

11^e Conférence internationale

LYON 2023

— L'eau dans la ville | Urban water

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L'eau dans la ville | Urban water

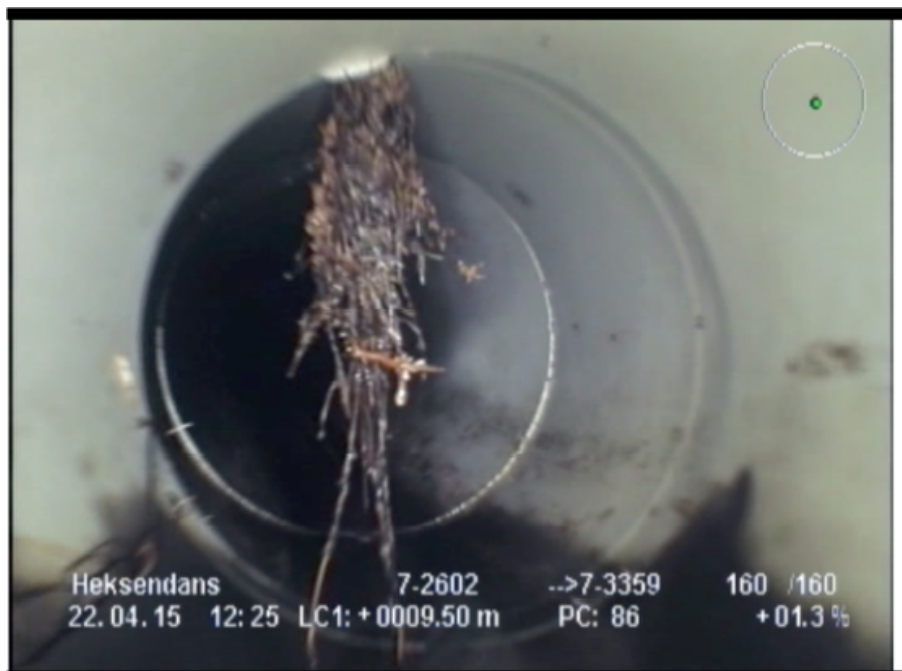
Gestion patrimoniale des systèmes d'assainissement urbains – n'oublions pas les infrastructures vertes et bleues *Urban drainage asset management – also for blue-green infrastructures!*

Jeroen Langeveld*, Frédéric Cherqui, Franz Tscheikner-Gratl,
Tone Merete Muthanna, Marina Fernandez-Delgado Juarez,
Joao Leitão, Bardia Roghani, Karsten Kerres, Maria do Céu
Almeida, Caty Werey, Bénédicte Rulleau

Urban drainage is getting more colourful

From only grey

to blue, green, red (and white...)



But what about the **management** of urban drainage infrastructures?

Sewer asset management



Scopus

594 document results

TITLE-ABS-KEY (sewer AND asset AND management)

Edit Save Set alert



Urban Water Journal

ISSN: 1573-062X (Print) 1744-9006 (Online) Journal homepage: <https://www.tandfonline.com/loi/nurw20>

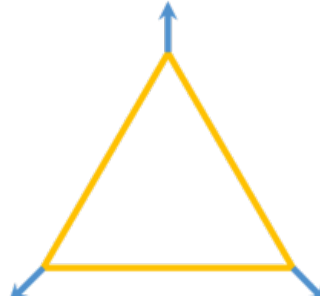


Sewer asset management – state of the art and research needs

Franz Tscheikner-Gratl, Nicolas Caradot, Frédéric Cherqui, Joao P. Leitão, Mehdi Ahmadi, Jeroen G. Langeveld, Yves Le Gat, Lisa Scholten, Bardia Roghani, Juan Pablo Rodríguez, Mathieu Lepot, Bram Stegeman, Anna Heinrichsen, Ingo Kropp, Karsten Kerres, Maria do Céu Almeida, Peter M. Bach, Matthew Moy de Vitry, Alfeu Sá Marques, Nuno Eduardo Simões, Pascale Rouault, Nathalie Hernandez, Andres Torres, Caty Werey, Bénédicte Rulleau & François Clemens

Sewer asset management

- Asset Management: “*coordinated activities of an organisation to create value from its assets*” (ISO 55000, 2014)
- *Optimal* use of infrastructure during the *optimal* service lifetime of infrastructure



Sewer asset management strategies

Reactive

'Fail & Fix'

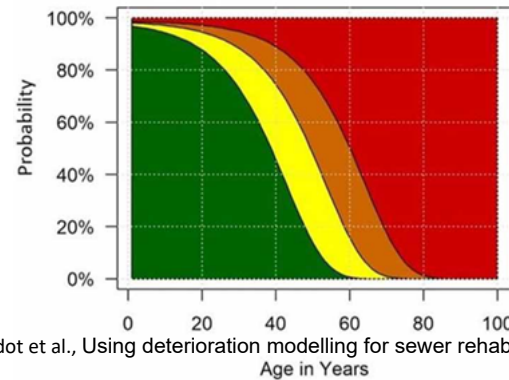


Proactive

'State of the art'



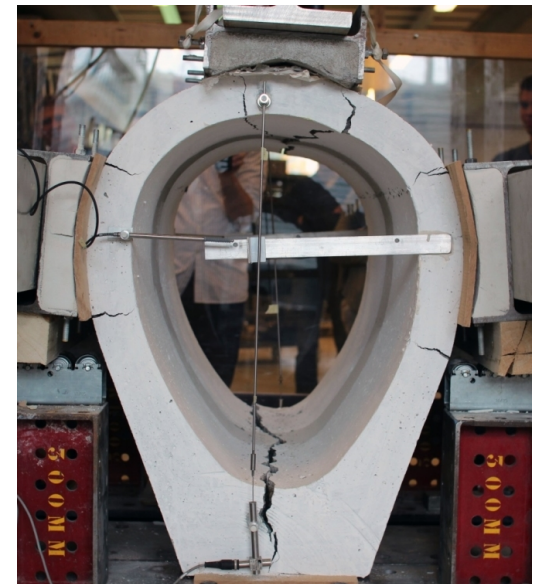
- Urgent rehabilitation needed
- Short-term rehabilitation needed
- Minor rehabilitation needed
- No rehabilitation needed



Caradot et al., Using deterioration modelling for sewer rehabilitation strategy

Predictive

'Too big to fail'



But what about the **management** of blue-green infrastructures?

Blue-green infrastructure

vs blue-green infrastructure
management



Scopus

425 document results

TITLE-ABS-KEY (blue AND green AND infrastructure)

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Scopus

9 document results

TITLE-ABS-KEY ('blue AND green AND infrastructure' AND 'asset AND management')

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Lack of attention or lack of knowledge?

Preconditions for effective control:

1. Judge impact of measures/control actions
2. Predict impact of measures/control actions
3. Information on system and environment
4. Sufficient control actions
5. Information processing capacity



Condition 1: evaluation mechanism

- Blue-green systems fulfil large range of functions
- No clear indicators for all functions



Condition 2: model to predict effect measures

- Literature on blue-green systems focuses on design conditions
- Theory vs practice:
 - Soil heterogeneity
 - Construction errors
 - Design errors



=> Poor prediction of long-term performance

Condition 3: Information about environment + system



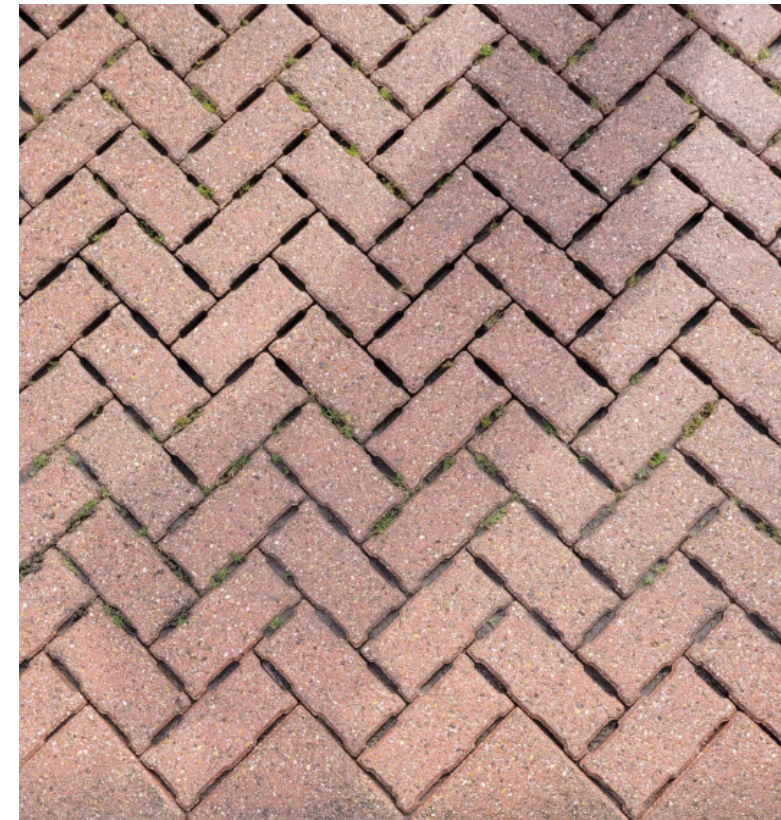
Condition 3: Information about environment + system



Condition 3: Information about environment + system



Condition 4: sufficient control actions



Condition 4: sufficient control actions



Condition 5: Information processing capacity

- Blue-green solutions often small scale, O&M by house owner
- Water/sewer authorities lack experience



Conclusion and Outlook

- Blue-green infrastructures increasingly applied
- Asset management of blue-green infrastructures not well developed yet
 - Monitoring & inspection
 - Cleaning, maintenance, rehabilitation
 - Collect & share experiences via publications & manuals

Blue-Green Systems



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Asset management for blue-green infrastructures: a scoping review

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