“Perspectives on infrastructure investment and water commons”

Will McBain, Associate Director, Arup
Overview

• origins of my perspective;
• water as a commons or common pool resource;
• the real tragedy of the commons;
• water as a social and ecological system;
• identifying the opportunities; making the connections; using our imagination;
• case studies: Sheffield & Melbourne;
• achieving a legacy of infrastructure that reinforces co-ownership of water as a common pool resource for which we are all responsible.
Origins of my perspective...

Upper Wharfedale Best Practice Project

Water and Impact Assessment: Investment, Infrastructure, Legacy
“The **commons** is the cultural and natural resources accessible to all members of a society, including natural materials such as air, **water**, and a habitable earth. These resources are held in **common**, not owned privately”.

Wikipedia
“The **tragedy of the commons** is that every individual tries to reap the greatest benefit from a given resource. As the demand for the resource overwhelms the supply, every individual who consumes an additional unit directly harms others who can no longer enjoy the benefits”.

Garrett Hardin, The Tragedy of the Commons, 1968.
Conventional solutions:

- Privatisation;
- State regulation;
- Internalising the externalities.
....but what is civil society’s and/or the individual’s role?

...whether we’re aware of it or not, we are all stakeholders.
“Modern humans have largely lost our connection with water in its natural state. Instead of seeing water as the essential element in a living watershed that gives us all life, we view water as a resource for our convenience, pleasure and profit”.

Maude Barlow, The Role of Water Abuse in Climate Chaos
New York City, September 20-23, 2013
“our wellbeing is intimately connected to the vitality of living systems; we should make them – and the interaction between them - the focus of our efforts”

John Thackara, How to thrive in the next economy.
The Great Transformation

“The social contract consolidates a culture of attentiveness (born of a sense of ecological responsibility), a culture of participation (as a democratic responsibility), and a culture of obligation towards future generations (future responsibility).”

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“Communities of individuals have relied on institutions resembling neither the state nor the market to govern some resource systems with reasonable degrees of success over long periods of time”

Elinor Ostrom, Governing the Commons (1990)
Water and Impact Assessment: Investment, Infrastructure, Legacy
Stewardship of common pool resources

- multi-scale governance
- data and knowledge sharing
- high levels of cooperation and social interaction
- from personal & collective stewardship of a social, economic and ecological system

“Your bioregion is effectively your backyard. It is the part of the planet you are responsible for. Bioregionalism means living a rooted life, being aware of where your resources come from and where your wastes go”, gaianeconomics.org
The commons movement

“...believes that such resources belong to mankind in common, and that the private sector as well as governments have no right to exclude stakeholders from their management through instances of privatization or bureaucratization”.

A new paradigm of economics, politics and culture, David Bollier
“Name it, claim it, protect it!”

On the commons
http://www.onthecommons.org/

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The catchment based approach...

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Tools

**Water and Impact Assessment:**
*Investment, Infrastructure, Legacy*

**Flood Damage Cost (Rivers and Sea):**
Estimated costs incurred due to flood damage from rivers and sea, based on figures used in the EA National Flood Risk Assessment (NaFRA).

**Local Climate Regulation:**
Urban heat island effect measured using Landsat 8 satellite thermal imaging data.

**Habitats for Wildlife:**
Percentage of ward area that is described as a priority habitat in Natural England’s Priority Habitats Inventory.

**Low Flows:**
The water availability value of river waterbody catchments, according to the EA’s Catchment Abstraction Management Strategy (CAMS).

**WFD Pressures/RFFs:**

**Access to Greenspace:**
Percentage of people that meet the criteria outlined in Natural England’s ANGSs (Accessible Natural Greenspace Standard).

**Air Quality (PM10):**
Mean concentration of PM10 modelled for 2016, derived from background maps from the UK-AIR data archive.

**Flood Damage Cost (Rivers and Sea):**
Number of buildings that have a greater than 1 in 100 year chance of flooding from rivers and/or sea.

**Flood Risk (Surface Water):**
Number of buildings that have a greater than 1 in 100 year chance of flooding from surface water.

**Aesthetic Value of Landscape:**
Number of nature-related photos taken in the area that have been uploaded to Flickr and tagged accordingly.

**Cultural Activity:**
Number of recreational facilities per 1000 people, including places such as allotments, sports clubs.

*Figure 1: Presentation of the metrics used to describe the economic, social, cultural and environmental benefits provided by natural capital and green infrastructure in an urban area.*
Identifying the opportunities

DEMONSTRATION AREAS

To ensure that the approach is robust and developed in a ‘real-life’ participatory manner, a series of Demonstration Areas where the spatial evidence and socio-economic framework would be piloted. These demonstration areas were selected to include a range of different locations, sizes, and types of impact assessment in order to develop a model that is applicable to different situations. The ‘success stories’ from these demonstration areas will be showcased and used to refine the approach and illustrate the potential of the ‘success stories’ and the investment, infrastructure, and legacy benefits gains.
Sheffield Flood Protection Programme

Water and Impact Assessment: Investment, Infrastructure, Legacy
Ways to reduce flood risk

The options for flood protection that we have considered fall into three main categories. These are described below. Wherever possible we have tried to include options that have potential to provide wider benefits such as supporting economic growth, providing recreational opportunities, protecting Sheffield’s heritage or improving the environment for wildlife.

1. Slowing the flow
   Using techniques such as flood storage areas, land management and sustainable drainage systems to capture and store water, reducing and slowing the flow within rivers.

2. Containing the flow
   Safely containing flood water as it passes through the city. Through careful design, flood defences can enhance the river corridor and deliver wider benefits. This can be challenging depending on how high they need to be.

3. Resilience
   Working with local communities and businesses to deliver measures that increase the capacity of people, property and the environment to withstand the impacts of flooding and to rapidly recover after a flood.

Options depend on each other.... for example, slowing the flow of water upstream, by creating new storage areas to temporarily hold back flood water, will reduce the height of flood defence walls needed within the city.

We would like your views to inform the best combination of options for this project.

http://www.floodprotectionsheffield.com/pages/consultation
Water and Impact Assessment: Investment, Infrastructure, Legacy
Beam Parklands, Dagenham Legacy

- Land Trust took over responsibility and appointed a managing agent;
- HCA parklands endowment for managing agent in perpetuity;
- Access to Nature Grant provides investment and resources to link communities via dedicated liaison officer;
- Ongoing community liaison by Boroughs and encouragement of use of Beam Parklands for education, leisure and recreation.

Water and Impact Assessment: Investment, Infrastructure, Legacy
“Once areas of marshy land were called swamps. The only sensible thing to do with swamps was to drain them, so the land could be put to useful purpose. Governments subsidized landowners to drain swamps. Today, we call these same areas wetlands, and governments have enacted legislation to protect their value in providing habitat for wildlife, stabilization of ecosystems, and absorption of pollutants”.

The Politics of the Earth: Environmental Discourses, John S. Dryzek, 2005
Greening the Pipeline plan to turn heritage-listed sewer into park

Cardinal Street, Wychwood Leader  
June 6, 2020 8:00pm

TRANSFORMING an abandoned sewer into a park is more than just a pipe dream for Wychwood Council.
“...when groups of people assume responsibility for managing common pool resources, it also generates a sense of community, because the necessary communication processes create a bond. These processes (re)produce social cohesion, foster responsibility and public spirit and, thus, common welfare. A community that protects its watershed, that maintains its public places and has spaces to preserve and expand its traditional stores of knowledge creates a social fabric, a web that sustains it”.

“The Commons: A New Narrative for Our Times”, Silke Helfrich & Jörg Haas
Key messages

- Water is a common pool resource
- We all have a role in its management
- To maximise impact and achieve a positive legacy requires:
  - a proactive state
  - dynamic protagonists
  - an engaged civic society

...to create the self-sustaining, social-ecological systems that healthy living catchments should rightly be.
Thank you

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