Cities4Forests

A City-Led Movement to Protect Forests and Nature for Human Well-Being

Presentation to 2021-22 International Mayors Forum
Cities4Forests: A City-led Movement to Protect Forests across Three Scales

INNER FORESTS
- Clean air
- Shade from sun
- Urban wildlife
- Higher property values
- Recreation

NEARBY FORESTS
- Clean air
- Drinking water
- Reduced flooding
- Reduced soil erosion
- Timber
- Recreation

FARAWAY FORESTS
- Carbon storage
- Rainfall generation
- Timber
- Medicine
- Biodiversity

3 GOOD HEALTH AND WELL-BEING
6 CLEAN WATER AND SANITATION
11 SUSTAINABLE CITIES AND COMMUNITIES
13 CLIMATE ACTION
15 LIFE ON LAND
81 member cities…and growing
Political Action & Engagement

- Building political support (untapped voices of Mayors)
- Resident engagement
- Sparking a global movement of cities

Technical Assistance & Capacity Building

- Policy and planning
- Mapping, measuring, and monitoring
- Leveraging new technologies

Economics, Finance, & Investment

- Economic analysis
- Enhancing project bankability and pipeline buildout
- Facilitating access to all forms of capital
CALL TO ACTION ON FORESTS & CLIMATE

“We call on governments, companies, and financial institutions to urgently ramp up policies and investments to support forest conservation, restoration, and sustainable forest management.”

wri.org/cities4forests/call-to-action
A City-Led Call to Action on Forests & Climate

We—signatories to the Cities4Forests Declaration and allied cities—are the leaders of more than 50 major cities on six continents. The COVID-19 pandemic has reminded us of our interdependence with nature, that what happens in one place affects other places, the importance of adaptation and resilience, and the value of long-term planning. These reminders apply to our relationship to forests, as well.

Therefore, we respectfully call on governments, companies, and financial institutions to urgently ramp up policies and investments to support forest conservation, restoration, and sustainable forest management.

Governments
Policies to better protect, restore, and manage forests

Companies
Prioritize investment in forests and avoid financing deforestation

Financial Institutions
Support forests and ensure supply chains are deforestation-free
Call to Action on Forests & Climate Signatories

1. Rosario, Argentina
2. Campinas, Brazil
3. Extrema, Brazil
4. Palmas, Brazil
5. Salvador, Brazil
6. São Paulo, Brazil
7. Montréal, Canada
8. Victoria, Canada
9. Bogotá, Colombia
10. Barranquilla, Colombia
11. Cali, Colombia
12. Cartagena, Colombia
13. Medellin, Colombia
14. Yopal, Colombia
15. Quito, Ecuador
16. Hawassa, Ethiopia
17. Paris, France
18. Accra, Ghana
19. Effia-Kwesimintsim District, Ghana
20. Kumasi, Ghana
21. Sekondi-Takoradi, Ghana
22. Kaloum / Conakry, Guinea
23. Georgetown, Guyana
24. Kochi, India
25. Mumbai, India
26. Jakarta, Indonesia
27. Jayapura, Indonesia
28. Semarang, Indonesia
29. Fianarantsoa, Madagascar
30. Guadalajara, Mexico
31. Hermosillo, Mexico
32. Mérida, Mexico
33. Mexico City, Mexico
34. Nogales, Mexico
35. Xalapa, Mexico
36. Oslo, Norway
37. Port Moresby, Papua New Guinea
38. Brazzaville, Republic of Congo
39. Musanze District, Rwanda
40. Glasgow, Scotland
41. Freetown, Sierra Leone
42. Antalya, Turkey
43. Mersin, Turkey
44. Ann Arbor, USA
45. Brooklyn (New York City), USA
46. Eugene, USA
47. Houston, USA
48. King County, USA
49. Little Rock, USA
50. North Little Rock, USA
51. Miami-Dade County, USA
52. Pittsburgh, USA
53. Philadelphia, USA
54. Salem (OR), USA
55. Salt Lake City, USA
56. San Francisco, USA
57. San Jose, USA
58. Seattle, USA
NATURE-BASED SOLUTIONS FOR FLOOD & STORMWATER MITIGATION
MANY TERMS FOR “NATURE-BASED SOLUTIONS”

INCREASING URBAN FLOOD RISK

- Urban flooding is a serious and growing development challenge.
- Urbanization and climate change pose significant threats for urban flooding and water quality.

Global number of reported flood events

Lack of drainage and insufficient water infrastructure due to urbanization exacerbates flooding.

Ensuring sufficient safe water supply for residents is complicated by the impacts of urbanization.
COSTLY CONSEQUENCES

- Urban flooding challenges **development, lives, and livelihoods**
- Poor populations suffer **disproportionately**

Global flood losses

- Economic loss in US $ (billions)
### Nature-based Solutions (NBS)

<table>
<thead>
<tr>
<th>Built</th>
<th>Hybrid</th>
<th>Natural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard, gray, engineered structures built to address development objectives</td>
<td>Combination of ecosystem elements and hard engineering interventions for addressing development objectives</td>
<td>Creation, protection or restoration of only ecosystem elements for addressing development objectives</td>
</tr>
</tbody>
</table>

Source: World Bank 2017
CONVENTIONAL: ‘BUILT’ INFRASTRUCTURE

- Designed to **quickly move stormwater away** from urban centers and **treat polluted water**
- Massive need for global investment in flood infrastructure - even more than in **energy and transport**.

**Examples:** Pipes, combined sewers, treatment plants, curbs, gutters, channeled rivers, etc.
Established to slow and attenuate runoff and filter pollutants
Includes both natural and hybrid solutions

Examples: Greenspaces, constructed wetlands, bioswales, green roofs, and permeable pavements
Natural solutions alone are **often insufficient** to manage urban flooding.

‘Hybrid’ solutions **integrate and enhance** the benefits of natural and built solutions.

**Examples:** constructed wetlands, bioswales, green roofs, and permeable pavements.
NBS FOR URBAN AREAS

1. Green Roofs
2. Permeable Pavement
3. Open spaces and waterbodies
4. Restored or constructed wetlands
5. Bioretention areas
• **Improves** water management
• Can be more **cost-effective**
• Provide **wide range of additional co-benefits** to cities, beyond flood risk reduction
• Can be designed as **resilient, flexible, climate adaptation measures**
• Contributes to a **green recovery**

Photo credit: Flickr/Payton Chung
IMPLEMENTING NBS

Key steps:
- Identify suitable options during planning
- Analyze the feasibility during design
- Engage communities
- Integrate NBS with traditional measures
- Construct and operate
- Monitor and evaluate
# SELECTING AMONG NBS OPTIONS

<table>
<thead>
<tr>
<th>NBS Applications</th>
<th>Water quantity</th>
<th>Water quality</th>
<th>Urban flooding</th>
<th>Coastal flooding and erosion</th>
<th>Landslide risk</th>
<th>River flooding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agroforestry and silvopasture</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmland best practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floodplains and bypasses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riverbeds and riparian areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grassland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inland wetlands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distributed bioretention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructed wetlands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban parks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bioswales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permeable pavements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green roofs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sand dams</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mangroves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coastal wetlands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coral and oyster reefs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seagrasses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy beaches and dunes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FEASIBILITY FACTORS

Technical

Social

Financial

Institutional

Legal
Appropriate use of NBS is highly context specific, requiring careful evaluation, planning and design of project components.

There are limits to how NBS can perform in urban settings.
CHINA’S SPONGE CITIES – SHANGHAI GREEN ROOFS

- Utilizes many NBS, **including green roofs**
- By 2030, **80% of built area in pilot cities will serve as a “sponge”**
- **70% of stormwater runoff**
- Cost effective with **significant energy saving**
- Incentives and education
Email:  John-Rob.Pool@wri.org  |  Social Media: /cities4forests  |  Website: cities4forests.com