Parking Policy

From Despair and Conflict towards Hope and Sustainability

Paul Barter
http://www.reinventingparking.org/
The situation in *Parknagar*
(a composite, fictionalized case study – 30min)

Initial discussion
(the problem in *Parknagar*; common Indian responses – 30min)

International perspective:
key choices and three paradigms
(what would they do in USA, Europe or Japan? – 45min)

Final exercise/discussion
(YOU apply the key choices to *Parknagar* – 60min)
fictionalized case study neighbourhood in a large Indian city or metro

THE SITUATION IN PARKNAGAR
Study area focused on a commercial main street

Located 7km west of the old city centre and 5km west of the main modern Central Business District (CBD)

Outskirts of the city are 10 to 15km further west

Study area is about 400m x 350m

This unnamed place will play the role of Parknagar
Parknagar land uses

Parknagar Road is a busy commercial strip of development, with less intense land uses away from the street.

- Retail and restaurants
- Market/traditional retail
- Office
- Residential
- Residential with commercial (mixed use)
- Hotel

A, B, C etc = key data sites later
Parknagar transport network

28-30m ROW streets

These have frequent bus service

18-24m ROW streets

12-16m ROW streets

<10m ROW laneways

Planned BRT line and station (opening 2016)
Legal parking locations

On-street parking

Off-street surface public parking (run by contractors for city)

Frontage parking

Basement public parking

Basement private parking (mostly under offices)

Residential and mixed use areas have private stilt parking and/or parking in compound
The Apparent Problem: street chaos

*Especially at lunchtime on weekdays and all afternoon on weekends*

Double parking

Angled parking where designated to be parallel

Parking on footways (2-wheelers, some cars)

Illegal parking in narrow laneways

Parking close to intersections, at bus stops, etc
The Apparent Problem: street chaos

Locations of illegal and nuisance parking (day):
- Mainly 4-wheelers
- Mainly 2-wheelers
The Apparent Problem: under-used off-street

Underground parking not popular

Some retail buildings ‘misuse’ parking space

A Dhaka example
The Apparent Problem: residential

Illegal parking (both day and night) in narrow streets and laneways that provide access to residential compounds

Conflict among vehicle owners (mainly in and around more affluent residential compounds for now but increasing)
Quick Discussion: the Apparent Problems

In a minute we will take a more detailed look, including some basic parking survey data.

But first, take a moment to think about the nature of the problems here.

Is it obvious what is the problem? (so maybe it seems obvious what needs to be done?)
Your Attitudes to Parking: a short questionnaire
(please write your answers; we will discuss later in the session)

1. Who should bear primary responsibility for supplying parking facilities?
   (choose ONE option below that best matches your view)

   A. Local Government
   B. Building developers and owners
   C. Businesses supplying parking on a commercial basis
Your Attitudes to Parking: a short questionnaire

2. Which of the following should be the primary criterion for setting parking charges?
   
   (choose ONE option below that best matches your view)

   A. Cost of providing the parking
   B. Social and political acceptability
   C. Consistency with the governments’ transport and urban policy goals
   D. Market forces of supply and demand
Your Attitudes to Parking: a short questionnaire

3. Where should a motorist heading to a mid-sized mall in a mixed-use district park his/her car?
   *(choose ONE option below that best matches your view)*

A. In the mall’s own parking facility

B. Any legal parking space in the area that is convenient (while paying the appropriate parking charge)
Your Attitudes to Parking: a short questionnaire

4. Suppose the motorist in the previous question parked in the mall parking lot. She finishes her shopping and goes for a meal in a restaurant down the street. She should:

*(choose ONE option below that best matches your view)*

A. Leave the car in the mall parking and walk to the restaurant

B. Move the car to the restaurant’s parking lot
Your Attitudes to Parking: a short questionnaire

5. Which of the following is the MOST important way in which parking causes congestion?

*(choose ONE option below that best matches your view)*

A. Simply by being at the kerb, parking hinders traffic flow (which is the primary purpose of the roadway)

B. A high number of parking spaces in busy areas encourages more motorists to drive than the roads can handle

C. Poorly managed on-street parking results in full on-street parking which encourages motorists to circle in search of parking and to wait in traffic lanes or double park
Your Attitudes to Parking: a short questionnaire

6. What is your reaction to the idea of a special Rs20 parking surcharge for motorists arriving at peaking in AM peak hour and leaving in PM peak?
   (choose ONE option below that best matches your view)

   A. Great idea!
   
   B. This is just another tax grab in disguise!
   
   C. Not bad but if parking is to have a peak surcharge it should reflect times of peak parking demand not peak traffic demand
Simple Diagnostic Tools

Most essential even in simple low-cost study:

– Parking inventory
– Occupancy survey

If possible:

– Duration survey (to also yield time-space perspective)
– Basic mode of access survey (customers, employees)
Parking inventory

On-street parking

Off-street surface public parking (run by contractors for city)

Frontage parking

Basement public parking

Basement private parking (mostly under offices)

Residential mostly has stilt parking or parking in compound
Parking inventory

Proportion of legal parking space (Equivalent Car Spaces ECS) of each type:

- On-street parking (legal) 10%
- Off-street surface public parking 20%
- Frontage parking 5%
- Basement public parking 20%
- Basement private parking 15%
- Residential stilt or compound 30%

At any one time, two-wheelers are between 60 and 70% of the vehicles parked, but take less than 20% of parking space.
Two-wheeler parking is space efficient

56 motor-cycles here

14 marked car spaces here

One car space per 19 square metres

One motorcycle per 1.6 square metres

My measurements of parking dimensions in a park-and-ride lot in Bogor, Indonesia
Prices (4-wheeler rates per hour)

Fees for motorised 2-wheelers = ½ those for 4-wheelers

- On-street parking (legal)
  (9am-5pm, 7 days)  Rs4 on main roads
  free on minor streets
  (16m and less)

- Off-street surface public parking  Rs10

- Frontage parking  free if eligible

- Basement retail public parking  Rs20

- Illegal parking  free
  (small risk of towing fee Rs100)

Do you see any problems here?
Simple occupancy surveys reveal where the occupancy rate is too high ...
... and where it is too low
Data collection with:

*pen and paper*

or *photographs (include license plates)*

or *video (include license plates)*
Example from Bogor, Indonesia

Occupancies Saturday 4 August 3:08-3:33pm

Usual target occupancy range for on-street parking
Reminder on locations for the example occupancy and duration data

**A** = on-street near medium-sized mall

**B** = on-street near offices

**C** = illegal in laneway

**D** = mall basement

**E** = office basement

**F** = government-owned public surface parking
### Some occupancy survey results

<table>
<thead>
<tr>
<th></th>
<th>Tues lunch</th>
<th>Tues 6pm</th>
<th>Sat lunch</th>
<th>Sat 6pm</th>
<th>Wed 2am</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>on-street</strong> near medium-sized mall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>110%</td>
<td>100%</td>
<td>125%</td>
<td>120%</td>
<td>20%</td>
</tr>
<tr>
<td>mall basement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>60%</td>
<td>50%</td>
<td>80%</td>
<td>75%</td>
<td>closed</td>
</tr>
<tr>
<td><strong>on-street</strong> near offices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>105%</td>
<td>90%</td>
<td>110%</td>
<td>95%</td>
<td>20%</td>
</tr>
<tr>
<td>government-owned public surface parking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>80%</td>
<td>60%</td>
<td>70%</td>
<td>60%</td>
<td>20%</td>
</tr>
<tr>
<td>office basement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>70%</td>
<td>40%</td>
<td>15%</td>
<td>10%</td>
<td>closed</td>
</tr>
<tr>
<td>illegal in <strong>laneway</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>90%</td>
<td>80%</td>
<td>75%</td>
<td>70%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Based on Equivalent Car Space occupancy
Mode of access survey results

How shop/business customers reach the area:

- Foot 20%
- Bicycle 5%
- Bus and other public transport 15%
- Autorickshaw or taxi 10%
- Motorised 2-wheeler 30%
- Private 4-wheeler 20%
Mode of access survey results

How workers reach the area:

- Foot 10%
- Bicycle 10%
- Bus and other public transport 25%
- Autorickshaw or taxi 5%
- Motorised 2-wheeler 35%
- Private 4-wheeler 15%
Duration survey

Vehicles parked all day can **occupy a high % of the space** despite being a rather **small % of the people parking**

An *Indonesian example of parking durations (left) and % of space used by long-term parking (right)*

<table>
<thead>
<tr>
<th>Parking Durations (4-wheelers)</th>
<th>Sudirman Utara</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 1 hour</td>
<td>68%</td>
</tr>
<tr>
<td>1 &lt; X ≤ 2 hour</td>
<td>8%</td>
</tr>
<tr>
<td>2 &lt; X ≤ 3 hour</td>
<td>1%</td>
</tr>
<tr>
<td>3 &lt; X ≤ 4 hour</td>
<td>1%</td>
</tr>
<tr>
<td>≥ 4 hour</td>
<td>23%</td>
</tr>
</tbody>
</table>

Sudirman Road Utara 68% 8% 1% 1% 23%
Reminder on locations for the example occupancy and duration data

A = on-street near medium-sized mall
B = on-street near offices
C = illegal in laneway
D = mall basement
E = office basement
F = government-owned public surface parking
# Some duration survey results

**Tuesday daytime results**

<table>
<thead>
<tr>
<th>Location</th>
<th>Average</th>
<th>% &gt; 3 hours</th>
<th>% of used space by vehicles parked &gt;3 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>on-street near medium-sized mall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A: on-street near medium-sized mall mall basement</td>
<td>1.3</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>D: mall basement</td>
<td>0.8</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>on-street near offices</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B: on-street near offices</td>
<td>1.8</td>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td>government-owned public surface parking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F: government-owned public surface parking</td>
<td>0.6</td>
<td>12%</td>
<td>24%</td>
</tr>
<tr>
<td>office basement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E: office basement</td>
<td>4.0</td>
<td>60%</td>
<td>85%</td>
</tr>
<tr>
<td>illegal in laneway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C: illegal in laneway</td>
<td>2.6</td>
<td>35%</td>
<td>70%</td>
</tr>
</tbody>
</table>
DISCUSSION: THE PROBLEM AND INDIAN CITIES’ USUAL RESPONSES
Did the basic parking data in the last few slides change your understanding of the nature of the parking problems in the area?

If so, in what ways?
What is the most common set of policy efforts that Indian cities are using for cases like this? (leave aside for now experiments in certain cities)

Suppose that just such an approach is pursued in Parknagar for the next 10 years. Would you expect it to yield positive results for the area at the end of 10 years? And what if is pursued more strenuously and intensively?
One more quick question

How different is the existing common Indian approach discussed just now from the advice in the National Urban Transport Policy for India? (published by Ministry of Urban Development, Government of India, April 2006)

(see next slide)
Parking advice in NUTP (abridged)

Land is valuable in all urban areas. ... This fact should be recognized in determining the principles for allocation of parking space.

Levy of a high parking fee, that truly represents the value of the land occupied, should be used as a means to make the use of public transport more attractive. ...

State governments would be required to amend building bye-laws in all million plus cities so that adequate parking space is available for all residents / users of such buildings. To enable this, FAR norms would be made more liberal.

Multi-level parking complexes should be made a mandatory requirement in city centers that have several high rise commercial complexes. Such complexes could even be constructed underground ...

Such complexes could come up through public-private partnerships ...

In residential areas too, appropriate changes in bye-laws would be considered to free the public carriage way from parked vehicles that impede the smooth flow of traffic.

Proposals for parking complexes would also be given priority under the National Urban Renewal Mission.

Provisions would also be made in the appropriate legislation to prevent the use of the right of way on road systems for parking purposes.
DO parking policy differently, THINK about parking differently

INTERNATIONAL PERSPECTIVE: KEY CHOICES AND THREE PARADIGMS
We will look at how parking gets DONE differently in different places

In the process, we will see that doing parking differently involves THINKING differently
If parking policy from XXXX could be parachuted into Parknagar, what would they do?

Mainstream USA (such as LA)

Europe (especially northern and central Europe, such as London, Berlin, Amsterdam or Zurich)

Japan’s large cities

And what would Donald Shoup (leading reformer of US parking policy) advise?
But first, a question

Some of the responses from these places would involve parking price rises and/or constraining parking supply (at least relative to current plans for greatly increased supply)

Suppose car parking prices throughout Parknagar were to rise, what responses are available to car users?
Motorist options if parking prices rise and/or parking supply is constrained

Options while still driving car:
- Just paying (no behaviour change) is an option
- Shift parking location slightly and walk
- Reduce parking duration
- Car-pooling/sharing rides
- Get dropped off (family or driver)
- Valet parking (often linked with restaurants)

Options involving mode shift:
- Motorcycle
- Auto-rickshaw or taxi
- Walking (very likely option for short trips)
- Bicycle or Rickshaw
- Public transport
Motorist options if parking prices rise and/or parking supply is constrained

NOTICE: Many options besides public transport!

MOST parking reform does NOT require good public transport as a precondition

The main exception: aggressive use of parking supply limits for TDM, which is feasible only for transit-rich central locations
What would mainstream USA do?

Pretty much what Indian cities are trying ...

- Parking norms (minimum parking requirements) rigidly enforced
- Reluctance to price or to raise prices even if parking saturated
- Subsidized public parking by local governments (subsidy mostly via land granted)

The median USA parking requirements for restaurants. Source Seth Goodman
http://graphingparking.wordpress.com/
What would mainstream USA do?

The ‘conventional suburban’ approach to parking policy

People in suburban USA (or Australia), are shocked that some Westfield shopping centres have started to charge for parking (although parking is still free for the first 3 hours).

This is where my elementary school once was.
Why reject conventional suburban approach?

‘Fertility drug for cars’

Unjust subsidies and cross-subsidies
Why reject conventional suburban approach?

Locked into automobile dependence

Or pushed towards automobile dependence

Los Angeles, USA
Why reject conventional suburban approach?

Hinders re-use, redevelopment, infill of older areas

Harms housing affordability, especially for small units and small sites

Obstacle to transit-oriented development


# KEY CHOICES AND THREE PARADIGMS

<table>
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<th>Parking is “infrastructure”</th>
<th>Every site should have its own parking</th>
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<td>1. conventional suburban</td>
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<td>Parking is a “real-estate based service”</td>
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What would Europeans (and some USA inner cities too) do?

Initially, same as suburban USA ... but in old urban fabric, this works badly
Then try public parking facilities to get ‘enough’ supply ...
but this forced to manage on-street

This lead to the “parking management” MINDSET
Parking is infrastructure (like streets and bus stops)
Mostly planned district by district, not site by site
What would Europeans do?

‘Parking management’

Many tools

Various goals

Manages conflict

Tools:
pricing, restricted eligibility, time-limits, design, sharing, public parking not private, parking taxes, supply adjustments
What would NW Europeans do?
Step-by-step intensification of on-street parking management

- Intensive kerbside management
- Time limits often
- Pricing
- Residents’ permits/permit zones

This sign is from inner Sydney (inner city areas in US and Australia also deploy intensive parking management)
What would NW Europeans do?
Gradual Enforcement Enhancement

- Vehicle owner responsibility
- Efficient vehicle register
- ‘Administrative’ or ‘civil’ offence
- Local or outsourced wardens not by police if possible
- Increasing automation
What would NW Europeans do?
Active prioritizing among user groups

Residents’ priority

Shopping/visitor priority

Primarily in public parking
not ‘customer-only’ private parking

Commuter parking lower priority
- Not prime spaces (shift location to edges of commercial districts)
- Mode change
What would NW Europeans do?

Pricing as a key management tool

Off-street at market prices
(increasingly even for government-owned parking)

Various on-street approaches:

- Zones linked with TDM aims
- ‘a bit more than the bus fare’
- Occupancy targets (quietly)
  - UK, Hungary, Amsterdam
  - Hence small price zones

Source: (Survey by GTZ, 2008, www.sutp.org)

Source: www.pecs.hu
What would NW Europeans do?

Parking norms reform

Parking minimum abolition
(UK; Berlin)

Parking maximums (UK; Netherlands transit-oriented locations; German central areas)

Parking minimums linked with transit-accessibility
(Zurich, Netherlands, Paris, many others)
What would NW Europeans do?
City Centre parking supply restriction

as TDM and for public realm improvements

Inner city residents’ priority also serves TDM goals by limiting commuter parking (German cities)

CBD supply limits often paired with Park-and-ride on the outskirts (for example, funded with inner city parking fees or fee-in-lieu payments)
What would Japanese parking policy do?

Japan’s parking – *inadvertently* market-oriented

Result of 3 pragmatic policies
1. Very limited on-street parking (with improved enforcement and control since 2006)

and overnight on-street parking not allowed since 1950s
2. Japanese cities have parking minimums **but** with very low rates

[Diagram showing parking requirements for different cities with a scatter plot and a link to a publication on parking policy in Asian cities.]
and the parking norms exempt small buildings

<table>
<thead>
<tr>
<th>City</th>
<th>Floor area threshold below which there are no parking requirements</th>
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<tr>
<td>Tokyo</td>
<td>Yes (1,500 m² or 2,000 m²). Above the threshold, parking requirements phase in gradually according to a formula. At full force only from 6,000 m² floor area.</td>
</tr>
<tr>
<td>Guangzhou</td>
<td>Yes (500 m²)</td>
</tr>
<tr>
<td>Taipei city</td>
<td>Yes (300 m² or 500 m²)</td>
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3. Proof-of-parking rule for residential parking
(prove access to a near-home parking place before registering any car)

So local commercial parking emerged almost everywhere

Became unnecessary to update parking norms

Accidentally, they now had market-oriented parking systems!
What would Japanese parking policy do?

Some government supply built in the past but it is now market priced

Ubiquitous commercial parking

Park-once neighborhoods are the norm (parking a district not a site-by-site thing)
THREE PARADIGMS: MARKET ORIENTED

Parking is a real-estate based service (with market prices, like meeting rooms)

Each parking site serves area (within walking distance)
What would Prof Donald Shoup suggest?

Donald Shoup’s market-oriented proposals

i. Price on-street parking for 85% occupancy

ii. Use revenue to please local stakeholders

iii. Abolish minimum parking requirements

In short, government must get the on-street parking right

Then market forces can be allowed to take care of the off-street parking
What would Prof Donald Shoup suggest?

Best on-street price setting principle: OCCUPANCY

- Occupancy surveys or monitoring
  - If >>85% full THEN increase price
  - If <<85% full THEN lower price
  - If occupancy in “sweet spot” THEN no change

Reduces traffic by reducing cruising not reducing trips

Complements other reforms
What would Prof Donald Shoup suggest?

Figure 24: Block-by-block on-street parking occupancy survey
City of Philadelphia (Pennsylvania, USA) 2006 Parkway-area Parking Study by Nelson\Nygard Consulting Associates

Figure via Michael Replogle, ITDP
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FINAL DISCUSSION: LET’S APPLY EACH OF THE TWO ALTERNATIVE APPROACHES TO PARKNAGAR
Thinking Differently and Doing Things Differently in India’s cities

A. Suppose you adopt a “parking management” mind-set to THINK about parking and, hence, look to Europe especially for ideas on DOING parking policy. What key parking policies you would favour now for Parknagar?

B. Suppose you adopt a “market-oriented” mind-set to THINK about parking and, hence, look to Japan and to Donald Shoup for ideas on DOING parking policy. What key parking policies you would favour now for Parknagar?
Your Attitudes to Parking: Let’s Debrief

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   *(choose ONE option below that best matches your view)*

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4. Suppose the motorist in the previous question parked in the mall parking lot. She finishes her shopping and goes for a meal in a restaurant down the street. She should:

(choose ONE option below that best matches your view)

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(choose ONE option below that best matches your view)

A. Simply by being at the kerb, parking hinders traffic flow (which is the primary purpose of the roadway)

B. A high number of parking spaces in busy areas encourages more motorists to drive than the roads can handle

C. Poorly managed on-street parking results in full on-street parking which encourages motorists to circle in search of parking and to wait in traffic lanes or double park
6. What is your reaction to the idea of a special Rs20 parking surcharge for motorists arriving at peak in AM peak hour and leaving in PM peak?

(choose ONE option below that best matches your view)

A. Great idea!

B. This is just another tax grab in disguise!

C. Not bad but if parking is to have a peak surcharge it should reflect times of peak **parking** demand not peak traffic demand
What parking fees for parking buildings to be a reasonable investment?

I used my parking cost spreadsheet to make an estimate using these assumptions:

- Modest 10% IRR after 15 years (not a great investment)
- Land price of Rs100,000 per sq. m
- Assumed motorcycles half the vehicles but 20% of the space at a fee half of cars
- Five storey building with construction cost per ECS of US$6,500 (or Rs433,000)

Result: Need about Rs60/hr for cars

(and Rs25/hr if land is a gift)
Parknagar’s best hope is improved on-street parking management?

Improving this in India won’t be easy

Did today’s session help you see how central and important on-street management is?