Parking policy: Getting the principles right

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CSE-GIZ orientation workshop
New Delhi, July 26, 2012

Why a parking policy?....

2006

"Land is limited and there is a limit to the additional parking space that can be created in the city. This will also require …. well thought out pricing policy to control the demand for parking."

- The provision of parking for personal motorised vehicles cannot be considered as a matter of public good.
- Individual user of personal vehicle should pay for the use of the space for parking and parking facilities. The 'user pays' principle should govern the pricing of parking.
- Government should not subsidise this cost
- Use a wide variety of tools for pricing parking -- time variable rates –etc.
- On the basis of these principles MCD, DDA, NDMC should frame the rationalised pricing policy for all types of parking facilities…

Supreme Court has taken this on board

Issued directives for a parking policy as a demand management tool…….

2006: National Urban transport policy provides for parking as a restraint measure.

2009: JNNURM reform agenda linked to the NUTP principles:

-- Urban land is valuable. Levy high parking fee that represents value of land occupied. This should be used as a means to make use of public transport and make it more attractive. Graded parking fee should recover the cost of the land.

-- Public transport vehicles and non-motorised modes of transport should be given preference in parking space allocation.

-- Easier access to encourage the use of sustainable transport.

-- Park and ride facilities for bicycle users with convenient interchange are a useful measure.

-- Multilevel parking complexes should be made a mandatory requirement in city centres that have several high-rise commercial complexes….

-- In residential areas byelaws need changes to free the public carriageway….

The draft proposals from MCD, NDMC, Traffic Police to the Supreme Court in 2008-9

-- The common position – expand and increase parking provisions; make more multi-level parking to meet the growing demand……

This has catalysed a process…………

- **Parking: wasteful use of cars**: Out of 8760 hours in a year the total steering time of an average car is 400 hours. For about 90 to 95 per cent of the time a car is parked. (CRRI)

- **Insatiable demand for land**:

  - If demand for land for an average car is computed based on average car size and parking spaces per car -- the total cars already use up close to 10% city's urbanised area. The forest cover in Delhi is 11.5 %.

  - Daily registration of cars is generating demand for land bigger than 310 football fields! Land is expensive and has other opportunity costs.

  - **Inequitous use of land**: A car is allotted 23 sq m for parking. Under low cost housing scheme only 18-25 sq m is allotted to very poor families. The car owning minority using up more and more road space and urban space.

  - **Urban common, green spaces, walkways at risk**

Land is limited. Where will Delhi find more land to park cars?
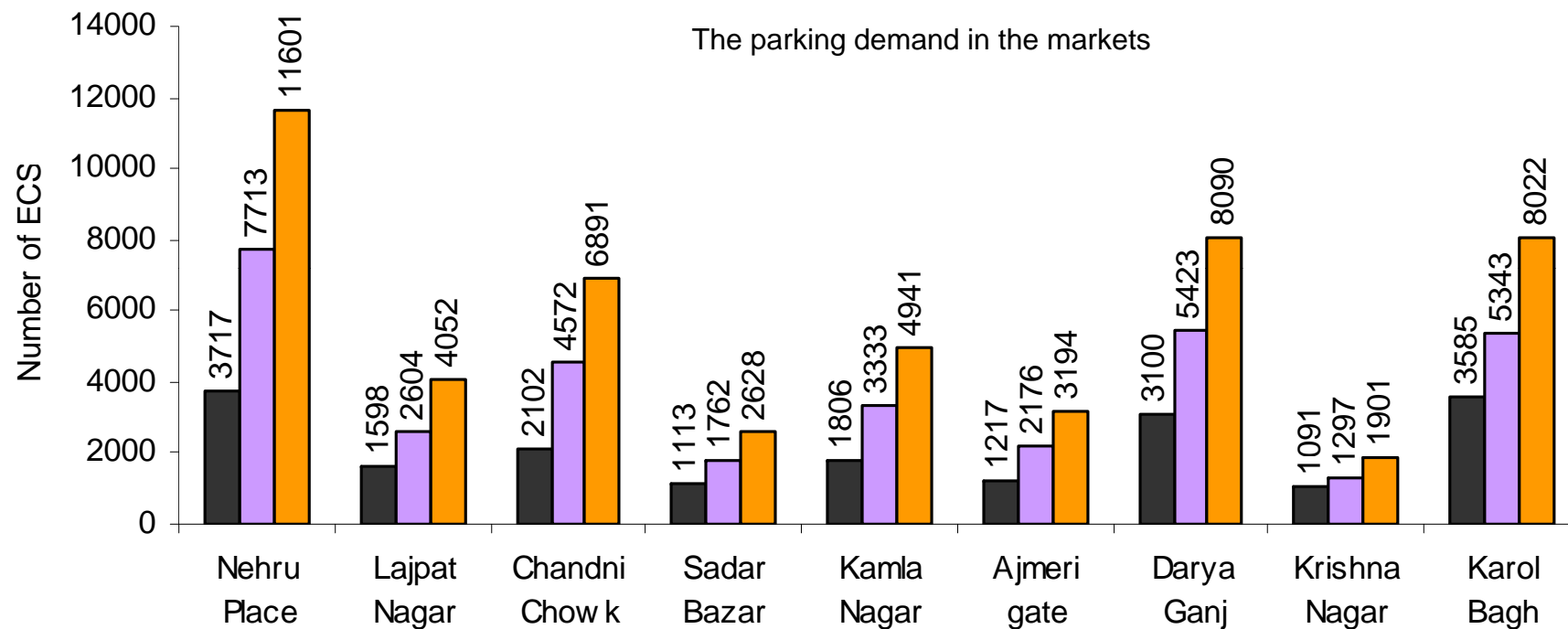
Opportunity costs of parking spaces …

Mapping of parking lots in selected localities

SECTOR 17

SECTOR 9

Conventional paradigm……supply driven

The parking demand in the markets

Market	Total parking supply (ECS)	Current peak parking demand (ECS)	Maximum projected demand in 2010 (ECS)*
Nehru Place	3717	7713	11601
Lajpat Nagar	1598	2604	4052
Chandni Chowk	2102	4572	6891
Sadar Bazar	1113	1762	2628
Kamla Nagar	1806	3333	4941
Ajmeri gate	1217	2176	3194
Darya Ganj	3100	5423	8090
Krishna Nagar	1091	1297	1901
Karol Bagh	3585	5343	8022

■ Total parking supply (ECS) ■ Current peak parking demand (ECS) ■ Maximum projected demand in 2010 (ECS)*
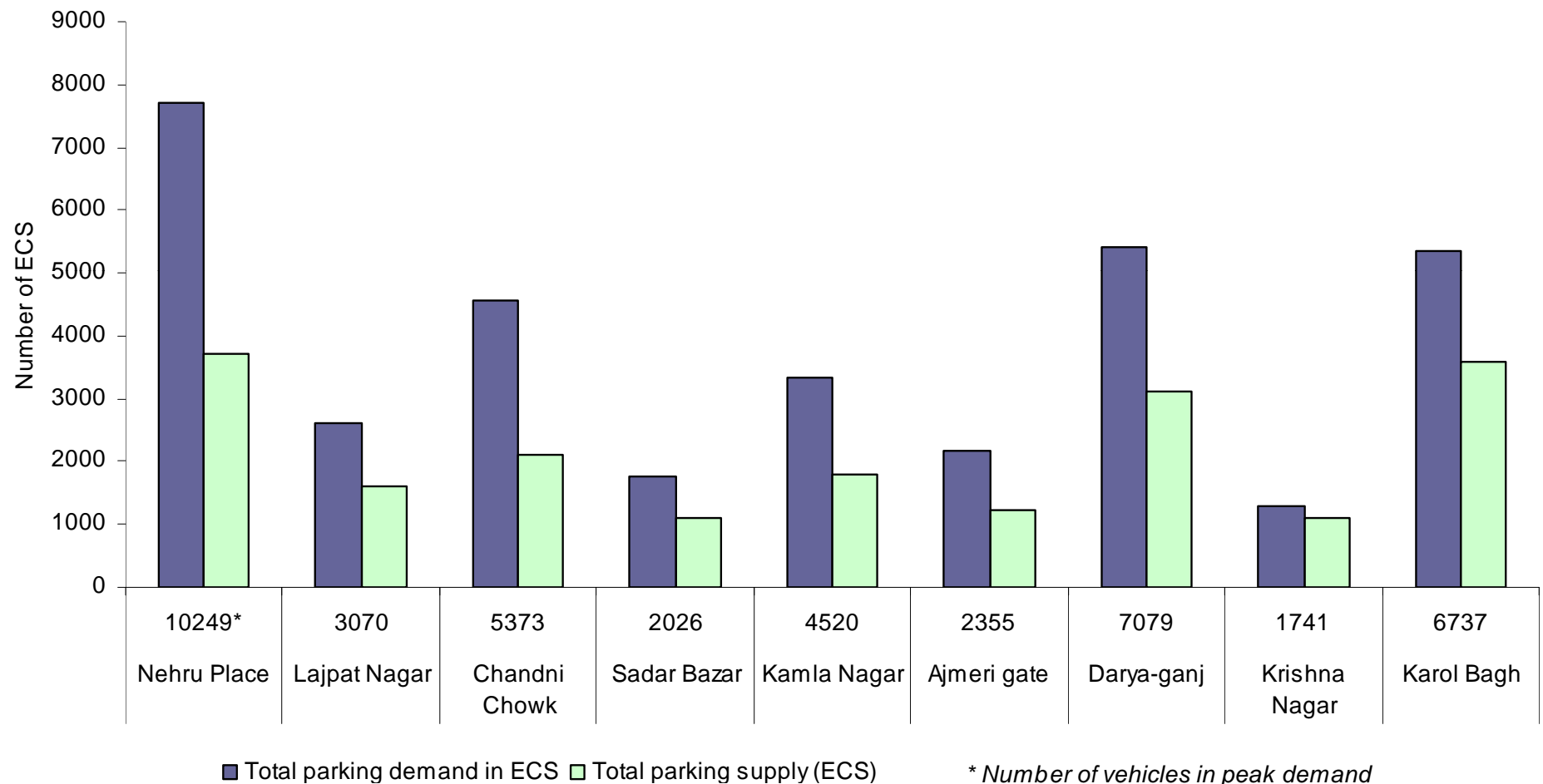
*Note: *Compound annual growth rate of car (10 per cent) and two-wheeler (6 per cent)*

Source: Based on CRRI 2006, Congestion and parking problems of selected locations in Delhi, Final report, New Delhi

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Yawning gap between parking demand and parking supply

The shortfall in the range of 16 to 52 per cent

Legend: ■ Total parking demand in ECS □ Total parking supply (ECS)   *Number of vehicles in peak demand*

Location	Peak demand
Nehru Place	10249*
Lajpat Nagar	3070
Chandni Chowk	5373
Sadar Bazar	2026
Kamla Nagar	4520
Ajmeri gate	2355
Darya-ganj	7079
Krishna Nagar	1741
Karol Bagh	6737

Based on: CRRI 2006, Congestion and parking problems of selected locations in Delhi, Final report, New Delhi, p 160

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The confounding questions……

-- What is parking policy expected to achieve? How are environmental, equity, societal, liveability issues related to parking? How can parking policy ….. reduce pollution and congestion?….. Or reduce demand for parking?

The Khan Market imbroglio **--** Questioned link between air pollution and parking -- Shoppers fight for free parking for their affluent clientele; take on the burden to pay license fee to NDMC; Defeats user pay principle; Settle down for a lower bound fee…….

The license fee works out to be only Rs 93/sqm. If paid at the rate of Connaught Place it would have been at least Rs 186 per sqm. – But real estate value of that land is astounding…….

-- How much parking do cities need? Is this a right question

-- How do you fix parking charges? How can parking pricing make a difference?

-- How can parking policy integrate different modes, reduce car dependency and shift to alternatives?

-- What is a best practice in parking policy? Etc………
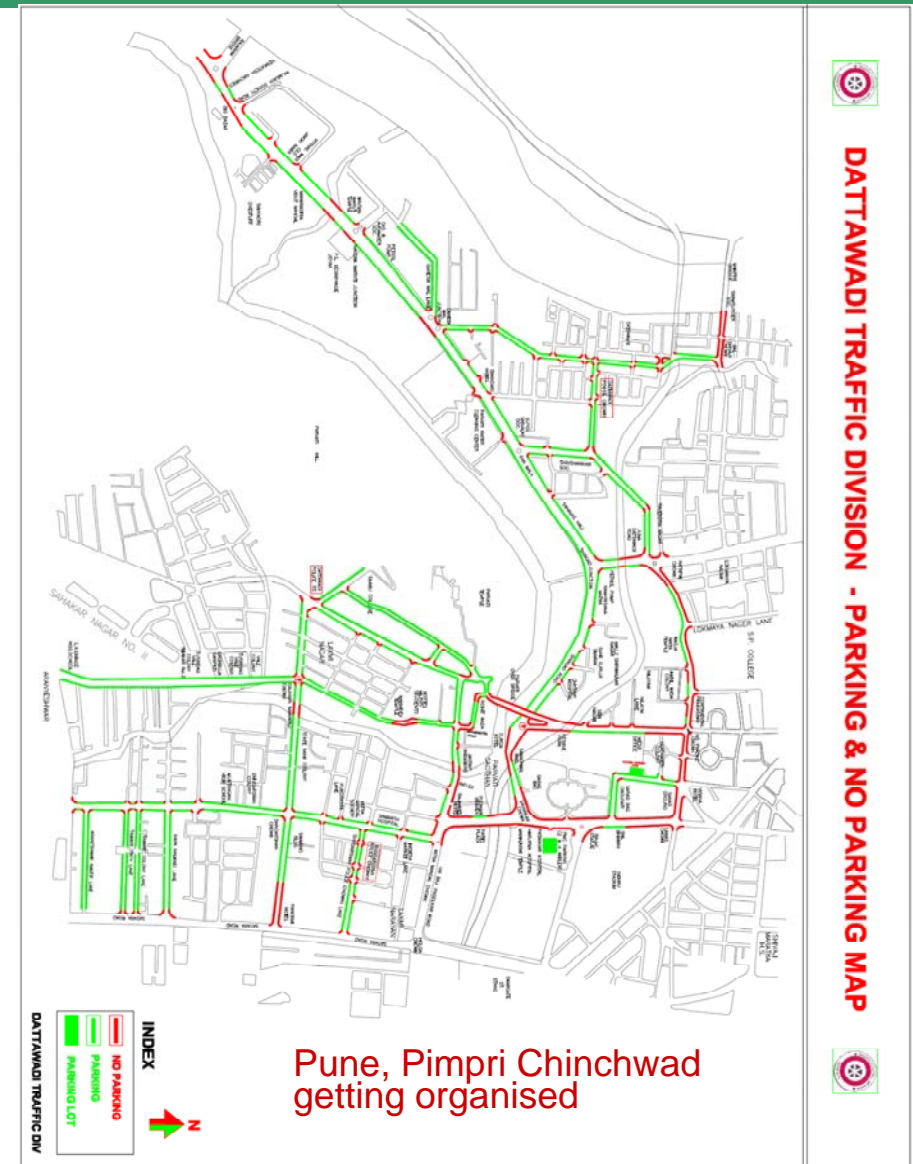
Enforcement: The first steps......

Find method in the madness....Tame the chaos

Can on-road parking be eliminated? Should it be eliminated? If not how should we manage on-street parking...

Some steps in our cities.....

-- Demarcate legal parking spaces

-- Inventorise the parking spaces

-- Put out the list on the website

-- Introduce handheld metering

-- EPCA directives to MCD, NDMC in Delhi

-- Similar moves in other cities – Chennai, Pune, Pimpri Chinchwad etc

-- Impose penalty

-- Application of ITS and metering

-- Legal framework for parking enforcement (penalty, protecting pavements from parking?

DATTAWADI TRAFFIC DIVISION - PARKING & NO PARKING MAP

INDEX

NO PARKING
PARKING
PARKING LOT

DATTAWADI TRAFFIC DIV

Pune, Pimpri Chinchwad getting organised

Proposed Asaf Ali Road, New Delhi

Car and auto rickshaw parking area along the road

Source: I Trans, Anvita Arora

How much parking should cities provide?

The convention: **Cities set parking norms and define building bye laws for making parking provision… But there is no common matrix**

Delhi Master Plan 3 ECS/100 sqm in Commercial; 2 ECS/100 sqm in residential; 1.8 ECS/100 sqm in Government buildings. Kolkata and Pune specify ECS per 75 sq m; Hyderabad -- percentage of built up area……and so on

Indian standards are minimum standards. One can provide more…..

But the practice is changing globally………….

Shifting from minimum requirement to maximum caps

Flexible standards: Eg. In Hong Kong parking provision is decided based on accessibility of an area. In Tokyo parking norms in CBD lower than Delhi…..

Rigid norms can create over capacity: Account for improved accessibility to limit future expansion and reduce parking demand

–   Improved access can lower parking demand. Sites may change from parking deficit to parking surplus. The parking plans must account for the changes in parking demand with improvement in public transport. For Eg, -- In CP parking demand dropped by 10% after introduction of metro.

–   Feasibility study for Mangalam Place projects shift in modal split in favour of public transport after metro. DMRC study -- in Vikas Marg metro can reduce trips of different modes and parking
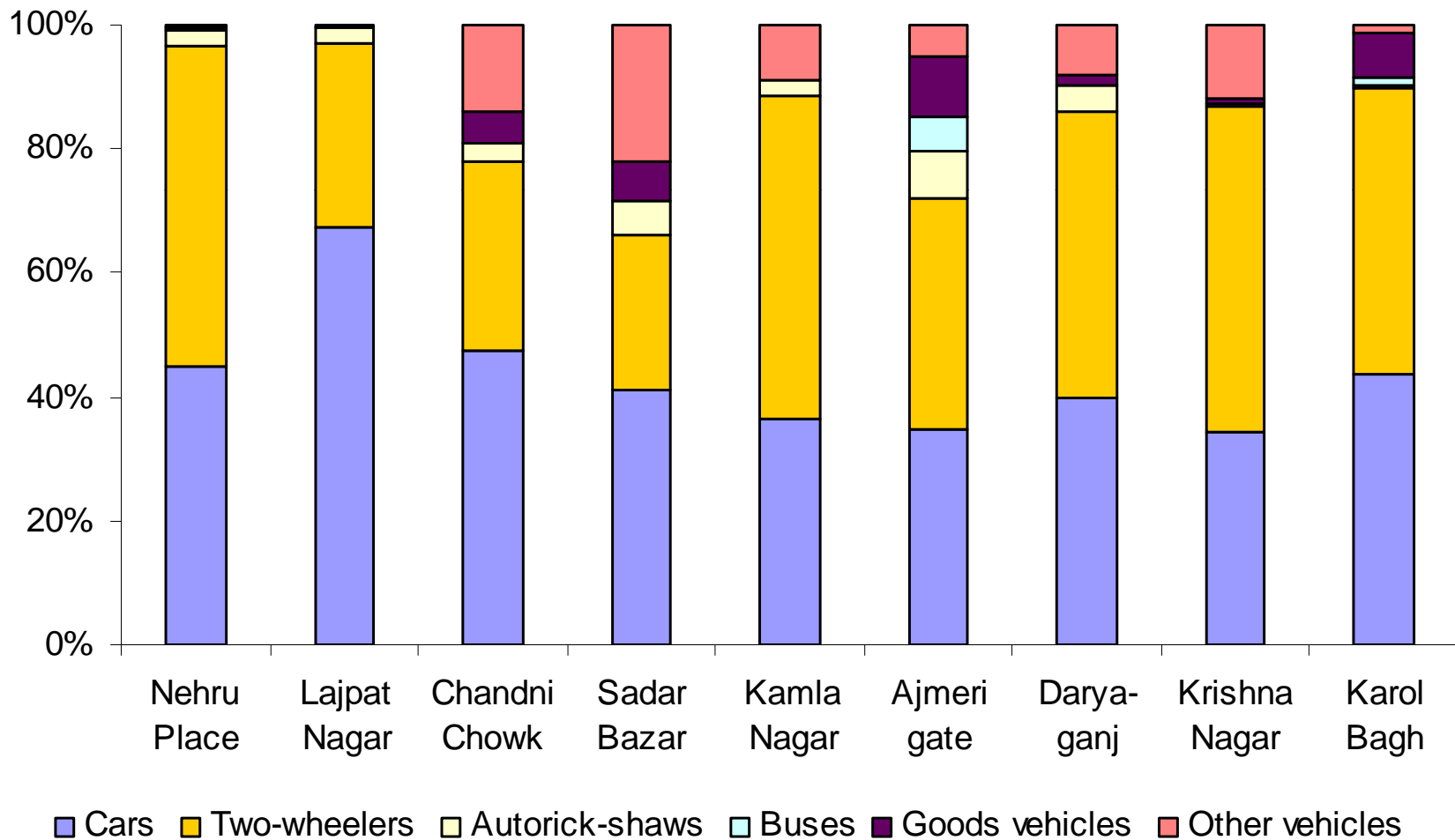
Opt for common and shared parking. Discourage individual – private parking   13
What factors must guide zonal/district planning?

How the ECS to be distributed amongst different modes
Cars and two wheelers dominate the parked fleet

Legend: ☐ Cars ☐ Two-wheelers ☐ Autorick-shaws ☐ Buses ☐ Goods vehicles ☐ Other vehicles

X-axis categories: Nehru Place, Lajpat Nagar, Chandni Chowk, Sadar Bazar, Kamla Nagar, Ajmeri gate, Darya-ganj, Krishna Nagar, Karol Bagh

Source: Estimated on the basis of CRRI report: Congestion and parking problems of selected locations in Delhi, Final report (2006), New Delhi, p 160

How to plan for parking of other modes?

Bicycles

Para transit
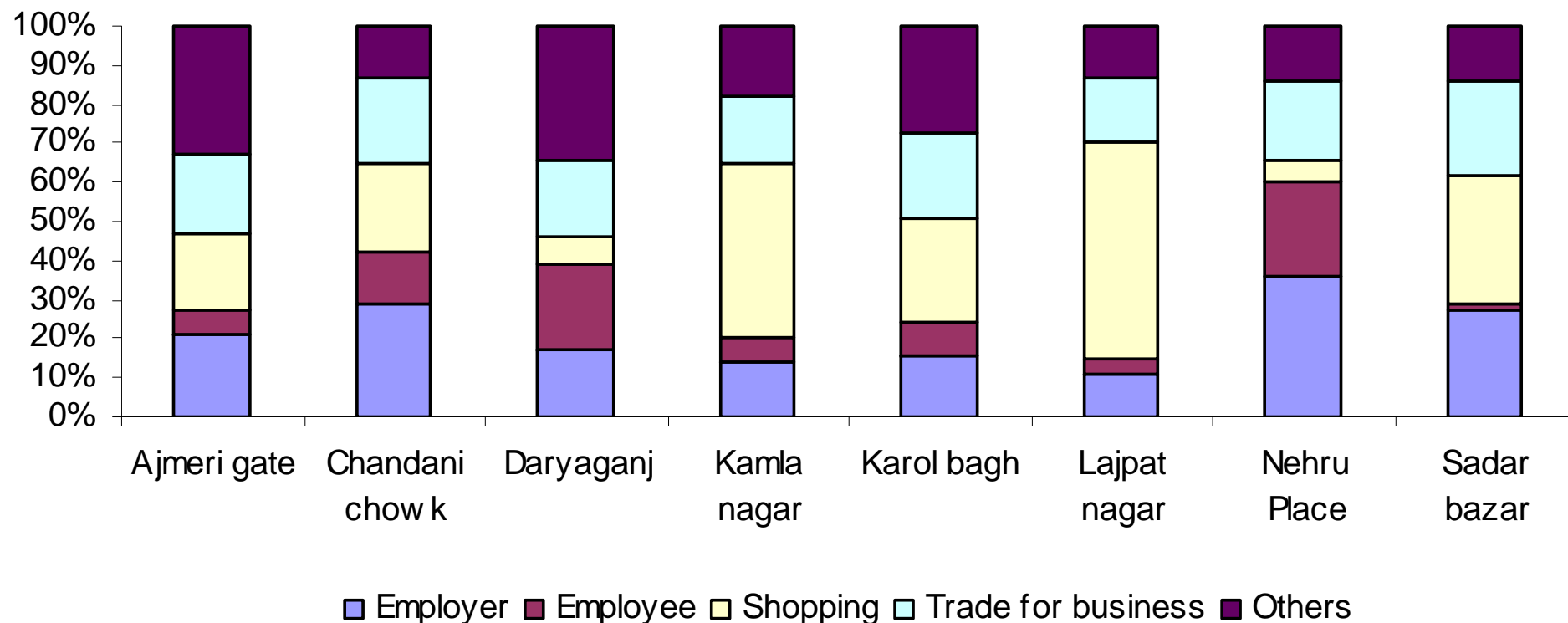
Bus

Trucks

Containers

How do we deal with short term parkers?

Need strategy to push long term users to use public transport and park and ride facilities

Car user profile

How parking pricing can make a difference?

Free parking induce more car ownership and driving…………But huge resistance to priced parking…

Eliminate hidden subsidy…..

Global experience shows that appropriately priced parking can make significant impacts: Shifting from free to cost recovery parking rates can reduce automobile commuting by 10-30 per cent especially if linked with transportation choices
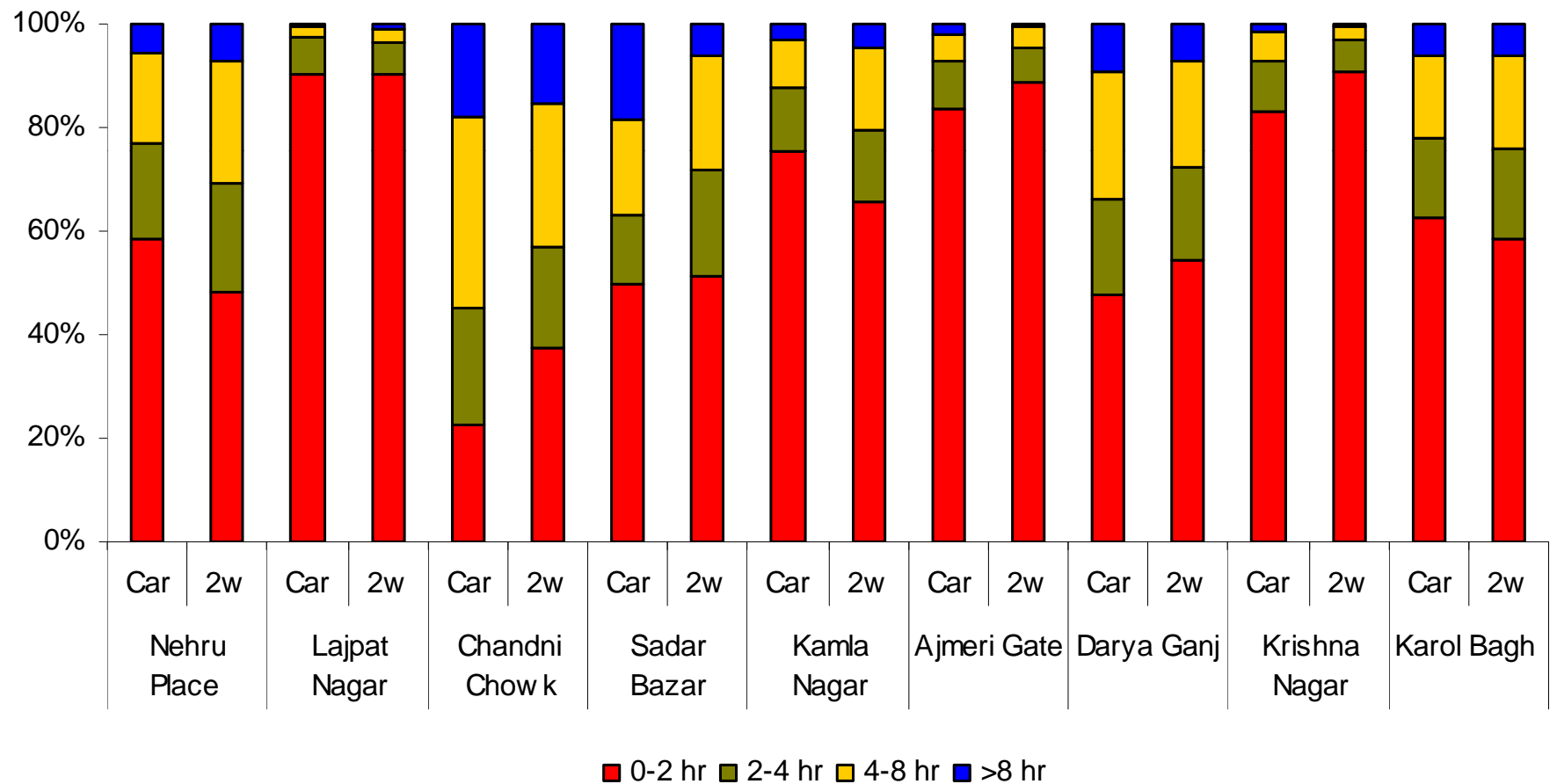
• What principles must guide parking pricing?

How to price for short term and long term parker?
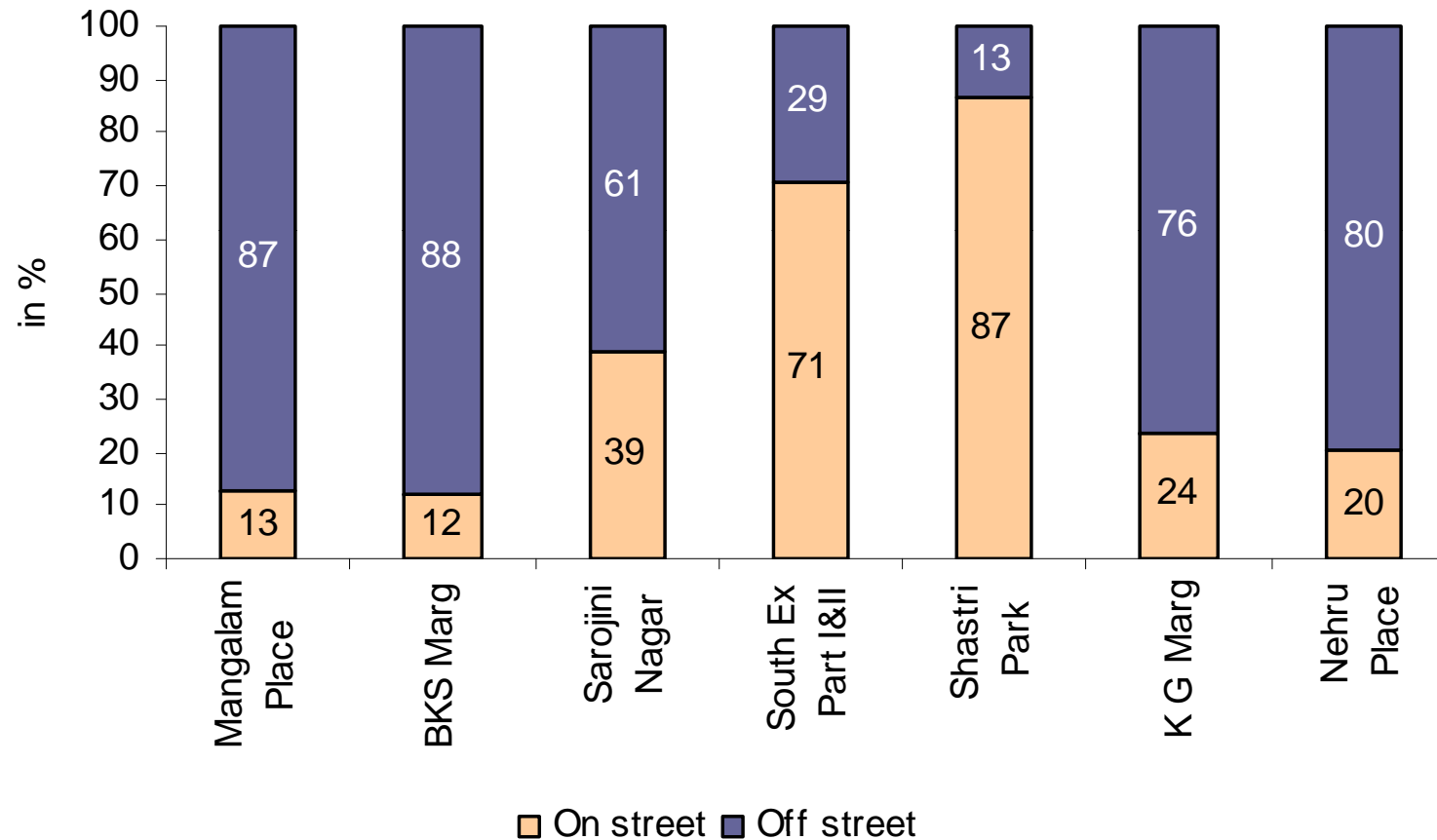
In many sites 50 to 85 percent of users stay upto 2 hours

Parking duration

Legend: ■ 0-2 hr ■ 2-4 hr ■ 4-8 hr ■ >8 hr

Categories: Nehru Place, Lajpat Nagar, Chandni Chowk, Sadar Bazar, Kamla Nagar, Ajmeri Gate, Darya Ganj, Krishna Nagar, Karol Bagh (each with Car and 2w)

Source: Based on CRRI Study

Obsession with multi level car parks

Multi level parking at huge costs

	BKM multi level parking		HT multi level parking	
	Parking and commercial	Parking only	Parking and commercial	Parking only
ECS	941	780	1,209	1,025
Cap. Cost Rs in lakh per ECS	4	4	4	4
Total Cost in lakhs (including cap, working, taxes etc) (Net Present Value)	5,290 (Rs 1672 per sq feet)	3,849	7,523	5,310
Revenue in lakhs (NPV)	6,724	4,168	9,352	5,574
IRR in %	12.68	12.67	12.68	12.69
Parking charges	Rs 10/h	Rs 30.25/h	Rs 10/h	Rs 39/h

Harmonise parking rates for MLP and surface parking

EROS

FOR CARS
Rs 20 for 2 hrs,
Rs 40 : 2-4 hrs
Rs 60 : 4-6
Rs 100 : 6-10 hrs
Rs 250 : 24 hrs

Car: Rs 10 for 12 hrs
2Ws: Rs 5 for 12 hrs

No "on-street" parking proposed but not implemented

Legend:
- Commercial/Semi Commercial Area
- Public Utility
- Existing Multilevel Parking
- Green Area
- On-Street Parking
- No On-Street Parking
- Proposed Multilevel Parking
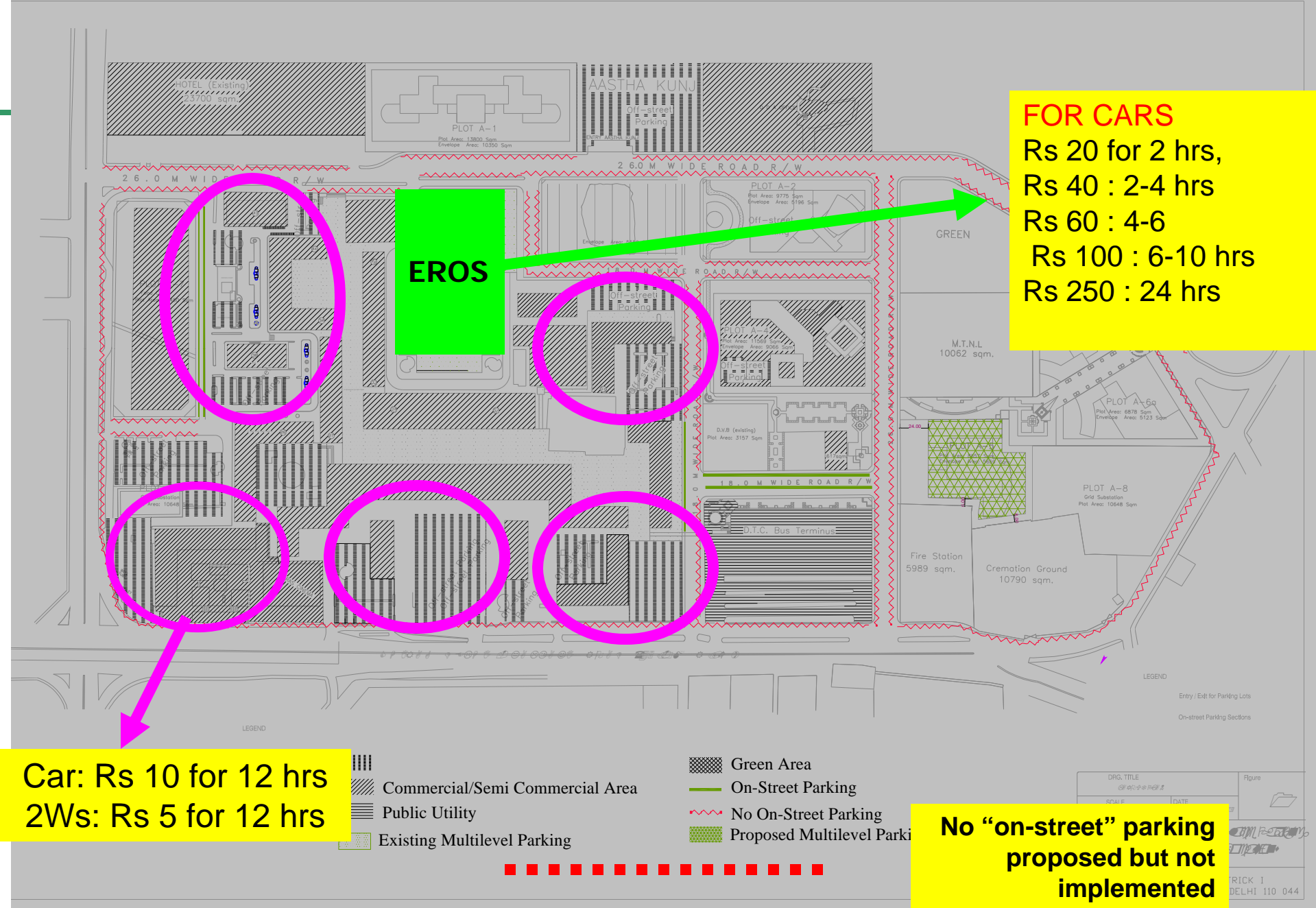
Need parity of rates between structured and surface parking

Mumbai: Discrepancy in rates can lead to underutilisation of MLP

INOX the multiplex in Nariman Point: Before construction of MLP: No. of surface parking spaces: **140,** Utilisation: **100%** during office hours

After: No. of parking spaces: **540,** Utilisation of MLP during office hours: **10%** Parking rates are Rs 5 per 30 minutes or Rs 10 per hour.

Surface parking rates : Rs 5 per hour and Rs 3 for every additional hour.

Resolve this

New game in town: Free floor space index (FSI) to builders to builders to create free parking lots.

Poor utilization

Situation in INOX Parking area on 5th May 06 – a weekday at peak time of 11:am

Source: Mumbai Environmental Social Network

- **Inbuilt subsidy of this Rs 80 crore structure**: The cost works out to be Rs 10 lakh per car. Operational cost -- Rs 3 crore a year. To recover full cost from parking charges,

- **The structure can recover only 1.6 per cent of the operational costs from parking**. In best case utilization, the full revenue from the current parking rates can at best recover only one-fifth of the operational costs.

- **Little interest in integrated management of surface and MLP --** 98% of the earnings for the developer from shops. Developer has little interest in ensuring full utilization of the parking space. Resistant to common management of the surface parking area.

- **CSE survey: People are willing to consider a shift to other modes only if the minimum parking rates are three times the rate in multilevel parking:** People are willing to consider a shift to public transport only if the minimum rates for parking cross Rs 30 per hour and much more. This is three times the rate of Rs 10 in multi-level parking.

- **Integrated local area management plan?** Focus on integrated management of both surface and multilevel parking, pricing strategy for both, enforcement of legal parking, pedestrianisation of the area, and planned improvement of public transport connectivity among others.
- **What is district parking management plan?**   23
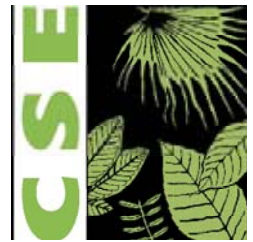
How to do local area management?
Eg. Sarojini Nagar

Potential pedestrian plaza……

..…..But cars taking over space

Multi-level car park

Principles for parking pricing

- **Eliminate and minimise free parking in key areas with good public transport access**. This will encourage people to use other forms of transport and reduce congestion.

  Introduce variable parking rates according to peak hour, duration of stay; commercial importance of areas; according to weekdays when demand is high, and weekends when low. Higher rates for bigger vehicles

  Charge convenient parking spaces higher than the inconvenient places to reduce congestion and influence commuting choices:

  Limiting parking duration for short term users can ensure higher customer turnover rates for local businesses and also reduce local congestion.

- **Free parking should be allowed only to cycles and cycle rickshaws and battery operated vehicles and public transport vehicles**. **Park and ride. Give NMT a greater privileged access to public transport**

  Proposal of annual lump sum payment retrograde: Annual passes allow unlimited use and do not reduce demand. Commuter behaviour will remain unresponsive

- **How will government fix rates if cities move towards full cost pricing? Should rates be market driven?**

- **Methodology for fixing parking prces**

Public notification from transport department.

- -- Rs 30 for three hours during peak hours + Rs 20 for every additional hour or part thereof during non-peak hour + Rs 50 for every additional hour or part thereof during peak hours.

-
  -- Rs 50 for three hours during peak hours + Rs 20 for every additional hour or part thereof during non-peak hours+ Rs 50 for every additional hour or part thereof during peak hours.

-
  -- Rs 1500 per month for monthly permit for residents of the area (only one vehicle to be allowed per family/shop)

Nascent steps in pricing reforms....

Kolkata takes the lead by hiking parking charges

Rate Chart for Day Parking

Category of parking space	Previous parking rates Rate / hour or part thereof, for first hour (in Rs.)*		Revised parking rates effective from 1st August, 2011 Rate / hour or part thereof, (in Rs.)*	
	Two wheelers	Cars / vans	Two wheelers	Cars / vans
A	3	7	5	10
B	2.5	6	5	10
C	2.25	5	5	10

In Kolkata a car pay Rs 80 for eight hours
In NDMC area of Delhi:
> **Group A areas (Rs 70)**: Rs. 10 for first two hours, Rs 10 For every subsequent hour & part thereof
> **Group B areas (Rs 30)**: Rs 10 for first 4 hrs, Rs 30 for 4-8 hrs, Rs 50 for beyond 8 hrs
> **Group C areas (Rs 30)**: Rs 10 for first 4 hrs, Rs 30 beyond 4 hrs
> **Delhi (MCD) (Rs 10)** Rs 10 for up to 10 hrs, Rs 20 for 10-24 hrs

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How parking can be leveraged for multi-modal integration and to improve access?

--- Deploy parking innovatively to facilitate shift to other modes

--- Park and ride facilities to improve public transport usage.

--- Build them away from the busy commercial centres and MRT nodes and connect with NMT, IPT, PT and pedestrian ways.

-- Public transport buses and NMT to be given priority and privileges in the design for integration.

-- Park and walk and park and ride in targeted areas

Park and walk – increases customer throughput

Parking in residential and mixed land-use areas

How should we approach this?

-- Promote shared and collective parking instead of individual owner parking

-- Introduce priced parking. Enforce residential parking permits that can be purchased for on-street parking.

-- De-link cost of residential units from the cost of the parking space. Pay separately for parking spaces. Higher tax for multiple car ownership

-- MPD 21 links vehicle license to parking space.

-- Environment impact assessment of high impact buildings (to include parking impacts)

Lajpatnagar

Chandni Chowk

Protect green areas from parking

Prevent erosion of green cover for parking provision

MCD is charging one time parking rates from property owners to create off site parking facilities …. But no space available on the designated commercial streets…..

MCD is trying to create underground parking space under play grounds and green spaces. Not allowed. Public protest.

-- EPCA: parks / playgrounds would not be permitted to be utilized for parking purpose as it would destroy breathing space / playground for children.

 -- The nine locations where such constructions have been allowed, are mandated to restore 90 % of the site to flat playground conditions with landscaping using shrubs and grasses. On the remaining 10% land on the sides, trees will be planted. A small portion will be used as ramp.

-- Important to protect green parks and spaces in the neighbourhoods. Public protest.

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Aizawl takes the lead

Mizoram Regulation and Control of Vehicles Parking

To own and buy a car…..

- the owner of any type of motor vehicle including two wheelers shall have a garage within his own residential or business compound or in some other place, or a garage hired from any other person, for parking the vehicle (*The Mizoram Gazette, Vol XL, Issue No. 52, February 2011*)

- Purchaser, before purchasing any type of motor vehicle including two wheelers or the person intending to purchase any such motor vehicle shall obtain a certificate from the ….transport department…that he has a garage, within his own residential or business compound or in some other place, or a garage to hire from other person, for parking the vehicle he intends to purchase (*The Mizoram Gazette, Vol XXXIX, Issue No. 295, August 2010*)

Parking revenue for public good

- **JNNURM reforms demand earmarking of parking revenue for the dedicated urban transport funds**

-- Periodic license renewal pegged to the market driven parking rates can be an important source of revenue.

-- Tax parking spaces at the same rate – if the land was used for other developments. Offset revenue losses from the other potential uses of the land

-- Use parking pricing revenue to fund transportation and other local area development programmes,

-- Finance special transportation and pollution reduction projects etc.

How to plan parking in TOD areas?

- Cap/limit/not allow within 300/500 m radius around station area?

- No parking in the frontage of the building

- And……………………

Other countries are limiting and pricing parking supply

Portland, Oregon set an overall cap of 40,000 parking spaces downtown. This increased public transport usage from 20-25 per cent in the 1970s to 48 per cent in mid 1990s.

Seattle allows a maximum of one parking space per 100 square metres at downtown office

San Francisco limits parking to seven per cent of a downtown building's floor area

New York: Very high parking fees and limited parking supply lowers car ownership far below the average rates in other US cities.

Boston has frozen parking requirements at 10 per cent higher than the 1973 levels. This has helped Boston to meet the federal clean air standards.

Bogota has removed limit on the fees that private parking companies can charge. The revenue is dedicated to road maintenance and public transit improvement.

Shenzhen: Hike in parking fees during peak hours leads to 30% drop in the parking demand.

Tokyo: Enforcement against parking violations cuts congestion drastically . Private firms allowed to issue tickets for parking violations. This makes on-street parking expensive.

Bremen: No free parking in city centre. Parking charges higher than public transport cost.

Globally, customers agree to pay high parking charges if they get good shopping and pedestrian environment. This also improves business.

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What other countries are gaining from parking policy?

Clean air gains:

Boston: When Boston was unable to meet the federal clean air standards it froze the parking requirements in the city at a level that is only 10 per cent higher than the level in 1973. This has helped them to control car usage and meet the federal clean air standards.

Amsterdam - parking fees expanded to meet EU directives regarding NO2 and PM10 emissions. Car plate numbers are registered with emissions information. Trucks are allowed to unload for a maximum of 15 minutes in spots where they are not allowed to park

Zurich considers total NO2 emissions when determining the amount of parking to be allowed.

New York has lowered pollution levels with parking policy

Increased ridership of public transport:

Portland, Oregon, set an overall cap of approximately 40,000 parking spaces downtown, and allowed for only 3 per cent increase in spaces in 1990. Result -- nearly 43 per cent of commuters that came into the city centre shifted to public transport. Seattle allows a maximum of one parking space per 100 square metres of downtown office space and excess amount is allowed only by administrative review. Result -- Nearly 45 per cent of city centre employees use public transport and few carpools set aside spaces.

Financial benefit of parking revenue:

Barcelona, Spain -- all the revenue from parking fees was directed to a special fund for mobility purposes.

In **Antwerp, Belgium** parking fines are currently invested into mobility projects in the city.

Copenhagen collected 180 million DKK (€24 million) in fines in 2008. The parking money goes into a general city fund.

In **London**, parking income must be channeled to transportation projects.

Deepen public awareness about the benefits of parking management and restraint

Public support can be stronger if people understand the benfits

Car user will benefit: More reliable and predictable advance information about parking
Reduce cruising time and fuel cost. Efficient billing makes payment more transparent and accurate. Chances of finding a space improves; reduces waiting time. This decreases traffic chaos due to indiscriminate on-street parking.

Non-car user will benefit: Protect footpaths and allow barrier free walking;
frees up public spaces for cycle tracks, rickshaw parking, autoriskshaw-parking, play grounds;
Improves access to bus-stops. Improve safety of children, women and elderly people.
Improves visibility of shops, shopping experience and throughput of customers. Improve overall environment, green areas and public recreational spaces. Make it easier for emergency vehicles like ambulances, fire trucks, police, etc. to reach all homes/ offices/ buildings.

Public health will benefit: Reduce car use/ dependency which can reduce air pollution and congestion in the city. Noise level can also be controlled. Global experience shows that when parking policy is designed as a travel demand management it reduces car usage and therefore congestion, air emissions as well as fuel use. Boston, New York etc

Build public support for parking tool that restrains car usage

The way ahead
Devil is in detail….

- Adopt flexible parking standards and gradually move towards maximum caps to account for improved public transport access and reduction in personal vehicle travel.

- Integrate parking design with multi-modal integration

- More stringent controls and enforcement in areas well served by public transport

- Parking pricing -- Minimise free parking, restrict on-street parking, use variable parking rates, avoid fixed annual payment, price parity between surface and multi-level parking etc.

- No parking on green spaces, pavement, NMT lanes, and service lanes. Non-negotiable.

- Need parking strategy for residential areas and mixed land use areas.

- Use parking revenue for other congestion reduction strategies and local amenities

- Stringent penalty on parking violations.

- Develop parking strategy for special localities like hospitals, railway station, cinemas, shopping malls, schools, high impact events etc

- Design parking strategy for buses, IPT, freight

- Commercial buildings with more than 20,000 sqm need Environment Impact Assessment. Parking and congestion impacts of these buildings should be assessed

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Possible to reclaim land

Changes of the schoolyard over 10 years, from 2003-2010, in Japan. Photo: K. Ito

Towards livable cities……

Thank You