LOCAL REGULATIONS ON ALTERNATIVE WATER SOURCES: GREYWATER AND RAINWATER IN METROPOLITAN BARCELONA

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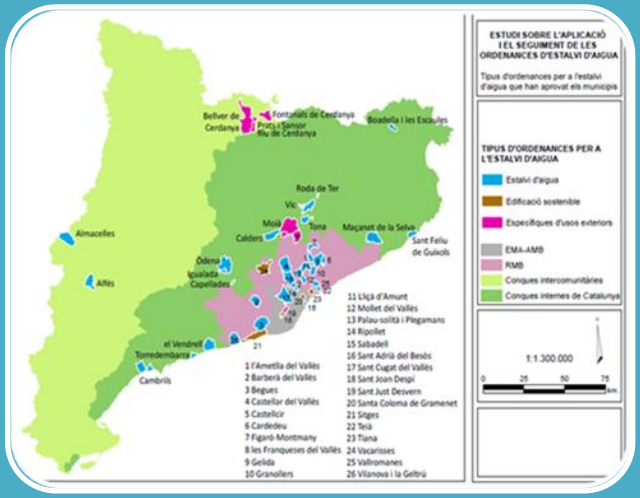
STRUCTURE OF THE PRESENTATION

INTRODUCTION OBJECTIVES AND METHODOLOGY

ALTERNATIVE WATER RESOURCES

SCALING-UP ALTERNATIVE WATER RESOURCES

CONCLUSIONS AND FUTURE PROSPECTS



Introduction, objectives and methodology

BACKGROUND FACTORS

Decree of DROUGHT (6/4/1999; 2/5/2000; 22/1/2002)

NATIONAL WATER PLAN (2001) → ***NUEVA CULTURA DEL AGUA***

Decree of DROUGHT (17/5/– 1/12/2005)

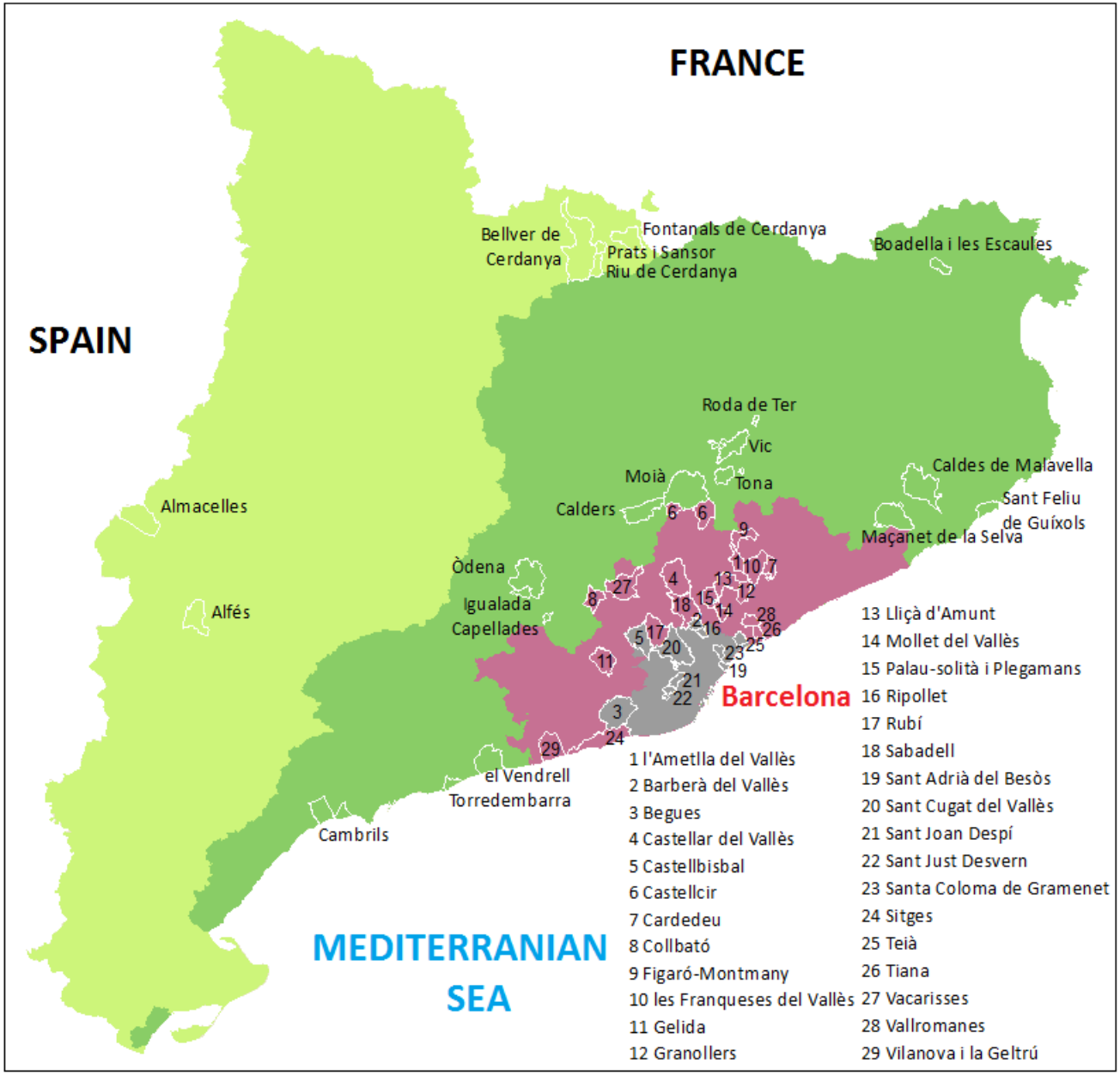
Decree of DROUGHT (3/4/2007 – 9/1/2009);
October 2007: **HOUSING CRISIS** in US and subsequent **GLOBAL ECONOMIC CRISIS**

CLIMATE CHANGE

2000	October 2002	Desember 2005	February 2006	March 2006	January 2011	Future
Apears the **Water Framework Directive 2000/60/CE**	Sant Cugat del Vallès approves the **FIRST WATER SAVING ORDINANCE**	The Diputació de Barcelona approves a **FRAMWORK ORDINANCE** after 14 municipalities had local regulations concerning water	Catalan government approves the **DECREE OF ECO-EFFICIENCY**	Spanish government transposes EU Directive 2002/91/EC of Energy Efficiency in Buildings by the **TECHNICAL BUILDING CODE (TBC)**	**50 CATALAN MUNICIPALITIES** had approved a water saving ordinance	

LEGAL FRAMEWORK

50 Catalan municipalities
> 1,2 milion people (16 % of the population)



ESTUDI SOBRE L'APLICACIÓ I EL SEGUIMENT DE LES ORDENANCES PER A L'ESTALVI D'AIGUA

Mapa 1:
Municipis que han aprovat una ordenança per a l'estalvi d'aigua o una normativa similar (2010)

MUNICIPIS AMB ORDENANÇA PER A L'ESTALVI D'AIGUA O UNA NORMATIVA SIMILAR

- EMA-AMB
- RMB
- Conques intercomunitàries
- Conques internes de Catalunya

OBJECTIVES & METHODOLOGY

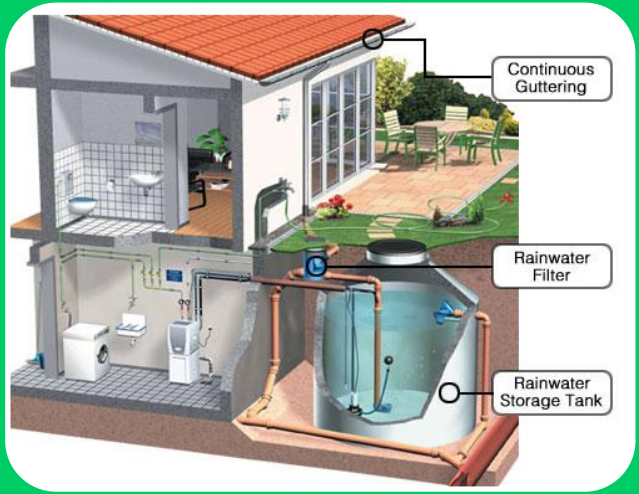
TO EXAMINE:

- The main **impediments and barriers** to the effective adoption of the water saving ordinance
- The **social and technical learning** generated since the approval of the first ordinance
- The **prospects for up-scaling** the use of alternative water resources in the Barcelona region

IN TOTAL:

- **24/50 municipalities with ordinance and 3 without ordinance**
- **134 users of greywater and rainwater systems from Sant Cugat del Vallès**

involved in the design, installation and maintenance of these systems



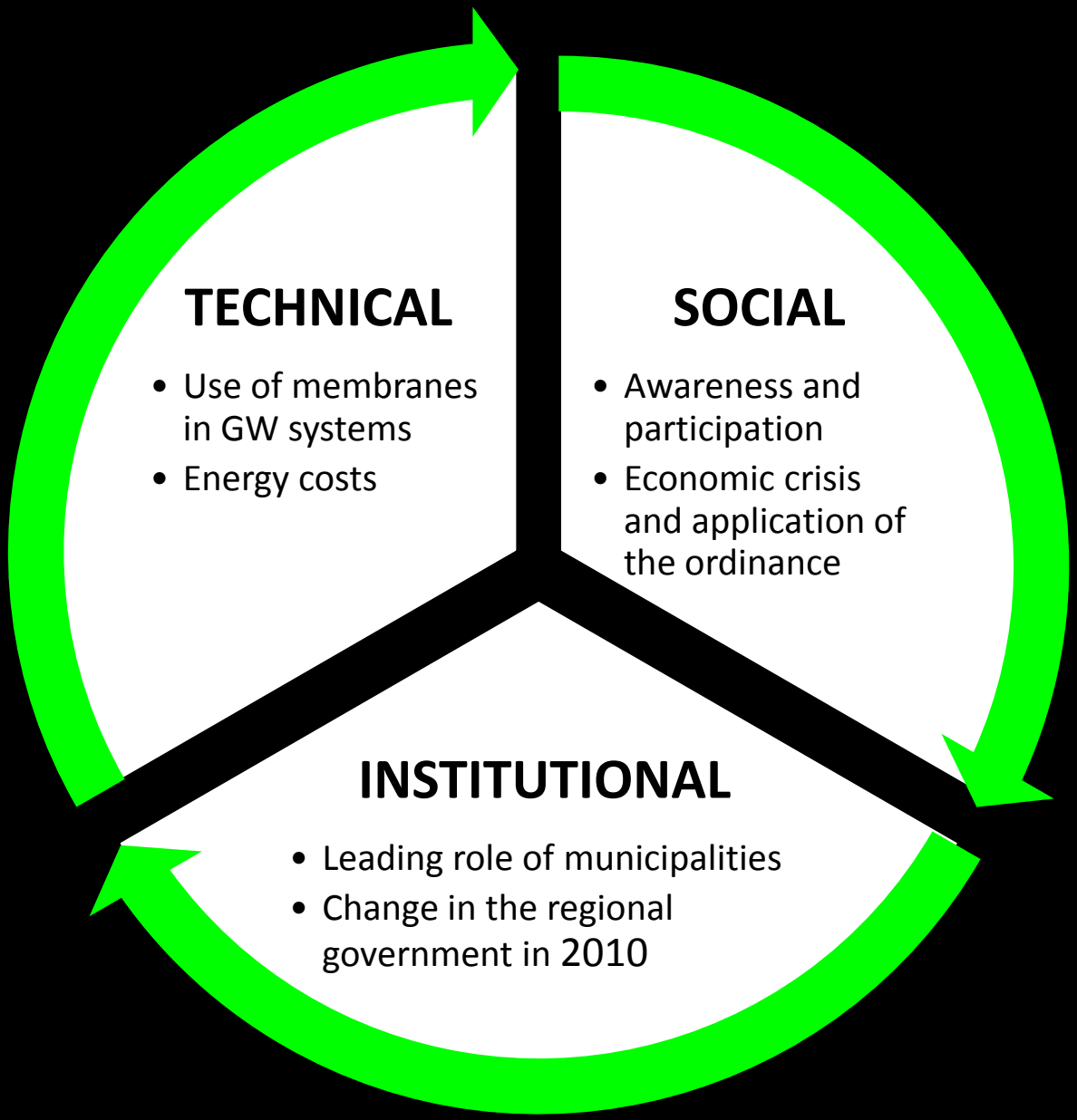
Alternative water resources: overview and main challenges

RAINWATER HARVESTING vs GREYWATER REUSE

	RAINWATER HARVESTING	GREYWATER REUSE
WATER QUALITY	Good	Low-polluted
Nº OF ORDINANCES AND SCOPE	48; new buildings with a minimum surface of garden	32; new buildings with a minimum of 8 apartments
SYSTEM	Catchment area, continuous guttering, filter and storage tank	Physico-chemical, biological or membranes treatment + disinfection
MAINTENANCE	Filter cleaning once a year	Weekly - monthly
CAPITAL COSTS	High; long pay-back periods	516€/flat (< 0,2% of the total cost); long pay-back periods
USES	Irrigation (= 36% of daily water demand)	Toilet flushing (= 21% of the daily water demand)
STIMATED WATER SAVING	60% of the irrigation and 100% of the toilet flushing and laundry	100% of the toilet flushing
PUBLIC ACCEPTANCE	Good	Less good
USER SATISFACTION	High	Initial satisfaction turns into dissatisfaction

Scaling-up alternative water resources in Metropolitan Barcelona

THE TRANSITION PROCESS



Conclusions and future prospects

CONCLUSIONS AND FUTURE PROSPECTS

- ✓ Change in the scale of governance → Local actors have a greater role to play in water management

- ✓ Importance of communication and public dialogue → Increase social acceptance, specially for greywater reuse

- ✓ Change in the water cycle: small scale and decentralized water systems vs centralized end-of-pipe model

- ✓ Combination of water sources with different qualities based on the principle of fit-for-purpose

"INSTEAD OF SPENDING BILIONS ON DAMS, GIVE EVERY HOUSE A TANK!"

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Thank you for your attention!!

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