

**Check Against Delivery.**

**Embargoed until 1:45 PM, 6 November 2010**

## **Wastewater Problems and Management in Delhi**

**by Reena Singh**

**New Dehli, India (OCF Fellow)**

Session 11, Workshop 11.1: „Urbanisation in Poverty: From Exclusion to Inclusion?“

Our Common Future, Essen, November 6th, 2010

Our Common Future, Hannover/Essen, 2-6 November 2010 ([www.ourcommonfuture.de](http://www.ourcommonfuture.de))

# Wastewater Problems and Management in Delhi



*Reena Singh  
New Delhi, India*



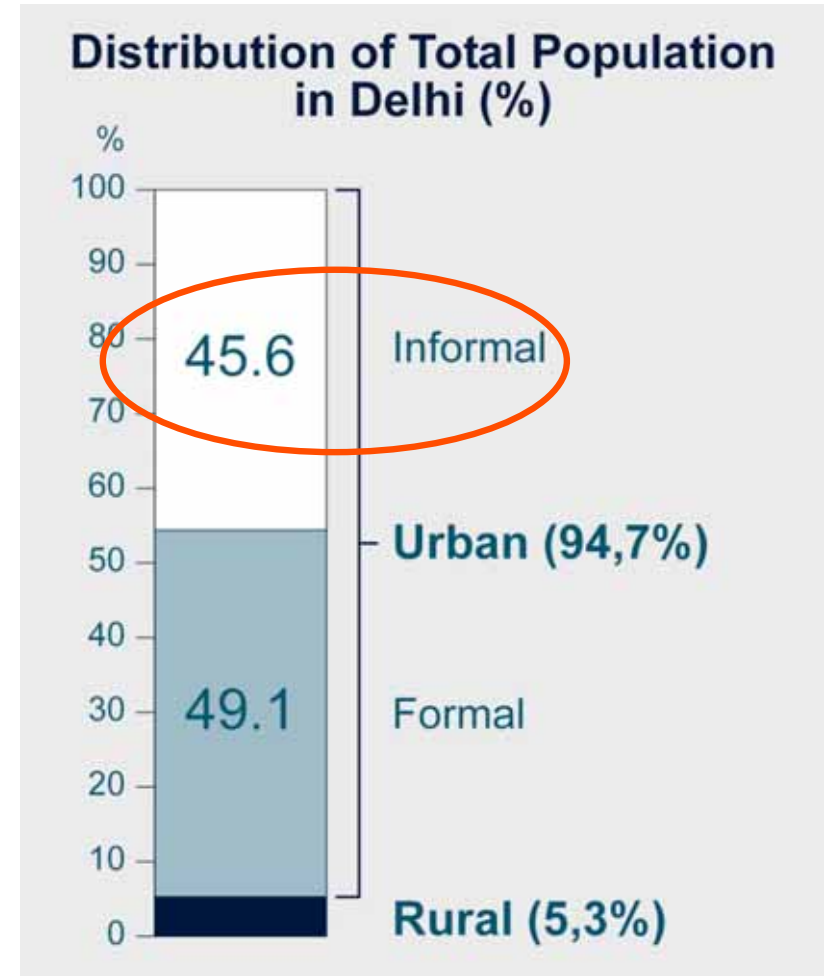
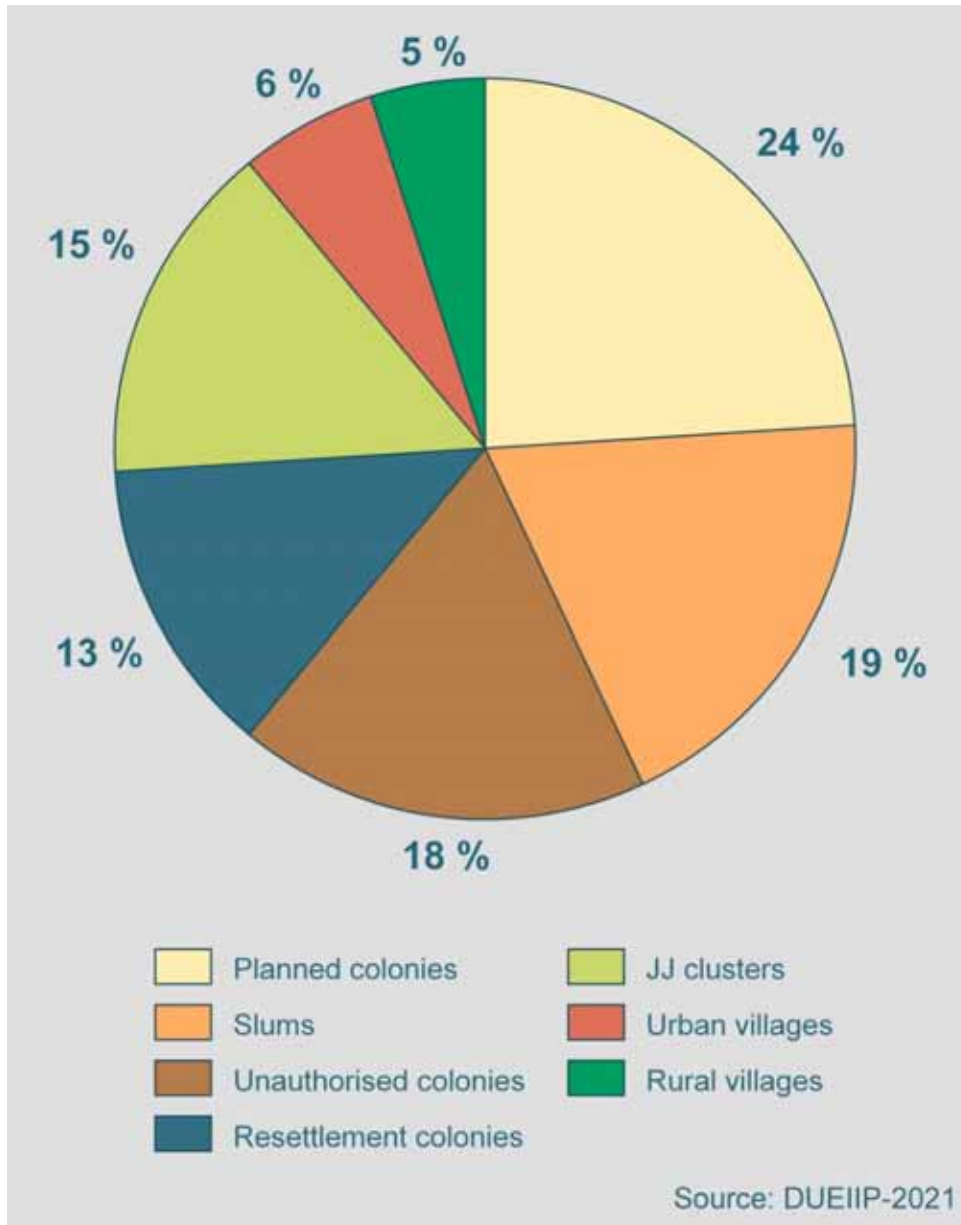
## Presentation outline

1. Urbanisation and Sewerage Issues in Delhi
2. Status of Wastewater Generation and Treatment
3. Wastewater-related Risks
  - 3a. Environmental and Public Health Risks
  - 3b. Economic Risks
4. Responses at Institutional and Community Level
5. Hindrances to Effective Wastewater Management
6. Concluding Remarks

# 1. Urbanisation and sewerage issues in Delhi

1. Capital City - Rapid Urbanisation – 15.3 mill. People – **Informal** settlement.
2. Water supply augmentation do not commensurate sewerage improvement.
3. Diverse and unsegregated sources of wastewater
4. Problem of monsoon flooding: June – September
5. Sewage contamination – high incidence of water-related diseases-  
environmental and health risks.

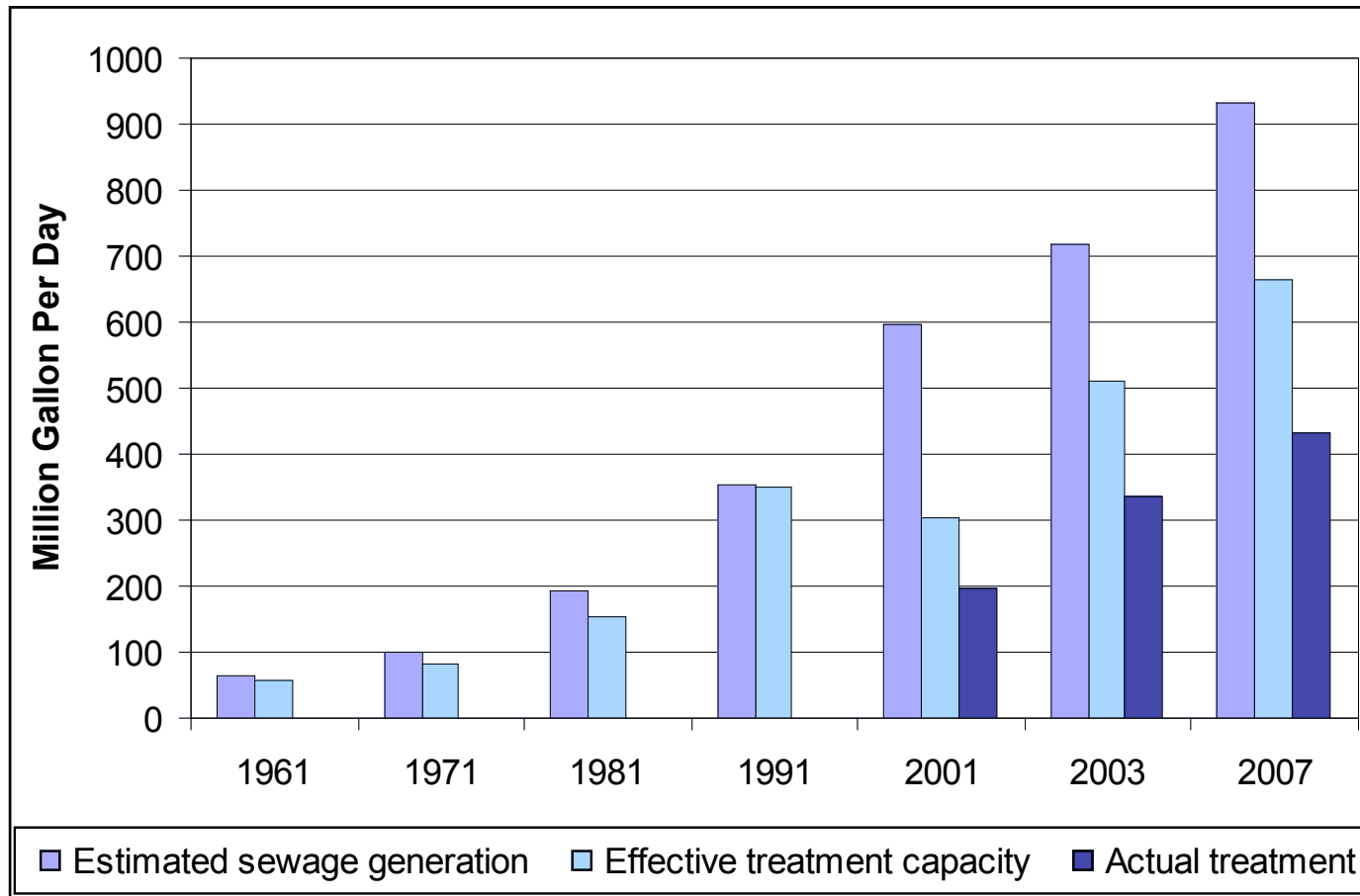
# Settlement Type and Status in Delhi



# 1. Urbanisation and sewerage issues in Delhi

1. Capital City - Rapid Urbanisation – 15.3 mill. People – Informal settlement.
2. Water supply augmentation do not commensurate sewerage improvement.
3. Diverse and unsegregated sources of wastewater
4. Problem of monsoon flooding: June – September
5. Sewage contamination – high incidence of water-related diseases-  
environmental and health risks.

## 2. Status of Wastewater Generation and Treatment



- Wastewater generation is 931 MGD (Million Gallon Per Day).
- Infrastructural up-gradation has not kept pace with growing population-overburdened sewerage network (covering only 53%).
- Inadequate treatment capacity (665 MGD) actual treatment (432 MGD).

### 3a. Environmental and Public Health Risks



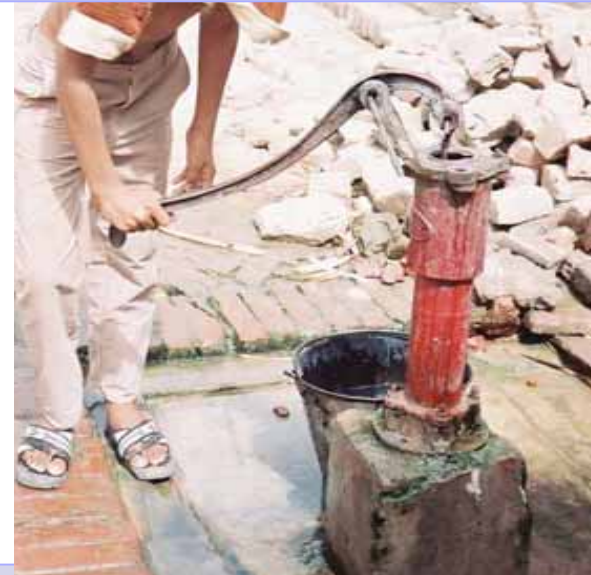
Cess pools forming conducive breeding Ground for disease carrying vectors



Unlined open drains – source for groundwater pollution



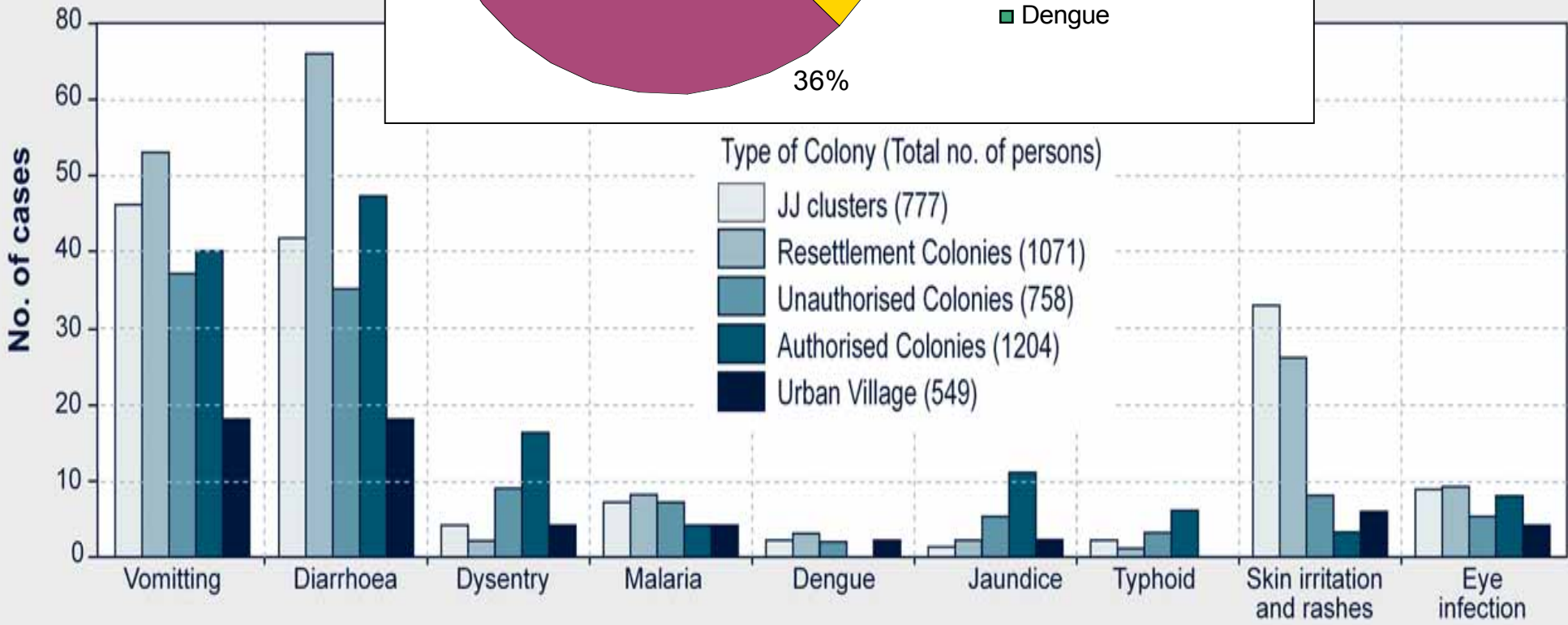
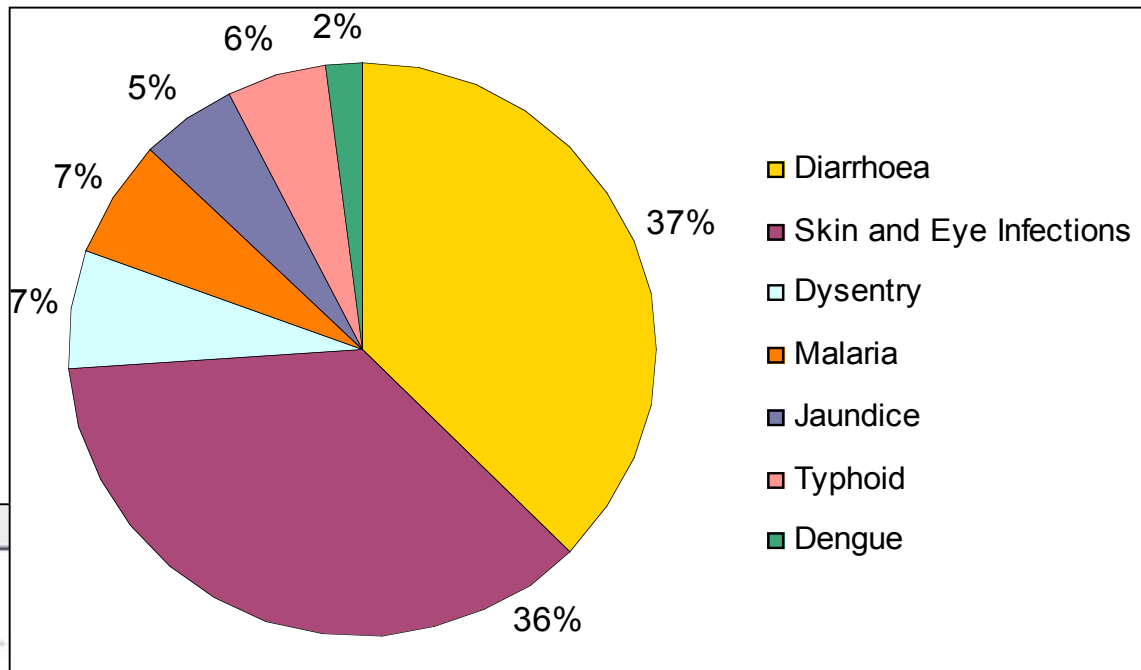
Direct Physical Exposure to wastewater



Red hand pump indicating unsafe water

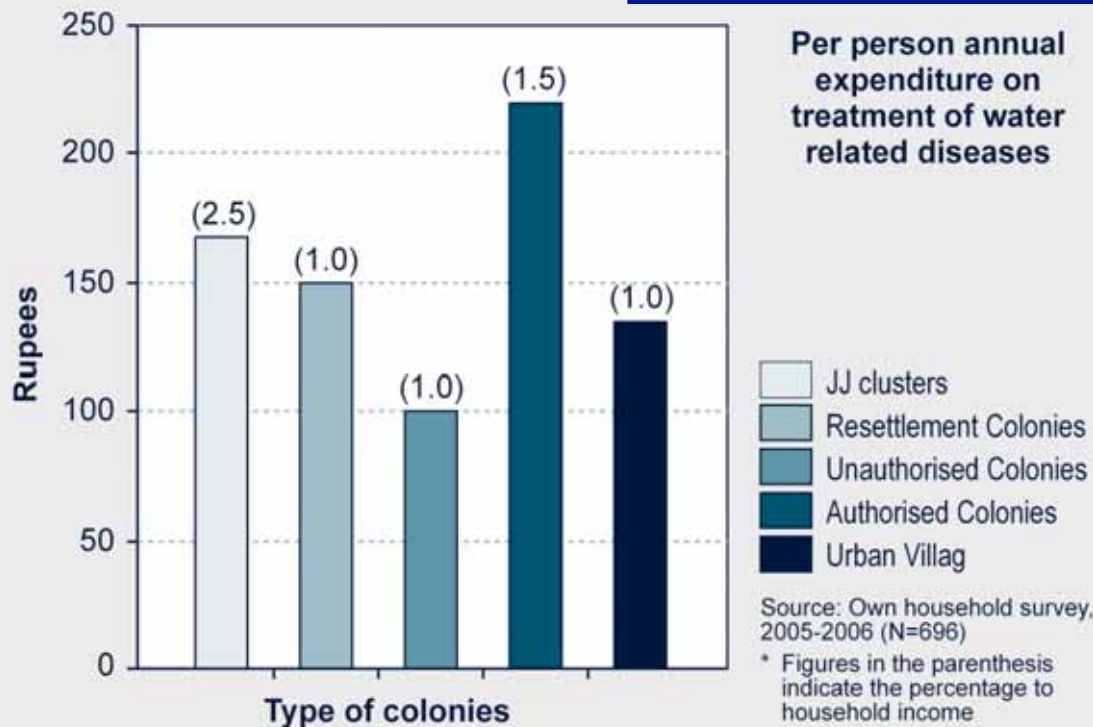
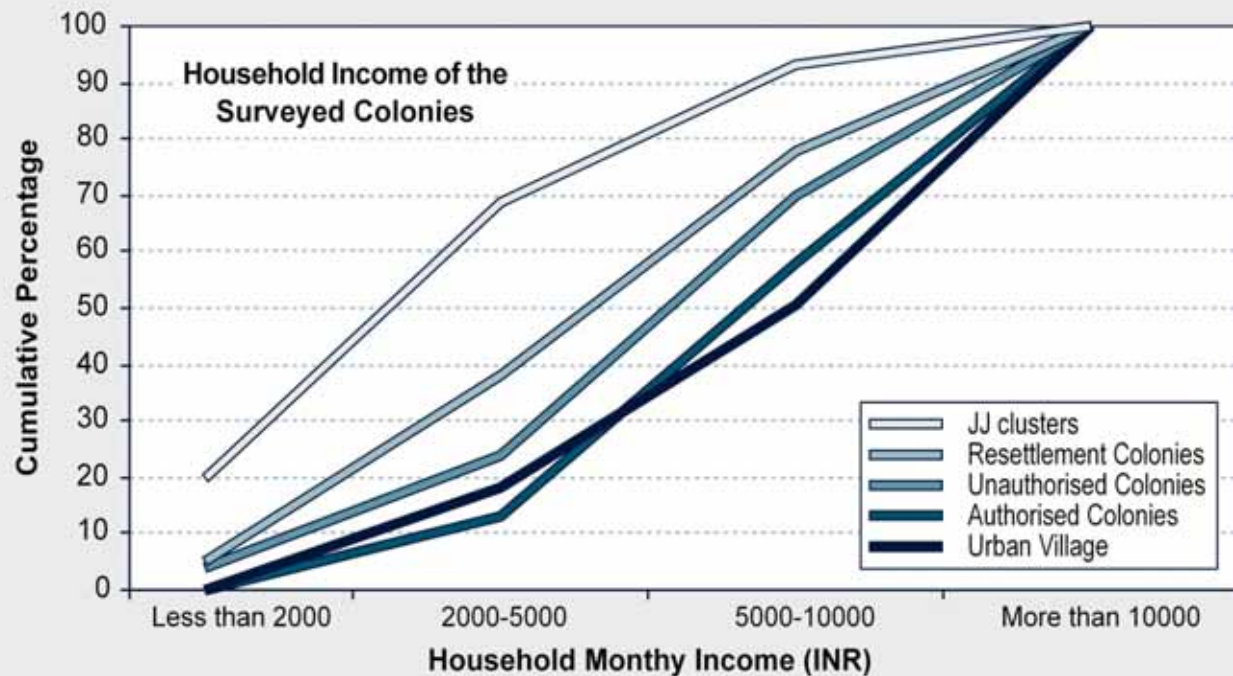


# Burden of water-borne and water-related disease



Source: Own household survey, 2006-2007

## 3b. Economic Risks



Source: Own household survey, 2005-2006

## 4. Responses at Community and Institutional Level

- Various types of preventive, adaptive and coping measures were adopted at community and household level.
- Delhi Water Board (DJB) is responsible for providing water and sanitation services - 8 zones directly under each zonal engineers.
- Structural solutions - extension of sewerage networks and building new treatment plants.
- Involvement of local contractors to operate services – new forms of service delivery.
- Emergence of new actors – private sector participation

# 5. Hindrances to Effective Wastewater Management

	City Level	Neighbourhood Level	Household Level
Physical/Planning	<ul style="list-style-type: none"><li>• Hyper-urbanisation, Increasing informality &amp; Planning failures.</li><li>• Lack of monitoring tools and information system.</li><li>• Fragmented and unclear institutional responsibilities.</li><li>• Multiple authorities in-charge.</li><li>• Weak financial base.</li><li>• Institutional corruption.</li><li>• Lack of accountability.</li><li>• No coordinating body.</li><li>• Lack of sustained political will.,,,</li></ul>		
Socio-cultural			
Economic			
Behavioural			
Legal			
Political			

## 6. Concluding Remarks

- Find a **sustainable solution** to wastewater problems.
- Sewerage management – still needs to **gain importance**.
- Motivation to and Removal of constraints to **self-help**.
- **Area specific planning** - need of huge in-migrant (illegal) population.
- Adoption of **organised** local strategies for common problems.
- Inter and Intra level **communication**.
- Development of good **monitoring tool and information system**.
- Sustained **political will**.



*Thank You...*