

Challenges of Urban Services and Governance in Bangalore

Kala Seetharam Sridhar
Public Affairs Centre
Bangalore

Capacity Building Workshop on Systems
Thinking and Adaptive Governance:
The Context of Urban Flooding and Water Stress
in Bangalore

TERI and Asian Pacific Network for Global
Change Research
Bangalore

April 24, 2014

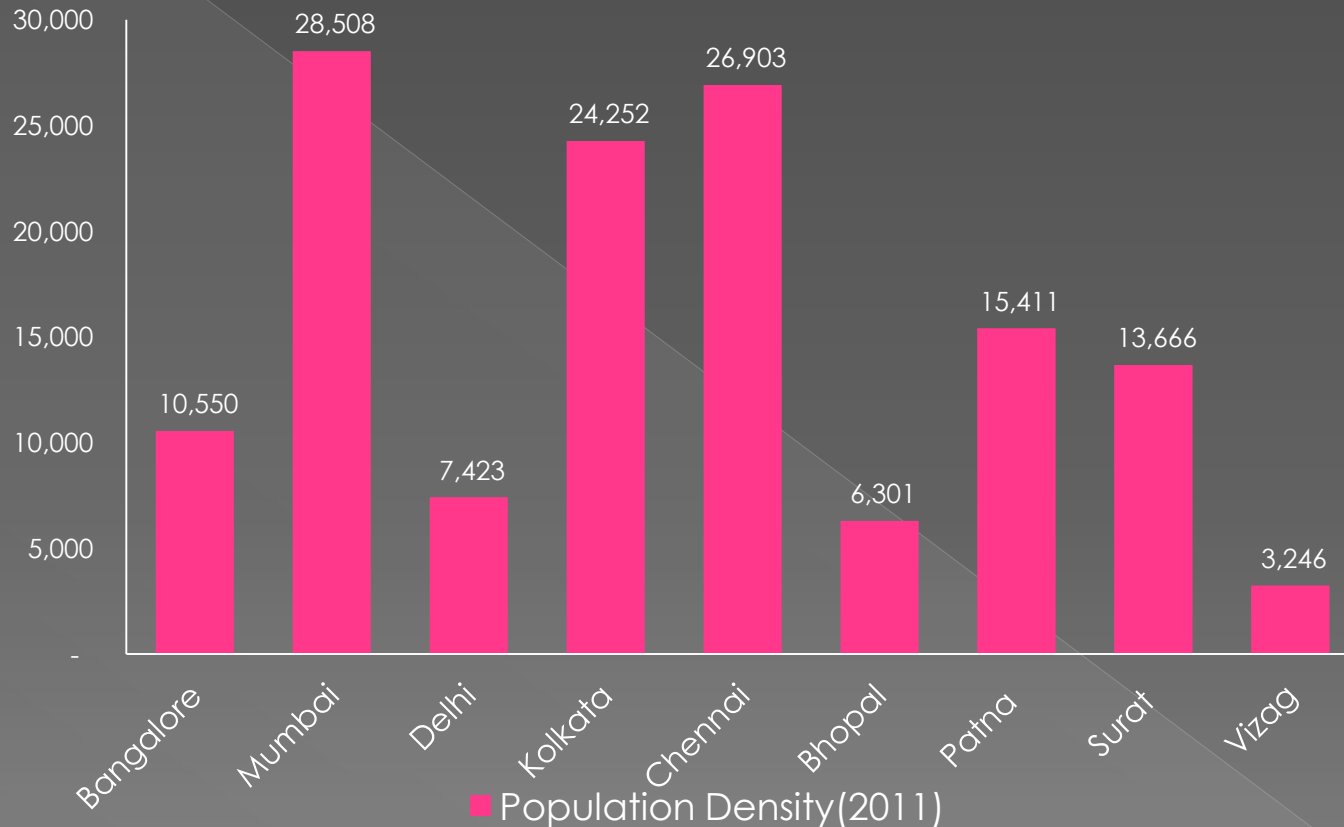


Presentation Overview

- ◉ Demographics
- ◉ Economic importance of Bangalore
- ◉ Land use changes
- ◉ Drainage infrastructure
- ◉ Solid waste management
- ◉ Water quality
- ◉ Summary, governance challenges and recommendations



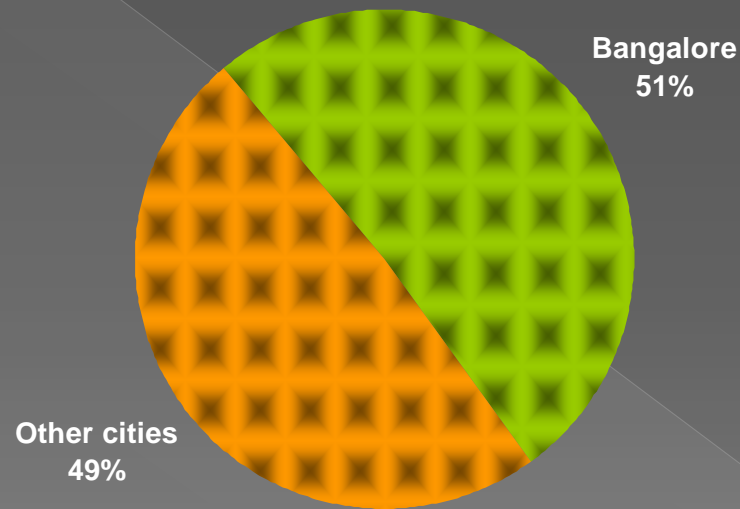
DEMOGRAPHICS: COMPARISON OF POPULATION DENSITY, SELECTED INDIAN CITIES, 2011



Sources: Census 2011, Municipal Corporations and Authors' Computations



HOW MUCH DOES BANGALORE ACCOUNT FOR? INVESTMENT PROPOSALS (Average, 2006-07 to 2008-09)

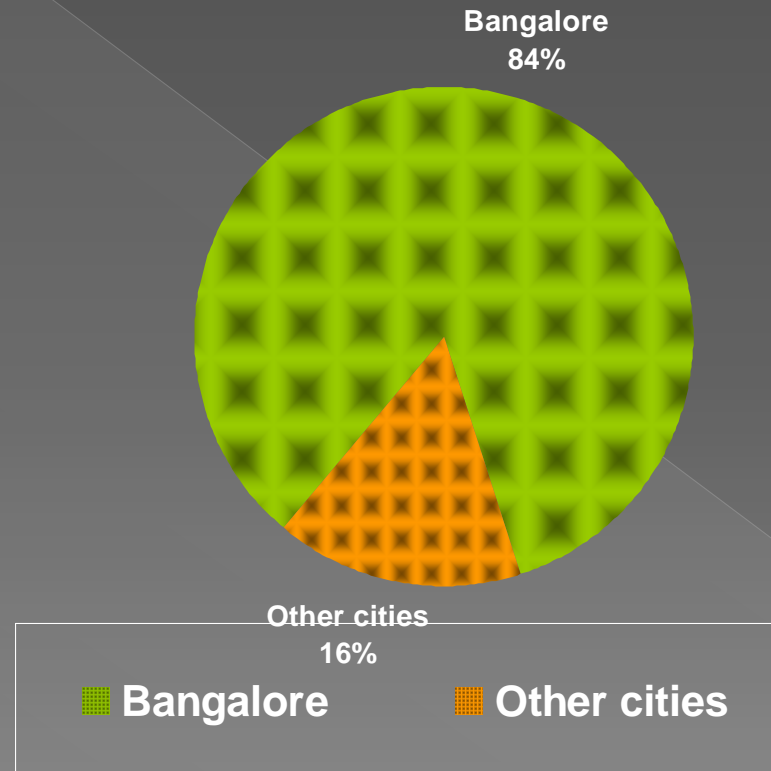


■ Bangalore ■ Other cities

Source: Paul et al (2012)



HOW MUCH DOES BANGALORE ACCOUNT FOR? CREDIT DISBURSED BY BANKS (Average, 2006-07 to 2008-09)



Source: Paul et al (2012)



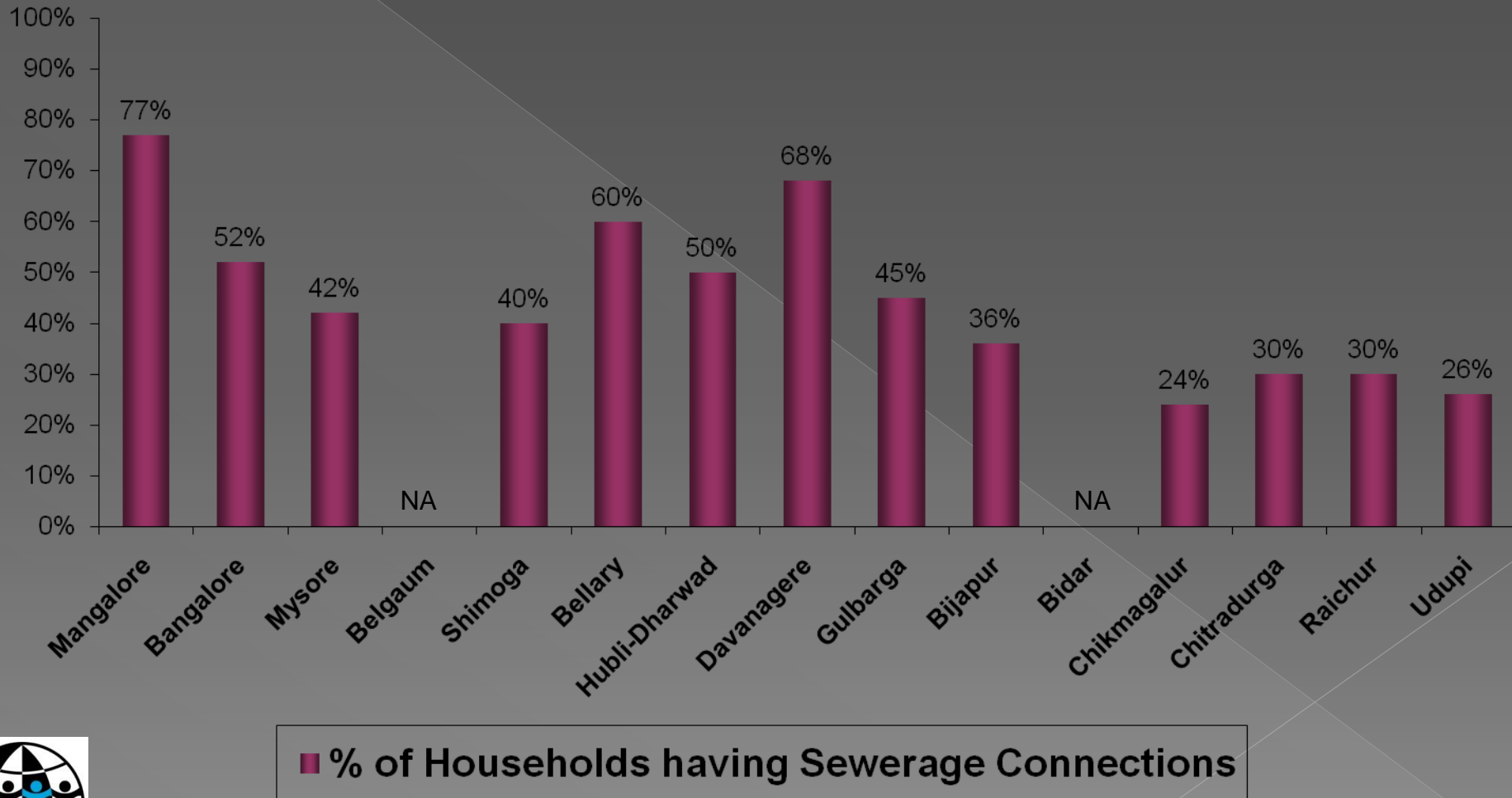
Evolution of Built-up Area, Vegetation and Water Bodies in Bangalore

Class → Year ↓		Built up	Vegetation	Water Bodies	Others
1973	Ha	5448	46639	2324	13903
	%	7.97	68.27	3.40	20.35
1992	Ha	18650	31579	1790	16303
	%	27.30	46.22	2.60	23.86
1999	Ha	23532	31421	1574	11794
	%	34.44	45.99	2.30	17.26
2000	Ha	24163	31272	1542	11346
	%	35.37	45.77	2.26	16.61
2006	Ha	29535	19696	1073	18017
	%	43.23	28.83	1.57	26.37
2007	Ha	30876	17298	1005	19143
	%	45.19	25.32	1.47	28.01

Source: Kumar, Mukhopadyay and Ramachandra (2009)



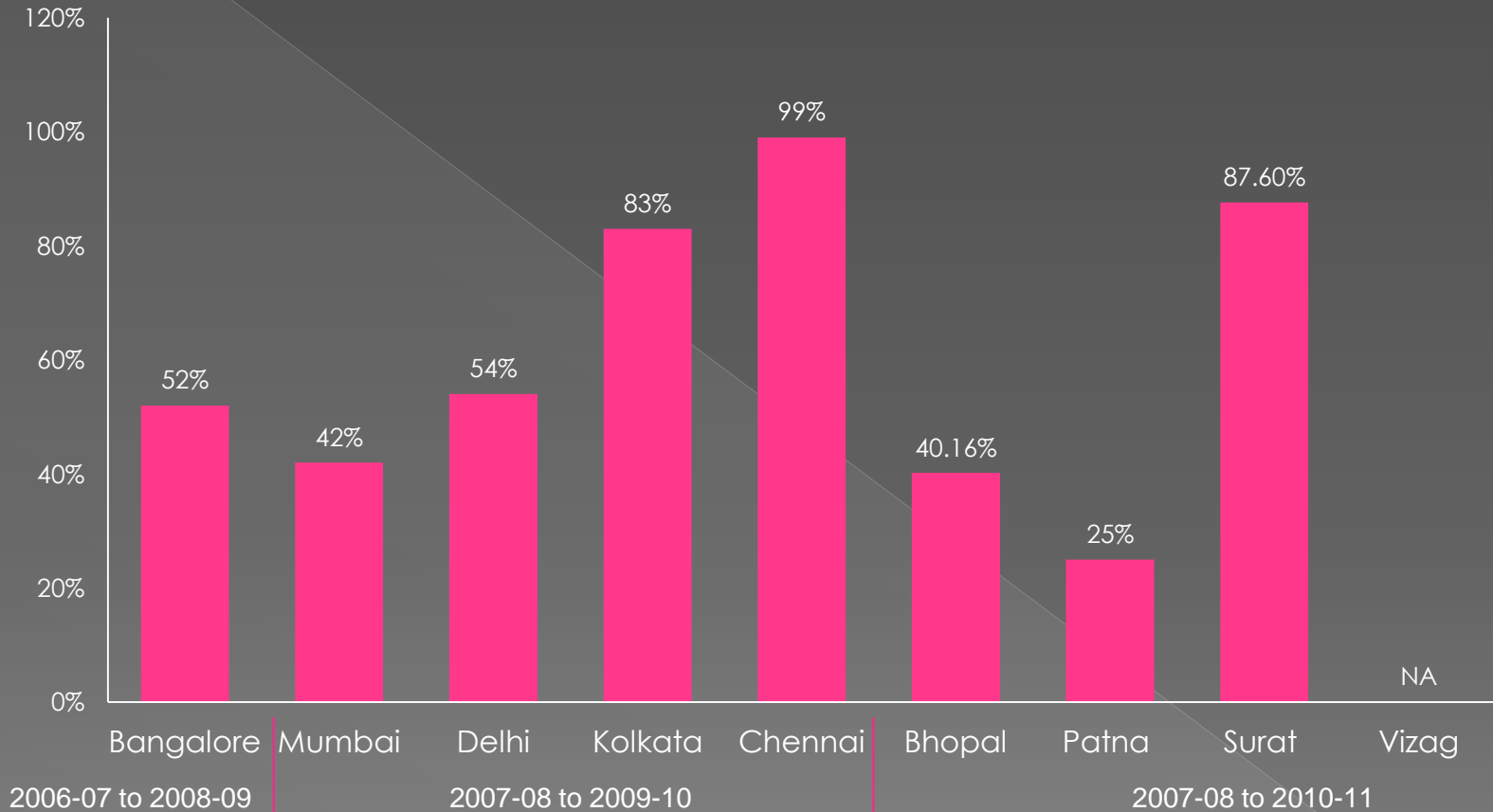
COVERAGE OF CITY HOUSEHOLDS WITH SEWERAGE, SELECTED KARNATAKA CITIES (3 YEARS AVERAGE, 2006-07 TO 2008-09)



Source: Paul et al (2012)



COVERAGE OF CITY HOUSEHOLDS WITH SEWERAGE, SELECTED INDIAN CITIES



■ % of HHs having sewerage connections

Source: Individual Cities, Service Providers and Authors' Computations



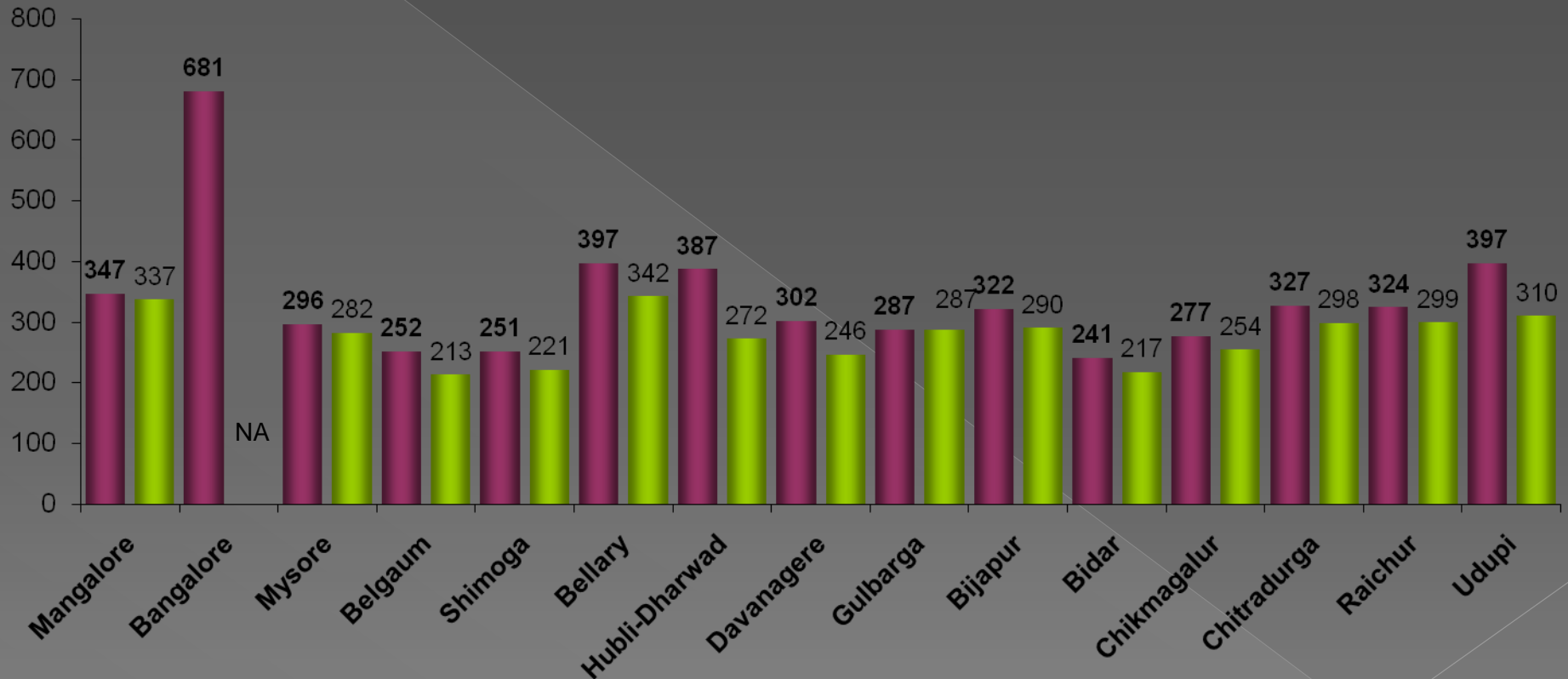
Number of Indian Cities by Per Capita Waste Generation

Kg per capita	Number of cities		
	NCU estimate (1988)	ORG estimate (1989)	CPCB estimate (2004-05)
< 0.20	9	4	4
0.20 – 0.30	21	6	13
0.30 – 0.40	8	11	16
0.40 – 0.50	7	8	12
0.50 – 0.75	-	3	13
0.75 – 1.00	-	2	1
> 1.00	-	1	0
Total	45	35	59

Source: Sridhar and Mathur (2009)



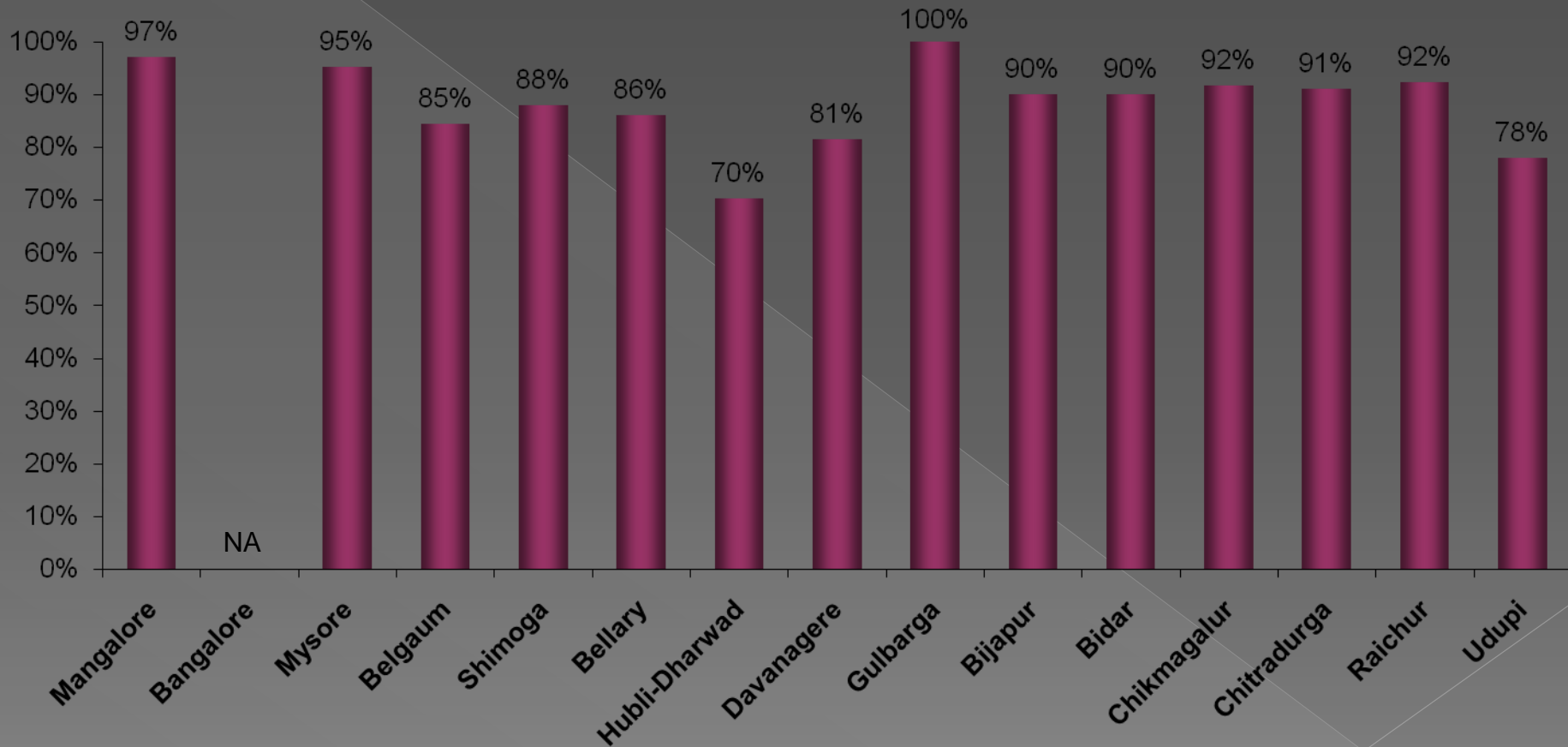
COMPARISON OF SOLID WASTE GENERATED & COLLECTED, SELECTED KARNATAKA CITIES (3 YEARS AVERAGE, 2006-07 TO 2008-09)



■ Solid waste generated (grams per capita per day)
 ■ Solid waste collected (grams per capita per day)



SOLID WASTE MANAGEMENT: COLLECTION EFFICIENCY SELECTED KARNATAKA CITIES (3 YEARS AVERAGE, 2006-07 TO 2008-09)

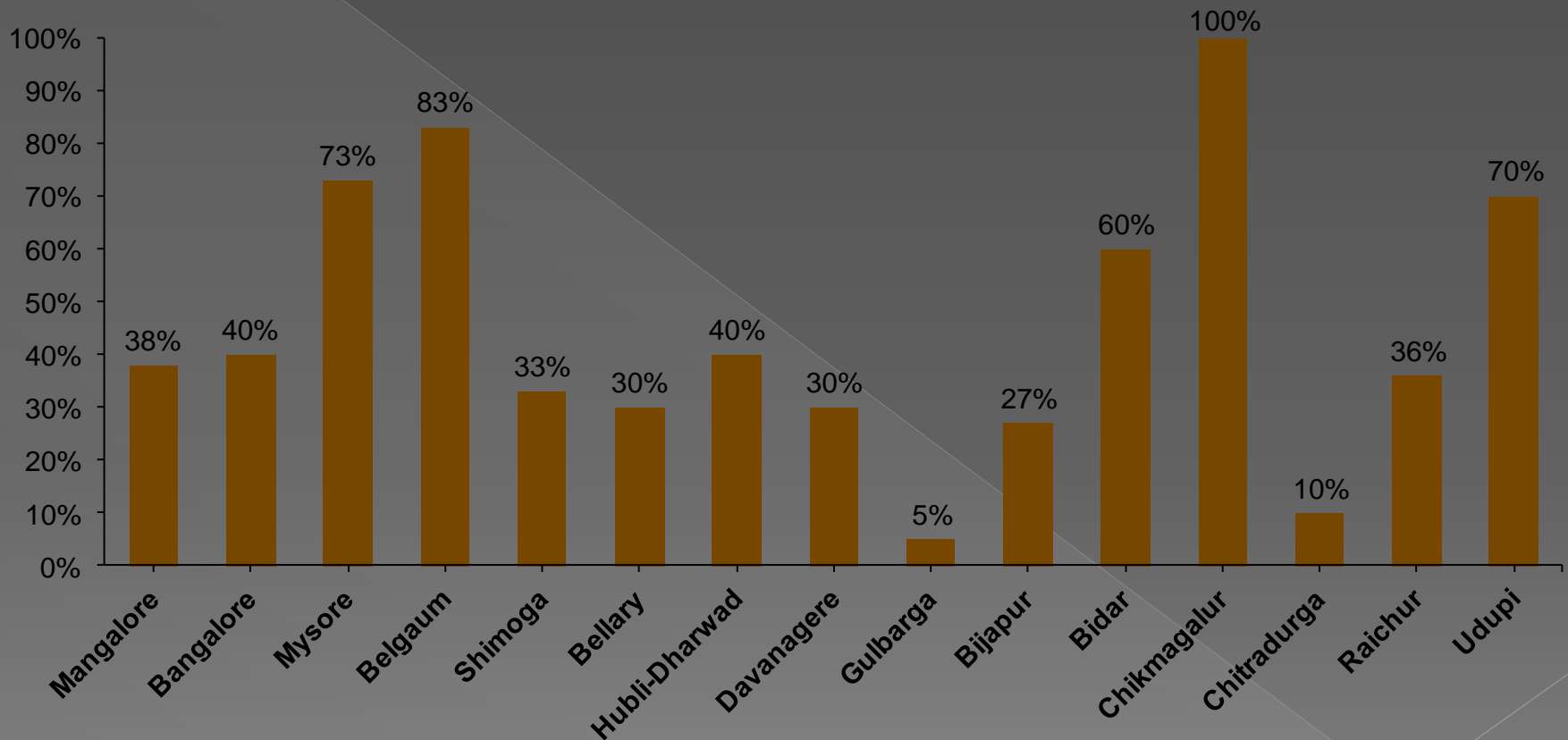


■ Solid Waste Collection Efficiency

Source: Paul et al (2012)



SOLID WASTE MANAGEMENT COVERAGE, SELECTED KARNATAKA CITIES (3 YEARS AVERAGE, 2006-07 TO 2008-09)

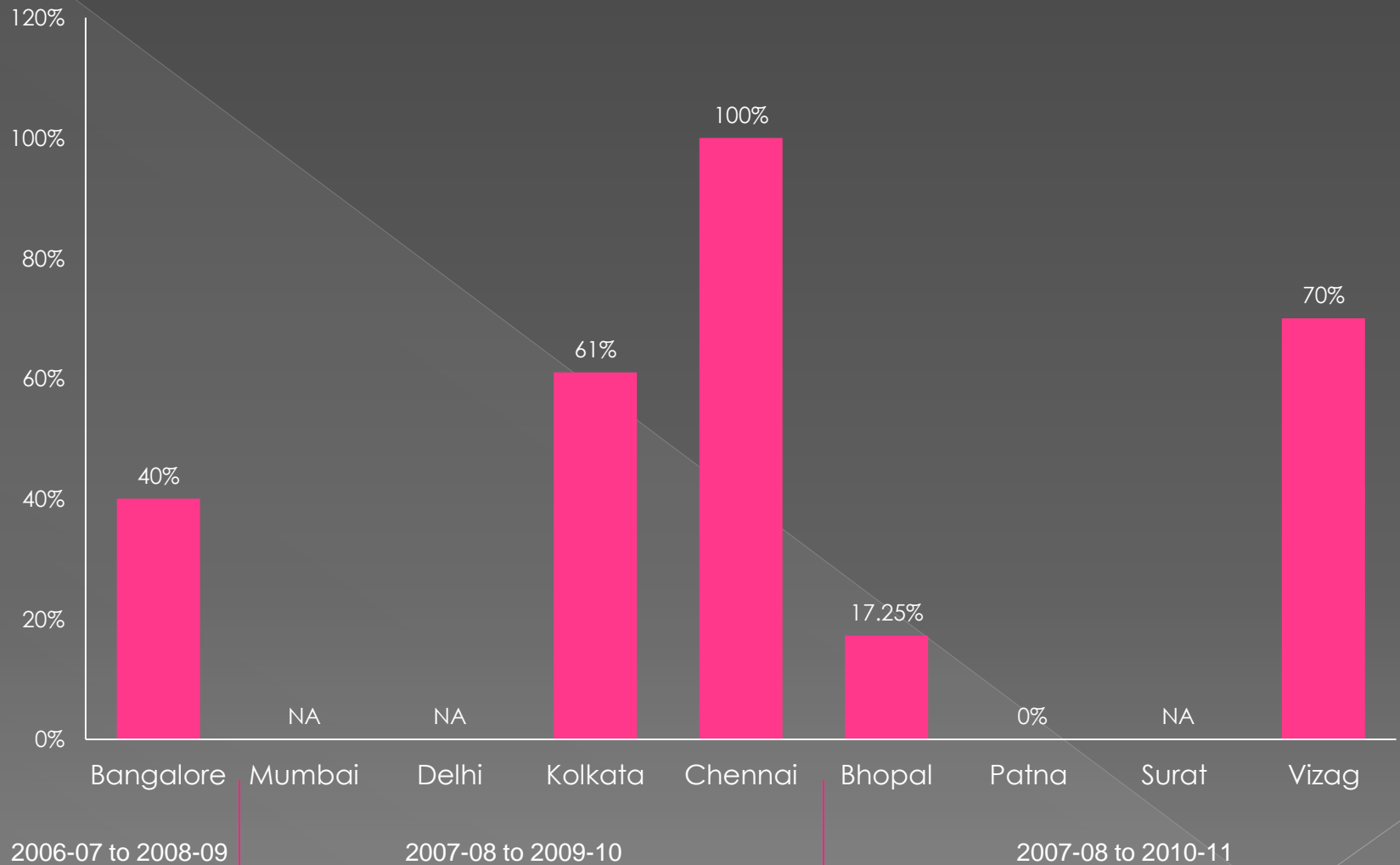


■ % HHs covered by door to door collection

Source: Paul et al (2012)



SOLID WASTE MANAGEMENT COVERAGE, SELECTED INDIAN CITIES

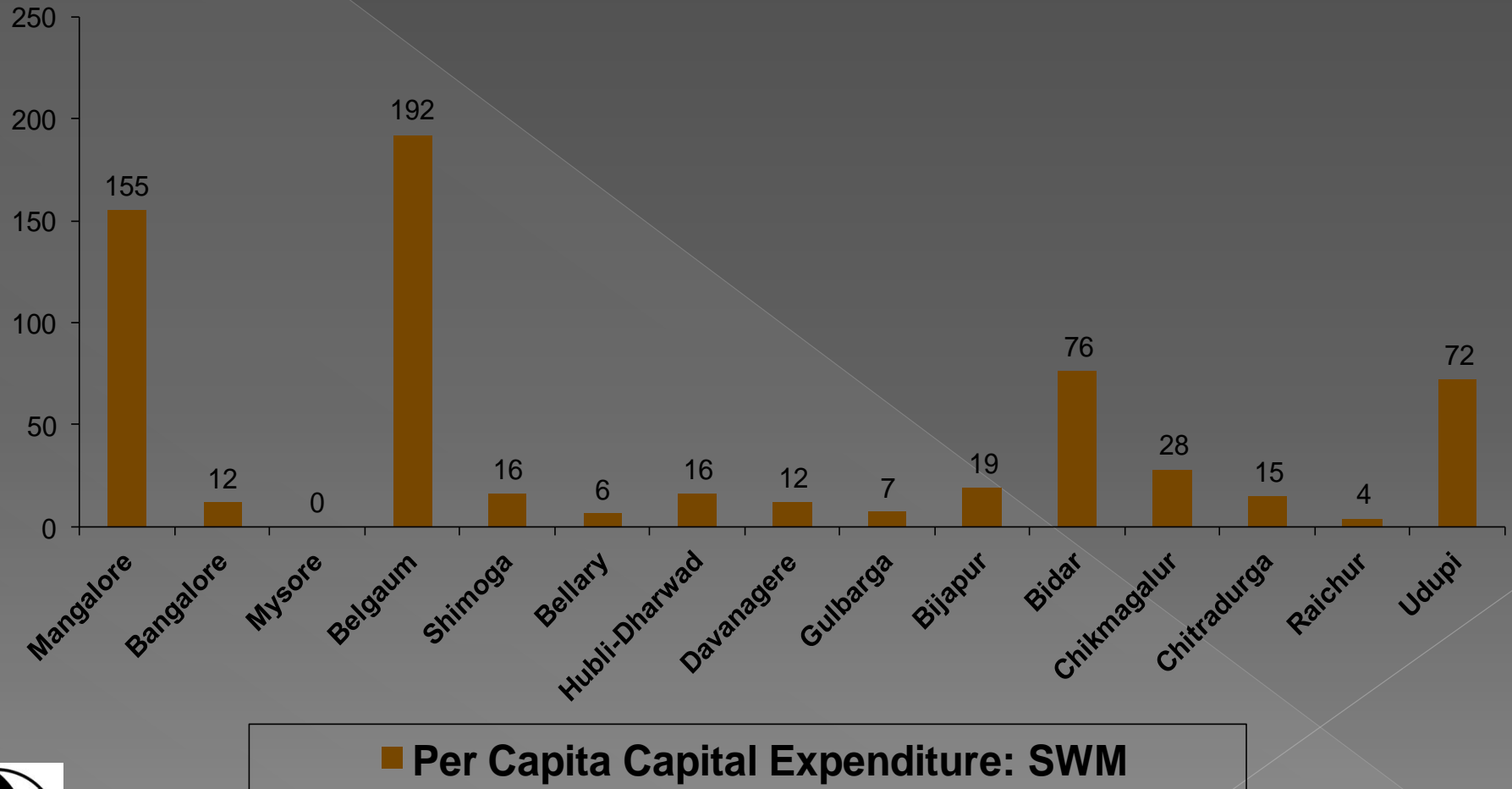


■ SWM: % HHs covered by door to door collection

Source: Individual Cities, Authors' Computations



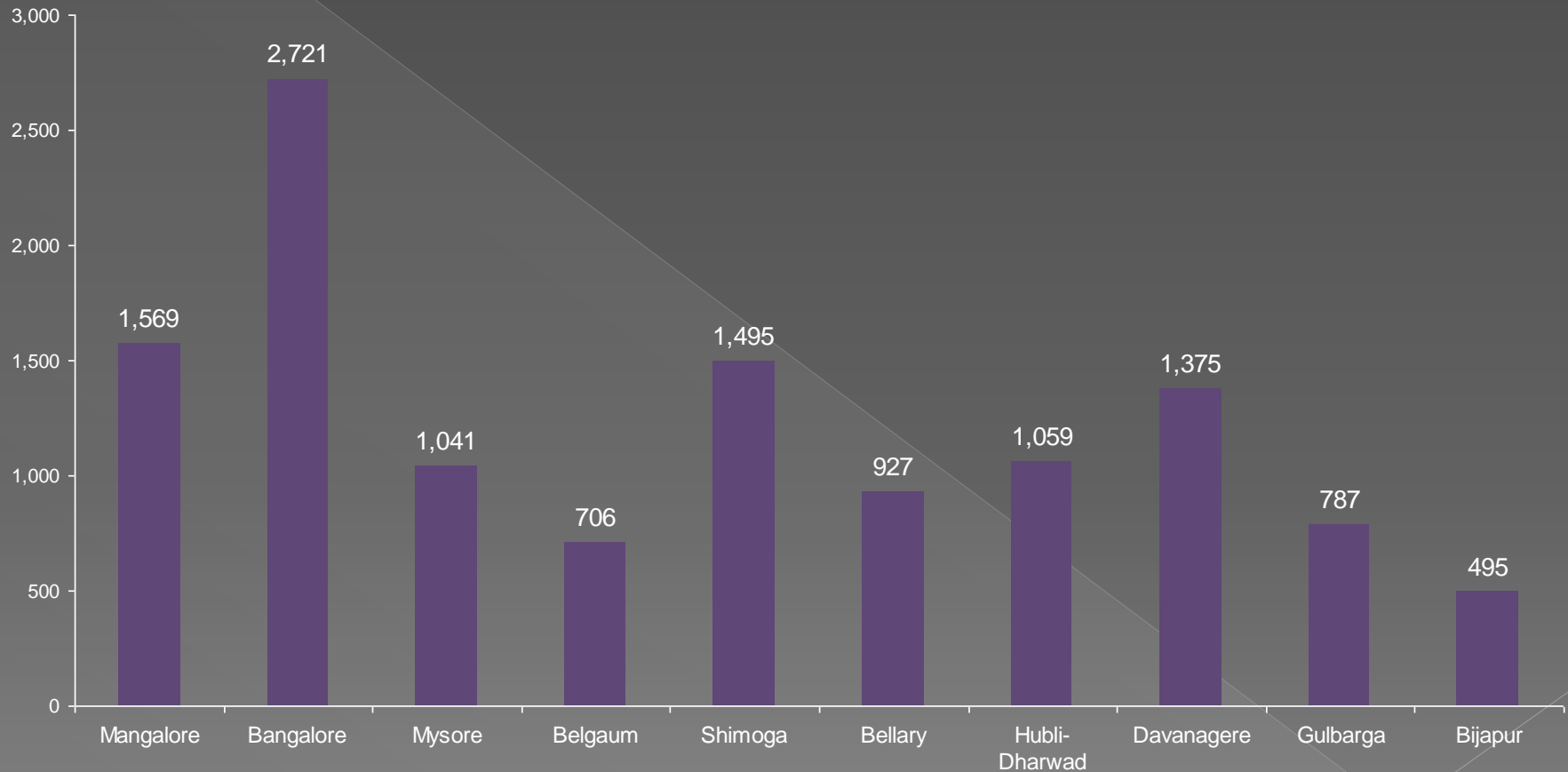
SOLID WASTE MANAGEMENT: COMPARISON OF PER CAPITA CAPITAL EXPENDITURE, SELECTED KARNATAKA CITIES (3 YEARS AVERAGE, 2006-07 TO 2008-09),



Source: Paul et al (2012)



CITY FINANCES: REVENUE RECEIPTS, SELECTED KARNATAKA CITIES, AVERAGE, 2006-7 TO 2008-9

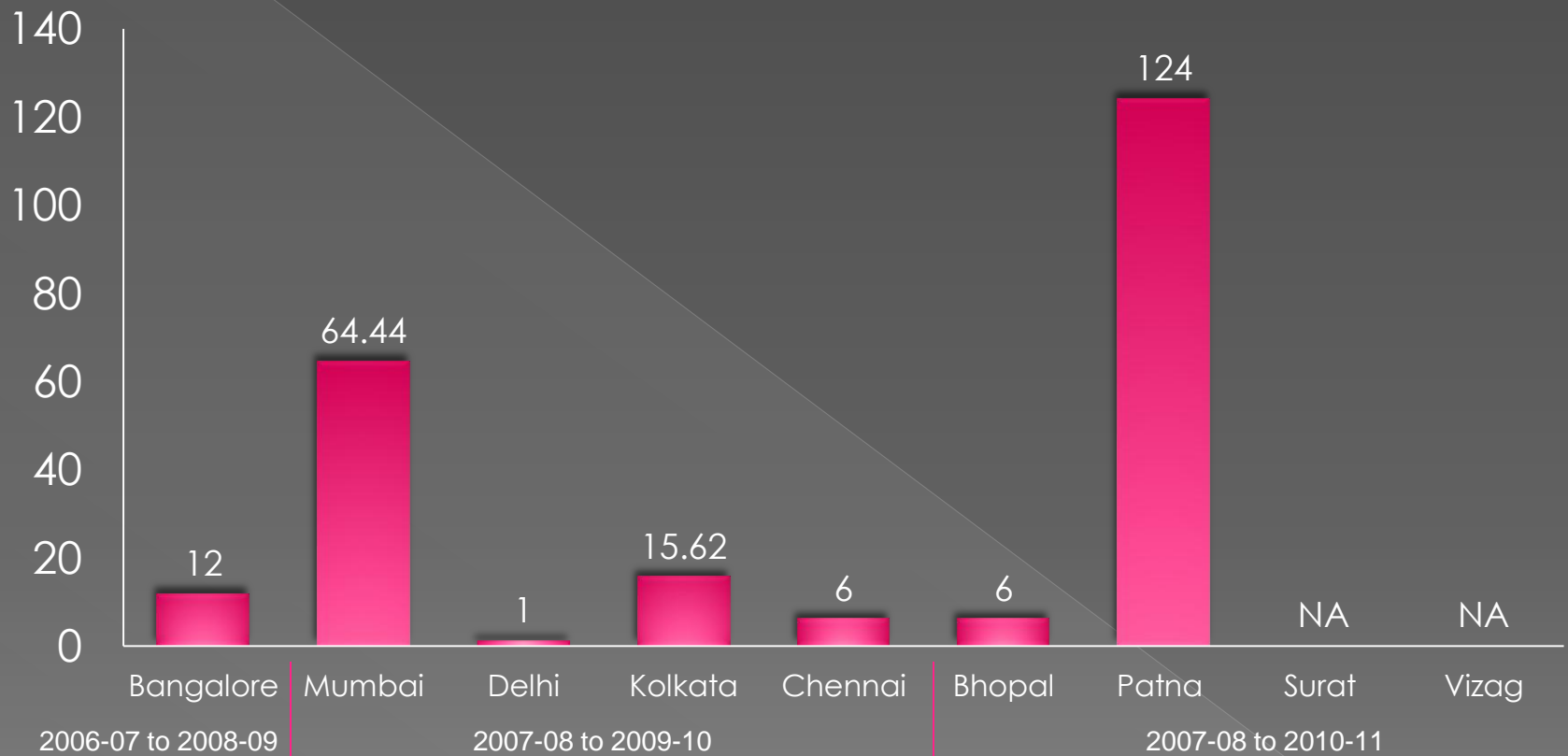


■ Per capita revenue receipts

Source: Paul et al (2012)



SOLID WASTE MANAGEMENT: COMPARISON OF PER CAPITA CAPITAL EXPENDITURE, SELECTED INDIAN CITIES

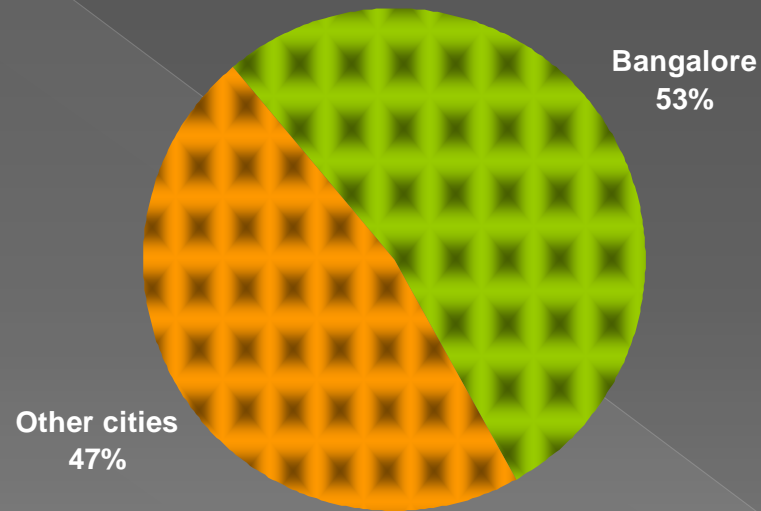


■ Per Capita Capital Expenditure: SWM

Source: Individual Cities, Authors' Computations



HOW MUCH DOES BANGALORE ACCOUNT FOR? WATER SUPPLY (DOMESTIC) CONNECTIONS (Average, 2006-07 to 2008-09)

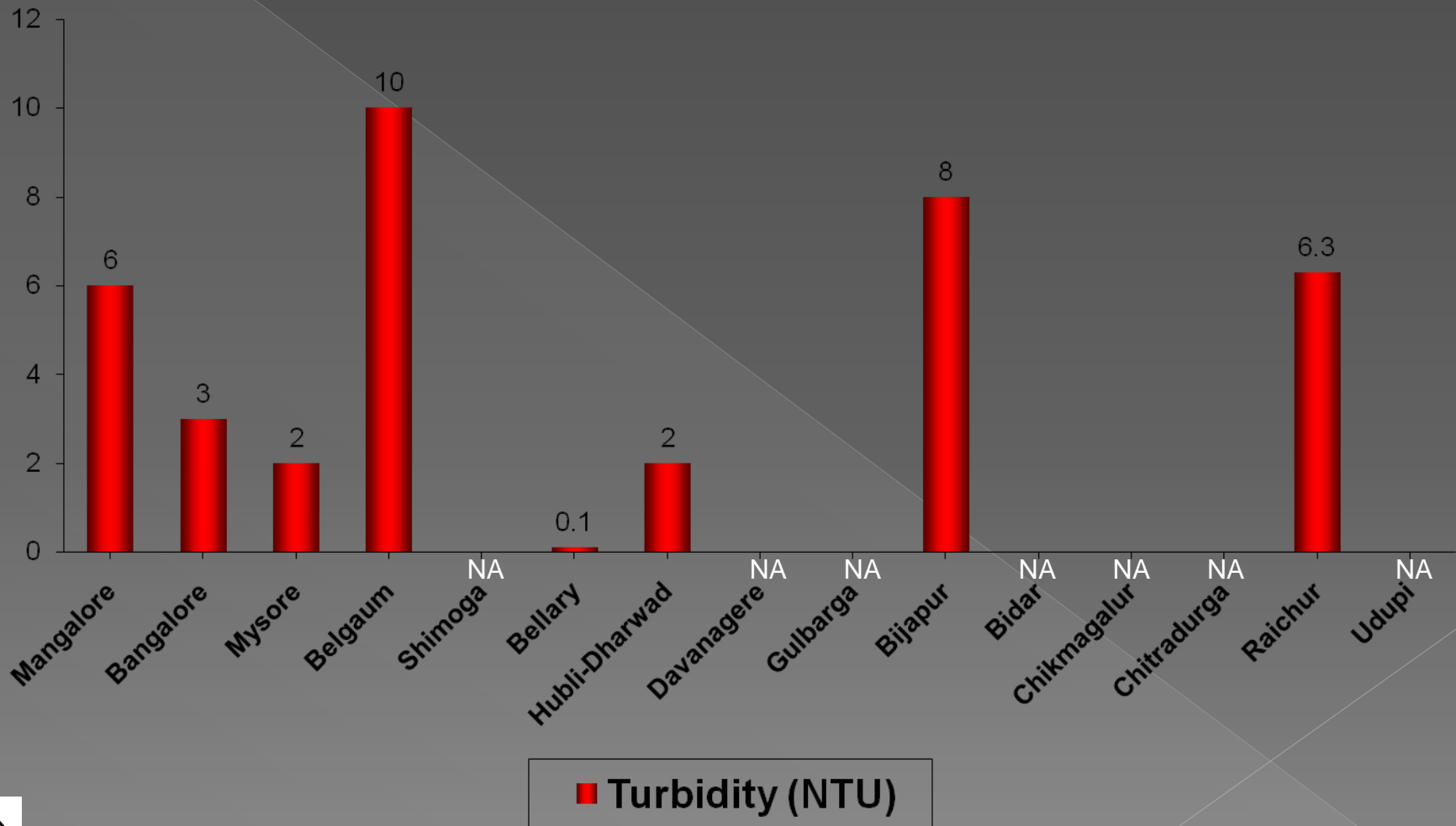


■ Bangalore ■ Other cities

Source: BWSSB, Individual Cities, Authors' Computations



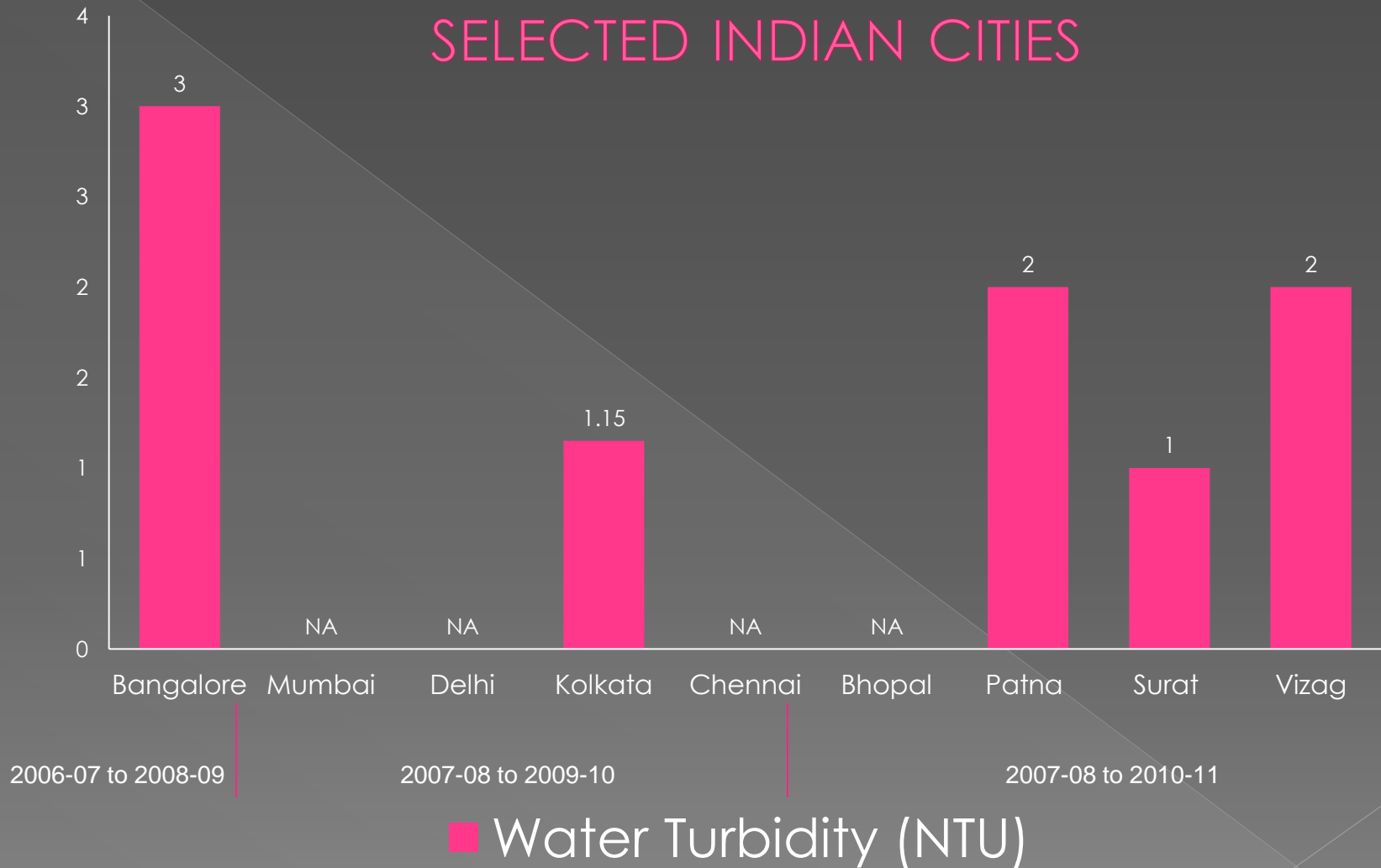
COMPARISON OF WATER TURBIDITY, SELECTED KARNATAKA CITIES, 2008-09



Source: BWSSB, Individual Cities, Authors' Computations



COMPARISON OF WATER TURBIDITY, SELECTED INDIAN CITIES



Source: BWSSB, Individual Cities, Authors' Computations

Summary, Governance Challenges and Recommendations

- Multiplicity of institutional arrangements
- Finances
 - > Pricing
- A new position (Chief Resilience Officer) (city level)
- Build a database of indicators



Thank you for your attention

