



# **Sustainable Cityscape: How Sustainable is Kolkata?**

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# **A Sustainable Cityscape**

# Goals ?

- **Human dignity and wellbeing**
- **Civic participation**
- **Healthy Housing**
- **Open space and land use**
- **Economic Development**
- **Transportation for faster mobility**
- **Environment and Public health**
- **Resource Conservation**

How sustainable is Kolkata?

Minimum set of goals

- Human Dignity
- Community Education and Civic Participation
- Housing
- Open Space and Land Use
- Economic Development
- Transportation
- Environmental and Public Health
- Resource Conservation

**Resource Conservation Indicators**

Solid waste generation	■	■		■				
Water use and availability per capita	■	■		■			■	
Energy use	■	■	■	■		■		
Renewable energy use	■	■		■			■	
Greenhouse gas emissions	■	■	■	■	■	■		
Ecological Footprint for Kolkata	■	■	■	■	■	■		
Indicator of sustainable procurement	■	■		■				
“Green” construction	■	■	■			■		

## Environmental and Public Health Indicators

Water Borne disease



Wastewater (sewage) generation



Vehicle miles traveled



Air quality



Residential household hazardous waste



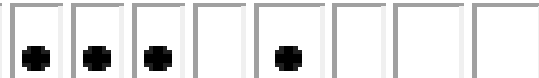
City recycling of hazardous materials



Toxic air contaminant releases



Urban runoff reduction



Fresh, local, produce



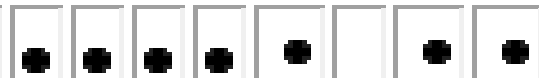
Organic produce? Farmer's markets



Fast Food purchases

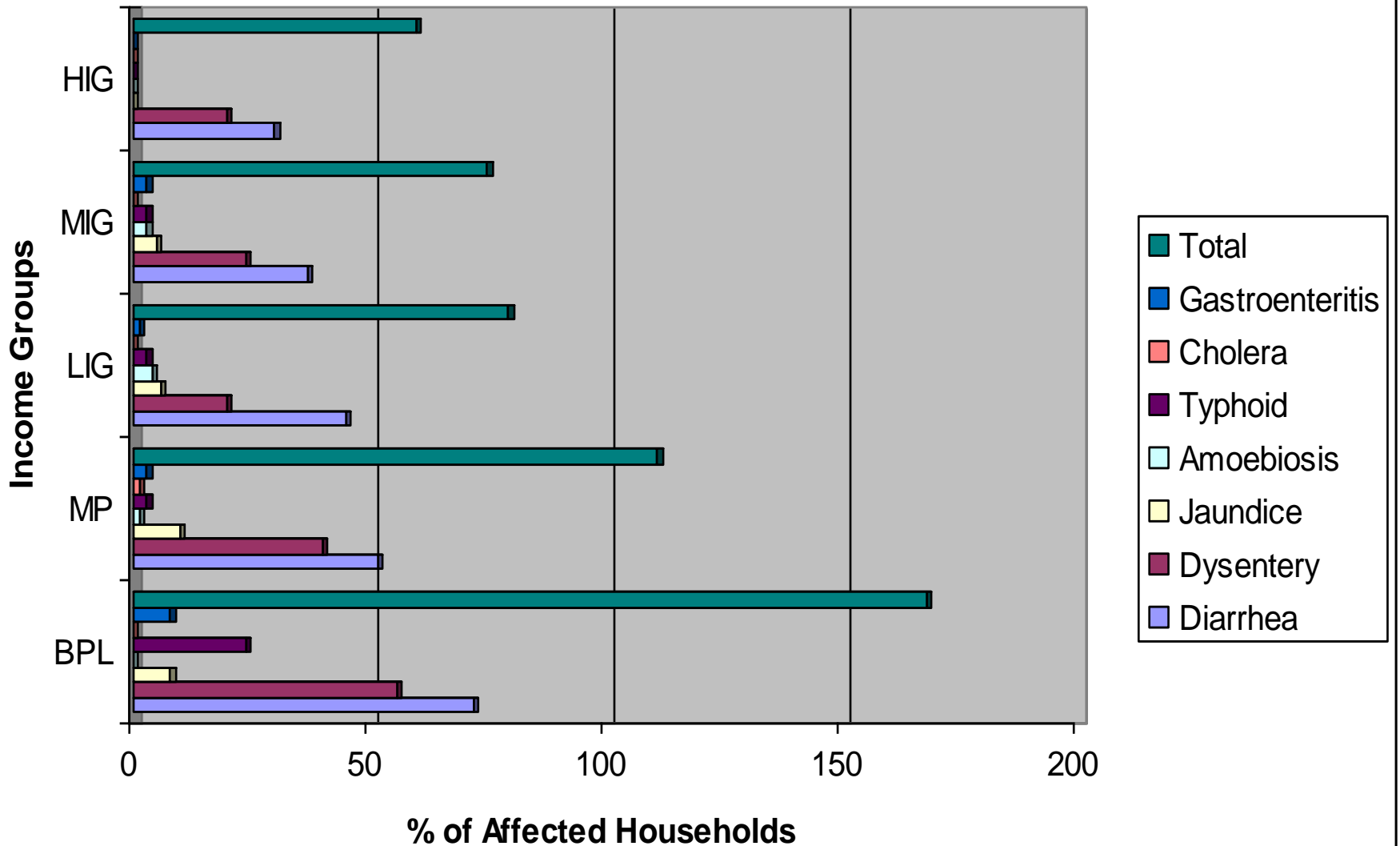


Urban agriculture



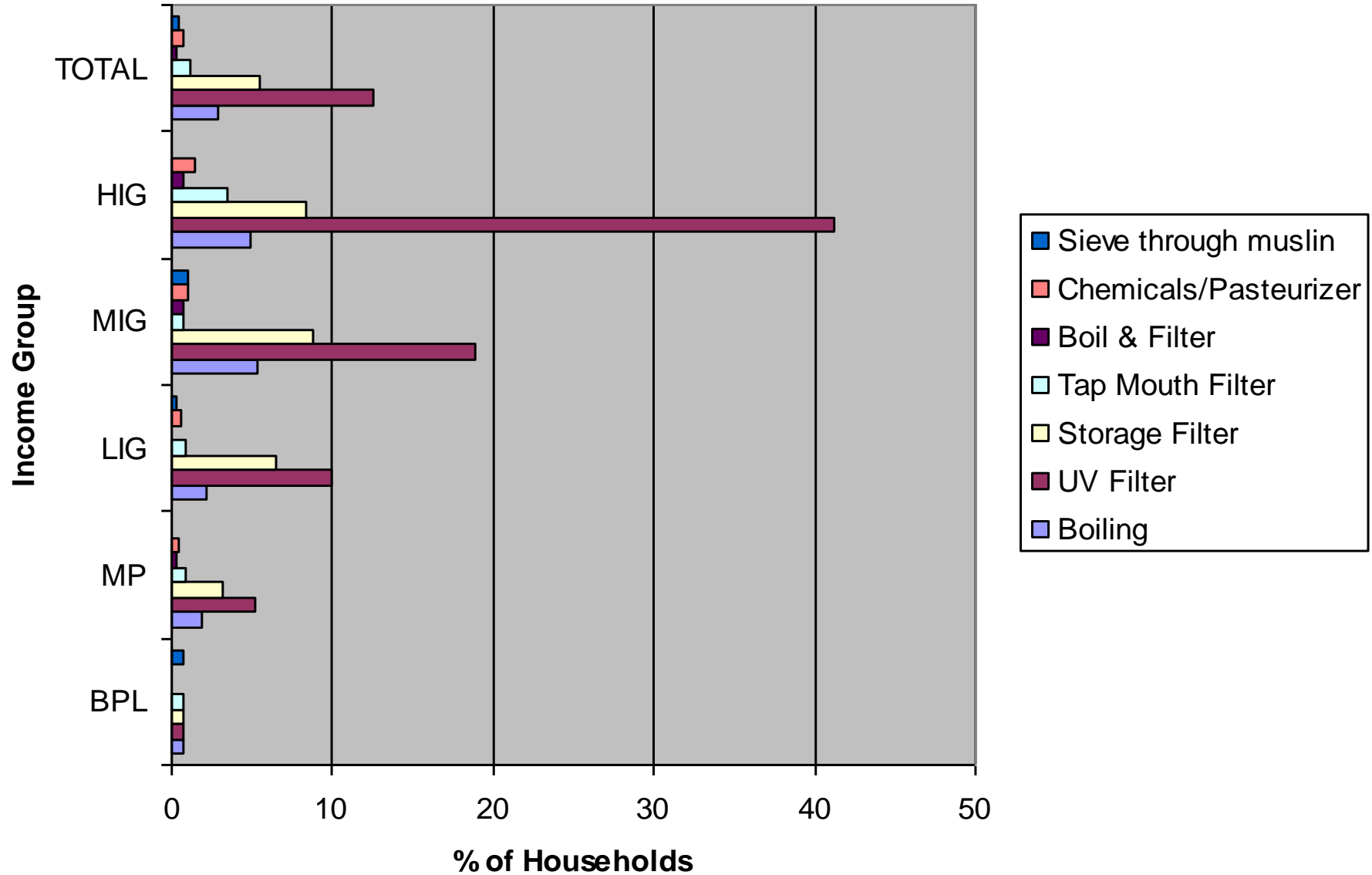
# Risk of Informal settlements

# Water-borne Diseases of Different Income Groups





# Purification Methods Adopted by Households



# Transportation Indicators

Modal split



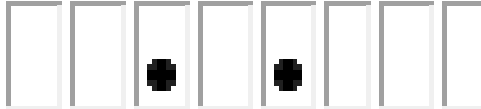
Residential use of sustainable trans. options



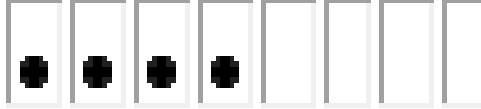
Sufficiency of transportation options



Bicycle lanes and paths



Vehicle ownership



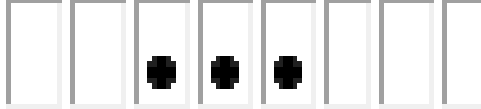
Bus ridership



Alternative fueled vehicles – City fleet



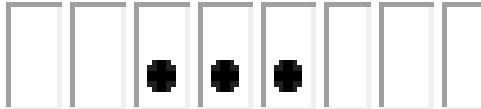
Traffic congestion



Pedestrian and bicycle safety



Traffic impacts to emergency response

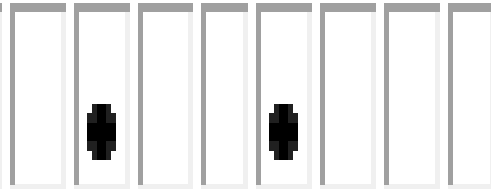


# Economic Development Indicators

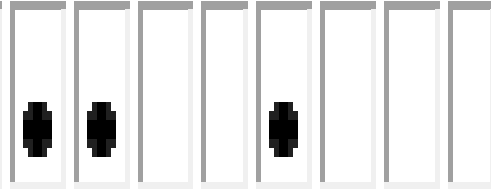
Economic diversity				●			
Business reinvestment in the community				●		●	
Jobs / Housing balance			●	●		●	●
Cost of living				●		●	●
Quality Job Creation				●			●
Income disparity				●			●
Resource efficiency of local businesses	●	●		●			
Local employment of City staff			●	●		●	

# Open Space and Land Use Indicators

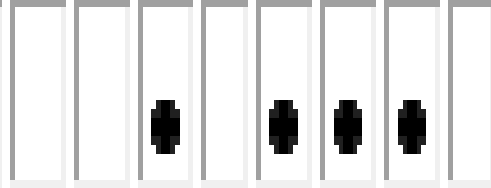
Open Space



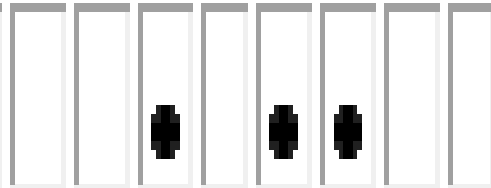
Trees



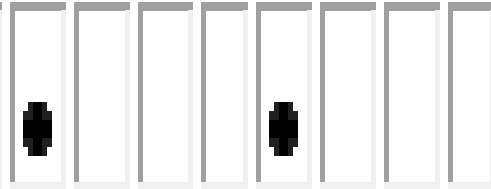
Parks - Accessibility



Land Use and Development

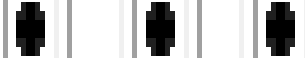


Regionally appropriate vegetation

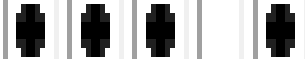


# Housing Indicators

Availability of affordable housing



Distribution of affordable housing



Affordable housing for special needs groups



Production of “livable” housing



Production of “green” housing





# Civic Participation :

## Beneficiaries do not pay

- Proportion of beneficiaries of the piped water service among total population: 82%
- Proportion of cost unrecovered: 83.7%

# Cost society pays

Per day wastage of treated water:

- 103 MG,
- cost wise Rs 8 lakhs lost /day
- electricity required to produce 103 million gallon is 1.08 lakh units



# Human Dignity Indicators

Basic Needs - Shelter							●	●
Basic Needs – Health Care								●
Basic Needs – Economic Opportunity				●				●
Basic Needs – Public Safety								●
Residents' perception of safety								●
Incidents of abuse								●
Incidents of discrimination				●		●		●
Education / Youth								●
Empowerment				●				●
Ability to meet basic needs				●	●	●		●

# **New in Urban Infrastructure**

Permeability vs. drainage capacity?

Building stock-Density vs adaptation ?

Health + mobility?

Green infrastructure?

Social Cohesion?

Food security?

Informal and Illegal infrastructure?

# Permeability vs. Drainage?

## Lock in effect?





# 'REDUCE CITY'S CARBON FOOTPRINT

**M**y self-assessment is I belong to both the quarters: those who romanticise 'Kolkata' as well as those who

feel a lot remains to be done for the city. In 1957, New York was a loner in the mega-city category. Today, Kolkata is in the group of 26 mega-cities worldwide.

I love to romanticise because I get a chance to freely imagine what Kolkata can do to give itself a unique character. This is an no conflict with the common

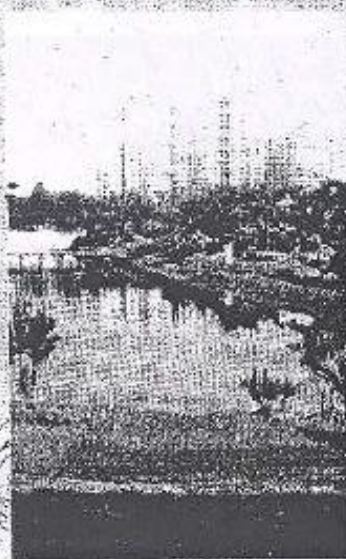
perceived problems of unfinished agenda. Talking of air pollution? We can think of gradually moving towards alternative cleaner fuels such as LPG, CNG, Biodiesel, electricity, solar panel, etc for running motorised transport. Multiple modes of transport adds diversity and provides cue for



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sustenance of mobility. Bicycles and mechanised rickshaws need to continue to provide mobility without adding to the air pollution from mobile sources. Nicer trams - if can provide cleaner mobility to all modern cities - need to continue with renewed stock. Majority of the buses, which are not buses but truck chassis with bus-bodies, may be converted to real buses which can provide

comfortable mass transport which Kolkata can be proud of. And this because of its historical significance of public transport system. Maybe we need out-of-the-box thought process and decision tools based on logistics solutions to redefine road space, with mass transit/heavy



vehicle lanes, private-vehicle lanes, non-motorised lanes and pedestrians footpath, so that people get good mobility service and healthy service together.

All roads should be divided by bushy plants and not metallic railings to eventually reduce the city's carbon footprint. No soil should be exposed but should be greened to save soil carbon from being released. We the citizens need to take some responsibilities to maintain 'on the road discipline. It is us who can throw garbage not on the roads but in bins segregating those that can be recycled from trash. All new shopping malls/highrises can come up as intelligent buildings. They can turn themselves from energy consumers to energy producers by installing solar panels as building materials.

Urban planners and civic bodies should engage aesthetically oriented experts to make colour code mandatory to give a fresh look to the city. Hang

ing balconies should plant flowers and add to visual beauty as all ugly looking hoardings, boasting of private ownership, should be gone by then as people will become conscious of their rights.

We have a natural drainage system through east Kolkata. Let's make innovative, most modern and environment-friendly value-added services through wetland management practices and sustainable agriculture-based, high-valued produce to stop land conversion. Let's save Kolkata from flooding and create a cooler belt around the city to save it from the heat island effect. I can see how a new generation of entrepreneurs can take the opportunity to translate a run-down Kolkata into our dream Tropicana Kolkata! I live with these hopes and with open offer to give shape to the dreams. It is a City of Joy because it provides ample opportunity for all to shape it. We need a concerted effort. Let's do it!

*(Roy is coordinator, Global Change Programme, professor of economics, Jadavpur University)*

# Case for Special Status for City Government?

- Cities are the centres of national and global economic network
- Highest Consumers in terms of resources: carbon footprint, ecological footprint, water footprint..
- **City governments need to move further and faster than national governments in response to sustainability, environment and climate change – for adaptation and mitigation**

**Can we take a Pledge  
on the eve of world Enviornment day**



# **To move towards a Sustainable Cityscape**

**Data base for Multi Objective Urban Planning  
and Informed decision making**

**Knowledge Collaboration to build sustainable  
cityscape**

**Revisiting Regulations and Policies**

**City specific Economic Incentive Design**

**Gradual Move Towards New Institutional  
Arrangements**

# Jadavpur University



Thank you