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Book review

Sustainable Transport Studies in Asia. Akimasa Fujiwara, Jungyi Zhang (Eds.), Springer, Tokyo (2013). (£90.00 Hardback) (£72.00 EBook) ISBN 678-4-431-54378-7

Asia is a vast entity in the world with a diverse economic and cultural background. Technological difference in transport ranges from muscle powered vehicle to bullet trains. For densely populated countries with a lower technical knowledge and economic ability developing a sustainable transport network is a challenging task. Models of transport development in the developed world cannot be replicated in the developing countries of Asia. All Asian countries have their limitations due to geographical, economical and social constraints.

The book begins with a discussion on the various models of sustainable urban development. It provides a brief review of the main indicators of sustainable development. A reader gets a good over view about the various indicators formulated between 1996 and 2003. On the basis of these how different type of models are formulated with or without sufficient data and their corresponding model is applied has been discussed in detail. This provides the reader with good feedback on the various models and their use in analyzing the sustainable development of developed and developing countries.

The authors point out, in the second chapter, that good governance is key to achieving sustainable urban transport development. Interdisciplinary knowledge is essential to manage the urban and transport system issues. In an integrated urban and transportation model changes in the system and their impact on the citizen's quality of life, environmental capacity and social equity are the key point.

The focus of chapter three is the rapid urbanization in developing countries resulting in an enormous growth in mobility and consequent impacts upon the transport sector. Though this has contributed positively to social and economic development it has caused traffic congestion, air pollution, a decline in road safety and consequent deteriorating health conditions. But the policy makers of developing countries are constrained by monetary and technological limitations. Authors have suggested a four step travel demand model in which trip generation and attraction were included alongside the transport accessibility. Using the model various urban and transportation policy scenarios regarding urban form, public transportation systems, vehicle ownership control, road network were studied in the Jabodetabek metropolitan area of Indonesia and Beijing, China. On this basis polycentric and transit oriented urban forms are found to be more environmentally efficient when compared to other policy scenarios.

To achieve economic progress transport development is essential but consequence of environmental degradation is the key point of discussion in chapter four. For achieving sustainable urban and transport development the authors have proposed an integrated modeling framework that refers to the optimization of total car ownership and the number of trips in the context of environmental capacity (EC). The model is based on bi-level programming approach in which the upper level addresses sustainability goals and the lower level describes the optimization of the transportation network.

Interregional tourism demand and destination management is the theme of discussion in chapter five. The topic of discussion suggests that the whole Asian region has been studied as the tourism market of Asia has grown in the recent years because of increasing household income and better interregional transport infrastructure. But the paper reflects the case of Japan only. Tourism increased substantially in other countries in Asia especially in Thailand, Malaysia, Indonesia and India where infrastructure has developed catering the need for affordable tourism. A regression model focusing on trip generation, trip distribution, trip duration and travel mode choice has been studied using data from Japan. Application of this model may be useful in other Asian contexts.

Paratransit is an important issue in the transport sector of developing countries in Asia, which is discussed in chapter six. Paratransit in Asia is an essential mode of transport in the urban areas though it is not environmentally sustainable. Paratransit provides job for the urban poor and a vital transport for urban mobility. Replacing paratransit with formal mode of transport will bring a much larger issue of societal problem as huge numbers of urban poor are involved in this sector. But paratransit is adaptive transportation policies are required in the developing countries for sustainable development. Authors studied the paratransit drivers, user and their quality of life in Jabodetabek metropolitan area of Indonesia. Results from the study shows similar findings in other Asian countries.

Tourist behavior analysis for sustainable tourism policy is the theme of chapter seven. According to the authors tourist travel demand can be differentiated on the basis of activity/interest or destination. Overcrowding by tourists in particular places during the peak season leads to environmental degradation, traffic congestion and over exploitation of local resources. Tourist behavior is related to accommodation, mode choice and route choice etc. To make a sustainable tourism policy, tourism behavior analysis was conducted from data in Japan. Collected data on tourism participation, destination choice and travel mode choice were jointly analyzed using a nested logit model (NL). Another study was conducted on tourists' time-use behavior involving multiple activities, this is analyzed using a MDCEV model. Findings of the models suggested practical implications for both destination management and policy making.

Chapter eight is about taxation policies to promote fuel-efficient vehicle ownership and use in the Chugoku region of Japan. Two models, the paired combination logit model and a copula based multivariate survival model, were used. Obtained result found that the most effective way of reducing CO2 emissions is increasing the fuel tax followed by auto tax and weight tax. On the contrary acquisition tax leads to an increase in CO2 emissions.

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On the basis of data collected in Beijing in 2009 about the expenditure and energy consumption patterns of households and the transport sector is the focus of chapter nine. A MDCEV modelling framework was applied to represent residential and transport energy consumption. The effect of land -use policy is incorporated and Multinomial Logit-MDCEV model was applied. This model could not provide good results due to soft land use policies regarding household energy saving.

Chapter nine is on the ICT based traffic safety measures and drivers' response. The data was collected from on-site driving experiment in Hiroshima city at a signalized intersection with limited signal visibility. According to the study in vehicle traffic warning information system (IVTWI) if provided at right time and right format other can minimise external influences. Drivers' responses to the IVTWI are examined on the driver's short term memory, focusing on a signalized intersection with limited signal visibility. The result showed that extensive driving experience improves drivers' memory of IVTWI.

The book concludes a chapter on the uncertainty in travel behavior. Authors provide viewpoints on the avenues of future research on the management of uncertainties. The first author emphasized the improvements in travel behavior analysis and the second the improvement of other components of the transport planning process.

The authors presented a series of models which aim to provide policies for sustainable transport in Asia. There are 11 chapter on various issues covering three groups of strategies, those which avoid, (urban form design and control of car ownership) those which shift (establishing comprehensive transportation systems and increasing public transportation systems for inter and intracity movement) and those which improve (redesign paratransit system, low emission vehicles and eco-life). It is a good reference book for readers interested in developing their own model in other parts of Asia. Readers from related field will also benefit from these studies if they have suitable mathematical knowledge and skills. It will certainly provide a basis for postgraduate research. It will be useful for transport planners, transport economist, urban planners and transport geographers. The book contains a very good reference list which leads to related topics. Graphs and diagrams are of good quality but the photographs are hazy.

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