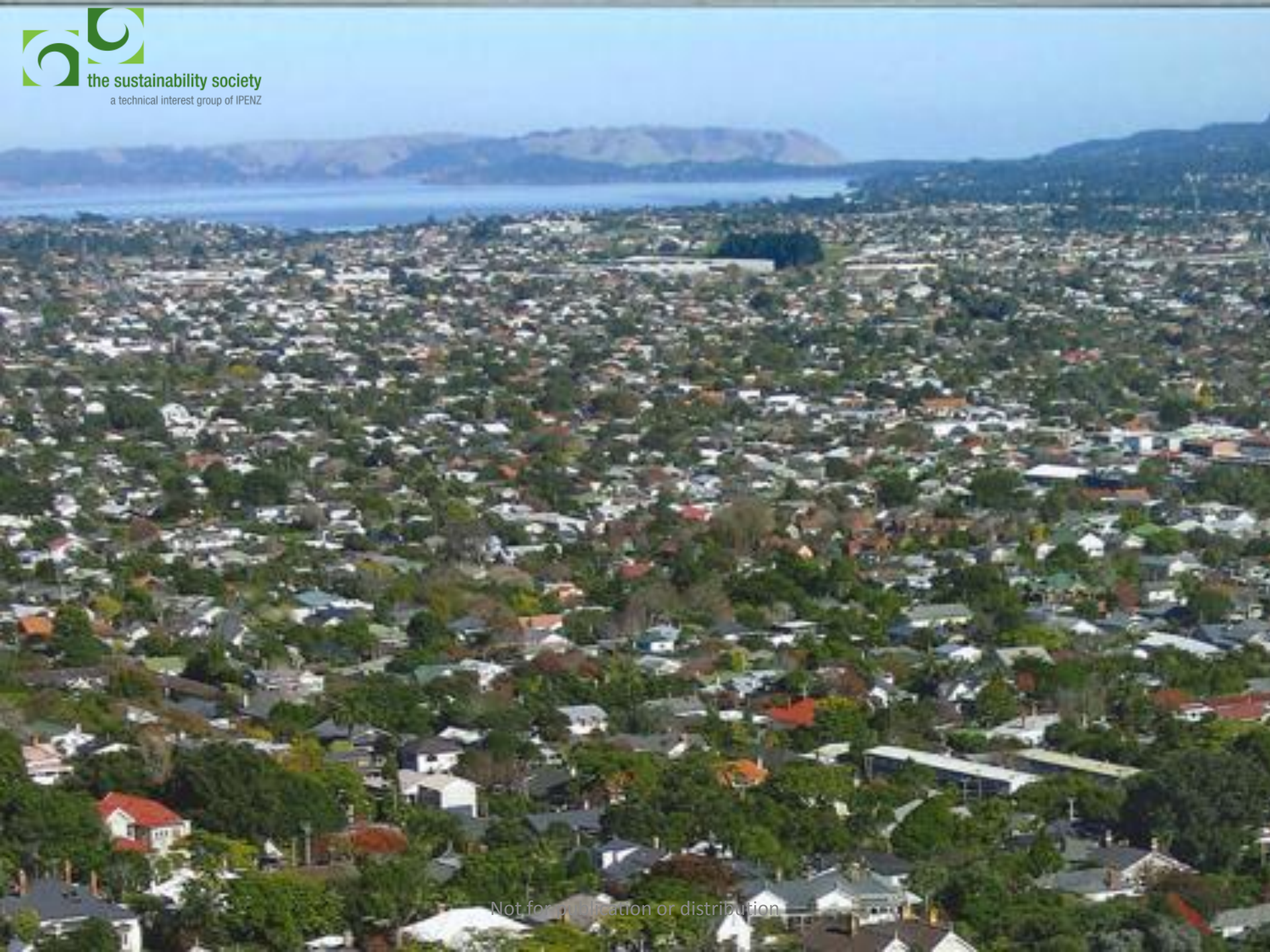


Green Infrastructure A Built Environment for Liveability

The Sustainability Society
NZPI Conference
2nd May 2013

Overview

- What is Green Infrastructure?
- Why Green Infrastructure?
- What are the technical challenges?
- What are the planning implementation challenges?











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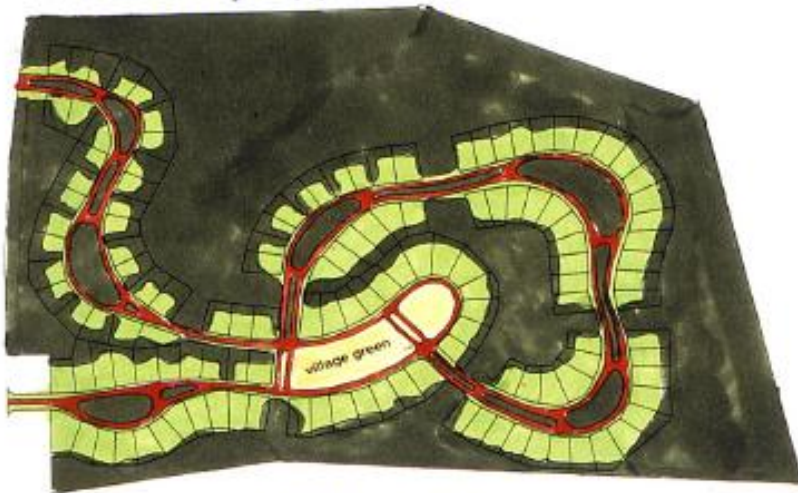








Parkway Approach



1000 m² lots

50% open space (15% imperviousness)
60% undisturbed

Several Different Approaches to Site Development

Village Cluster Approach



500 m² lots

72% open space (17% imperviousness)
67% undisturbed

Stormwater practices:
swales
infiltration

What is Green Infrastructure?

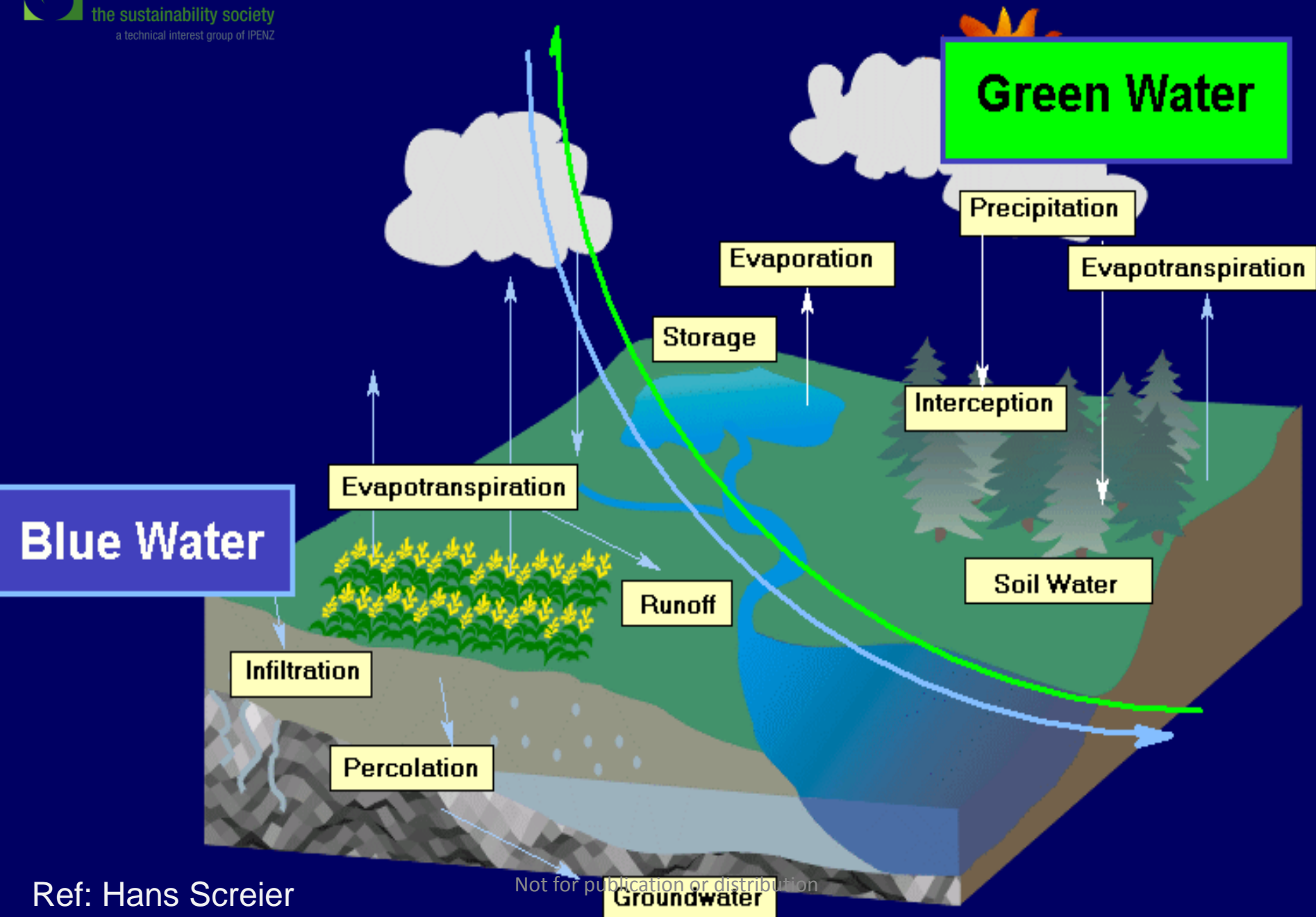
- Infrastructure that maintains life support functions provided by natural ecosystems along with community and infrastructure objectives
- Safeguard critical natural areas
- Apply landscaped and/or engineered elements to improve life support functions where they are lacking.
- AKA: Water Sensitive Urban Design, Soft Engineering, Low impact design, SUDS

Why Green Infrastructure?

- **Water Quantity** – loss of soil moisture and groundwater infiltration, erosion and flooding
- **Water Quality** – metals, chemicals, nutrients hydrocarbons, temperature
- Reduce **Combined Sewer Overflow** frequency
- **Landform** – loss of overland flowpath, stream and wetland landforms
- **Biodiversity** – survival and integrity of fragmented and terrestrial ecologies with passive irrigation
- **Climate Change** mitigation and decarbonisation
- **Heat Islands** – Temperature in cities
- **Lack of Resilience** – of centralised infrastructure







Technical Challenges

- Functional understanding and priority
- Space for functional devices (at low points)
- Distribution of devices (not end of pipe)
- Structural and geotechnical objectives
- Operation and maintenance
 - Sediment removals
 - Vegetation
- Integrating the technical constraints into the planning process – early on!

Planning Challenges

What are the (RMA) Planning Challenges for implementing green infrastructure?

Multi-functionality

- Water quantity and quality
- Ecology
- Amenity
- Recreation
- Safety
- Transport
- Food
- Energy
- Climate

Multi Functionality

- GI project often starts with a single primary objective to get the green infrastructure element framed
- Multiple objectives can be added to seize opportunities and promote synergies
- Requires and provides opportunity for collaboration
- Can struggle with power dynamics incumbency, and existing infrastructure patterns – lock in.

Multi-Functionality

- Do you have good examples of Green Infrastructure?
- What was its primary function?
- What multi-functionality was achieved?
- Did collaboration occur to drive the multi-functionality?
- Did it work? Did the multi-functionality get lost in the process?

Roy Clements Treeway

- Raised Boardwalk and ecological restoration in Park
- Primary function is public health and safety to justify joint funding
- Secondary functions:
 - Amenity,
 - Terrestrial Biodiversity,
 - CPTED,
 - Park Maintenance,
 - Water quality and aquatic habitat

Roy Clements Treeway



Lion Nathan

- New Industrial Plant – (Beca & Will Thresher).
- Primary function of landscape requirement for road frontage.
- Also primary function for water quality treatment.
- Could have been achieved in parallel.
- Combined for cost and space savings landscape outcomes greatly increased.

Lion Nathan



Lion Nathan

