Urban Adaptivity To Climate Change
Considerations
Plan Characteristics

- Adaptable to evolving threats
- Systemic to capture relevant issues
- Transferable to other cities
- Efficient use of resources
Process

• What’s going to happen to us?
• What can we do about it?
ClimateNet

- Connects processes
- Integrates toolkits

Threats and Consequences

Analyse Vulnerabilities

Implementation Practices

Solution Development
ClimateNet

- Developed by city
- Central database
- Accessed by:
  - planners
  - policy makers
  - experts
  - general public
- Communication hub

expert

private sector

city hall

challenge kit

CHALLENGE & SOLUTIONS
• Summarize climate threats
• Derive consequences
Climate Change Group

- Internal coordination
- Develop agendas
- Evaluate solutions
- Manage ClimateNet content
Alliance Network

- Ongoing Advisory Committee
- Business Leaders & Experts
- Provide Policy Advice
Global Partnerships

- Expanded Solution Base
- Access through ClimateNet
Chicago Scenario

Threats
Heat Waves
Intense Wind
Heavier Downpours
Short Term Drought

Consequences
Flooding
High Pollen Counts
Utility Cost Increases
Peak Electrical Demand
Urban Heat Island Effect
Lake Michigan Level Drop
Increased Insurance Claims
High Particle Concentrations
Increased Heat Related Deaths
- City Specific
- Macro/Micro Evaluation Tool
- Identifies Commonalities
## Threat Matrix

<table>
<thead>
<tr>
<th>Event</th>
<th>Dept. of Streets &amp; Sanitation</th>
<th>Dept. Water Management</th>
<th>Fire Department</th>
<th>Dept. of Planning</th>
<th>Dept. of Health</th>
<th>Dept. of Buildings</th>
<th>Dept. of Environment</th>
<th>Dept. of Transportation</th>
<th>Dept. of Zoning</th>
<th>Dept. of Emergency Mgmt</th>
<th>Dept. of Procurement</th>
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</table>
Chicago Scenario

**Streets and Sanitation**
- Hotter/Drier: Energy
  - Landscaping
  - Street Cleaning
  - Sidewalk Washing
- Hotter/Drier: Water Conservation
  - Landscaping
  - Street Cleaning
  - Sidewalk Washing
  - Illegal Hydrant Use

**Planning & Development**
- High Albedo Roofing
- Cooler Housing for Low Income
- Lower Peak Electrical Demand
- Decrease Heat Island Effect
- Lower volume fixtures
- Alternative Industrial Processes
- Water Heating
- Residential Potable
- Landscaping

**Fire Department**
- Non-Emergency Calls
- Fleet Management
- Fire Suppression
- Illegal Hydrant Use
- Equipment Cleaning
Chicago Scenario

- Water Scarcity
- Food Shortages
- Flooding
- Island Effects
- Heat Related Deaths
- Pollution Control
- co2 regulation
- Drought
- Electrical Peaks
- Population Increase
- Heat Waves

Comparison:
- 1995
- 2005
- 2015 goal
• Internal/External Tools
• Feeds Solutions Library
Challenge Kit

- ClimateNet Input/Output Device
- Generate Solutions
- Encourages Outside Participation
City: Chicago
Country: United States
Threat 1: Hotter
Threat 2: Wetter
Threat 3: Drier
Existing Solutions from Network

1. Solution: Roof Capture
   - Threat: Hotter/Drier
   - Consequence: Drought
   - Budget: $50,000
   - Application: Commercial

2. Solution: GreenRoofs
   - Threat: Wetter
   - Consequence: Flooding
   - Budget: $20,000
   - Application: Residential

3. Solution: Dispersed Energy
   - Threat: Hotter/Drier
   - Consequence: Peak Use
   - Budget: $15 Million
   - Application: Industrial
• Fulfil solutions
• Organizational improvements
Leadership Training

• Educate Managers
• Provide Evaluation
• Improve Awareness
3Cs Challenge

- Achieve Common Goals
- Solve Complicated Problems
- Promote Information Sharing
Alliance Connector

• Receive Alliance proposals
• Provide Alliance Scenarios
• Provide Filtration Tools
Power of a City

Decision Making

- Threats & Consequences
- Analyse Vulnerabilities
- Implementation Practices
- Solution Development

ClimateNet
Power of a City

Decision Making

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Solution Development

Public Support

ClimateNet
Power of a City
Example: reduce water use by 40%

- Short Term
  - Technological Development
    - Green Roofs
    - City Farms
    - Storm Water Management
      - Urban Reservoirs
    - Fire Hydrant Solutions
- Long Term
  - Consumption/Behavioural Shifts
    - Commercial Water Plan
      - GMO Low Water Plant Species
Hypothetical Solutions

Solution: Low Tech Control
Threat: Hotter/Drier
Consequence: Peak Energy
Budget: $5000
Application: Residential

Solution: FreeRide
Threat: Hotter/Drier/Wetter
Consequence: co2 emissions
Budget: $1Billion+
Application: Public Transit

Solution: Business Training
Threat: All
Consequence: Instability
Budget: $750,000
Application: Commercial
**Hypothetical Solutions**

**Solution: Home Energy Meter**
- Threat: Hotter/Drier
- Consequence: Peak Energy
- Budget: $50
- Application: Residential

**Solution: C2 Simulator**
- Threat: All
- Consequence: Per Area
- Budget: $2 Million
- Application: Public Education
The Roadmap to Urban Planning for Climate Change