



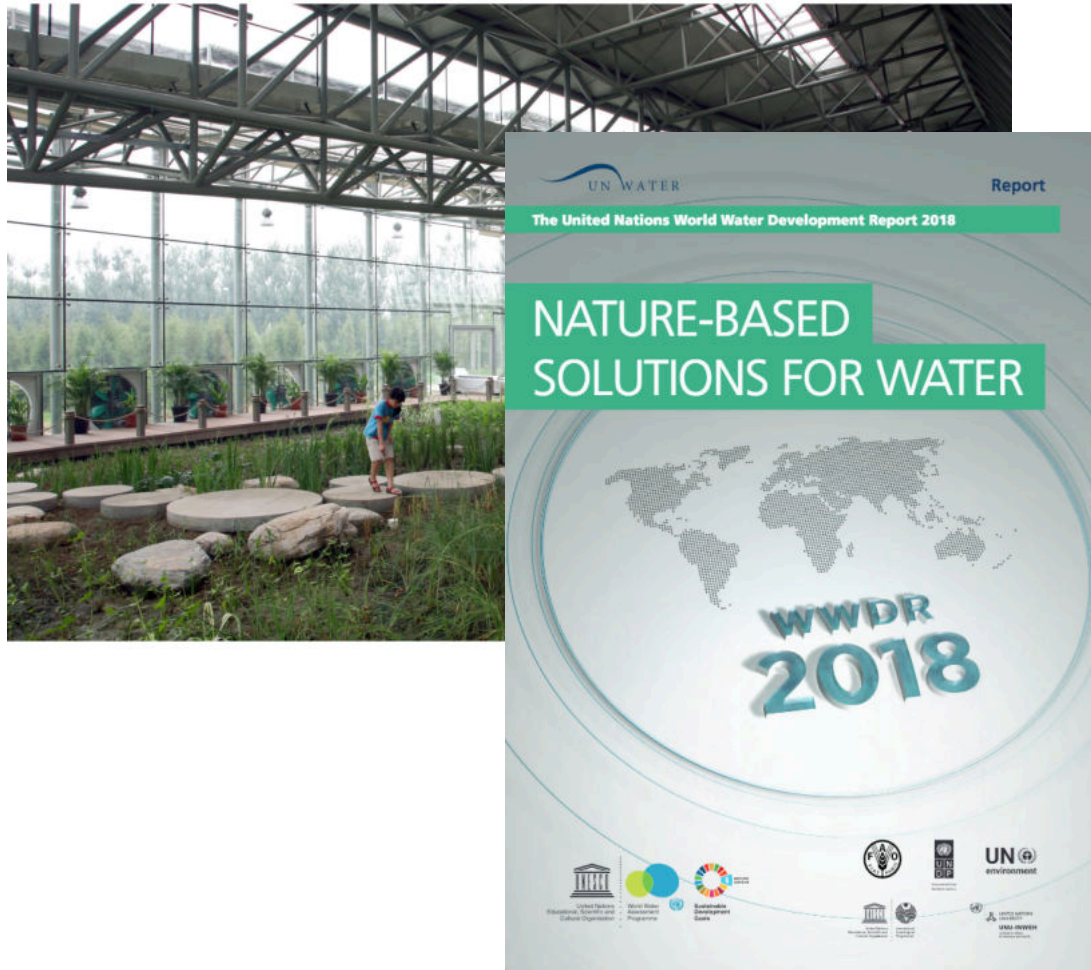
Demonstrating Synergies in Combined Natural and Engineered Processes for Water Treatment Systems

Realising combined natural engineered systems (cNES) – Insights from public perceptions and governance

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Rationale



AquaNES was concerned with understanding the broader benefits and challenges of cNES, beyond their treatment functions...

- Economic
- Environmental
- Social
- Policy & governance

This World Water Development Report does not argue that nature-based solutions are a panacea, but our conclusion is clear -- they are one of many important tools to shift to a more holistic approach to water management.



Importance of public perceptions & attitudes

smh.com.au
The Sydney Morning Herald

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Toowoomba says no to recycled water

July 30, 2006

Residents of drought-stricken Toowoomba have convincingly rejected the notion of drinking their own waste water.



Public acceptance is seen as a potential barrier to the wider uptake of cNES, since alternative water systems have been obstructed in the past due to public opposition.

Factors identified as influencing acceptance:

- Knowledge around treatment processes
- Public fears relating to safety for children
- ‘Yuck factor’ – primarily linked to recycled water
- Satisfaction with water services



Public perceptions of cNES



Exploratory study focussing on:

- Public attitudes towards cNES
- Awareness/knowledge of treatment processes
- Impact of information video on support for cNES
- Trusted messengers

Factors impacting people's:

- Support for cNES
- Willingness to have cNES incorporated into systems
- Willingness to use water from cNES

Large-scale online survey:

- Representative sample of the UK distributed by location, sex, and age group (N=760)



Perceptions of water resource challenges

To what extent do you agree that there is a challenge for water resources on a global, national and local level?

Most felt there was a global challenge, but fewer recognised water resources as a national or local challenge (UK context)



Knowledge of treatment processes

How much do you know about the treatment processes used by your water company to treat drinking water and/or wastewater?

Majority of respondents felt they had some knowledge of treatment processes.



Trusted messengers

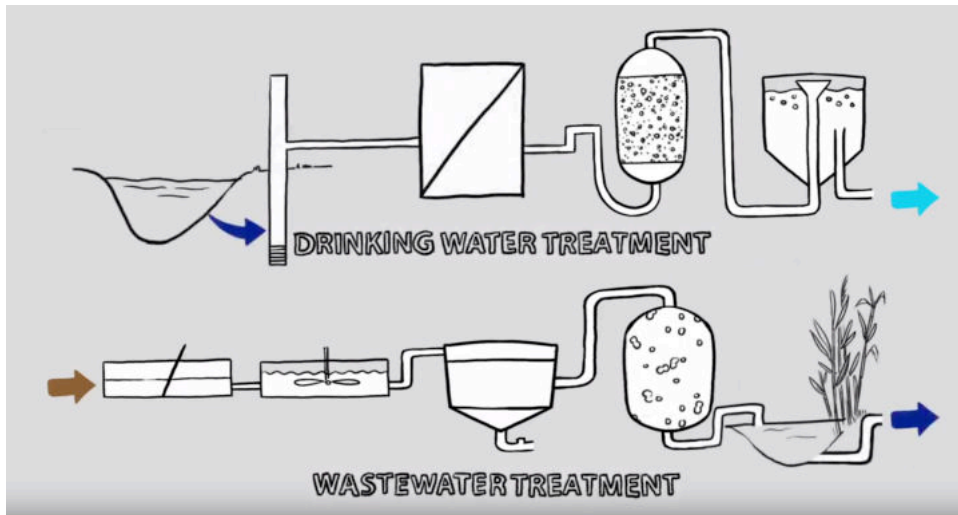
Respondents were asked to rate their level of trust in a variety of groups to provide the public with accurate information about water and wastewater treatment processes

- Low trust for government and local authority
- Higher trust for environmental organisations and academics



Influence of informational video

Comparison of support for cNES prior to and following information video
– Shift from indifferent towards complete support





'Yuck' factor

The idea of natural treatment systems is disgusting.

Disgust does not appear to be an issue for cNES acceptance





Aesthetic appeal





Insights from public perceptions

- Most respondents felt they had a little knowledge (or more) of treatment processes, but overall still low
- In general there is less interaction with water service providers than other utilities
- Relatively low trust in government and water companies as messengers
- Overall support for cNES fairly high, and improved following informative video
- cNES seem to have more visual and aesthetic appeal
- Factors impacting support for cNES, and willingness to use cNES, differ slightly
- Environmental concern does not necessarily encourage willingness to use
- Positive perceptions of the process was a strong predictor of both support and willingness



Governance – enablers and barriers

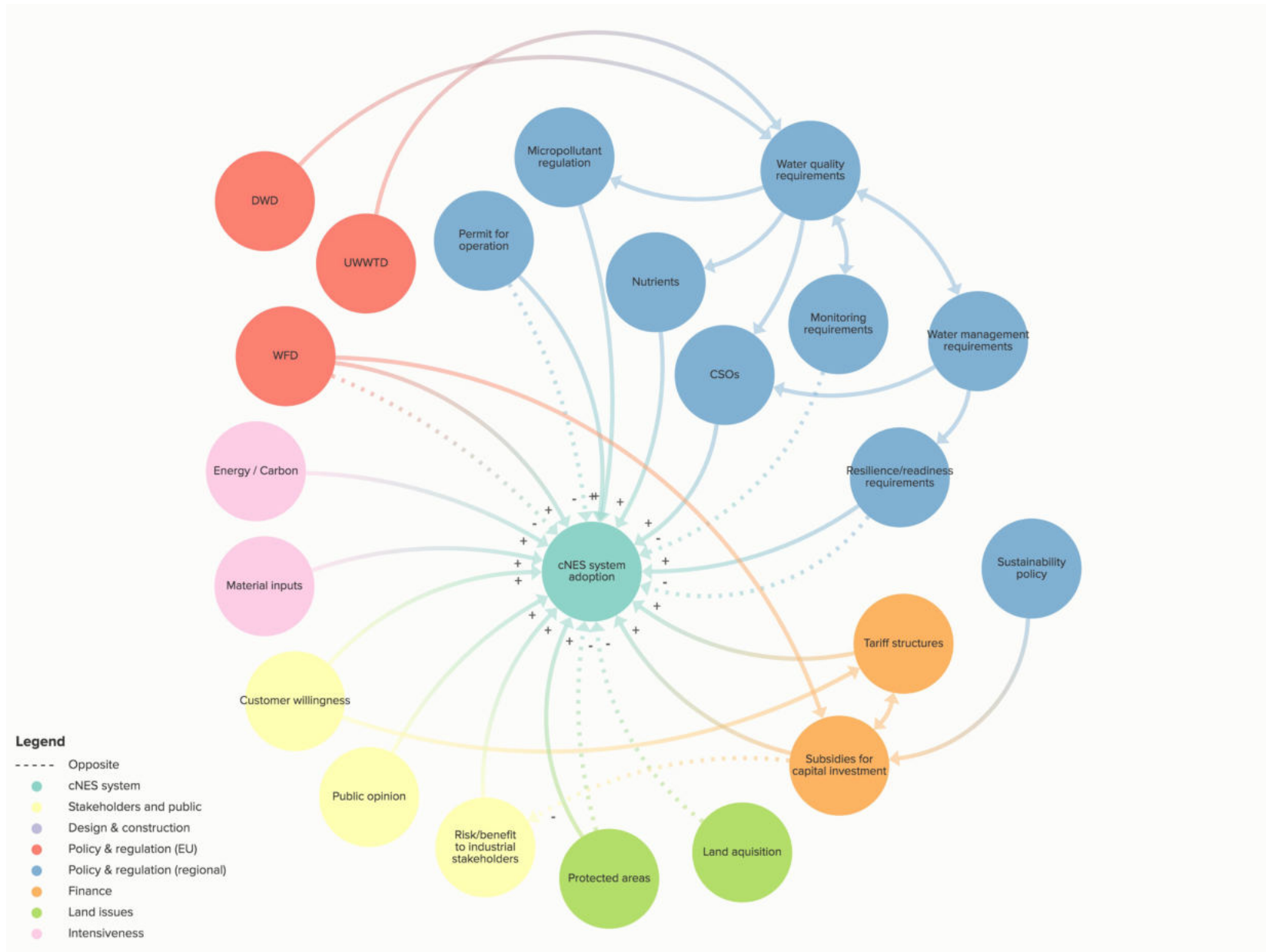
Need to develop a clearer picture of the governance factors affecting the adoption of cNES in the water and wastewater sector

- Is the decision to adopt a cNES (or not) shaped by the governance arrangements needed to put one in place?
- Is the adoption of cNES (compared to fully engineered systems) made easier or harder by current policy and regulatory regimes?

Particularly those related to:

- Water & wastewater treatment
- Energy
- Habitats & biodiversity
- Sustainable development







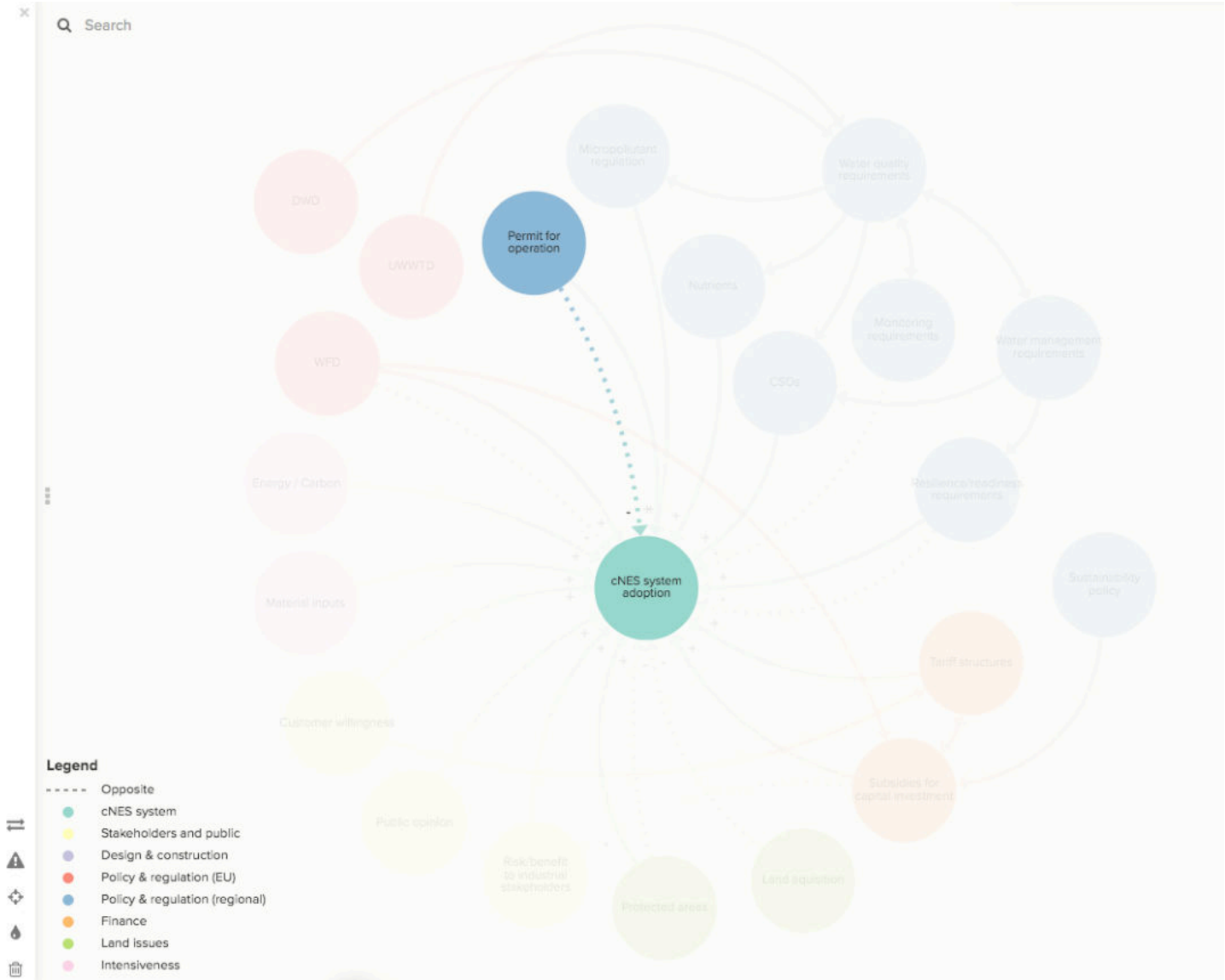
PERMIT FOR OPERATION TO CNES SYSTEM ADOPTION

Because cNES systems may be relatively unknown, and their effectiveness may be relatively untested, the process for obtaining a permit for operation can be arduous in some contexts

Constraining

+ New field

#governance-systems/conn-d83cjpva | permalink





Insights from governance

- Economic considerations, more than policy or regulatory considerations, are currently the primary drivers for the adoption of cNES
- BUT several have cNES benefited from targeted, policy-driven financing schemes geared towards enhancing sustainability
 - Such financing schemes can introduce inadvertent barriers to cNES adoption if they create inflexible project arrangements
- Emergence of more stringent discharge requirements for wastewater could increase the attractiveness of cNES as a ‘polishing’ step
- So could requirements / incentives geared towards decarbonising the water and wastewater sector as a whole – cNES typically have lower embedded carbon emissions and require less energy

Thank you for your attention.



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