

Fair Wings: Perceived Distributive Fairness and Acceptability of Decentralised Water and Sanitation Systems

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Background

Sustainability problems: Increasing water scarcity and rapid urban population growth

→ Need for reducing potable water consumption and for implementing alternative ways of treating wastewater.

Possible solution:

Technical level: Implementation of decentralised water and sanitation systems ('Wings systems')

Institutional level: Introduction of policies that mandate Wings systems for part of the population to increase implementation rates

→ In Bangalore (India) and San Francisco (USA), such policies are in place

Challenges of this solution: Centralised systems are maintained for the rest of the population

→ May threaten the fair distribution of costs and benefits of water and sanitation services in society (i.e. distributive fairness).¹

Examples of distributive fairness issues:

- Costs & risks for users:
 - Substantial monetary costs for installation and maintenance of Wings systems
 - Potential reduction in water quality (e.g. health risks, odour nuisance...)
- Benefits (e.g. increased water security, less environmental pollution): often shared within society

→ May lead to a lack of perceived distributive fairness

→ Reduced public acceptability of Wings systems and policies^{1,2}

→ Reduced likelihood of a successful implementation³

***Distributive fairness:** Fair distribution of outcomes or a certain resource⁴*



Decentralised wastewater treatment system

Aims of 'Fair Wings'

Overall aim: Studying the interrelation of perceived distributive fairness and acceptability of Wings systems and policies mandating their implementation at the examples of Bangalore and San Francisco

Specific aims: Identifying

- perceived costs, risks, and benefits of Wings systems and the policies
- their perceived distribution among different stakeholders (e.g. users of systems, society as a whole, future generations)
- the perceived fairness of this distribution = perceived distributive fairness
- the relation between perceived distributive fairness and acceptability of policies and Wings systems

→ This knowledge could help shape future policies to increase their acceptability in the population and promote fairness in urban water services

Methods

Part 1)



Qualitative interviews with key stakeholders (e.g. water utility staff, property administrators, users)

→ Enlarge the understanding of local contexts

Part 2)

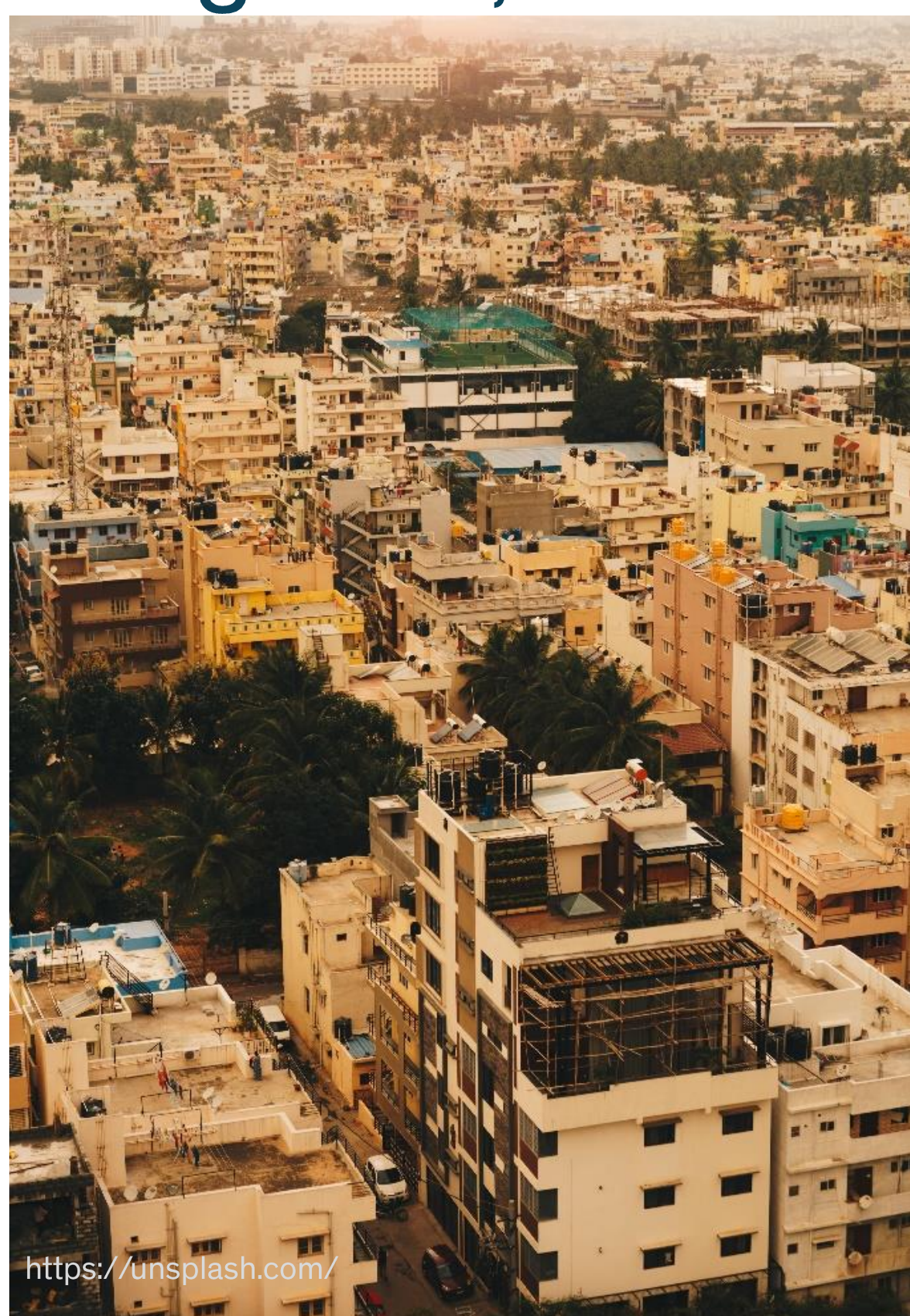


Quantitative online survey with participants from the general public and users of Wings systems.

→ Answer research questions based on quantitative data

<https://thenounproject.com>

Bangalore, India



<https://unsplash.com/>

Local challenges: rapid urbanisation, population growth, aggravated access to wastewater treatment, water scarcity

Main aims of policy: provide and improve wastewater treatment in areas without centralised system, save potable water resources

Policy affects: high number of buildings outside city centre; middle-income population

Financing: by users

Main fairness issue: high financial burden and reduced water quality by users

The Local Contexts

Local challenges: water scarcity, earthquake-prone region

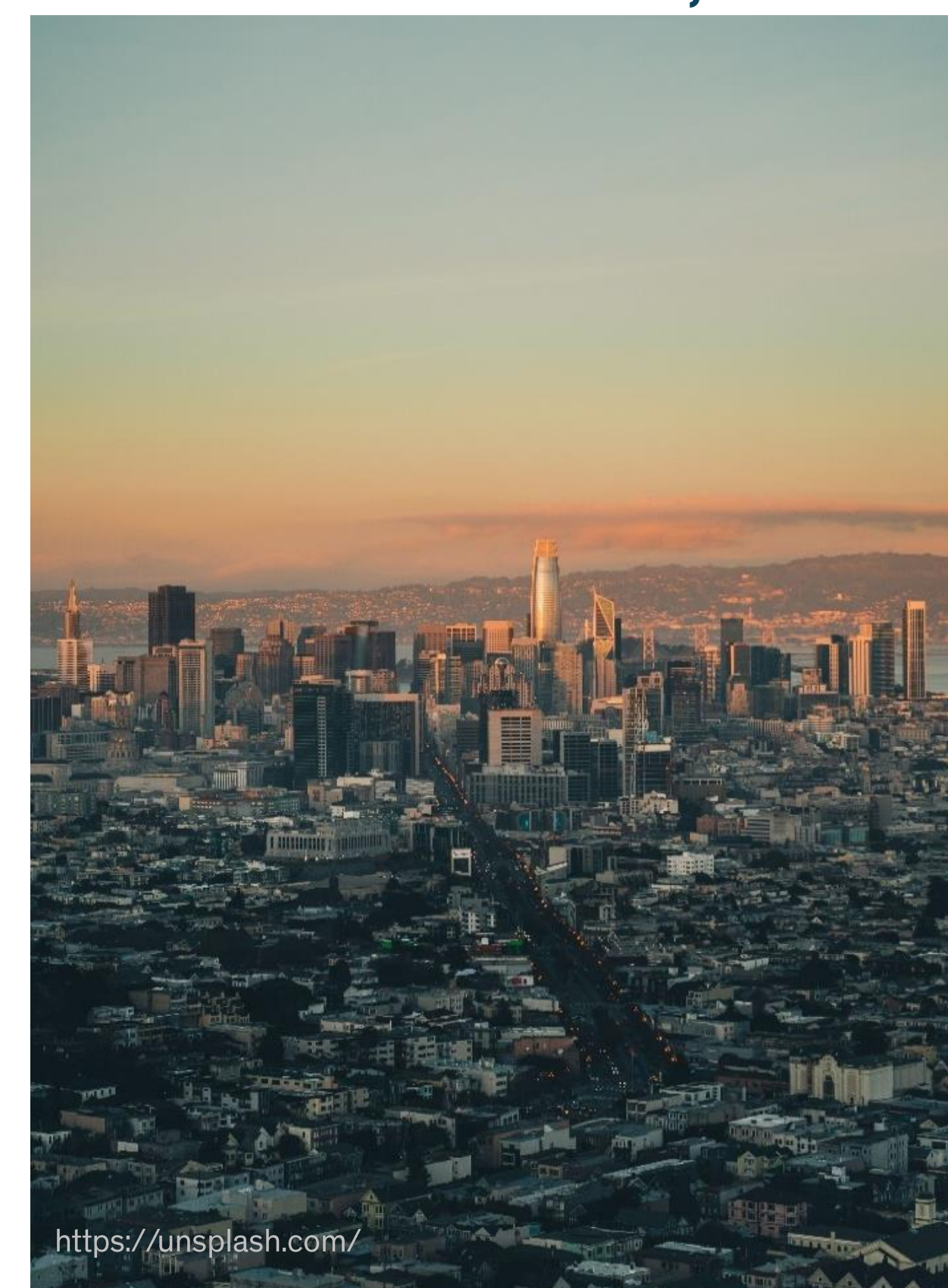
Main aims of policy: save potable water resources, increase resiliency

Policy affects: only few, large buildings; high-income population

Financing: installation by builders, maintenance by users (through service charges)

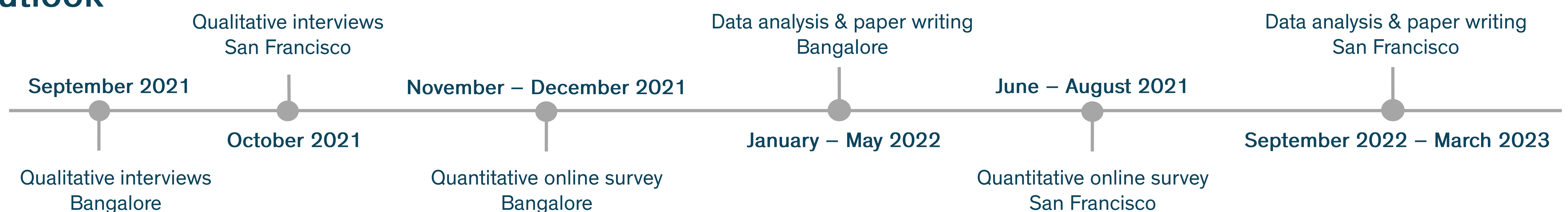
Main fairness issue: policy could reinforce existing social inequalities, as affordable housing projects are exempted → low-income population does not benefit from increased water security

San Francisco, USA



<https://unsplash.com/>

Outlook



Sources

- ¹ Watson, R., Fane, S., & Mitchell, C. A. (2016). The critical role of impact distribution for local recycled water systems. *International Journal of Water Governance*, 2016, 5-21. doi: 10.7564/15-IJWG109
- ² Walton, A., & Gardner, J. (2014). Community acceptance of policy options for managing the maintenance of rainwater tanks. *Local Environment*, 20(5), 565–580. doi: 10.1080/13549839.2014.884554
- ³ Tortajada, C., & van Rensburg, P. (2020). Drink more recycled wastewater. *Nature*, 577, 26-28. doi: 10.1038/d41586-019-03913-6
- ⁴ Tyler, T. R. (2000). Social justice: Outcome and procedure. *International Journal of Psychology*, 35(2), 117-125. doi: 10.1080/002075900399411

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