

A transformative change to UK flood management: Domestic garden adaptation and retrofit

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A photograph of a row of terraced houses in a flooded street. The water is murky brown and reflects the sky. The houses are made of brick and have multiple windows. Some have blue doors. The sky is a mix of orange and grey, suggesting sunset or sunrise. A concrete railing is visible in the foreground on the right.

**Flood impact
Legislation
Gardens then/now
Houseplot SuDS**



£6.2bn 2080s

£4.5bn 2050s

£3.0bn 2007

£1.4bn year



ELIZABETH II

c. 29



Flood and Water Management Act 2010

2010 CHAPTER 29

An Act to make provision about water, including provision about the management of risks in connection with flooding and coastal erosion. [8th April 2010]

BE IT ENACTED by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

PART 1

FLOOD AND COASTAL EROSION RISK MANAGEMENT

...the use of **natural processes** to minimise flood risk...



Flood Risk Management (Scotland) Act 2009 2009 asp 6

CONTENTS

Section

PART 1

GENERAL DUTY, DIRECTIONS AND GUIDANCE

- 1 General duty
- 2 Directions and guidance

PART 2

PRINCIPAL EXPRESSIONS

- 3 "Flood" and "flood risk"
- 4 SEPA
- 5 Responsible authorities
- 6 "The Directive"

PART 3

FLOOD RISK ASSESSMENT, MAPS AND PLANS

...the use of **space in urban landscapes** to store & slow rainfall...

Biodiversity:

Food & shelter for wildlife

Energy:

Shade & shelter to buildings

Urban microclimate:

Mitigate UHI effect

Wellbeing:

Space for exercise/relaxation

Economy:

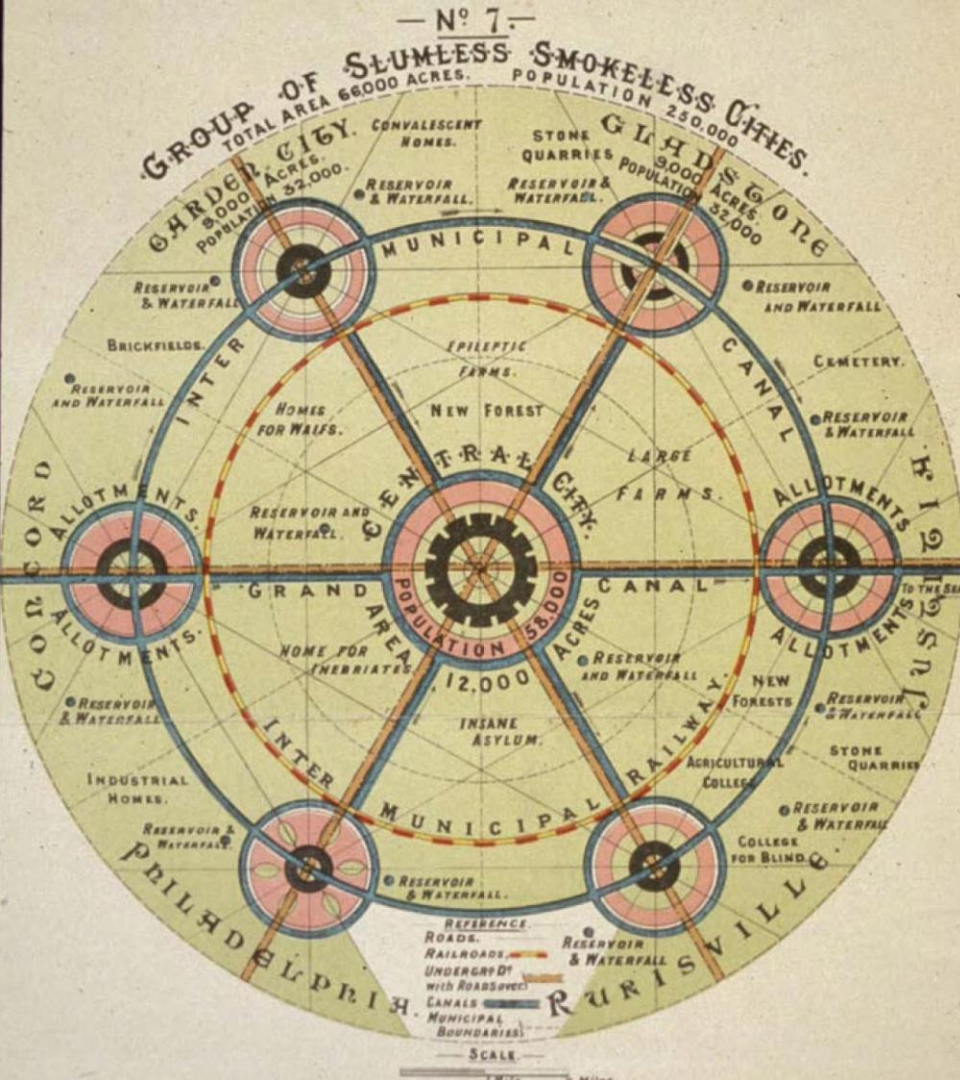
Property value/investment

Surface water control:

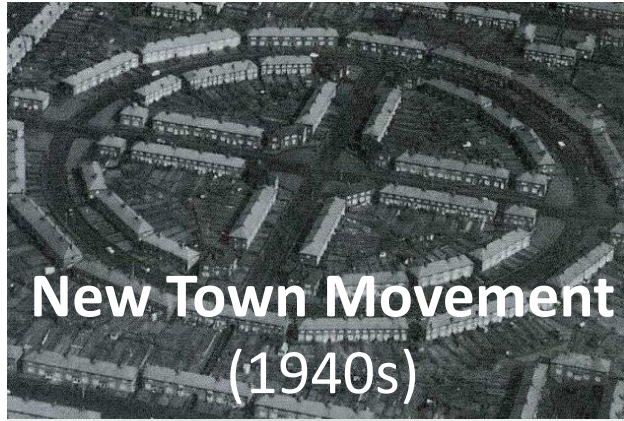
Minimize rainwater runoff



36% of Urban Area



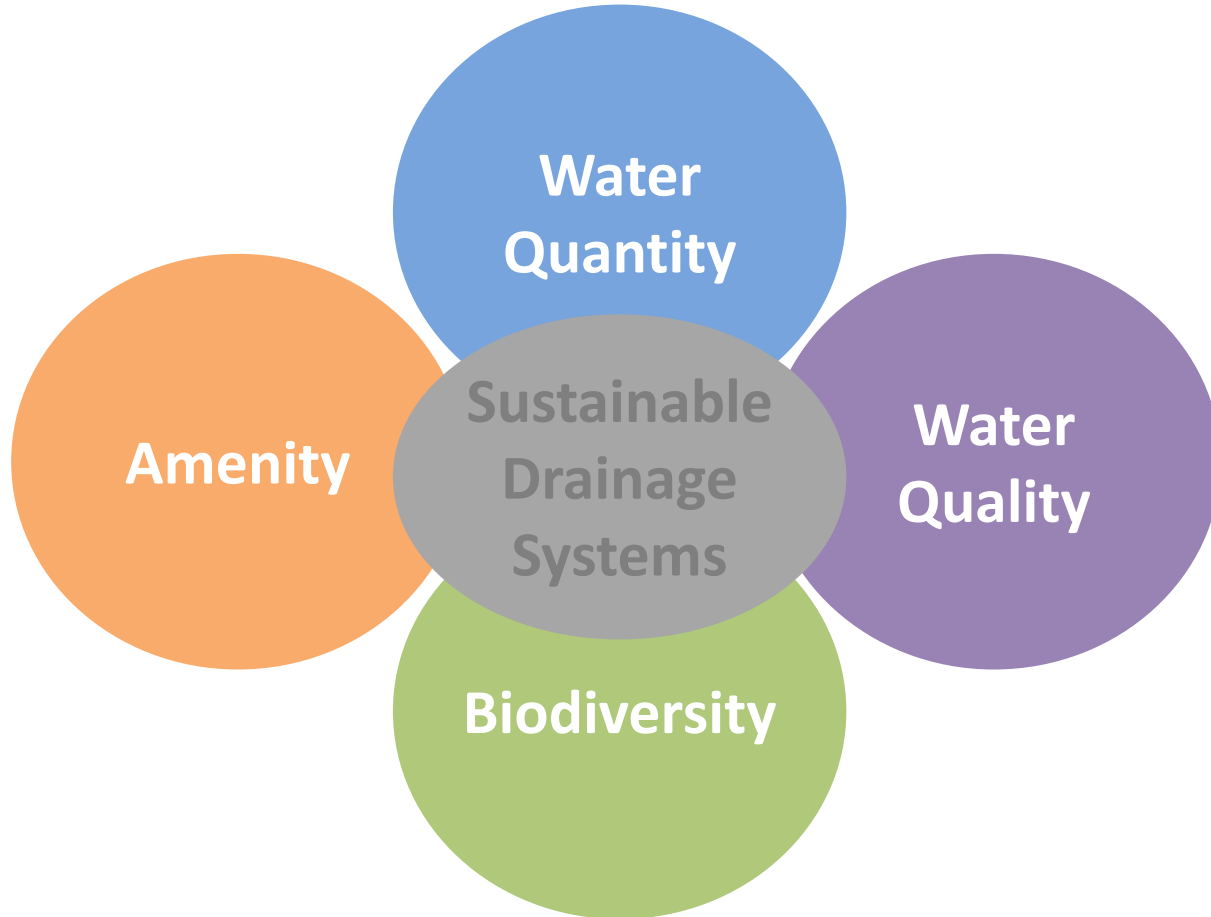
Garden Cities of Tomorrow
 Ebenezer Howard (1902)



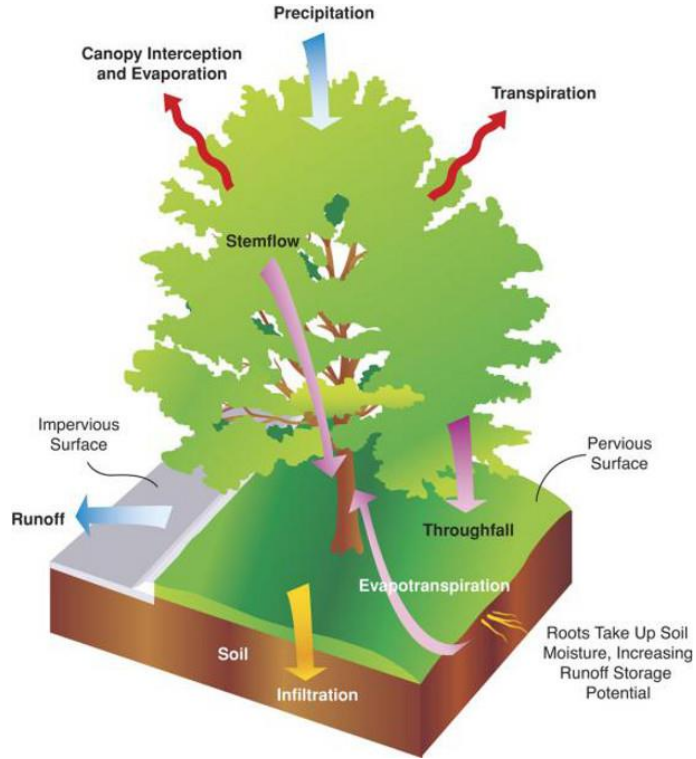


Increased flood risk
Lost ecosystem services

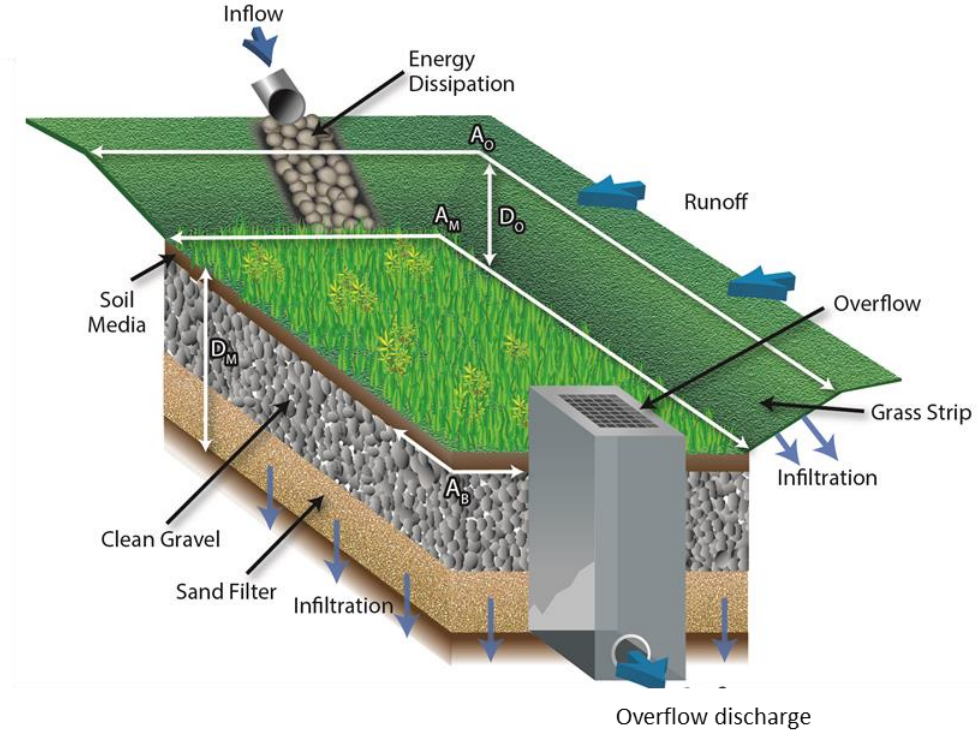
The Houseplot-SuDS Concept



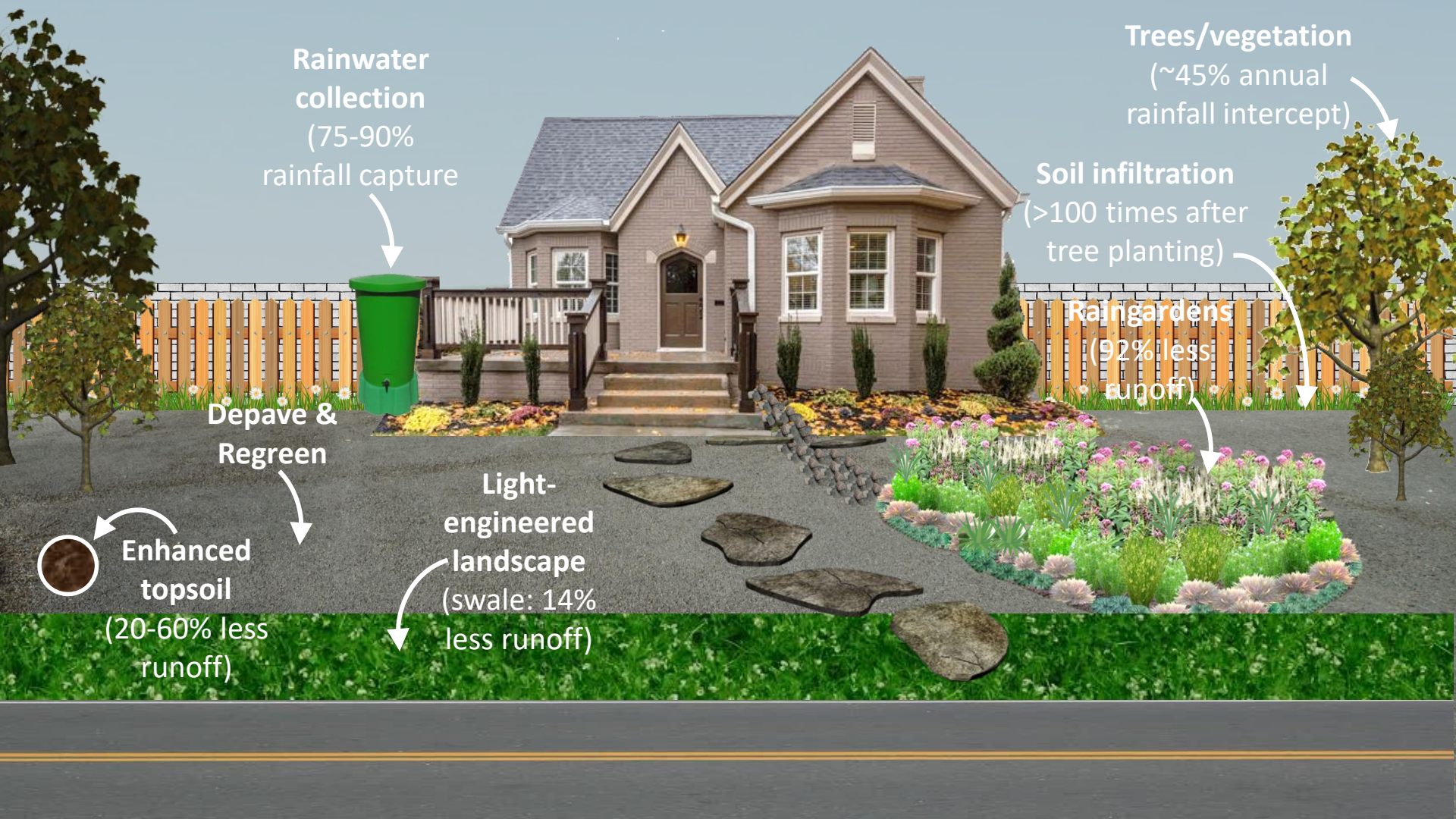
The Houseplot-SuDS Concept



Enhanced
vegetation



Light-engineering
solutions



**Rainwater
collection**
(75-90%
rainfall capture)

Trees/vegetation
(~45% annual
rainfall intercept)

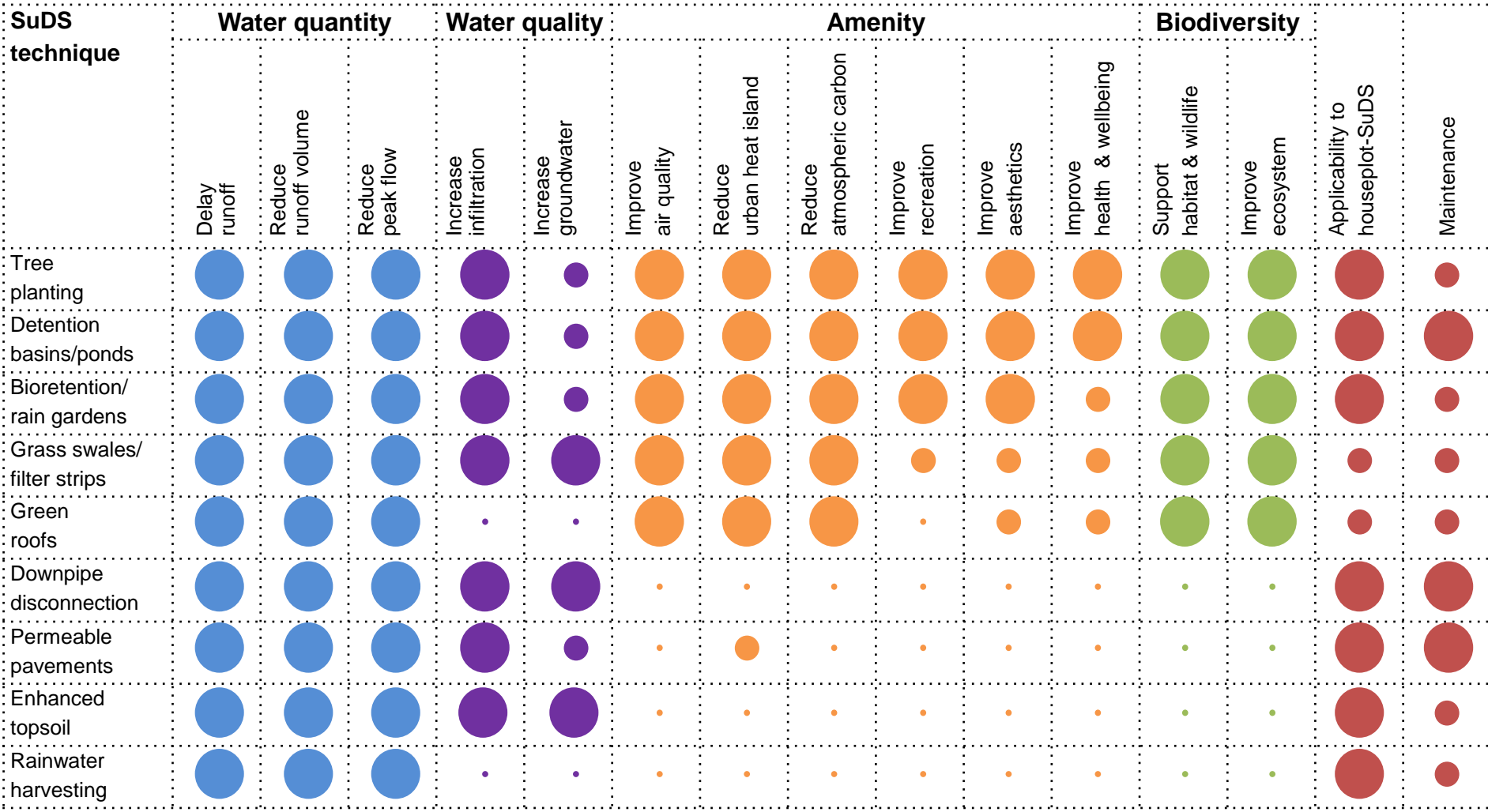
Soil infiltration
(>100 times after
tree planting)

Raingardens
(92% less
runoff)

**Depave &
Regreen**

**Enhanced
topsoil**
(20-60% less
runoff)

**Light-
engineered
landscape**
(swale: 14%
less runoff)



**Rising
Population**

**Growing
Urbanisation**

**Deficient
Infrastructure**

**Climate
Change**



Protect

Restore

Enhance

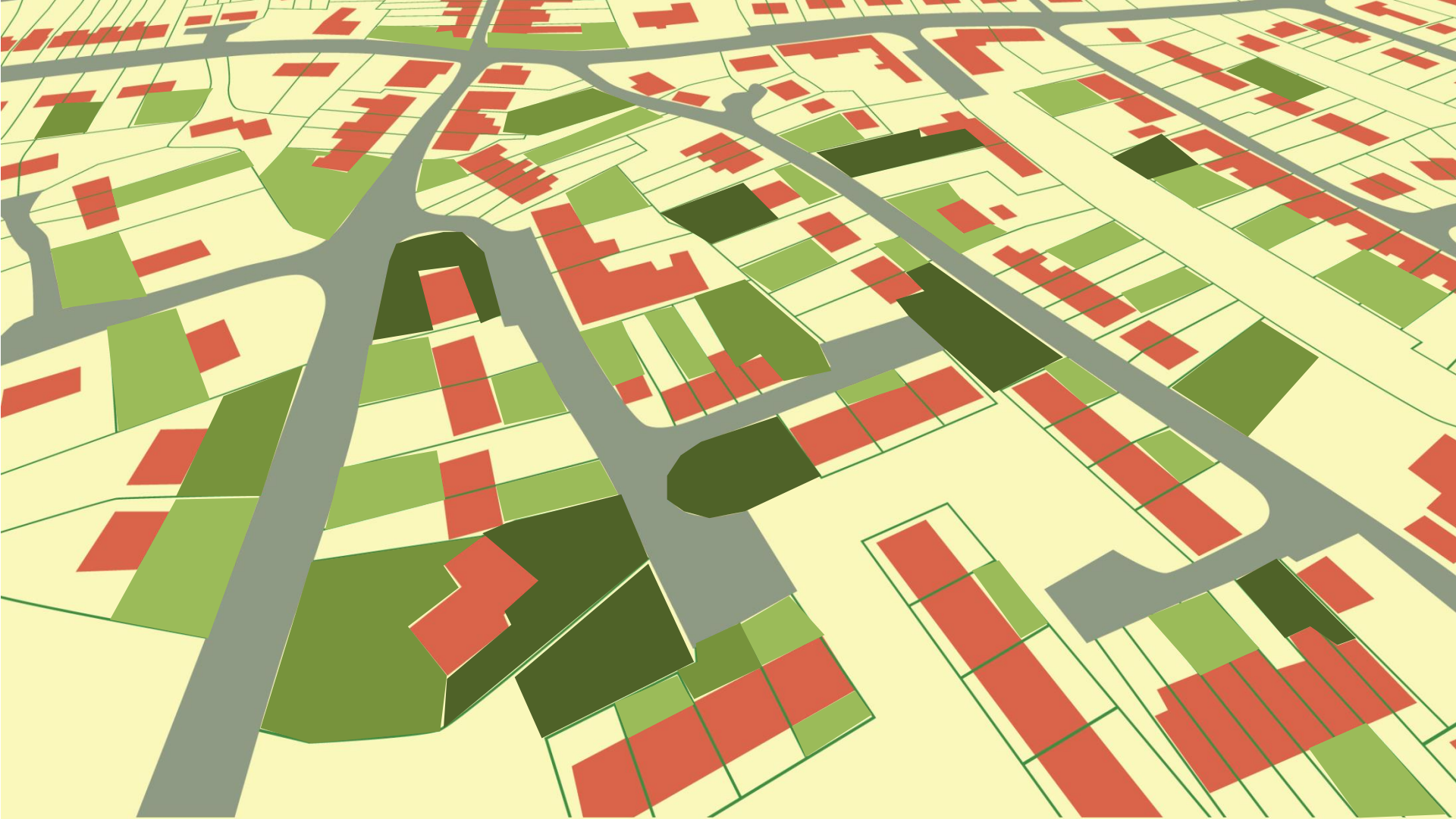
Adapt



**National
policy &
practice**

**Public
education &
incentive**

**Urban flood
mitigation**



Thank you!

