Biodiversity in the City – a SuDS perspective

Enrico Isnenghi – Technical Director
White Paper: Our Vision for the future of UK cities

- Skyline Parks
- Rivers and wildlife
- Green hearts
- Green streets
- Wilder parks
Key guidance/policy supports Green Infrastructure and SuDS e.g. London Draft Environmental Strategy

AIMS FOR 2050

Climate change and energy
London will be a zero carbon city, with a zero emissions transport network and zero carbon buildings.

Waste
London will be a zero waste city. 66% of London’s municipal waste will be recycled.

Adapting to climate change
London and Londoners will be resilient to severe weather and longer-term climate change impacts, such as flooding, heat risk and drought.

Green Infrastructure
More than half of London’s area will be green, and tree canopy cover will increase by ten per cent by 2020.

Air quality
London will have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities.

Noise
The number of people adversely affected by noise will be reduced, and more quiet and tranquil spaces will be promoted.

Outcomes
Greener
All Londoners should be able to enjoy the very best parks, trees and wildlife. Creating a greener city is good for everyone – it will improve people’s health and quality of life, support the success of businesses and attract more visitors to London.

Cleaner
Londoners want their city to be clean, attractive and healthy – living in a big city does not mean they should accept a dirty and polluted environment. The Mayor will clean up London’s air, water and energy in a way that is fair, protects the health of Londoners, and contributes to the fight against climate change.

Ready for the future
Water, energy and raw materials for the products we consume will be less readily available in the future, and climate change will mean higher temperatures, more intense rainfall and water shortages. The Mayor will make sure the city does not waste valuable resources, is prepared for the future and is safeguarded for future generations.
HM Government - 25 years Environmental Plan

We will do what is necessary to adapt to the effects of a changing climate, improving the resilience of our infrastructure, housing and natural environment. [...] new development should result in net environmental gain.

Long-term action requires us to take difficult choices, some with considerable economic consequences, about conservation. In the past, our failure to understand the full value of the benefits offered by the environment and cultural heritage has seen us make poor choices.

(intro by the Secretary of State for Environment, Food and Rural Affairs)
So is it happening? Or why it is not?
We need an FRA/Drainage Strategy…

When is the planning submission? Next week… Design is fixed… We have no space for storage…

Speak to the council are there any drainage policies? Can we talk to the right people?

Speak to the architects/landscapers Still to be appointed, we won’t know until the last minute if we will include green roofs…

Tick the box exercise?

Discharge rates There is no capacity – 50% attenuation is ok
Obstacles to delivery of SuDS

• Misconception on their cost
• Policy not consistent - insufficient
• Adoption
• Knowledge and cultural blocks
• Mainstream versus new – risk avoidance
• Conflicting goals
• Lack of resources
Obstacles to delivery of SuDS

Misconception of their cost (and benefits!) - Who pays? Who gains?

Green infrastructure [...] can reduce the impacts of climate change [...] They can promote healthier lives, reduce car dependency and encourage more walking and cycling.

They can improve biodiversity and ecological resilience. These benefits are economically valuable, but are not widely understood.

[...] If green infrastructure does appear in financial accounts, it is often as a liability – accounting for the cost of maintaining a local park, rather than also taking into account the benefits the park provides to the local community and economy.

London Draft Environmental Strategy
Obstacles to delivery of SuDS

Policy not consistent-insufficient

Focus on flood risk management (e.g. non-statutory national standards)

On a positive note the draft NPPF states that:

163. Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:

a) take account of advice from the lead local flood authority;

b) have appropriate proposed minimum operational standards;

c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and

d) where possible, provide **multifunctional benefits**

recognise that some undeveloped land can perform many functions, such as for wildlife, recreation, flood risk mitigation, cooling/shading, carbon storage or food production;
Obstacles to delivery of SuDS

Adoption
Sewers for Adoption 8?

Knowledge and cultural blocks
• Clients
  it is a waste of space, green roofs leak…
• Professionals
  SuDS are more expensive…
• Decision makers

Mainstream versus new (?) – risk avoidance

Conflicting (?) goals we cannot have a green roof as we need photovoltaics on the roof
Good examples

Clear Policy - Guidance
Strong leadership – vision
Focus on the bigger picture - wider benefits and resilience
Partnership
The way forward?

SUDS AND GREEN INFRASTRUCTURE HELP TO REDUCE FLOOD RISK AND ATTENUATION REQUIREMENTS

<table>
<thead>
<tr>
<th>Area</th>
<th>No green, assuming fully impermeable</th>
<th>10% Green/disconnection to drainage system</th>
<th>20% Green/disconnection to drainage system</th>
<th>50% Green/disconnection to drainage system</th>
</tr>
</thead>
<tbody>
<tr>
<td>10ha</td>
<td>1390 l/s</td>
<td>1251 l/s</td>
<td>1112 l/s</td>
<td>695 l/s</td>
</tr>
</tbody>
</table>

Assuming a 50mm/hr intensity:

Potential volume reduction for a 10 ha area*:
10% greening 232 m³
20% greening 464 m³
50% greening 1,158 m³

*assuming a 6 hour event at a constant 50mm/hr.
The way forward?

SuDS should not be used only to reduce flood risk: they can and should do much more.

The goal should be not to achieve the lowest possible discharge rates only. Rather a solution which is sustainable and appropriate for the context.
The way forward?

SUDS NON - FLOOD RISKRELATED BENEFITS SHOULD BE FACTORED IN THE DECISION MAKING PROGRESS

For example a slightly higher discharge rate might promote a more sustainable solution (e.g. pumping versus green roofs and above ground storage)

MORE HOLISTIC APPROACH TO BENEFITS
The way forward?

Identify sustainability drivers e.g. biodiversity, air and water quality, climate change and resilience

SuDS and green infrastructure help in designing for exceedance and factor uncertainties in (while they help in mitigating climate change!)
CONCLUSIONS

• SUDS ARE MORE THAN AN ALTERNATIVE DRAINAGE SYSTEM – GREEN INFRASTRUCTURE

• MORE FOCUS ON NON-FLOOD RELATED BENEFITS

• SYNERGIES AND PARTNERSHIP

• LEADERSHIP AND CHAMPIONS

• IDENTIFY ALTERNATIVE FUNDING AVENUES
Thank you

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