Identifying populations vulnerable to climate change in cities

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Cities

- Population
- Infrastructure

HEAT
The Urban Heat Island

- Temperatures are 2 to 10 degrees warmer in cities
- Often felt at night
Cities

Population
- Services
- Material
- Pollution

Infrastructure
- Energy
- Heat
- Fragmented Habitat
- Disease Vectors
Changing Ecology

**Lyme Disease**

New York survey of 14 forest fragments found that:

- Density of infected nymphal ticks was highest in the smallest patches, less than 1.2 hectares, comparable to the area inside an athletic track.
Cities Meet Climate Change

Lessons from 1995 Chicago Heatwave

1. July 13th, 1995 temperatures hit 106°F killed 739 people
2. City was caught off guard
3. Social isolation
4. Crime/safety altered responses
5. Power grid couldn't meet demand
6. Lack of awareness on the perils of brutal heat

“Something weird was going on in 1995, an unusual amount of 20- and 30-year-olds with renal failure. Their kidneys were shutting down because they decided to go for a run, despite the lethal temperatures.” – Chicago Tribune
## Vulnerable in cities

<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>POPULATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>High exposure</td>
<td>Very young and old</td>
</tr>
<tr>
<td>Lack of resources</td>
<td>Low/no income</td>
</tr>
<tr>
<td>Limited mobility</td>
<td>Work outdoors</td>
</tr>
<tr>
<td>Isolation</td>
<td>Poor health</td>
</tr>
<tr>
<td>◦ Social</td>
<td></td>
</tr>
<tr>
<td>◦ Institutional</td>
<td></td>
</tr>
</tbody>
</table>
Solutions – Social Systems

Public Education
  ◦ Risks and coping strategies

Cooling shelters

Early warning systems

Check-in systems
  ◦ Family
  ◦ Automated wellness calls

Emergency medical care
Hospital evacuation plans
Traditional medical services
Solutions – Physical Systems

Tree cover - 35-40%

Light and reflective materials
Thank you