

Greening brownfields to mitigate people's perceived risks through image champagne:

Comparing post-industrial sites in Germany, England and Japan

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Today's agenda

1. What are brownfield (BF) and green space (GS)?
2. Examples of BF green conversion in Germany and UK
3. Positive and negative impacts of BF green conversion
4. Mitigating perceived risks through greening BF
5. Value of the research in greening BF
6. Research areas for possible joint projects

1. What is brownfield?

- Definition of brownfield
 - Post-industrial sites
 - Recognised as 'Previously Developed Land (PDL)' in England (DCLG, 2006)
 - 'Brachfläche' in Germany: derelict land/site, vacant land/site (Böhme et al, 2004)
 - Unused or with very limited use, compared to their intrinsic value because of existence or potential existence from soil contamination (Japan's MoE, 2007)



Former textile factory in Kaizuka shi (Photo by Osaka University)

- Previous project: “Brownfield regeneration, a comparative study of English and Japanese case studies”
 - Oxford Brookes University, TRL in UK and Osaka University in Japan
 - 3 years project (2008-2010), funded by JSPS, RICS, TRL
 - Differences in regenerating brownfield between Japan and England

England

- A strong link with creating sustainable communities
- BF as potential asset for returning to beneficial uses
- PDL, not always contaminated

Japan

- A relatively new urban research agenda
- UK/ USA influenced thinking
- Averting environmental risks from contamination

Common
issue

How to regenerate BF lands in the face of lack of demand (economic downturn) and urban shrinkage in post-industrial areas?

- What is green space?

Public parks, urban forests and woodland parks, sports fields, specialist parks such as ecology parks, allotments and domestic gardens (Moffat and Hutchings, 2007).



Allotments in Reading (left) and Park in St. Helens, UK (right) (photos by Otsuka, 2014)

2. Examples of BF green conversion

1) Former steel plant site, Phoenix-See in Dortmund

- A new recreational and residential place (artificial lake, green space, 3.2km long pedestrian & bicycle pass, marina, high-quality housing, restaurants, offices etc.)



Phoenix-See, Dortmund (photo by Otsuka, 2013)

2) Former ironworks/coal mining site, Landscape Park Duisburg Nord

<http://en.landshaftspark.de/the-parkk/introduction>

- Transforming BF into a landscape park, while keeping old factory buildings
- Born out of a citizens' action group against the demolition of the ironworks



Landscape Park Duisburg Nord (photo by Otsuka, 2014)

2) Former ironworks/ coal mining site, Landscape Park Duisburg Nord



Landscape Park Duisburg Nord (photos by Otsuka, 2014))

3) Former landfill and chemical plant site, Northwich Woodlands

Led by the Mersey Forest team former landfill site was transformed to green space to merge into existing woodlands. People's confidence in using as a recreational site has built up and their perceptions has changed

Northwich Woodlands (photo by Otsuka, 2014)

3) Former landfill and chemical plant site, Northwich Woodlands

Community-led environmental enhancement initiatives: involvement in street furniture design and educational activities.



Northwich Woodlands (photos by Otsuka, 2014)

3. Positive and negative impacts of greening BF

- Literature review on BF regeneration through greening

Positive impacts

- Improve environmental sustainability (e.g. Moffat & Hutchings, 2007; Gill et al, 2008; Haase, 2013)
- Increase property value (e.g. South Yorkshire Forest Partnership, 2012)
- Enhance people's quality of life and psychological well-being (e.g. Da Sousa, 2006; Siikamaki and Wernstedt, 2008)
- Ideal solutions for reusing vacant BF as a result of urban shrinkage (e.g. OECD, 2012; Rall and Haase, 2011)

New insight

Mitigating people's perceived risks of contaminated BF?

3. Positive and negative impacts of greening BF

- Literature review on BF regeneration through greening

Negative impacts

- High maintenance costs (e.g. Rall and Haase, 2011; Atkinson et al, 2013)
- Intangible economic benefits against 'value for money' culture (e.g. Pediaditi et al, 2010; Wilker & Rusche, 2013)
- Barriers to potential users and anti-social behaviour (Siikamaki and Wernstedt, 2008)

New insight

Can citizens contribute to the maintenance of green space?

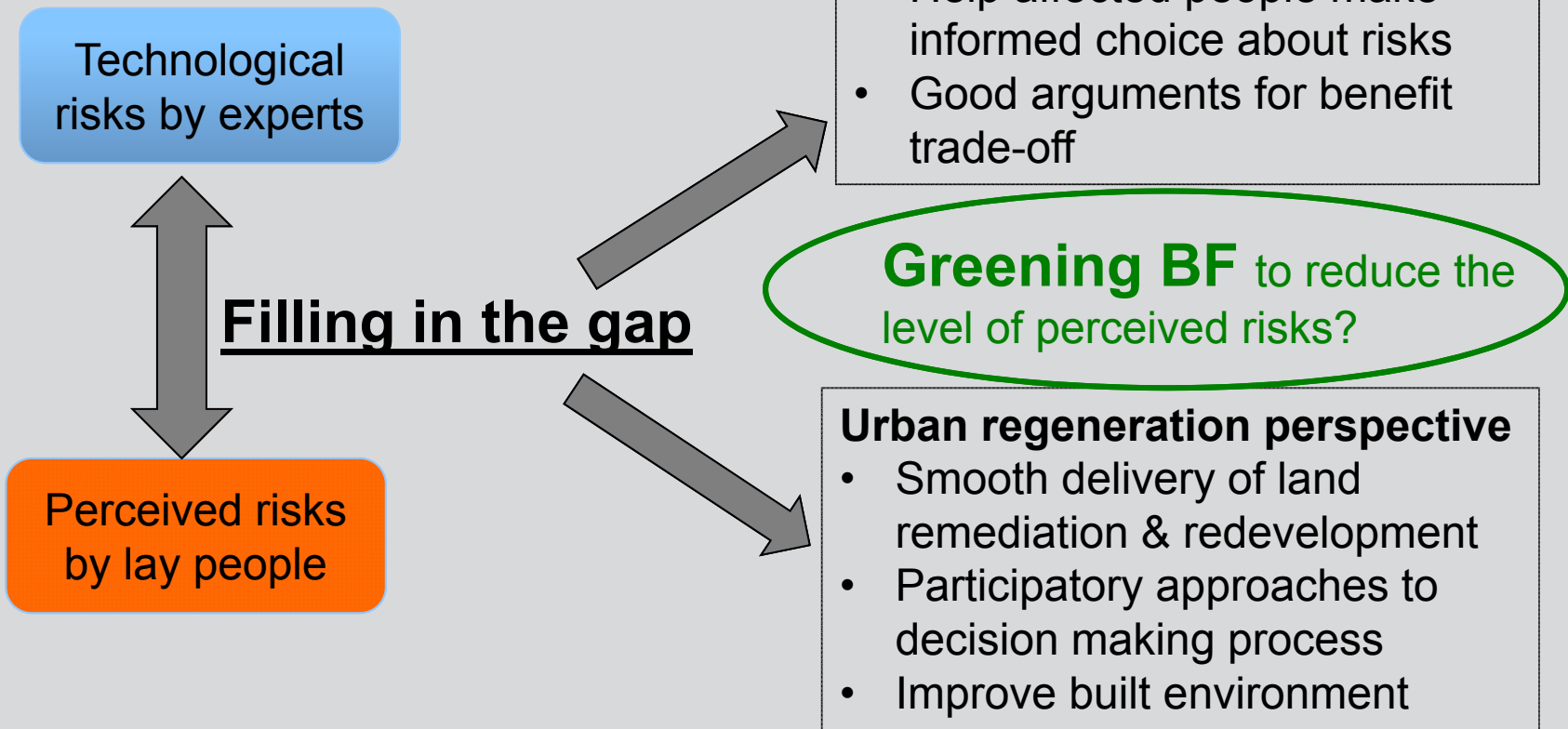
4. Mitigating perceived risks through greening BF

What is 'risk' and 'risk communication'?

- Ambiguous nature of the concept of 'risk'
 - 'Risk' means different things to different people: expert judgement VS lay people's perceptions (Slovic, 1987).
 - 'Risks' are not real phenomena, but mental construction based on people's interpretations (Renn and Klinke, 2013).
 - Exaggerated media language and easier access to basic environmental information increase the public sensitivity to health risks (Cross, 2011, Greenberg et al, 2011).
 - Interestingly, people would be willing to tolerate higher risks from activities seen as highly beneficial to them (Starr, 1969).
- Interdisciplinary elements and social dimensions of risk communication should be addressed.

4. Mitigating perceived risks through greening BF

- Conceptual framework



4. Mitigating perceived risks through greening BF

Research Methodology

- How can the impact of greening BF on the level of perceived risks be measured?
 - Personal household interviews rather than self-administrated questionnaires: higher response rate, sensitive issues (Fowler, 2009)
 - The household interviews or questionnaire surveys with local residents living near selected BF greening projects on post-industrial sites in Germany (Ruhr region), England (Greater Manchester) and Japan (Osaka)
 - Focus group meeting with local representatives (residents, public authority agents, developers and experts) in each country to discuss the survey findings

4. Mitigating perceived risks through greening BF

- Why should these three case studies be selected from Germany (Ruhr region), England (Greater Manchester) and Japan (Osaka)?
 - The largest amount of BF sites in their respective countries
 - Future demographic decline in densely urbanised regions
 - The difference in institutional settings and planning cultures
 - Good practices of GS conversion on post-industrial sites, for example:
 - ❖ Emscher Landscape Park (Germany, Ruhr Region)
 - ❖ Newlands Project (England, Greater Manchester)
 - ❖ Osaka Green Bay Park (Japan, Osaka): still emerging research area

Risk communication in Japan seems to lag behind compared to German and English counterparts

5. Value of the research in greening BF

- To highlight benefits of greening BF concept from a perspective of improving the social dimensions of risk communication:
 - Good argument for regeneration practitioners and policy makers to support GS conversion on BF (i.e. to reduce perceived risks)
 - The transferability of the complementary link between greening BF and mitigating perceived risks in the post-disaster BF regeneration
- To clarify benefits of greening BF concept from a perspective of improving negative images of BF beyond risk related goals:
 - To obtain resident and business support in BF greening projects by disseminating 'benefit trade off', and to seek community participation in the long-term maintenance of GS
 - To promote greening projects based on an interim use strategy for brownfields in the face of urban shrinkage (Rosol, 2010; Rall and Haase, 2011)

6. Research areas for possible joint projects

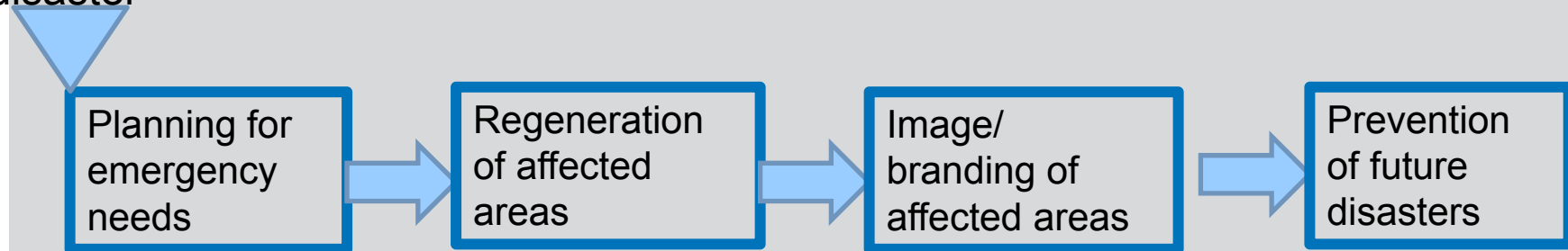
- To examine the role of greening BF in mitigating the perceived risks in the post-industrial BF regeneration
- To explore people's willingness to contribute to long-term maintenance of green spaces created on brownfield sites.
- To suggest a better management mechanism for sustainable ways of maintaining green spaces.
- To articulate the gap between bottom-up approach based on people's long-term commitment to green space management and formal planning practice led by planners
- To analyse the Influence of different planning cultures on public participation in area-based management of green spaces

6. Research areas for possible joint projects

Green infrastructure (GI) and resilience to natural disasters

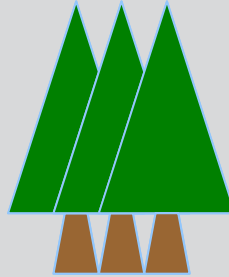
- To establish a long-term process management/ a holistic mechanism for disaster management.
- From the early stage of managing emergency situations as a result of natural disaster such as flood, landslide, earthquake, to the regeneration of affected areas, cities and regions.
- Possibility of using green infrastructure for future disaster prevention

Natural
disaster



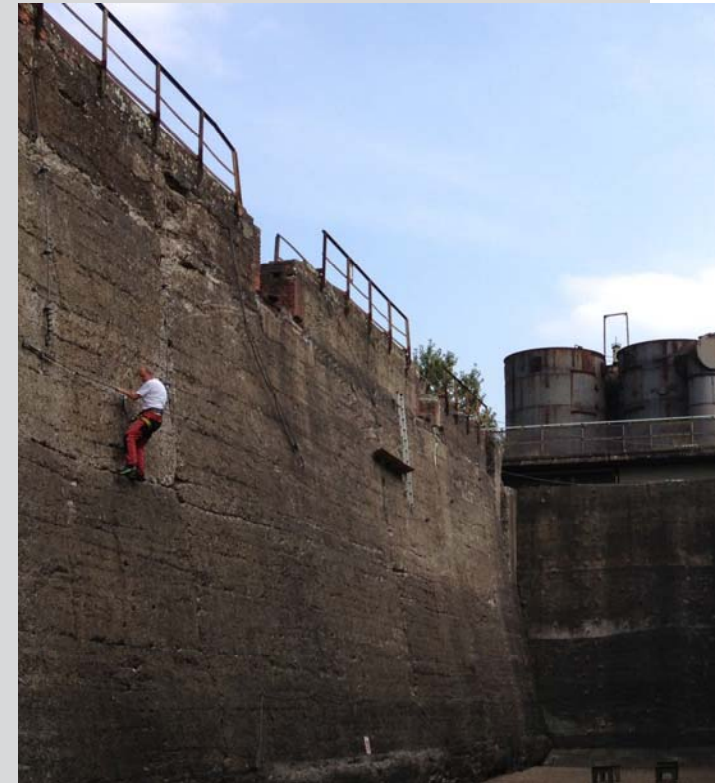
6. Research areas for possible joint projects

Enhancing the quality of GS by integrating other attractions



Plus

- Levee for rock climbing
- Riverside/urban forest for botanic garden, cycle path, treasure hunting etc.
- Canal for boat trip
- Agritourism
- Museum/ events



Landscape Park Duisburg Nord (photos by Otsuka, 2014)

THANK YOU FOR YOUR ATTENTION!



*Zeche Zollverein Essen
(Photo by Otsuka, 2014)*