



THE UNIVERSITY *of* EDINBURGH

Governance of Sustainable Urban Drainage Systems (SUDS) as Public Realm Assets: a case study of the City of Edinburgh

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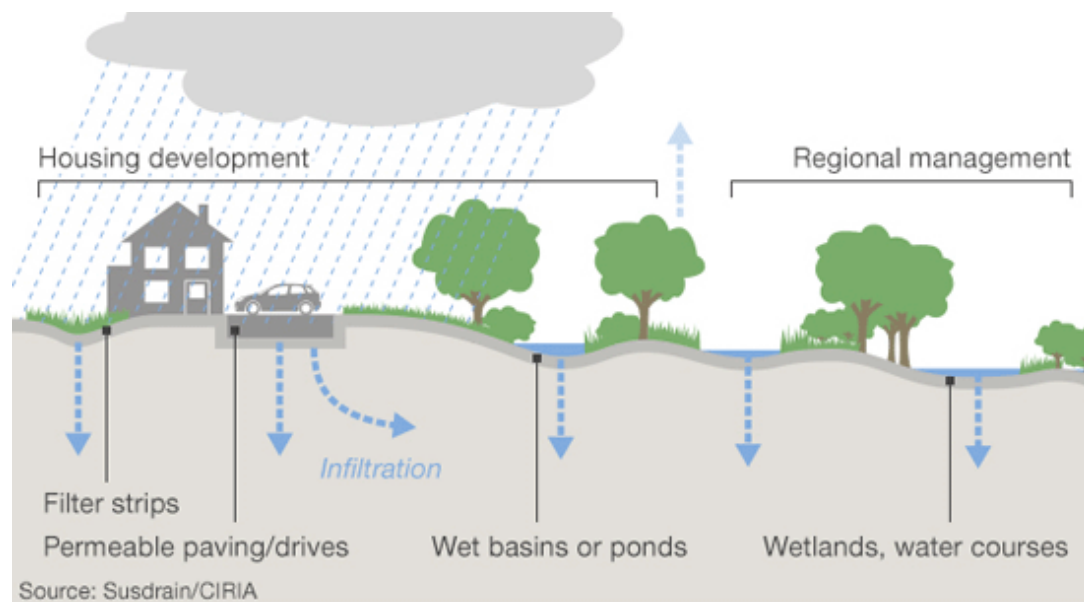
SUDS as Public Assets, Edinburgh

SUSTAINABLE URBAN DRAINAGE

- Water Treatment, Water Attenuation, Amenity

- Treatment Train

Source Control → Site Control → Regional Control



SUDS IN SCOTLAND

- Scotland 2002: 750 Sites
- Scotland 2015: ~2-3,000 Sites
- Edinburgh 2015: 298 Sites with 684 individual SUDS features
- Sites Adopted as Public Assets by Scottish Water in Scotland 2015: 24

Research Approach

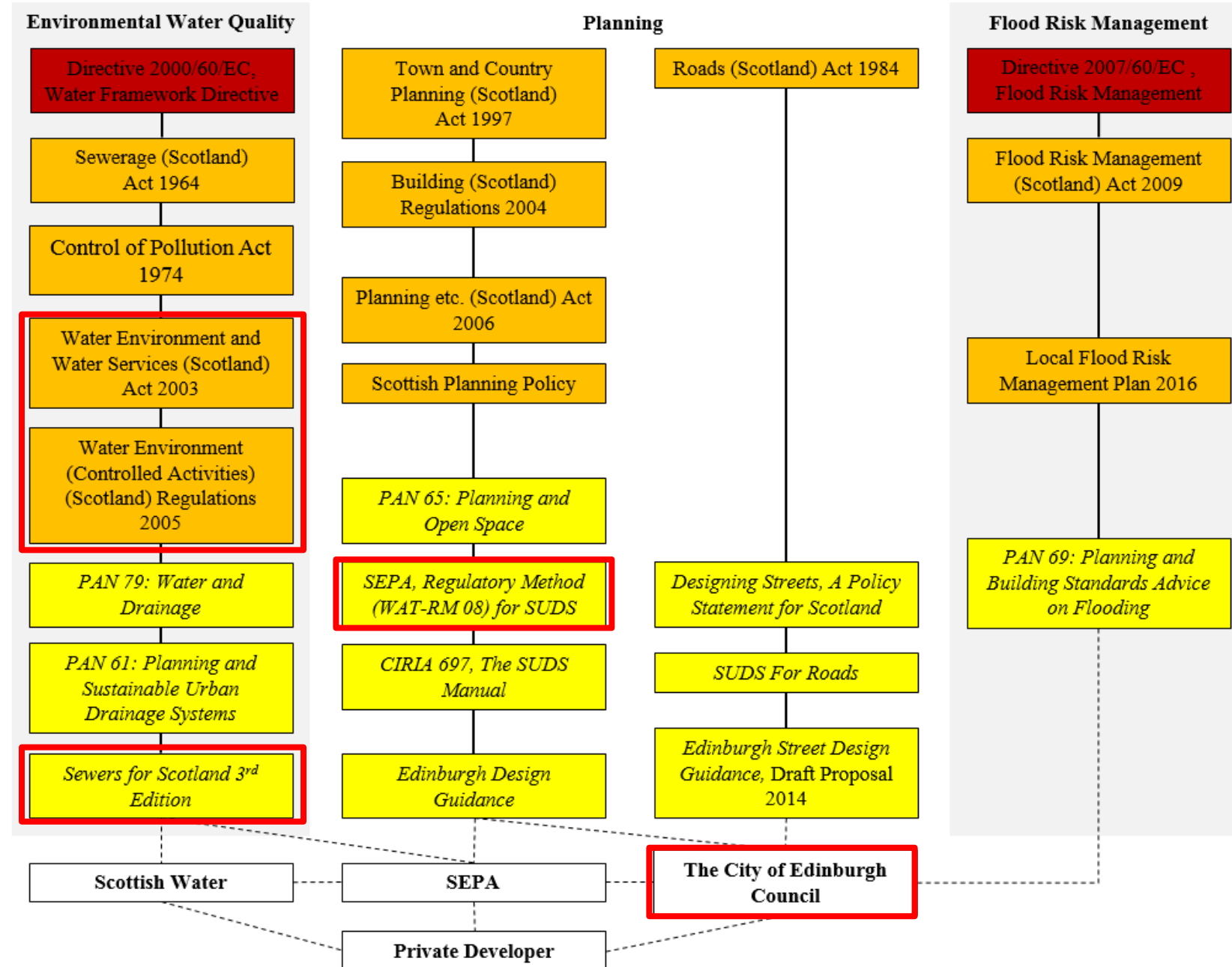
- Phase 1: Document Analysis
 - Policies and Regulations
 - Best Practice Guidance
- Phase 2: Institutional Stakeholders Interviews
- Phase 3: Local Case Studies
 - Bottom-Up Stakeholder Management
 - Visual Site Assessments
- Primary Modes of Governance
 - Hierarchical – Market – Network
 - Hybrid Structures, only used as an analytical lens



ForthQuarter Park SUDS Pond

Governance Structure

- SUDS become law in 2004
- Regulation in 2005
- Scottish Water = Property Drain
- Scottish Water Guidance 2007
- Local Authority = Local Roads Drainage
- Transport Scotland = Trunk Roads
- Hierarchical + Market Hybrid





Semi-Structured Interviews

Public Sector

- Flooding Authority, Scottish Government
- Roads Authority, City of Edinburgh Council
- Flooding Authority, City of Edinburgh Council
- SUDS Practitioner for SEPA
- SUDS Practitioner, Scottish Water
- SUDS Co-ordinator, Scottish Water
- Representative for Transport Scotland
- Roads and Flooding Officer, Clackmannanshire Council

Private Sector

- SUDS Practitioner, WSP Consultancy Firm
- SUDS Practitioner, ARUP Consultancy Firm
- SUDS Practitioner, JBA Consultancy Firm
- SUDS Practitioner, MWH Consultancy Firm
- SUDS Practitioner, National Development Company
- Senior Manager, Greenbelt

Third Sector

- Representative for Central Scotland Green Network Trust
- Representative for Scottish Wildlife Trust
- Research Officer, Urban Centre for Water Technology, University of Abertay

Barriers for SUDS

- Challenges to Adoption
 - Shared drainage between roads and developments
 - Planning officer can condition adoption issues
- Prescriptive Guidance
 - Bottle-neck to Sewers for Scotland
 - Contradictions: Levels of Attenuation, Runoff Rate
- Resources for Maintenance
 - Unfamiliarity for Scottish Water
 - Annual Budget for Local Authority Roads
 - Investment by Developer for Maintenance, Legacy SUDS



Opportunities for SUDS



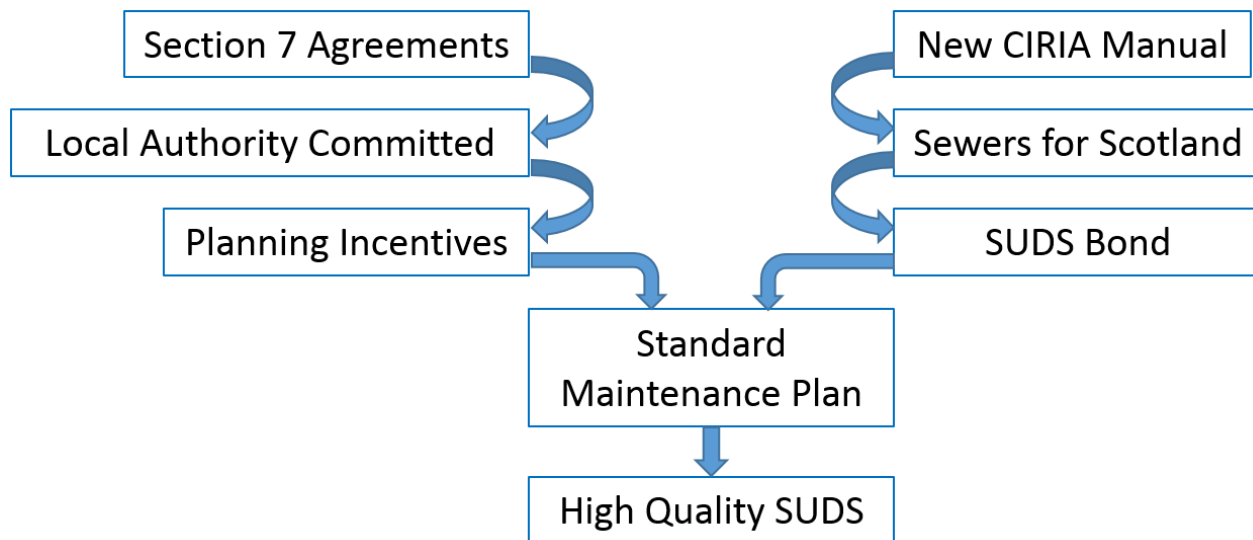
Firhill Neuk, SUDS Pond

- Increased Coordination
 - Section 7 Agreements: Scottish Water belowground and Local Authority aboveground
 - Increased Planning Liaison (impractical)
 - Increased Inspection Regimes
- Short-Term vs. Long-Term Investment
 - Stricter Masterplanning, Placemaking
 - Maintenance Factor during construction
 - Case-Studies largely still functional
- Public Education
 - Source Control, driven by SFS changes
 - Incentive for Developers as Selling Point

Interventions for Governance

• Hierarchical Intervention

- Scottish Government creates incentive with Local Authority compliance with the Section 7
- Scottish Government Demonstration Sites, reduce fiscal burden on Public Authority



• Network Intervention

- Sewers for Scotland becomes a live document and merges with new CIRIA guidance
- SUDSWP creates standard template for maintenance associated with new streamlined guidance
- Attach Maintenance/Adoption Plan to Planning Permission, include 'SUDS Bond'
- National Inspection Programme Organized by SEPA
- Public Dissemination of Information, Incentives to Disconnect

Recommendations for SUDS Governance

- Shifts in Guidance, Sewers for Scotland, CIRIA potentially advocating source control
- Local Authorities Response to Section 7 (32 different perspectives on SUDS)
- Standard Maintenance Template, Online Public Database, what would they look like?
- Third Sector Campaigns, *10,000 Raingardens* how to maximise saleability
- Scottish Government Demonstration Sites



Hyvot Loan, SUDS Pond



Supermarket Car Park, Permeable Paving



Bonaly Wester, Swale

Thank you!

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