

Semantics for Smart Cities

Guest Lecture Series

Presentation by

Vijay Anadkat, Fellow, EMBARQ India, New Delhi

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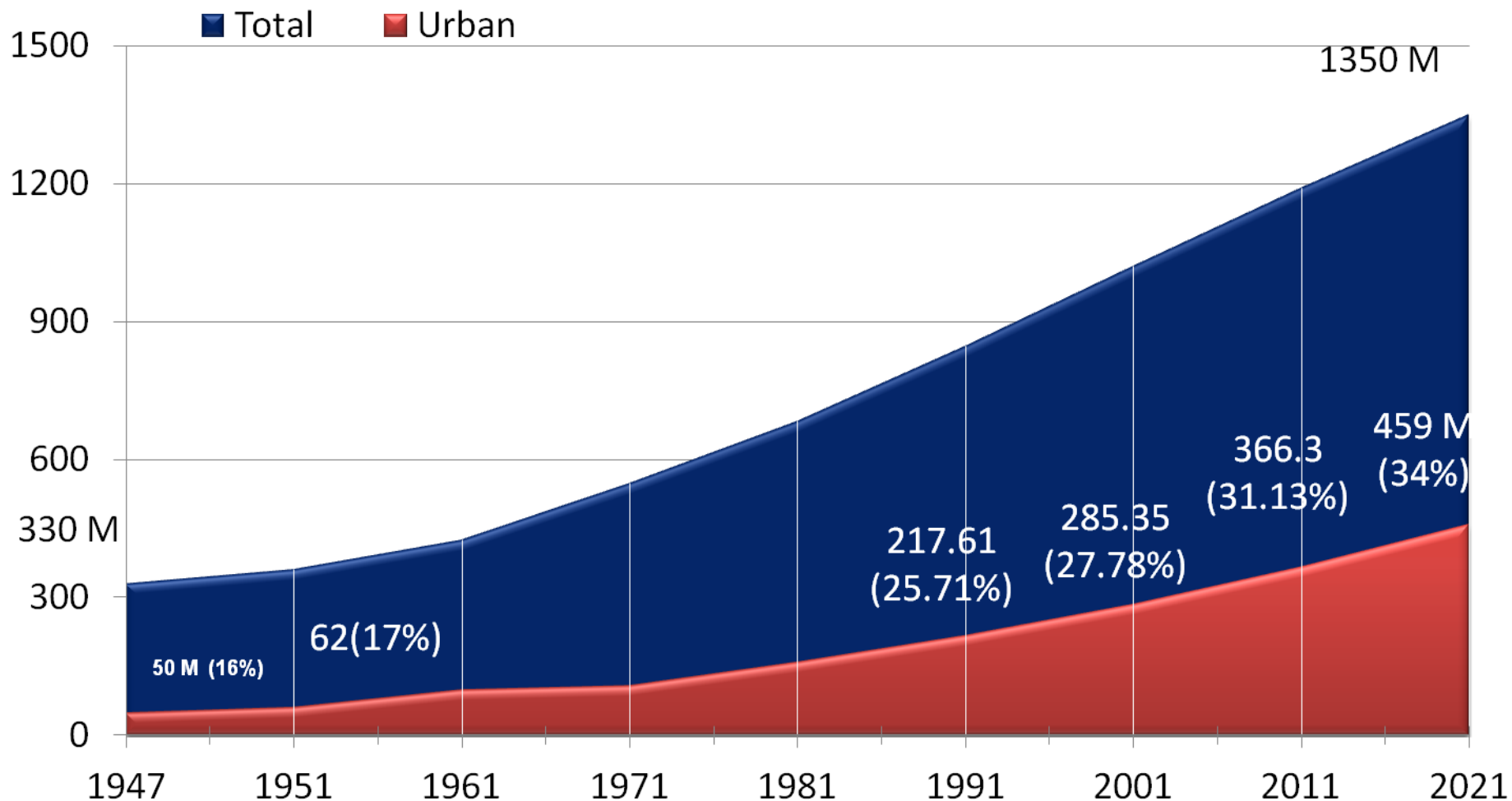
Thanks!

Structure of presentation

- Urbanization: Data
- About Smart city concept & context
- Typical Sector development for smart city plan
- Evaluation of JnNURM projects
- Expectation in the SCDPS

India is urbanizing..

Decadal Growth Rate of

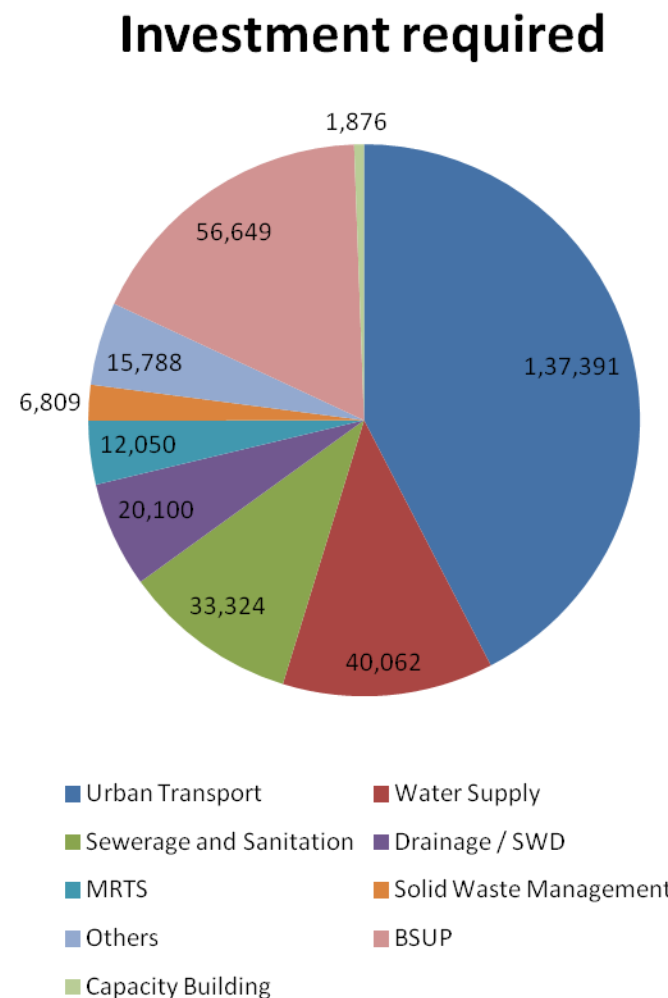


Fund requirement for urban infra

Report	Estimated Investment
Urban Water Supply, Sanitation, & Roads, India Infrastructure Report (1996), 10 years.	Rs. 28,035 crores per annum
Safe Water Supply and Sanitation Services as per CPHEEO, requirement by 2021	Rs. 172,905 crores
Urban Transport Infrastructure as per RITES next 20 years.	Rs. 207,000 crores
Rakesh Mohan Committee urban infrastructure development covering backlog, new investments and O&M costs for the next ten years	Rs. 2,50,000 crores
HPEC Report	39,18,670 crore (at price 2009-10)
McKinesy Report	53,00,000 crore

Fund requirement for urban infra : Pre JnNURM

Sectors	Estimate Capital Investment requirement for 63 cities for 7 year period In Rs. Crore
Urban Transport	137,391
Water Supply	40,062
Sewerage and Sanitation	33,324
Drainage / SWD	20,100
MRTS	12,050
Solid Waste Management	6,809
Others	15,788
BSUP	56,649
Capacity Building	1,879
Total	335,350



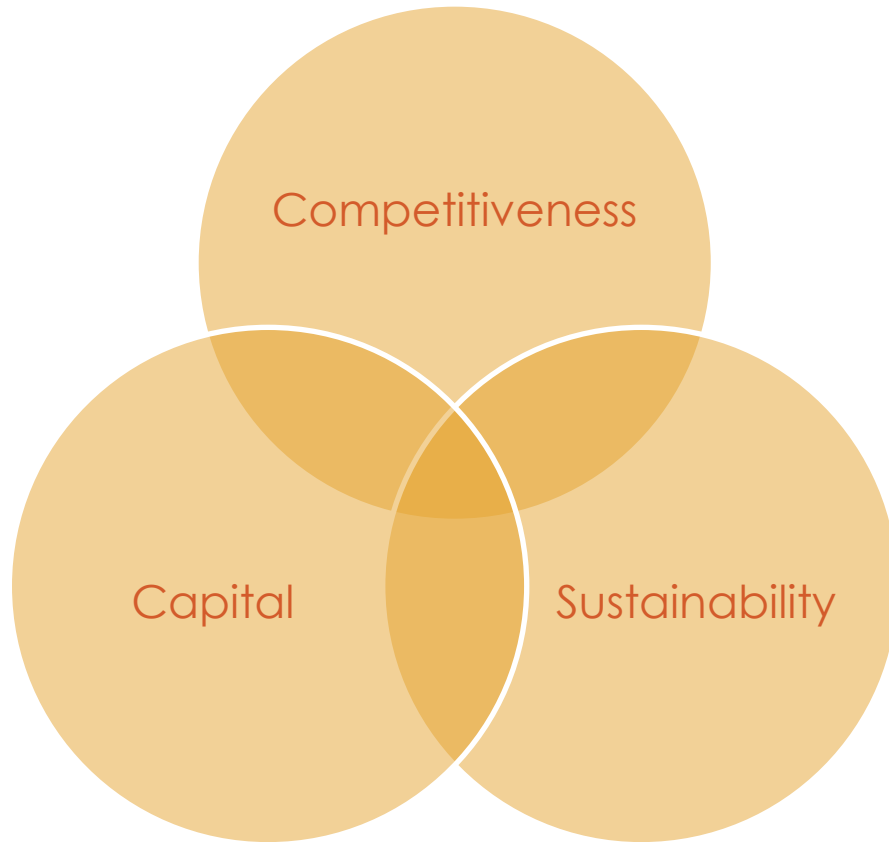
Smart City....



Smart City thinking visions for the urban future;
responding to sustainability challenges and
advances in digital technology.

Features of Smart city

as proposed by MOUD



- **Competitiveness** refers to its ability to attract investments and people.
- **Sustainability** includes its social ,environmental and its financial sustainability.
- **Capital** includes its human as well as its social capital

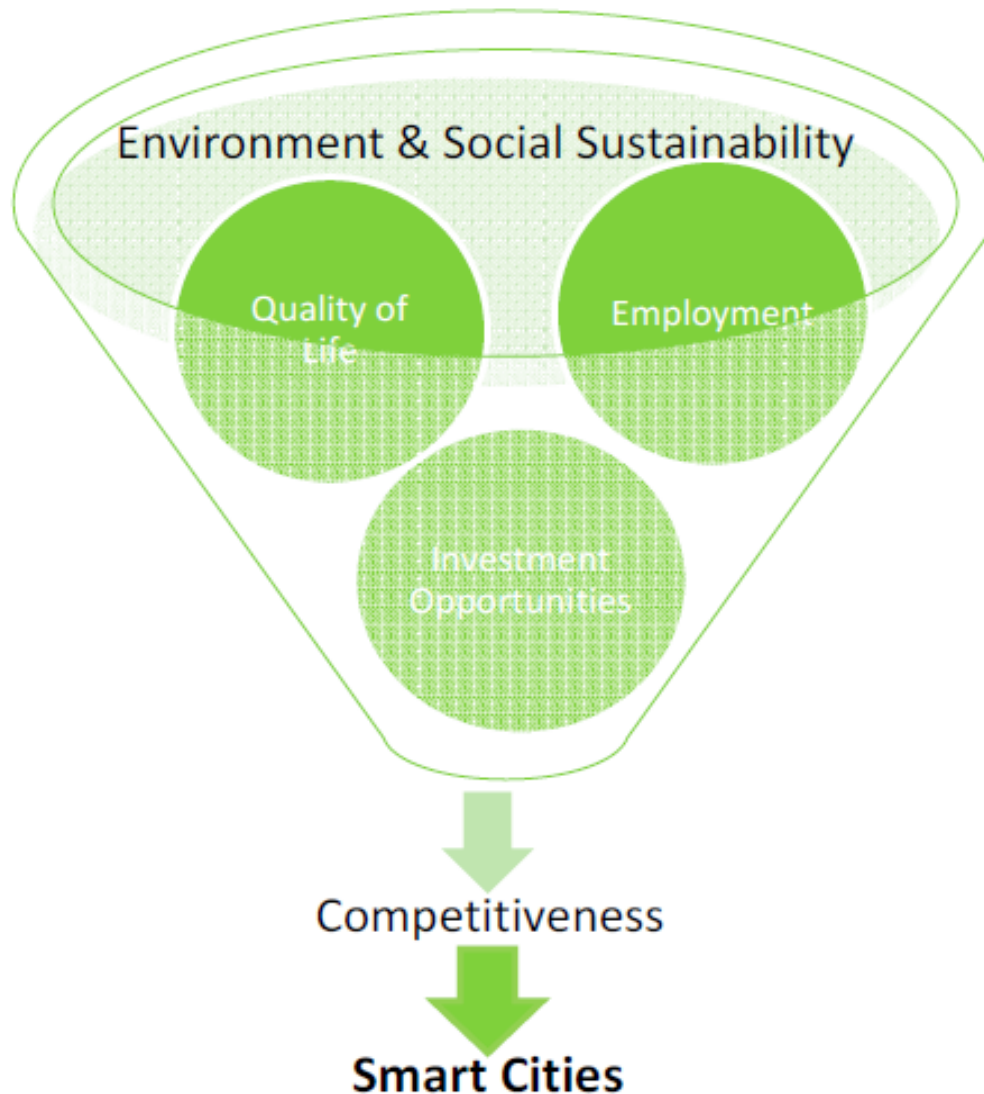
PM's Vision for Smart City

Hon'ble PM Shri explains about his idea
of developing 100 smart cities

Highlights

- 100 smart cities
- Branding for city
- Development of Satellite and twin cities
- Sustainability
- Walk to Work culture
- Create Employment opportunity

MoUD's perception



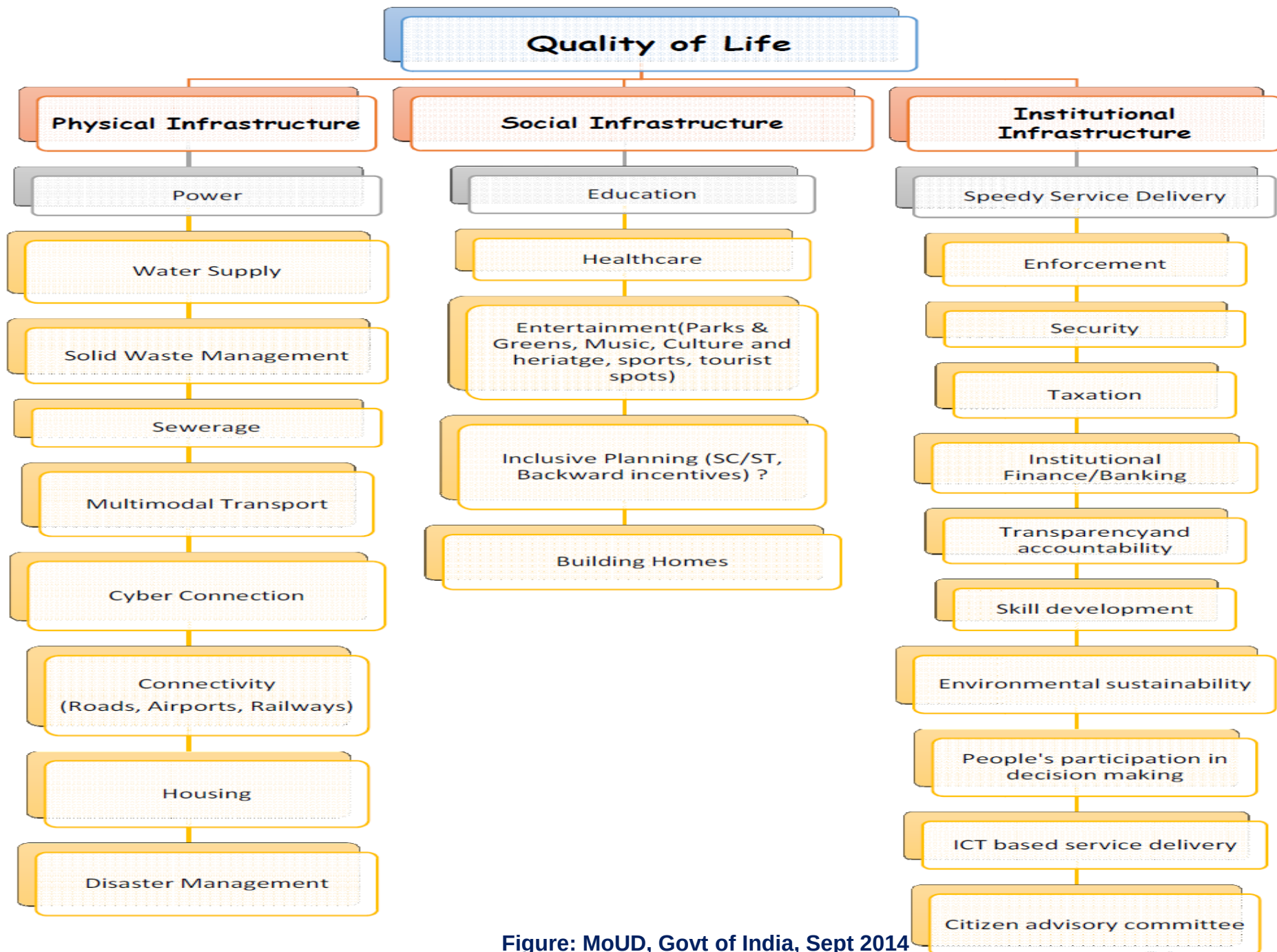
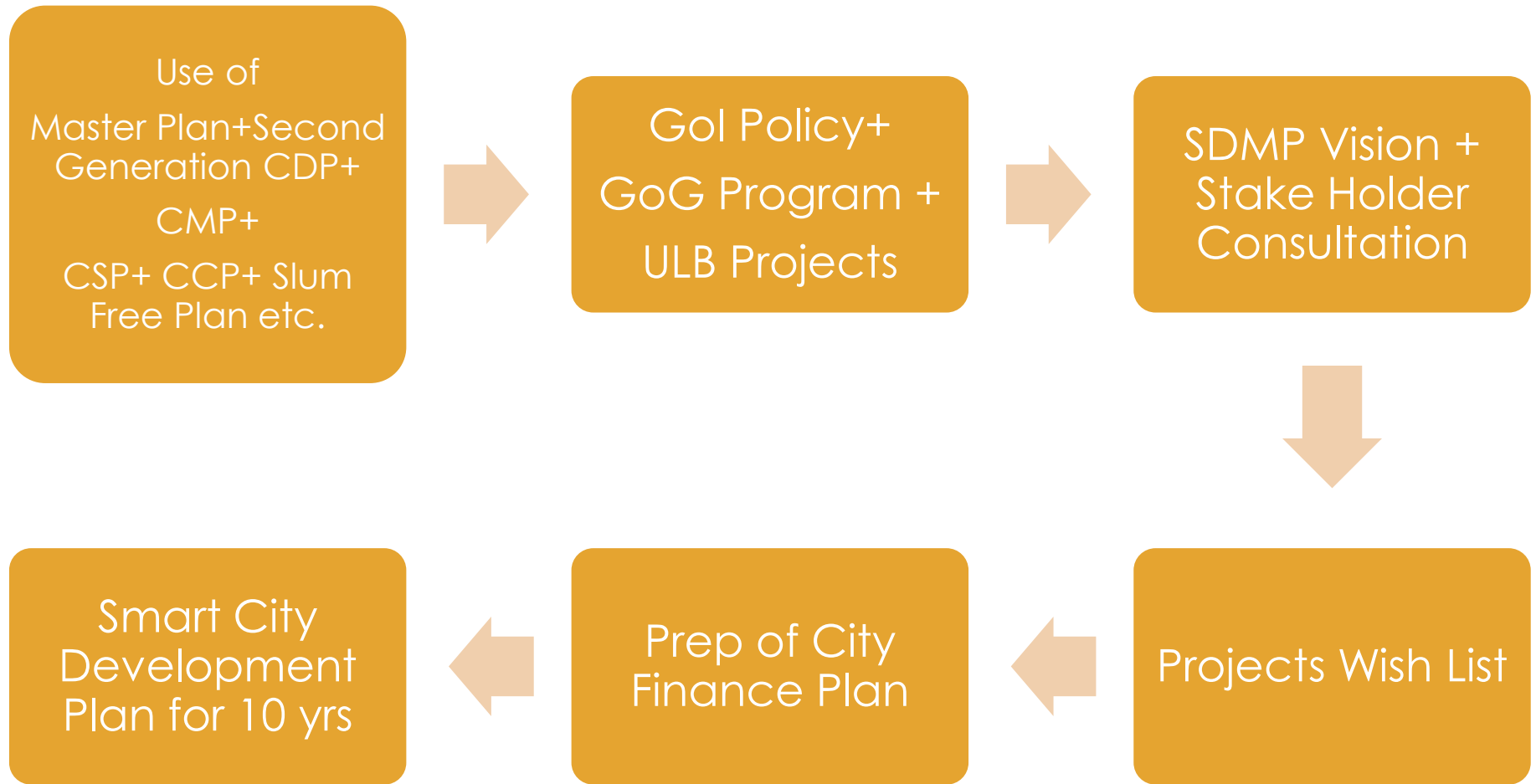


Figure: MoUD, Govt of India, Sept 2014

Smart City Development Plan process flow chart



Smart City: Thought Process

“Adopt and Improve” Learning

- Low Carbon
- Green technology
- Sustainable
- Safe
- High quality of life
- Long term VISION

Vision and branding..

- **Involve People/ stack holder**
- **Long term**
- **In line with State 7 center**
- **Implementable**

Assessment : Urban Planning



Residential
Land use 45- 65 %



Commercial
Land use 3 %-
10%
Industrial
Land use 2-10%



@ 25-55% Built up
area
@ 0.45-1.35 FSI
consumed



Roads 8-20%

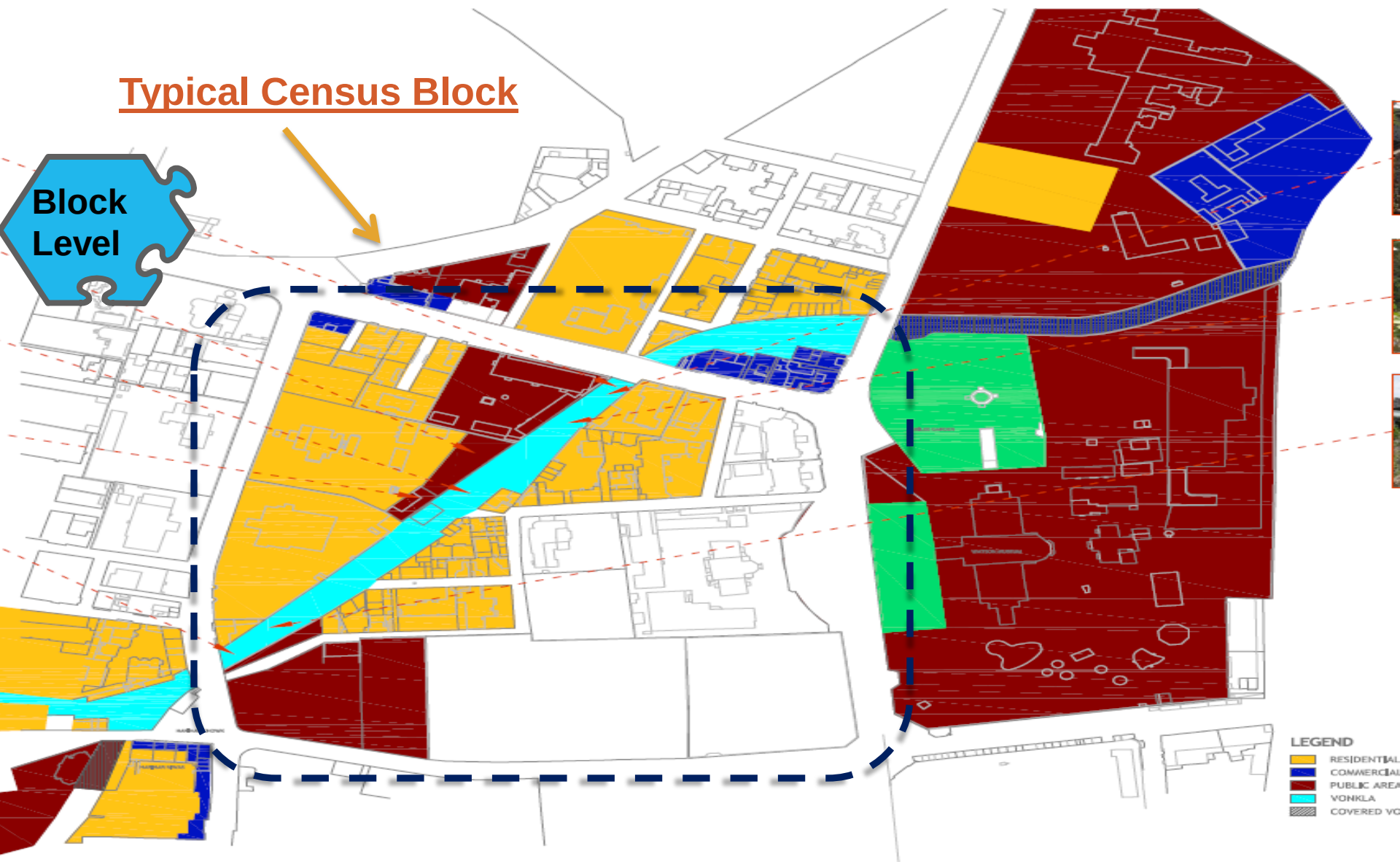


Open Space &
Green space
7-35%

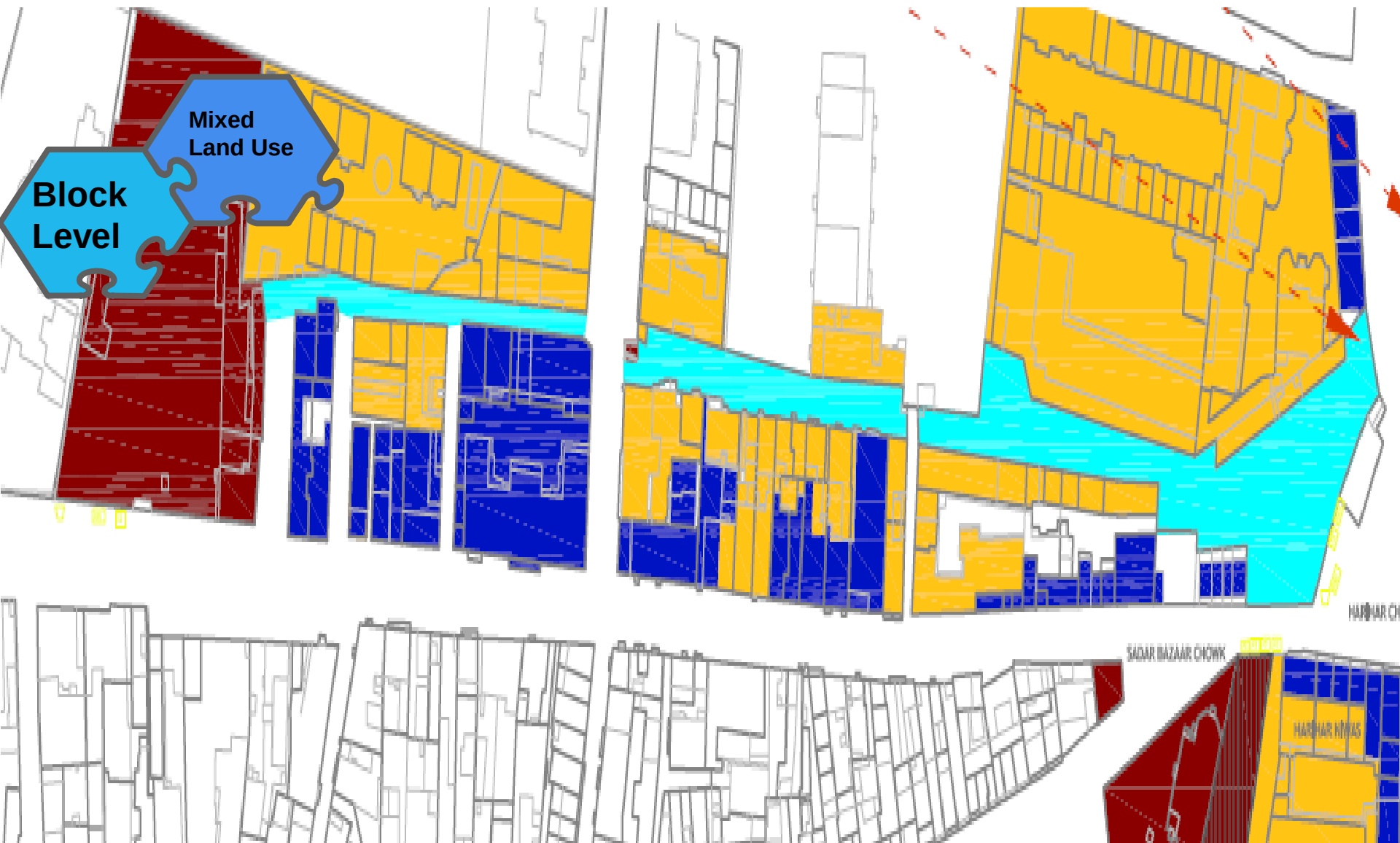
SC Strategies: Planning_ Block based

Typical Census Block

Block
Level

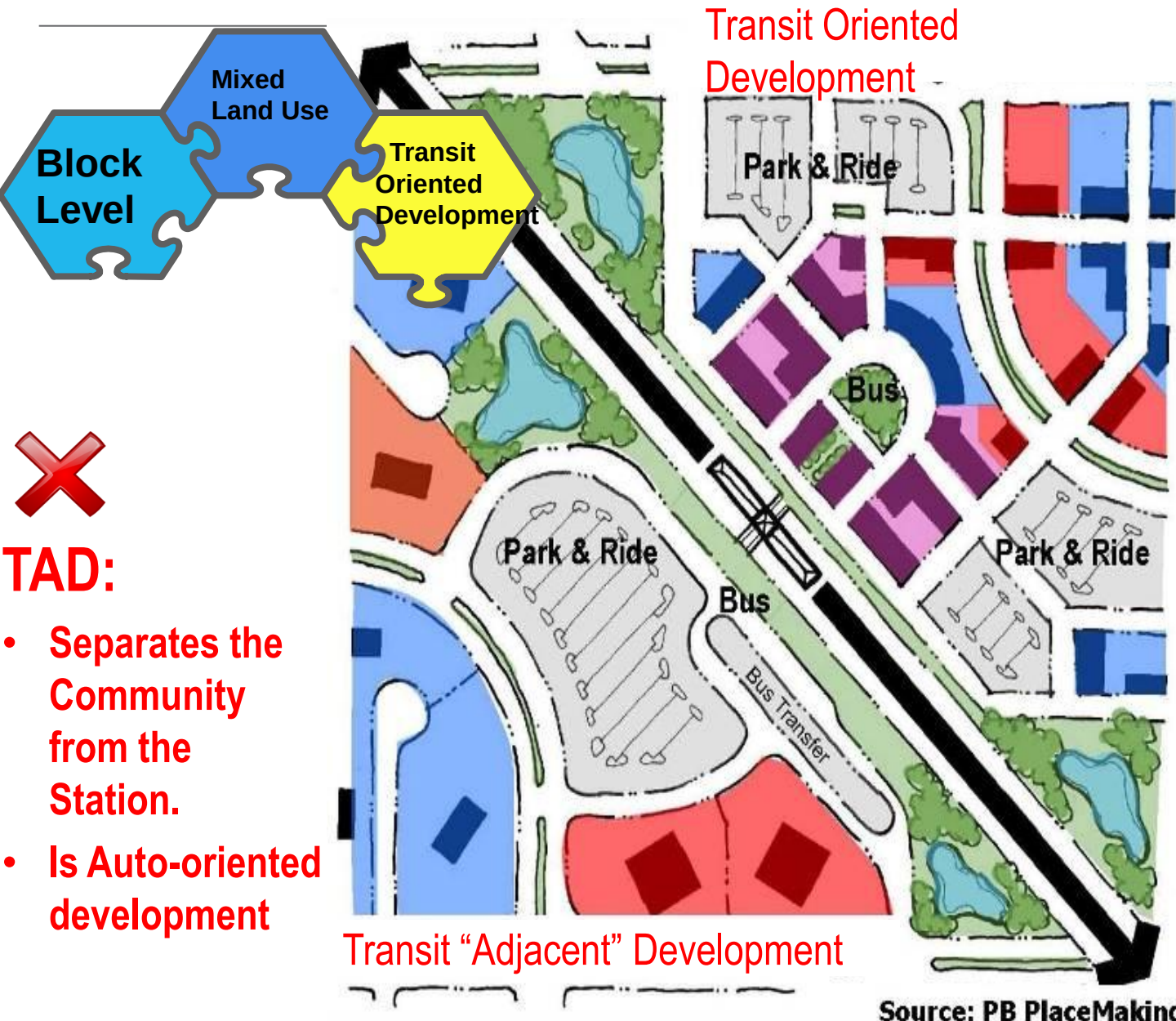


SC Strategies: Planning_ mixed land use



Map: Parth Shah Rajkot

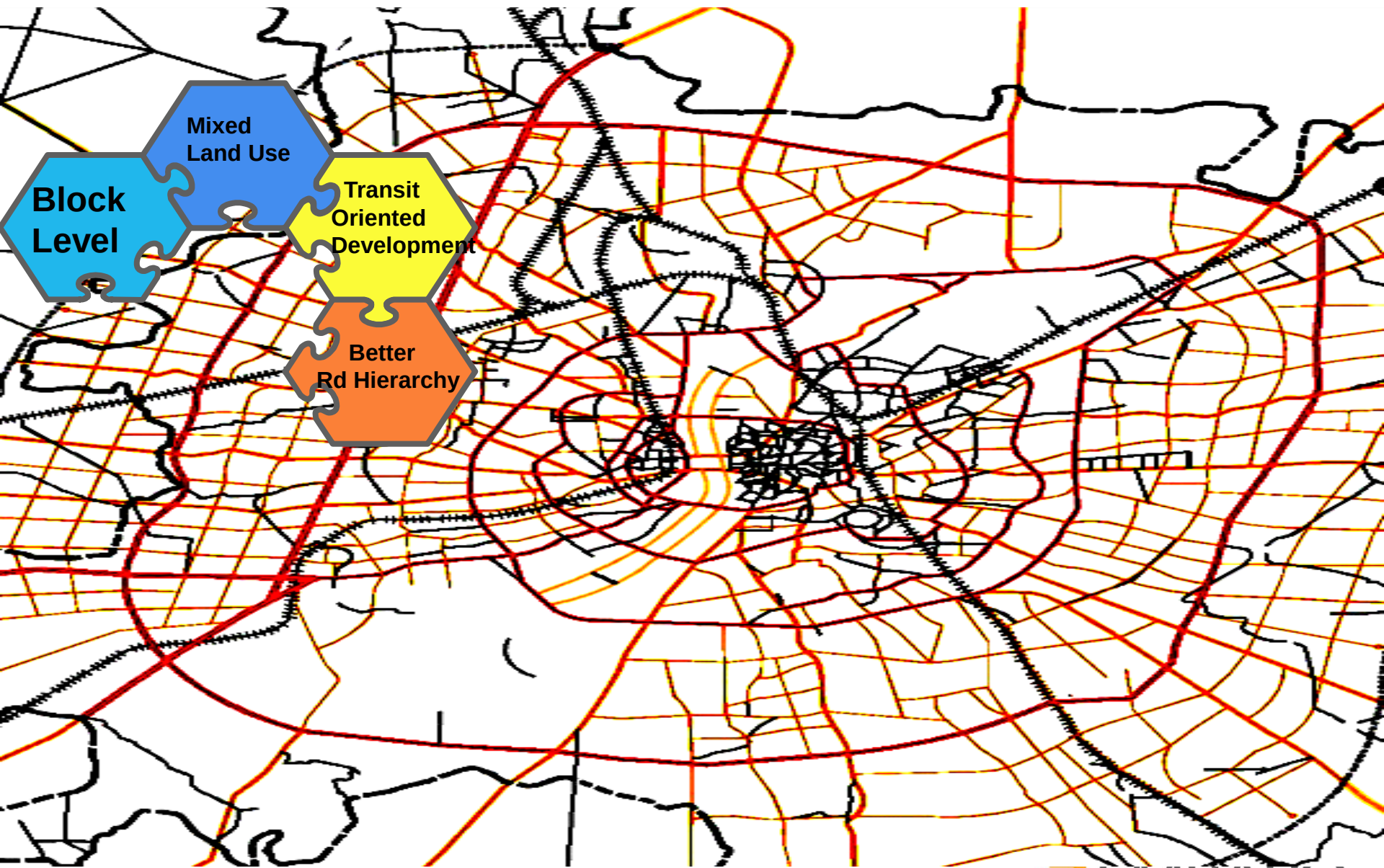
SC Strategies: Planning_TOD



TOD:

- Encourages Walkability and Mixed Use
- eg: Dadar Station, Mumbai

SC Strategies: Planning_ better road hierarchy



SC Strategies: Planning_ promoting green bldg

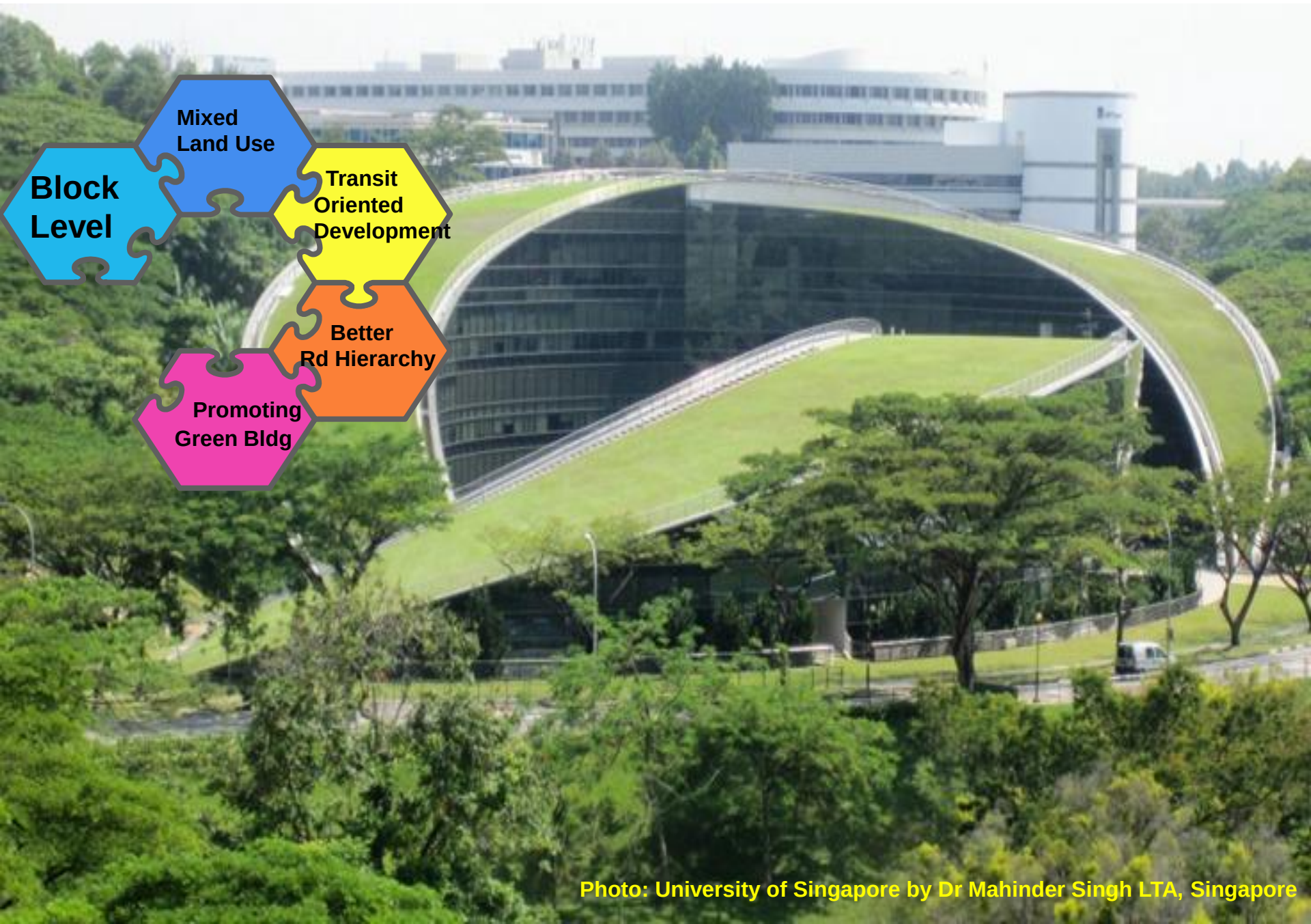
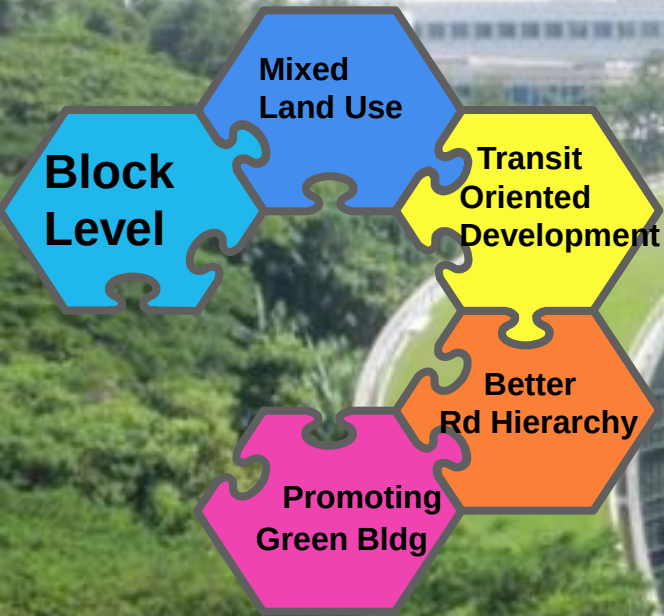
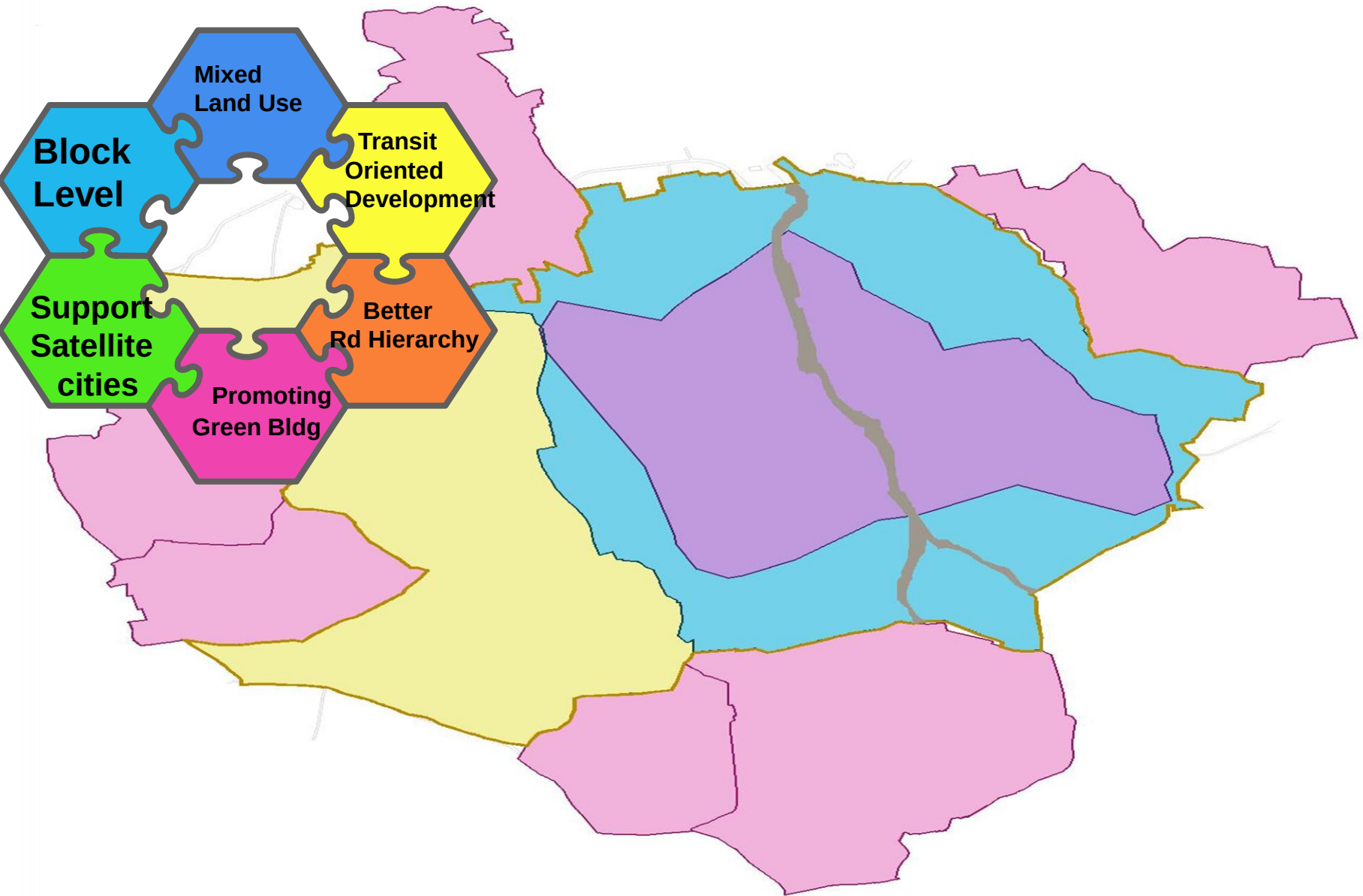


Photo: University of Singapore by Dr Mahinder Singh LTA, Singapore

SC Strategies: Planning_ Support Satellite towns



SC Strategies: Planning

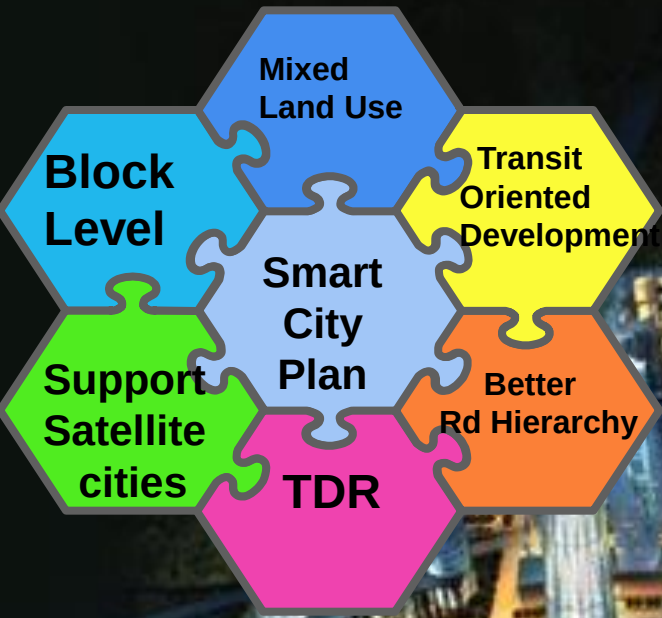


Photo: GIFT city, UDD & HD, Govt of Gujarat

Projects wish list : Urban Planning

1. Listing and Valuation of all properties & updating
2. Development of Micro planning
3. GIS development and updating
4. Auto DCR for permission of planning
5. Promoting guidelines for Green Buildings
6. Policy formulation for Hoarding boards
7. City Surveillances Plan
8. PPP for Title Certification
9. Mapping of Soil Bearing Capacity/ contouring of city & updating
10. Revitalization plan for wall city area

RC : Smart City m- Governance



- Free Wi-Fi city
- Tax Mobile payments
- Qty & Quality of water
- Smart neighbourhood
- RFID for waste collection
- Safety & Control of Home
- Child Education status
- Monitoring Social services

Data

Citizens

Services

Health care check

City bus/BRTS ticket

Parking ticket

Congestion ticket

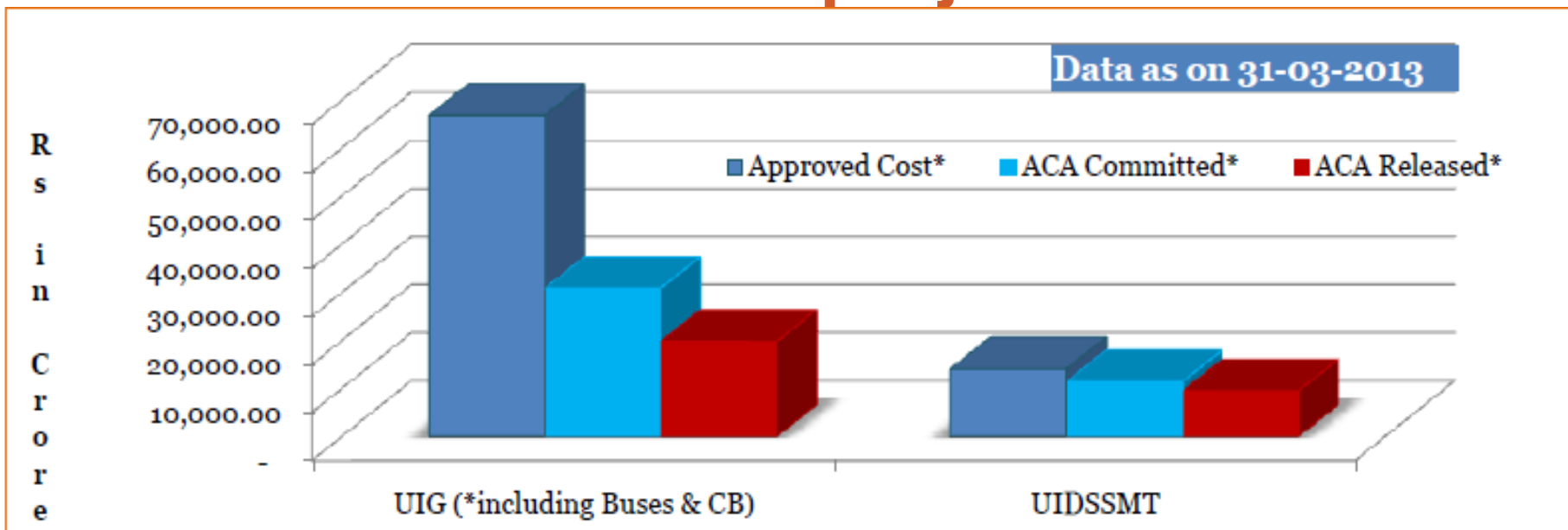
Real Time Traffic Monitoring

Concept: Vijay Anadkat, Emabrq New Delhi

Possible Sources for Financing

- **Public Private Partnership (PPP)**
- Sale or leverage the land bank
- Betterment levy/ higher FSI
- Review of Tariff structure
- Central Government Allocation as CSS
- State Govt contribution
- Municipal Bonds
- Loan from international agencies

Evaluation of JnNURM projects

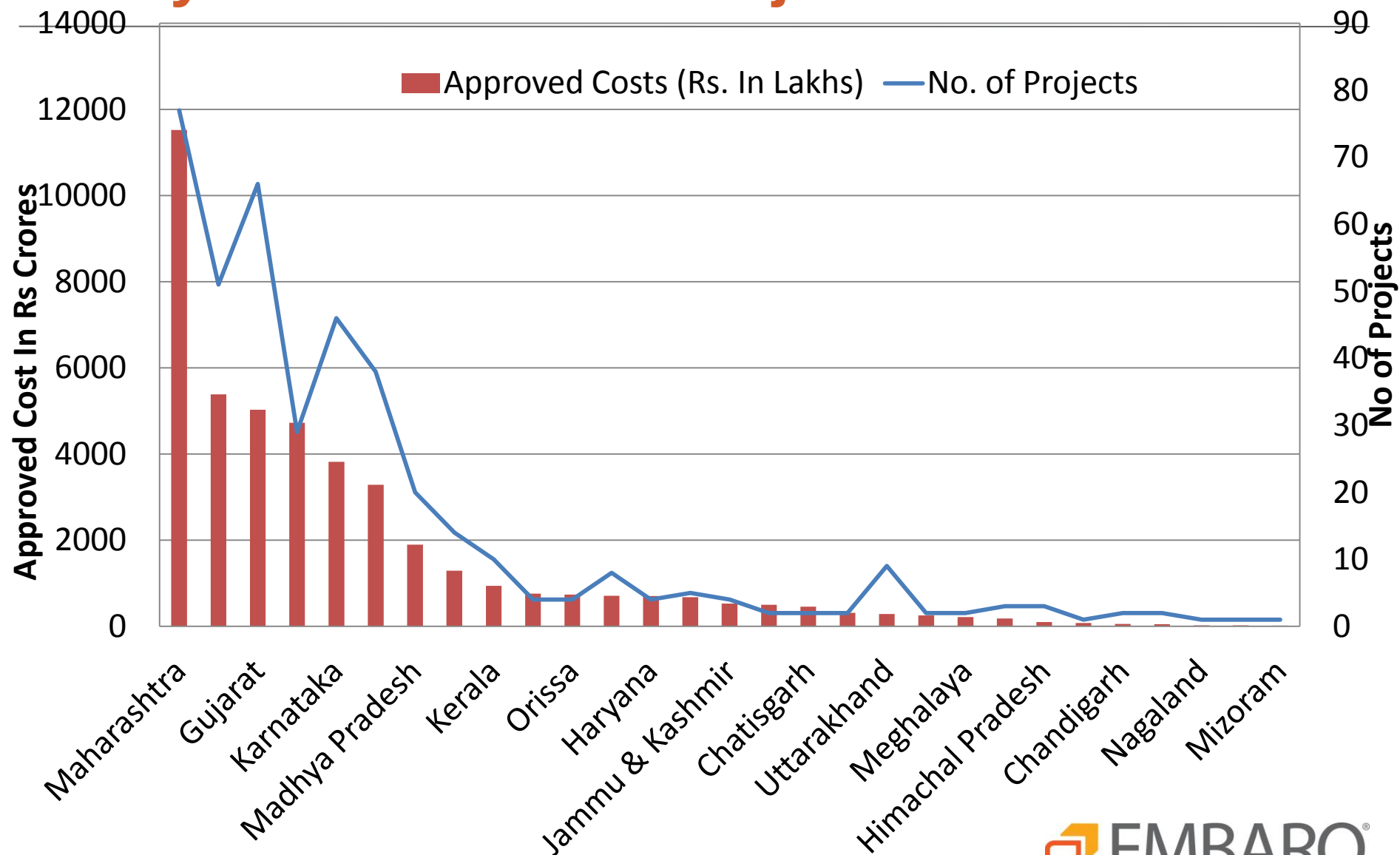


Amount Rs. In Crore

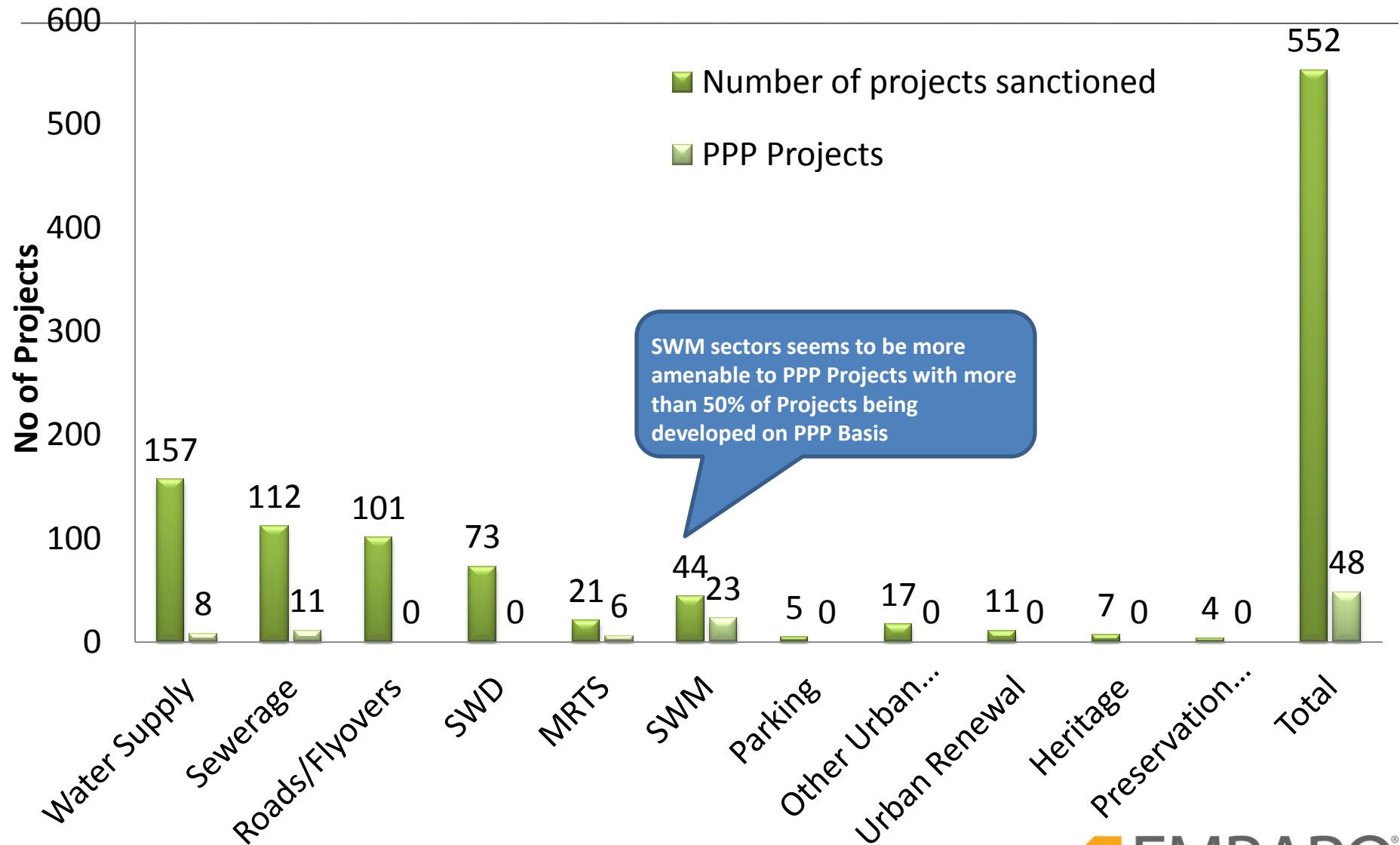
Particulars	UIG*	UIDSSMT	Total
Overall Allocation	31,500.00	11,400.00	42,900.00
Approved Cost	66,727.62	14,020.98	80,748.60
ACA Committed	30,959.35	11,358.26	42,317.61
ACA Released <i>(excluding Rs. 56.53 cr as A&OE expenses)</i>	21,074.80	9,676.41	30,751.21
Cities/Towns Covered	65	672	737
Projects Approved	550	807	1,357
Projects Completed	187	389	576

Source: MoUD website ; www.moud.nic.in

Analysis of JnNURM Projects



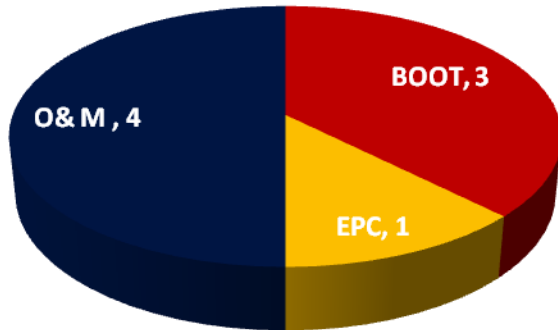
JnNURM and PPP



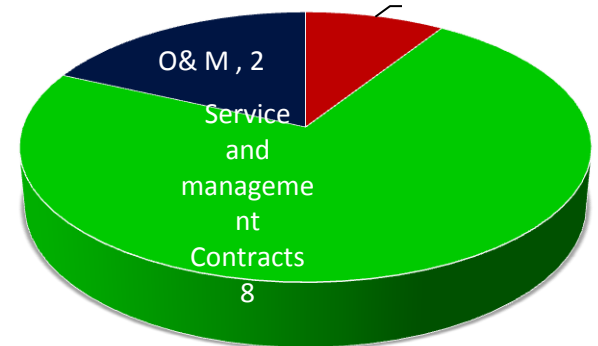
JnNURM PPP project shelves

State	No PPP Projects	PPP Projects investments (Rs in Crore)	SWM PPP Projects	sewerage	Urban Transport	Water Supply
Maharashtra	7	870	100	130	-	640
Gujarat	19	2,461	268	475	1,665	54
West Bengal	3	104	44	34	-	26
Puducherry	1	108	108	-	-	-
Uttar Pradesh	7	400	400	-	-	-
Uttrakhand	1	25	25	-	-	-
Assam	1	102	102	-	-	-
Tamil Nadu	4	491	491	-	-	-
Rajasthan	1	13	13	-	-	-
AP	1	471	-	-	471	-
Karnataka	2	224	30	-	-	195
Haryana	1	74	74	-	-	-
Total	48	5,343	1,654	639	2,136	914

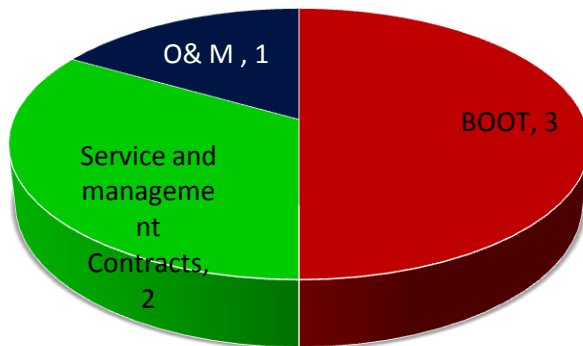
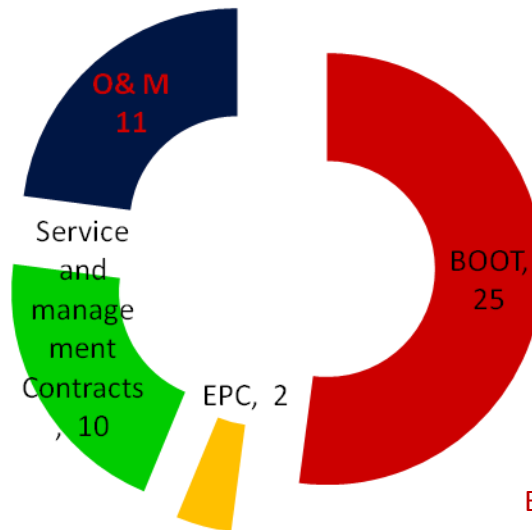
JnNURM PPP project : Types



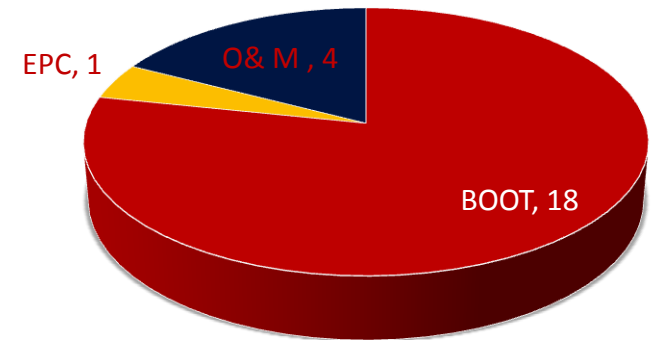
Water Supply



Sewerage



Urban Transport



Issue for PPP projects

- Limited PPP Contracts in which capital is brought by private
- Human Resource & Financial Resource for projects
- Inability of Local bodies to formulate PPPs
- Citizens reluctance specially in sectors of Water supply
- Speed of Decisions in ULB
- Multiple Department: Coordination itself is a Task
- Absence of Strategy for PPPs at all Level of Government
- Cost of Land have direct implications on private partner
- Most of officers lacks accountability and also are afraid of Corruption charges
- Scale of Urban Infrastructure projects is fairly low to attract serious international private Players
- Uncertainty in Political Mandate of ruling party influences the decision

Critical Factor for PPP projects

Project Structuring/contractual Governance (Demand side factors)

- Payments to the operator
- Project Modalities
- Risk Mitigation - Capital and Revenue
- Political Risk Guarantee and insurance

Local Conditions (supply side factors)

- Fiscal Space and autonomy
- Political Will
- Social acceptance of the Project
- Tariff Sustainability
- Institutional Capacity

Constraints in PPP projects

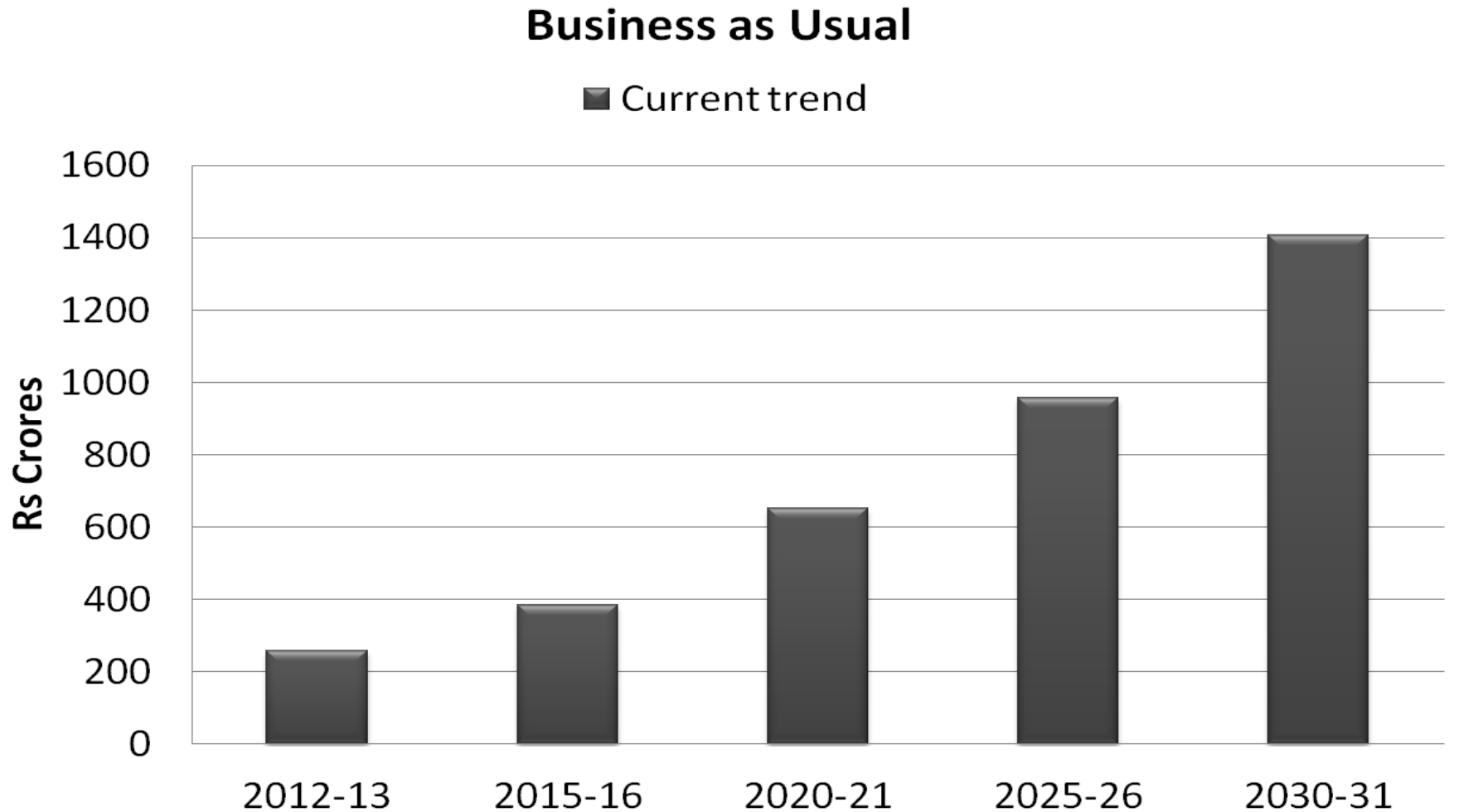
- Urban services like water and waste management have a strong "public good" component and it is not easy to recover costs from user charges, thus there are weak linkages between risks and rewards
- Project packaging are generally small in size to attract large players
- Capacity to design and manage PPP procurement process is not present in most ULBs
- The urban sector has many sub-sectors and a large number of configuration of projects is possible even within sectors like water, SWM, sewerage, etc., thus each project becomes a process of discovering the most ideal contract structure resulting in large lead time for a project.

Kerala's bid to form water company on PPP mode runs into opposition
India Water Review : May 8, 2013, 12:23 pm
Like 0 Tweet 0 +1 0 Share 1

Debate rages on private role in Delhi's water supply
Neha Lalchandani, TNN Mar 22, 2013, 02:19AM IST
Tags: water privatization | Delhi Jal Board



Scenario: Business as Usual



Success smart city will need..

- **Legal:** Amendments to Municipal Acts and Rules, Adoption of Model Municipal Law, Comprehensive Urban Planning Development Legislation , setting up Regulatory structures enabling PPP
- Formation of Tariff Regulatory Authority
- Supporting PPP for infra development share/stock
- National Urban Infrastructure Fund: Corpus for assisting bankable projects- to be set up as SPV
- **Structural:** Strengthening Institutional mechanisms to support PPP at all three level
- **Financial:** Amendment of Municipal Finance Rules to create separate funds for core services, Indexation of tariffs and user charges to inflation
- Accountability and transparency- IT system support for budgeting
- Environmental sustainability- norms and regulation for disposal of waste,
- **Capacity Building** Programme for decision maker
- **Reforms to enhance services:** indices for infrastructure and service levels

Last but not the least...

- Lesson learnt from JnNURM should not be kept on shelves
- There should not be any Confusion about “New 100 smart city or 100 city to be made smart “
- Three tiers involvement
 - Policy/ies by Center
 - Programs by State
 - Projects by ULB
- Develop Policy; not Persons!!!
- Smart city concept should not be limited to use of IT application
- People connect/ social bond should not be forgotten
- It should have local fragrance
- Every minute is important in urban development; optimum use of plan is must

“If the cities of the past were shaped
by people, the cities of the future are
likely to be shaped by ideas,
and there are a lot of competing ones”
(BBC)

Thanks...