

Green Infrastructure

University of Surrey &
Surrey Nature Partnership

Workshop structure

13:00 Lunch

14:00 Welcome: Jonathan Chenoweth & Sarah Jane Chimbwandira

14:05 Introducing Green Infrastructure: Jonathan Chenoweth

14:15 North Carolina experiences of GI: Bill Hunt (via Skype from NCSU)

14:45 Naturally richer: A natural capital investment strategy: Sarah Jane Chimbwandira

15:00 Break out group session 1 - brainstorm ideas for developing GI in Surrey

15:30 Break out group session 2 - brainstorm ideas for developing GI in Surrey

16:00 Tea /coffee break

16:15 Sharing of breakout groups' GI development ideas and discussion on how to take ideas forward

16:45 Wrap up

17:00 Finish

Introducing green infrastructure

Dr Jonathan Chenoweth
Centre for Environmental Strategy
University of Surrey

Introduction

- Presentation structure:
 - Definitions of green infrastructure
 - Differences in UK and US approaches
 - Aims and objectives of green infrastructure
 - Qualitative benefits of green infrastructure
 - Quantitative costs and benefits of green infrastructure
 - Types of green infrastructure
 - Outline of the rest of the workshop

Definitions of green infrastructure

- “*all green and blue spaces in and around our towns and cities*” Royal Town Planning Institute, (2013, p1)
- Other definitions do not limit green infrastructure to just urban areas – green infrastructure can be located anywhere
 - “*the living network of green spaces, water and other environmental features in both towns and the countryside*” UK Environment Agency et al (2013, p12)
- Green infrastructure as a term is applied both to green spaces and to infrastructure, such as cycle routes, which fulfil a sustainability function

Definitions of green infrastructure

- Some definitions emphasise that green infrastructure is a planned network, not just a collection of open spaces
 - Green infrastructure refers to the combined structure, position and connectivity of green spaces
 - “*a strategically planned network of high quality natural and semi-natural areas*” European Commission (2013, p7)
 - Not all green space is necessarily green infrastructure – must be part of a planned network
- Ecosystem service delivery can be seen as key

Green infrastructure and related terms

- Green infrastructure different to concepts like green belts or amenity space
 - The emphasis is on infrastructure – something critical to the functioning of a city
 - Amenity space as a concept sounds less critical
- Terminology differences between US and UK
 - Focus of green infrastructure in the UK is more on landscapes and increasing biodiversity in urban areas
 - Focus in US is more on low impact development and surface water management
 - These might be termed sustainable urban drainage solutions in UK

Objectives of green infrastructure

- Improving human health and wellbeing
- Improving urban aesthetics
- Biodiversity conservation
- Water management
- Sustainable land management
- Climate change mitigation and adaptation
- Job creation
- Urban regeneration

- Benefits to humans: Quality of life and health
 - Filtering of air and water pollution
 - Reducing heat island effect
 - Health benefits due to enhanced opportunities for exercise, sport and recreation
- Benefits to ecosystems and landscapes
 - Green corridors to improve the permeability of urban areas to wildlife
 - Increased habitat area and connectivity leading to increased biodiversity

- Benefits to society and the economy
 - Green infrastructure is often framed as a way of reconciling economic growth and the needs of the environment
 - Temporary and permanent job creation
 - Reduced storm water treatment costs
 - Increased property values

Quantitative costs of green infrastructure

- A survey of 94 green infrastructure projects across Europe showed that:
 - Most projects had a budget of between €0.5 and €5 million
 - Five very large projects with budgets over €25 – one with a budget of €177 million – the UK National Forest project
 - Costs per hectare for projects ranged from €250 to €942,000 (Naumann et al, 2011)

- A study of UK's National Forest for the 1991-2100 period estimated costs of £188 million but benefits of £909 million, thus providing net benefits of £721 million
- The Merseyside Objective 1 Programme to create 8000 hectares of community woodlands was estimated to be providing £2 million in net benefits per year, and had a net present value of £71 million

Types of green infrastructure

- Green and blue roofs
- Swales, infiltration and filter drains and strips
- Wetlands and ponds
- Bio-retention areas and rain gardens
- Detention and infiltration basins
- Permeable surfaces



Source: <http://www.surrey.ac.uk>

Workshop structure

13:00 Lunch

14:00 Welcome: Jonathan Chenoweth & Sarah Jane Chimbwandira

14:05 Introducing Green Infrastructure: Jonathan Chenoweth

14:15 North Carolina experiences of GI: Bill Hunt (via Skype from NCSU)

14:45 Naturally richer: A natural capital investment strategy: Sarah Jane Chimbwandira

15:00 Break out group session 1 - brainstorm ideas for developing GI in Surrey

15:30 Break out group session 2 - brainstorm ideas for developing GI in Surrey

16:00 Tea /coffee break

16:15 Sharing of breakout groups' GI development ideas and discussion on how to take ideas forward

16:45 Wrap up

17:00 Finish

Brainstorm themes

Theme 1:

- How can a natural capital / green infrastructure approach be used to promote regeneration?
- How can you retrofit green infrastructure to ensure environmental and social benefit?

Theme 2:

- How could green infrastructure (radically) reshape new urban development?
- How can green infrastructure ensure better new development?