Research and prospect of rail transit integration of the Beijing-Tianjin-Hebei region coordinated development.Railway standard design.June,2015(13), 2-8
- [10] Liang Xiaolin,Xie Junjing.The evolution of the Beijing-Tianjin-Hebei region economic integration's present situation and development countermeasure[J].Journal of hebei university of economy and trade.November,2009(5), 12-15
- [14] Guo Xiucheng Sheng Yugang Pan Zhaoyu.etc. Analysis of general characteristics for highway traffic accident black-spots[J]. Journal of Southeast University (Natural Science Edition), Sept.2007, Vol 37 No 5.
- [15] Guo Xiucheng Sheng Yugang .Black spot analysis technology of highway traffic accident[M].Nanjin: Southeast University Press,2009: 55-56.