

# Urban Water Security Research Alliance



## Decentralised systems why do we care?

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**Decentralised systems**

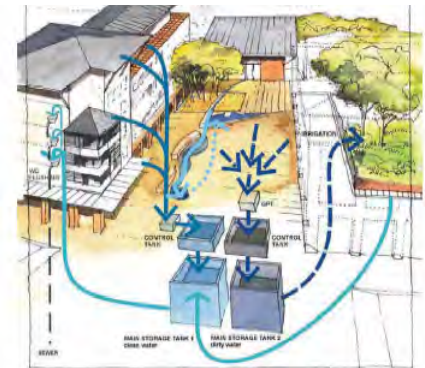
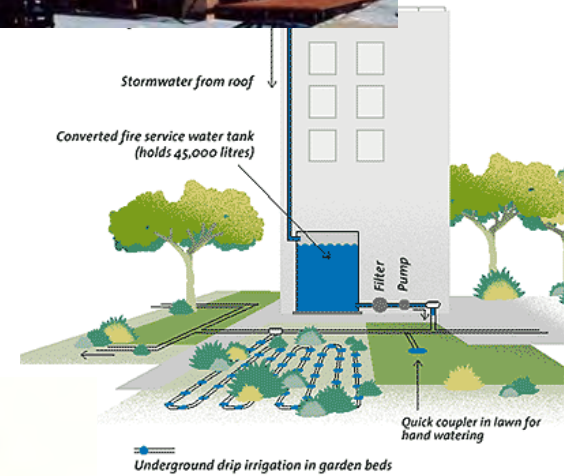
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# STRUCTURE

- Context
- Methodology
- Results
  - Definition
  - Drivers and benefits
  - Challenges
- Conclusions

# DCS UPTAKE



# METHODOLOGY

Review of South East Queensland context and government initiatives

Case studies: developments incorporating decentralised systems in SEQ and Australia

Focus group: 9 SEQ professionals with experience in decentralised systems implementation

- Explore definition & characteristics of decentralised/distributed systems
- Advantages/drivers for DCS in SEQ
- Barriers and risks for DCS
- Role for DCS

# DEFINITION - Decentralised systems

*Systems for :*

*Water, wastewater and stormwater services at the allotment, cluster and development scale; utilise alternative water resources: rainwater, wastewater and stormwater.*

*Based on a 'fit for purpose' concept*

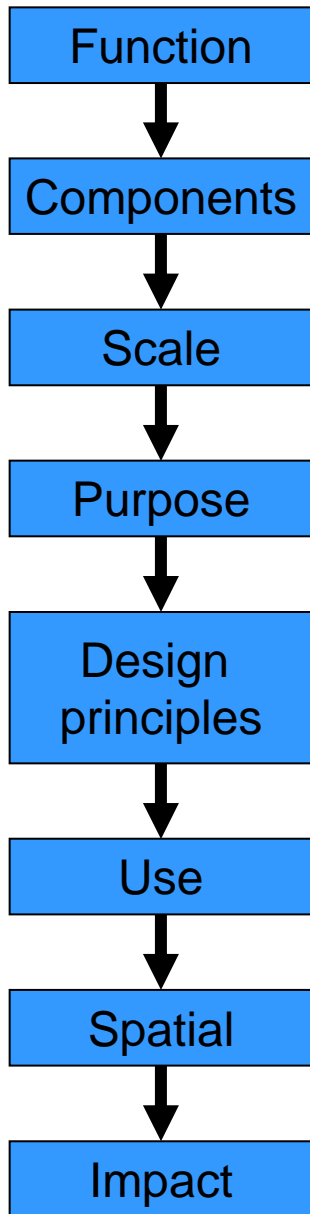
*They can be standalone, or integrated with centralised systems.*

*All liquid streams are partially or completely utilized at or close to the point of generation*

*Any discharge to the environment is managed as part of an integrated approach*

*Aims:*

- control quality and quantity at or near the source*
- minimise the impact of development on a natural ecosystem*



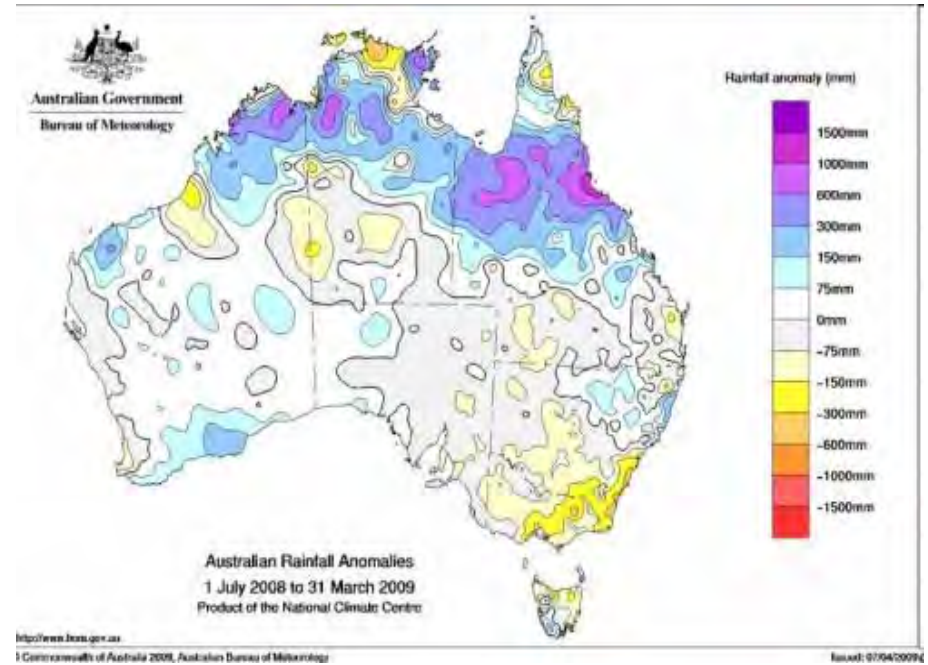
# Why adopt decentralised systems?

Case study outcomes Based on 31 Australian developments, including 12 SEQ developments				Focus group outcomes		
Category	Major drivers in general	Number of mentions		Category	Major drivers for SEQ	Number of mentions
		Australian cases	SEQ cases			
Water availability and infrastructure	Limited access to wastewater infrastructure	7	6	Population growth	Population growth	4
	Limited or no access to reticulated water	2	2		Urban development (sprawl, densification,	3
	No access to other water sources	1	1		Need for more industrial sites	1
	Water conservation	4	2	Water supply availability	Rainfall distribution (reduced input into dams, potential for storm water harvest –appreciable runoff)	7
Sustainability and environment protection	Protection of environment	9	4		Water shortage	3
	Promotion of sustainable development	16	4		Drought/Climate change	1
Government support	Support from government	2	1	Location of existing wastewater treatment facilities	Infrastructure at capacity	1
Research	Technology innovation	3			Potential to complement functions between rainwater tanks and centralised infrastructure	1
					1	
				1		

# PRIMARY DRIVERS



+ 4.3 million people by 2026



Climate change

2001

Queensland water recycling strategy

2005

Review of State Government planning guidelines  
for water supply and sewerage  
Smart State strategy:2005-2015  
SEQ Regional Plan  
Water Future strategy

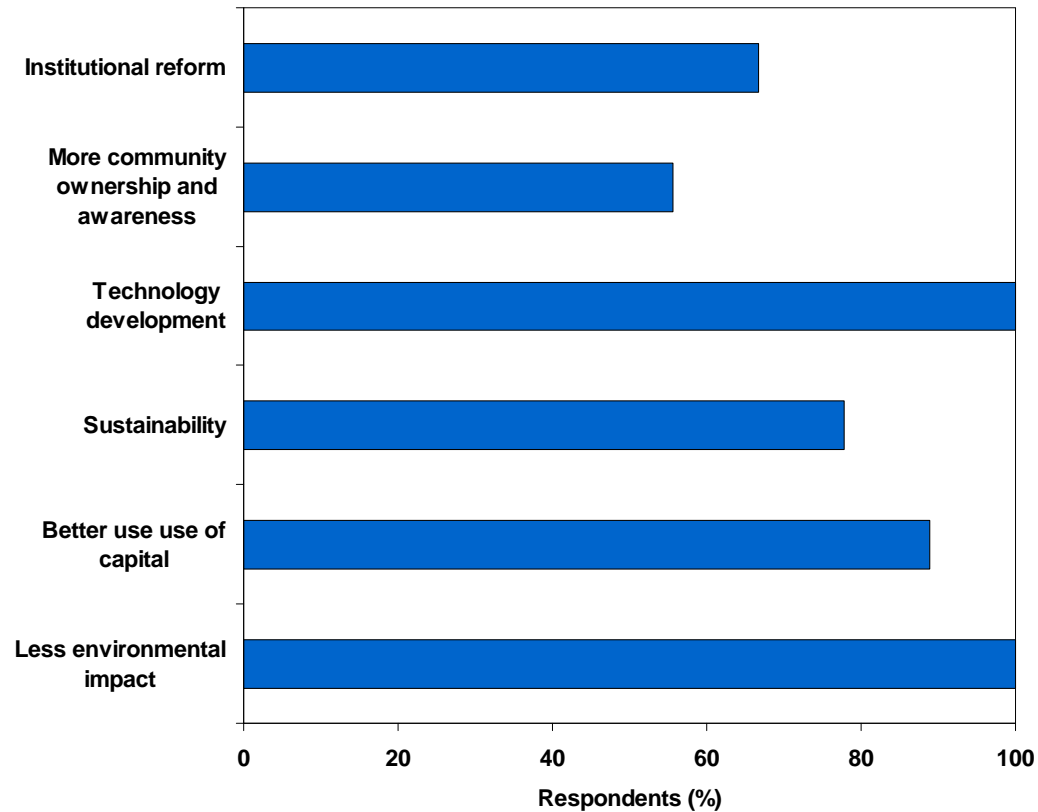
2006

Australian Guidelines for recycled water – phase 1

2008

Australian Guidelines for recycled water – phase 2  
Queensland guidelines for water recycling  
Water supply act 2008  
Office of water regulator  
Queensland development code MP4.1-2  
Water quality guidelines for recycled water schemes

# SECONDARY DRIVERS & BENEFITS



Driven by regional, local needs and context.

# Secondary Drivers

- Overcoming local water and wastewater limitations.
  - Access to services
  - Diversity of water sources
- Environmental protection and amenity
  - Protection of environment (green belts, sensitive waterways) and lifestyle
  - Urban sprawl
- Technology showcase
- Deferring infrastructure upgrade
  - Infrastructure capacity
  - Complementary with centralised systems
  - Queenslander home architecture
  - Location of treatment facilities

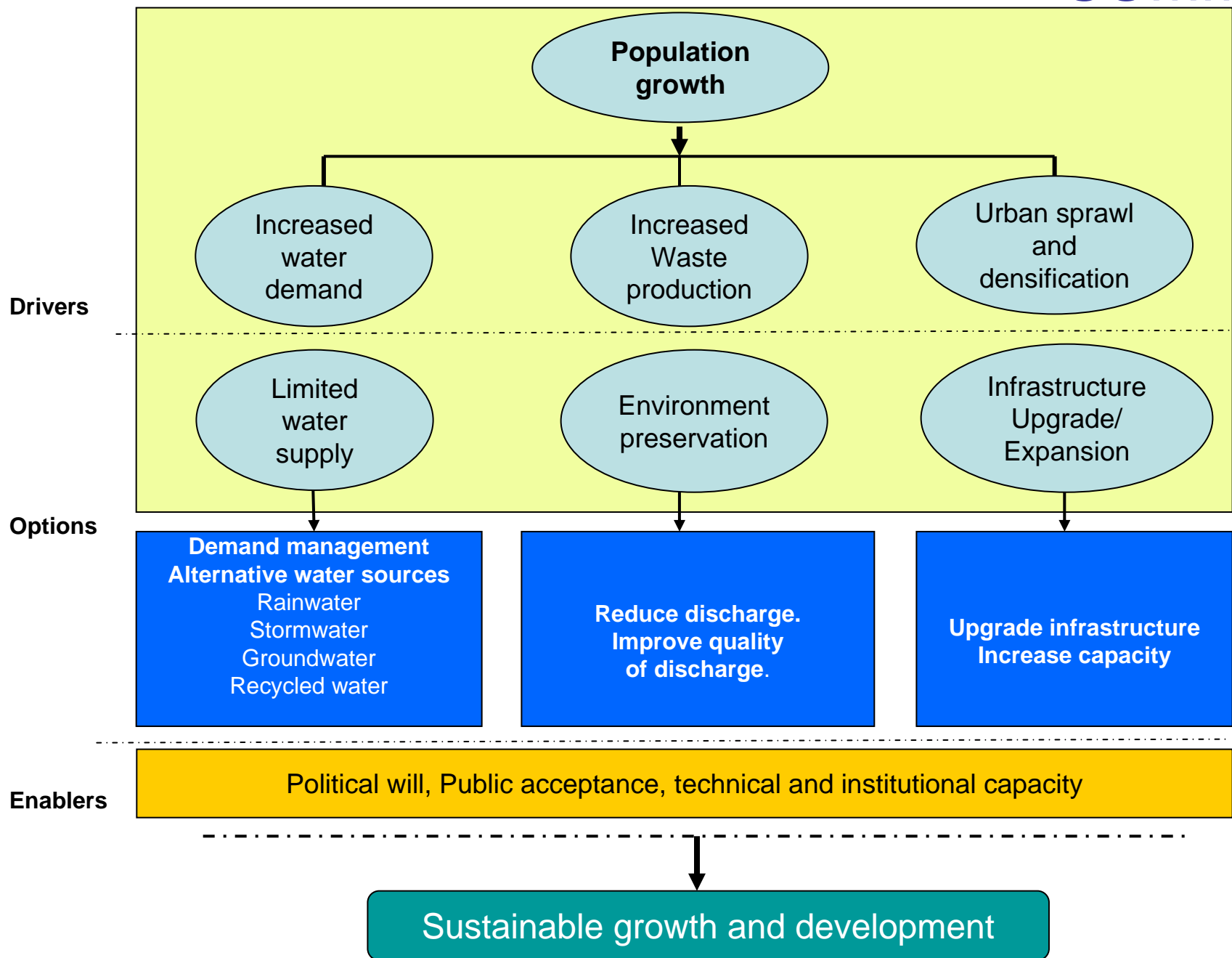
# CONTEXT AND ENABLING FACTORS

- Government and institutional initiatives
  - Legislation
  - Codes
  - Industry restructure
- Know-how and intellectual capacity
- Public support
  - Acceptance
  - “Green culture”

# CHALLENGES

- Complexity: one concept, many systems → fit for purpose
- Energy
- Governance
- Stakeholder involvement
- Regulation and enforcement
- Strategic planning and integration
- Suggestions:
  - Lessons from associated industries/countries
  - Tools for planning and integration
  - Communication and cooperation

# SUMMARY

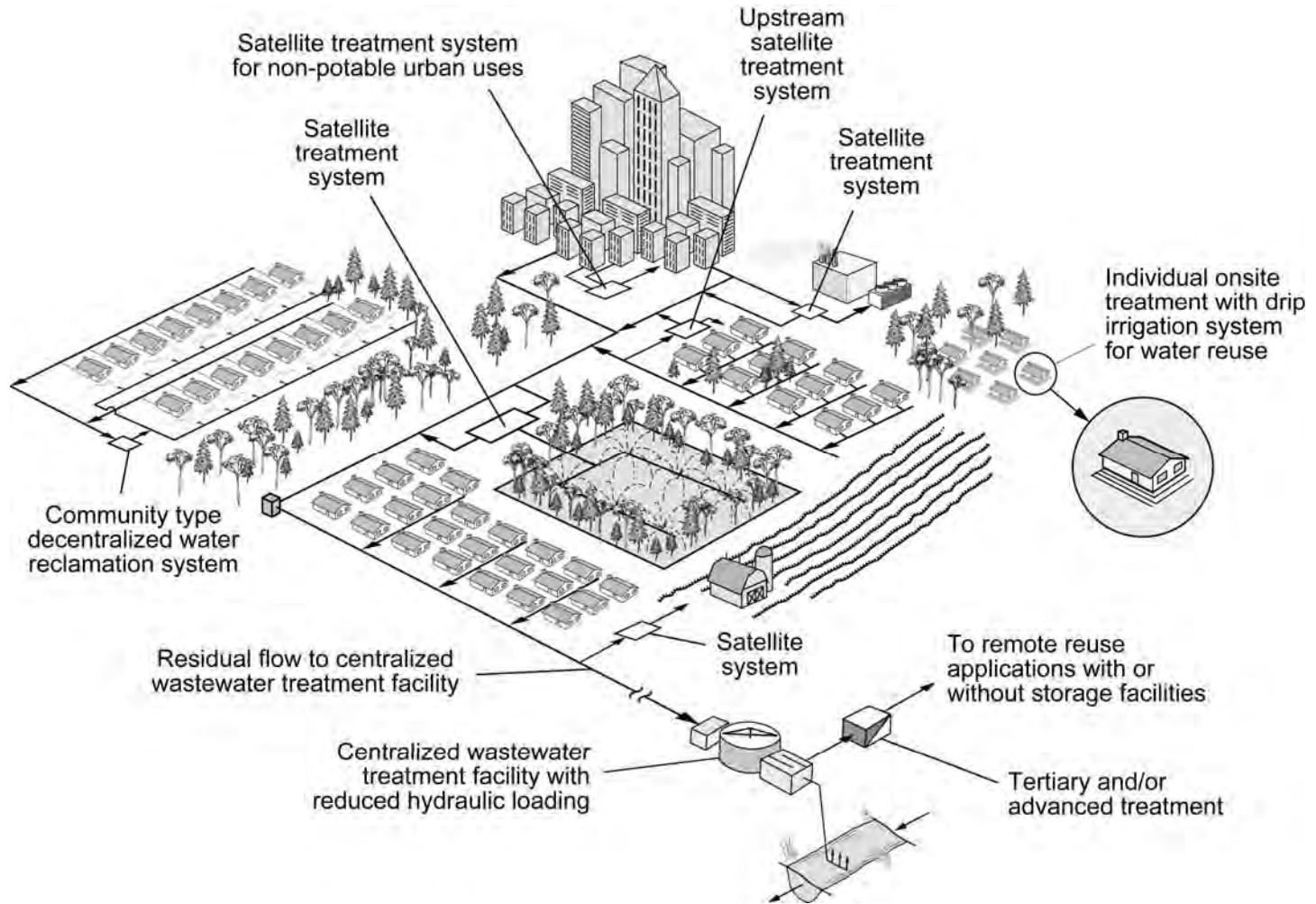


# CONCLUSIONS

- SEQ and decentralised systems :
  - SEQ is in a unique position due to population growth and climate
  - Opportunities at improving sustainable development
  - DCS can be a tool in the developing sustainable water service strategies: environmental, financial, social
  - Opportunities for paced implementation/strategy
  - DCS can offer a range of benefits if applied properly
  - Challenges: specificity, complexity, integration
  - Suggestions and lessons from other industries/countries

Is there a potential role?

# A NEW ORDER





[www.urbanwateralliance.org.au](http://www.urbanwateralliance.org.au)

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