The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

Parking Policies in Asian Cities: Conventional but Instructive

Paul A. Barter

Adjunct Associate Professor, LKY School of Public Policy, National University of Singapore

The problems caused by parking requirements are chronic (long-term and relatively intangible), not acute (painful here and now). They are not obvious to most people and they are hard to explain. The resulting inefficiencies don't wave big signs saying 'parking requirements caused me!' It takes some analysis and explaining to see them. How many people know that parking requirements make it difficult to restore and re-use inner city buildings? How many people know that parking requirements make housing less affordable?

Unfortunately, minimum parking requirements are spreading to cities all around the world. To document how parking requirements have spread through Asia, and how they vary among cities, this chapter analyzes the parking policies in 14 large metropolitan areas: Ahmedabad, Bangkok, Beijing, Dhaka, Guangzhou, Hanoi, Hong Kong, Kuala Lumpur, Jakarta, Manila, Singapore, Seoul, Taipei, and Tokyo.

Two main surprises emerge. First, all the cities have minimum parking requirements and most apply them in rather rigid ways. This is surprising because rigidly-applied parking minimums are usually associated with car dependent cities and seem ill-suited to Asia's dense and mixed-use urban fabrics where car use is relatively low. Second, although Tokyo's parking policies include minimum parking requirements, a closer look reveals a uniquely Japanese market-responsive set of parking policies.

The comparisons in this chapter make use of a new typology of parking policy approaches which is presented in the next section. Then the following section illustrates the typology as it applies to common approaches in the western world. This sets the scene for three sections that examine how Asian cities compare by looking at their policies towards: a) off-street on-site parking, b) on-street parking, and c) public parking. The chapter ends by taking stock of the significance of the findings.

The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

A Typology of Local Parking Policy Approaches

Figure 1 portrays a new typology of municipal parking policy approaches. This typology informs the analysis throughout this chapter. It is based on three dimensions in parking policy thinking.

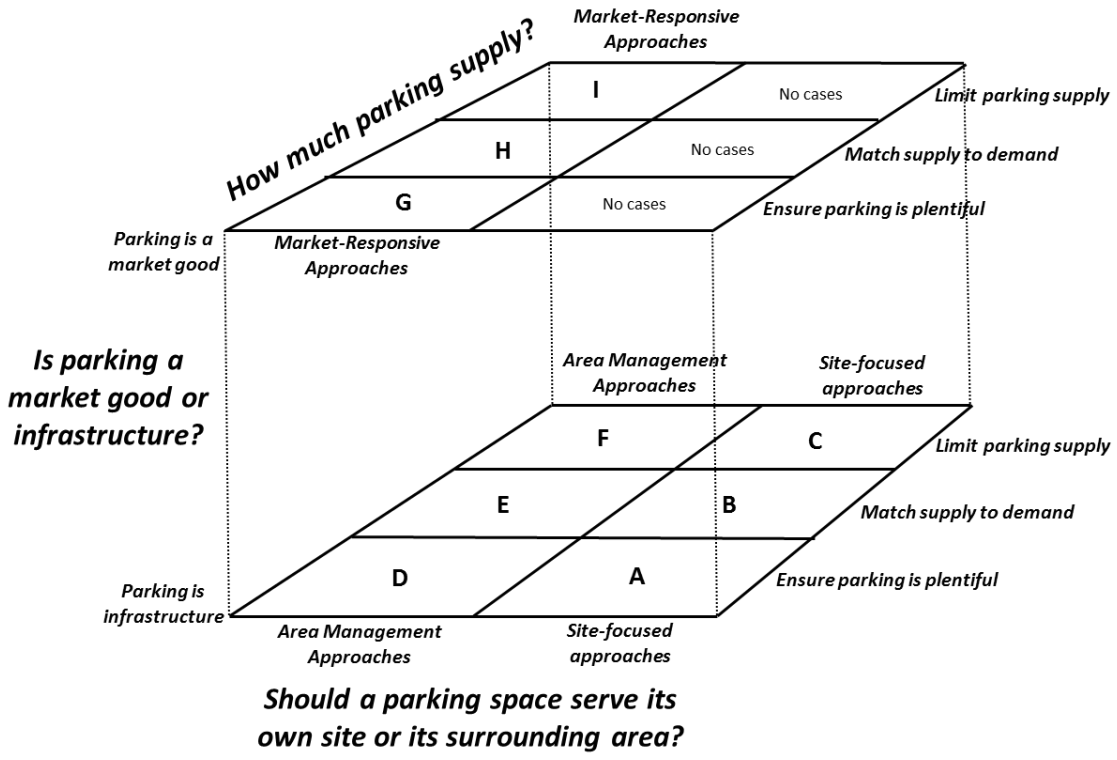
The dimension on the z-axis (How much parking supply?) is based on attitudes to the quantity of parking spaces, such as seeking plentiful parking or limiting parking.

The dimension on the horizontal axis of Figure 1 contrasts two different mindsets. The right side of Figure 1 insists that every site be served by on-site parking (justifying minimum parking requirements). The left side of Figure 1, on the other hand, embraces 'park-once-and-walk districts,' in which parking facilities tend to be open to the public and to serve the surrounding area.

The vertical dimension in Figure 1 is split into two layers. This is based on whether parking is understood to be a type of infrastructure and planned as such (lower layer) or as a market good and therefore enabled to respond to market processes (upper layer). The upper-layer 'market responsive' approaches all fall along the left side because market processes in parking are better suited to parking that is open to the public.

The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

Figure 1. A three-criterion typology of approaches to parking policies



Source: Adapted from Barter (2015)

Parking Policy Approaches in the Western World

We can now map onto this typology the parking policy approaches widely found in Europe, USA, Canada, Australia and New Zealand. This also serves to further explain the typology. Later we will see where the Asian cities fit.

- The squares labelled A, B and C on the lower layer of Figure 1 represent 'site-focused' parking approaches that try to meet parking demand within development sites.
    - Square A represents the supply-promoting version with high minimum parking requirements, as in suburbia.
    - The approach at B involves 'right-sized' parking minimums that better match demand and avoid excess.
    - C represents an on-site approach that restricts supply. This is unlikely as a municipal approach. However, large isolated sites, such as campuses, may decide to limit their own parking.

- The squares labeled D, E, and F on the lower level of Figure 1 are varieties of 'area management' parking policy, as found in older areas where requiring on-site parking is infeasible and causes various problems. Many such places emphasize public parking and better management of on-street parking rather than requiring on-site parking.
    - D, E, and F differ in their attitudes to parking supply. For example, approach D seeks plentiful public parking as is common in small downtowns in North America. The approach at square F limits parking and is often found in large transit-rich central business districts (CBDs).
    - Unlike the upper level of Figure 1, these area-management approaches lack strong efforts to promote market-responsiveness in parking.
- The squares labeled G, H, and I on the upper level of Figure 1 represent market-responsive approaches. These involve policies that encourage local parking demand, supply, and prices to adapt to each other via market processes rather than regulation. These approaches have only recently attracted attention.
    - The best-known example is Shoup's package of abolishing parking minimums, pricing on-street parking to achieve 85 percent occupancy, and returning revenue to neighborhoods (square H).
    - In practice many CBDs have rather market-responsive parking systems, with widespread commercial priced parking, no parking minimums, and unregulated market prices. This market responsiveness is sometimes enhanced by applying competition policy to parking operators and via demand-responsive on-street prices as in Calgary and Seattle, for example.
    - Square G on the upper, market-responsive layer represents the possibility of promoting parking supply using market-oriented approaches, such as incentives, rather than regulations or government supply.

What about Asia's cities?

Asian cities tend to share key features with older areas of large cities in the Western world, such as high density, relatively low car ownership, and substantial public transport use. Areas in Western cities with these characteristics tend to avoid site-focused parking approaches and to refrain from promoting parking supply. Very few Western cities are experimenting with market-responsive parking policy. By analogy, we might expect Asian cities to do the same.

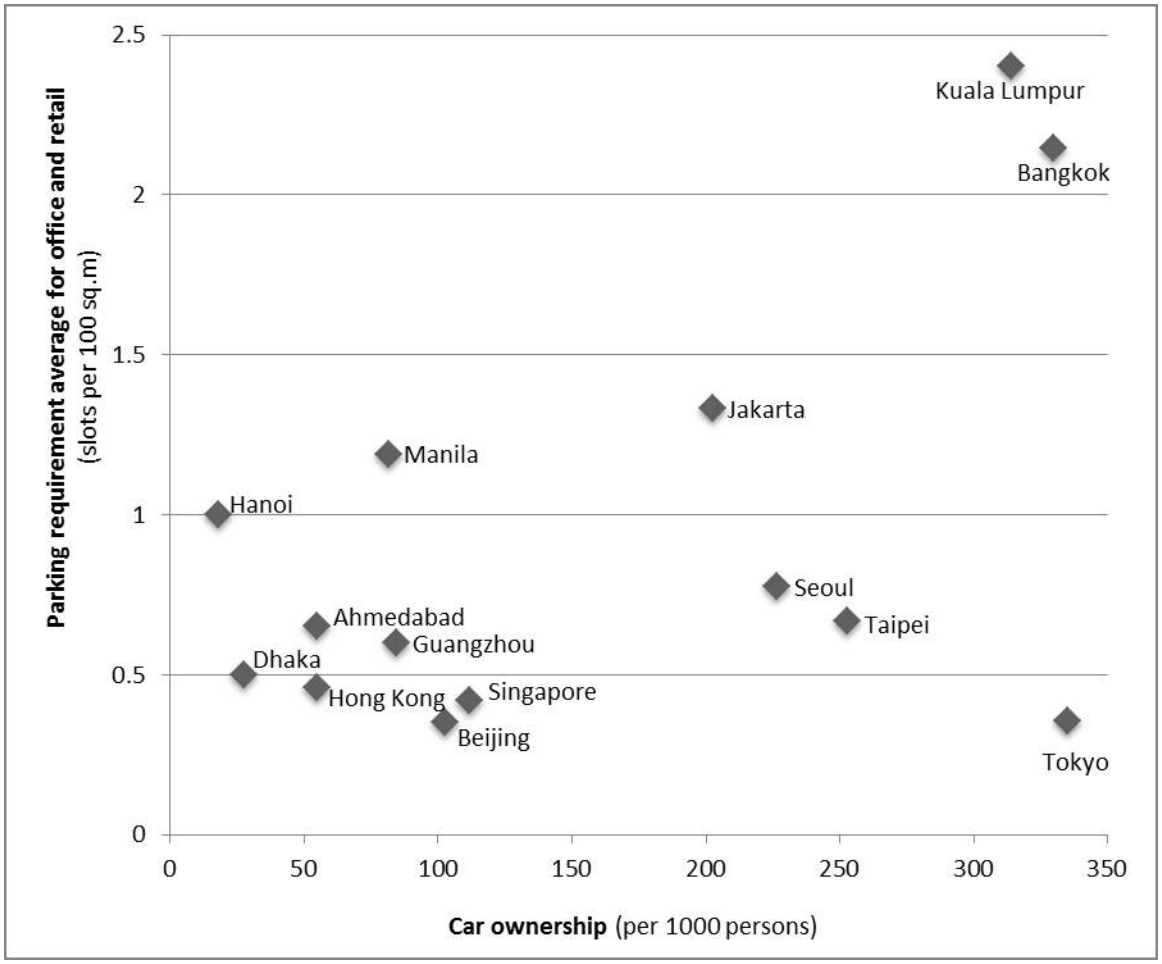
The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

Parking Standards, Attitudes to Supply and On-Site Parking in Asia

In this section, I focus on parking standards (maximum or minimum requirements) for commercial buildings and look for insight on two of the dimensions in Figure 1: a) attitudes about supply and b) whether policy promotes on-site parking or park-once districts. However, a deeper understanding of the second dimension will also require a look at public parking in a section below.

Figure 2 shows commercial parking requirements compared with car ownership rates. It was a surprise to find that all of the Asian cities in the study have minimum parking requirements throughout, even in their CBDs. And only Seoul, Singapore and Hong Kong have CBD minimums set lower than in other parts of the city.

Figure 2. Commercial Building Parking Requirements versus Car Ownership in 2008



Source: Barter (2011)

The requirements refer to hypothetical buildings with 25,000m^2 gross floor area: a CBD office building; a non-central office building; and a non-central shopping center.

The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

The highest commercial parking minimums are in middle-income Southeast Asian cities, especially Kuala Lumpur and Bangkok (Figure 3). This suggests an embrace of suburban-style site-focused approaches along with a supply-promotion stance. This is surprising for cities with relatively high urban densities and widespread mixing of land uses.

Figure 3 Parking occupies levels 4 to 11 of this 19-storey office building in central Bangkok

By contrast, the richest Asian cities in the study have low minimums. Tokyo's low parking requirements also exempt small buildings and phase in only gradually. In Hong Kong, low

maximums in the 1970s gave way in 1981 to parking minimums set at low levels. In 2002, Singapore reached a similar stance from the opposite direction by reducing its minimums.

The presence of parking minimums at all is surprising because Hong Kong, Seoul, Singapore, Taipei, and Tokyo are 'transit metropolises' in which transit, transport policies, urban planning, and real-estate have coevolved or been coordinated to foster public transport. Nevertheless, low parking minimums suggest parking supply is not being strongly promoted, at least not by means of parking minimums. Past efforts in Tokyo and Taipei to increase parking supply via other means, such as public-sector investments and incentives for private-sector investments, have largely ended. Low minimums may also suggest parking mindsets that see parking spaces as serving the local area rather than individual sites.

Parking minimums are at moderate levels in the remaining Asian cities (Ahmedabad, Beijing, Dhaka, Guangzhou and Hanoi) where vehicle ownership levels have escalated only since 2000 or so. However, since car ownership is low among this group of cities, these parking minimums do not tell us much about the extent of site-focused attitudes to parking supply. Further analysis in sections below will help.

Surprisingly, Seoul is the only Asian example of recent deliberate limits on parking supply. Seoul applies low parking maximums to buildings in its major transit-oriented business districts. Hong Kong no longer explicitly limits parking supply, but the low maximums applied in the 1970s have left a legacy of high parking prices.

On-street Parking Management in the Asian Cities

How on-street parking is managed provides clues regarding parking policy approaches. Both site-focused approaches and a supply-promoting attitude tend to arise out of a lack of faith in on-street parking management. Strongly effective on-street parking management is not yet in place across most areas of Ahmedabad, Bangkok, Beijing, Dhaka (Figure 4), Hanoi, Jakarta, Kuala Lumpur, and Manila.

The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

Figure 4 On-street parking in Dhaka's CBD in 2009

On-street parking management is more effective generally in Guangzhou, Hong Kong, Singapore, Taipei, the Makati CBD in Manila, and Seoul. In Seoul's major business districts, parking demand is a factor in on-street price setting. Taipei has a similar policy. Strong on-street parking management can potentially embolden shifts away from site-focused approaches (towards the left on Figure 1) and away from approaches that promote plentiful parking (towards the back on Figure 1).

Japan (and therefore Tokyo) has an unusual and effective approach. On-street parking has been almost completely banned since the 1960s. Small numbers of parking meters allow daytime parking only in certain places. A long-running war against illegal short-term on-street parking in Tokyo was won in 2006. Overnight parking is totally banned, backed by a program of late-night towing. This ban is complemented by Japan's proof-of-parking law under which registering a car requires proof of long-term access to off-street parking near home.

The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

Public Parking in Asian Cities

Despite having parking minimums, several Asian cities nevertheless fall on the left side of Figure 1, with parking seen as serving its surrounding area, not just its specific site. Such a mindset is a feature of both the area-management approaches (lower-left on Figure 1) and the market-responsive approaches (upper-left on Figure 1).

Tokyo seems to have a market-responsive parking approach. A large proportion of parking, even in outer areas, is open to the public although it may be privately owned and operated. Low on-site minimums, the absence of on-street parking, and the proof-of-parking rule have stimulated the supply of commercial parking in most areas, for both residential and other parking. Tiny coin-operated surface parking facilities are ubiquitous (Figure 5). Parking prices vary in rough proportion to real-estate values, with high prices in the transit-rich core.

Figure 5 Coin operated parking in central Tokyo

Taipei, Hong Kong, Beijing, Guangzhou, and Seoul's five main business districts also have significant roles for priced public parking (both commercial and government-provided). Parking in shopping centers and office buildings in busy localities tends to be priced and open to the public. Many older residential compounds in Beijing and Guangzhou offer public parking during the day and both have plans for numerous public-sector parking facilities. These cases therefore seem to have shifted away from a site-focused mindset into the area-management approaches (lower left squares on Figure 1).

Other cities may follow Tokyo's example in adopting a market-responsive approach (moving from lower left to upper left on Figure 1). Seoul's major business districts seem closest to realizing this. Prospects for market-responsive parking in Beijing and Guangzhou were improved by the recent abolition of government controls over private-sector parking prices.

However, Singapore and the rest of Seoul seem to be less decisively on the left side of Figure 1 and have a stronger tendency to keep parking on-site than in the cases above.

Bangkok and Jakarta have an especially limited role for public parking. This is not only consistent with their reliance on parking minimums, but also confirms that they have been decisively site-focused in their approaches (on the right side of Figure 1).

However, in Ahmedabad, Hanoi, Kuala Lumpur, and Manila, surveys revealed surprisingly significant roles for off-street public parking, despite the emphasis on parking minimums in these cities. This suggests at least some potential for a shift towards seeing parking spaces as serving areas, not individual sites (towards the left side of Figure 1).

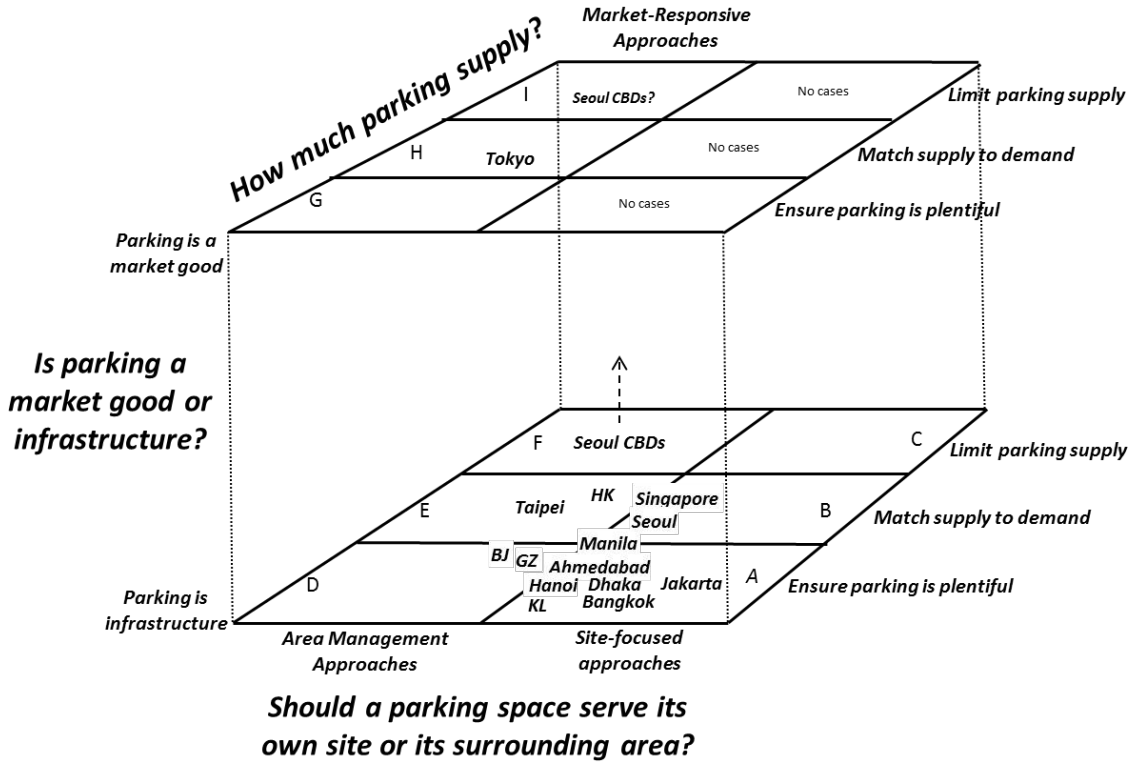
Public-sector public parking can also provide clues about attitudes about supply. Strong efforts by city governments to build public parking suggest a supply-promoting attitude, and this is indeed what we find in Ahmedabad, Beijing, Dhaka, Guangzhou, and Hanoi.

Conclusion: Taking Stock of Parking Approaches in Asia

Let us take stock and make some policy suggestions. Figure 6 shows my assessment of where each Asian city fits in the new parking policy typology.

The final version of this Chapter was published in Shoup, D. (ed.) (2018). *Parking and the City.* New York: Routledge.
https://www.taylorfrancis.com/chapters/parking-policies-asian-cities-conventional-instructive-paul-barter/e/10.4324/9781351019668-14

Figure 6 Asian cities' parking approaches located on the new parking policy typology



Recall that, by analogy with dense and car-lite parts of Western cities, we expected Asia's dense and relatively less auto-dependent cities to avoid supply-promoting and site-focused parking approaches. Thus, it was a surprise to find so many Asian cities in square A of the diagram with a site-focused and supply-promoting parking approach that promotes car-dependence and is poorly suited to their urban and mobility characteristics.

Nevertheless, parking policies in other Asian cities are not as inappropriate as they first seemed based on the presence of parking minimums. For example, Taipei and Hong Kong fit within square E, which is supply-neutral area management and aligns with expectations by analogy with dense Western cities. Singapore and Seoul (outside its main business districts) are more site-focused than we would expect but do not promote excessive parking supply.

It was surprising to find cases of market-responsive parking approaches in Asia, since this is a relatively new topic in the West. Tokyo has a unique market-responsive approach (in square H on the upper level). Seoul's main business districts may also have the beginnings of a supply-restricting market-responsive approach (square I on the upper level).

What policy suggestions arise for Asian cities?

Dense cities with low car usage, such as most Asian cities, are well-suited to supply-neutral or supply-limiting area-management parking policy approaches (squares E or F) and should avoid site-focused approaches and excessive promotion of parking supply (squares A, B and D). Tokyo's example suggests that cities with an area-management approach could benefit from aiming towards market-responsive parking (squares H or I).

The Asian cities that currently sit in squares A, B, or D need better on-street parking management, with more effective and up-to-date enforcement and pricing practices, to increase their confidence that shifts away from site-focused and/or supply-promoting policies need not cause serious on-street parking problems.

Finally, to varying extents, all Asian cities would benefit from less emphasis on parking minimums and from more explicit efforts to promote park-once-and-walk districts with priced public parking, and from efforts to make parking more market-responsive.

This chapter is based on research presented in three publications:

1. Barter, P.A. (2011) *Parking Policy in Asian Cities*. Asian Development Bank (ADB), Manila. ISBN: 978-92-9092-241-4 (print), 978-92-9092-352-7 (web).
2. Barter, P. A. (2015) A parking policy typology for clearer thinking on parking reform, *International Journal of Urban Sciences*, 19:2, 136-156, DOI:10.1080/12265934.2014.927740.
3. Barter, P.A. (2011) Off-Street Parking Policy Surprises in Asian Cities, *J. Cities, 29 (1), 23-31*. http://dx.doi.org/10.1016/j.cities.2011.06.007.

See also: GIZ-SUTP (2016) *On-Street Parking Management: An International Toolkit* (Sustainable Urban Transport Technical Document #14). Sustainable Urban Transport Project (SUTP), Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ).