



# **Towards a water-efficient Europe: can servicizing business models and policies help to promote grey-water recycling and rainwater harvesting at household level?**

**Alma López-Avilés  
Jonathan Chenoweth  
Angela Druckman  
Stephen Morse**

*Centre for Environmental Strategy, University of Surrey, UK*

---

**World Water Congress XV IWRA, Edinburgh, 25-29 May 2015**



# Servicizing

“Servicizing” has been defined in the SPREE project as

*“a transaction where value is provided through a combination of products and services, and where satisfaction of customer needs is achieved by selling functions of a product rather than the product per se, and/or by increasing the service component of the offer. Thus, each offer represents a continuum of products and services, which can be further servicized”.*





# Servicizing and water

The SPREE project aims to establish servicing systems that facilitate the transition from selling products to providing services in three sectors.



Website: [www.spreeproject.com](http://www.spreeproject.com)

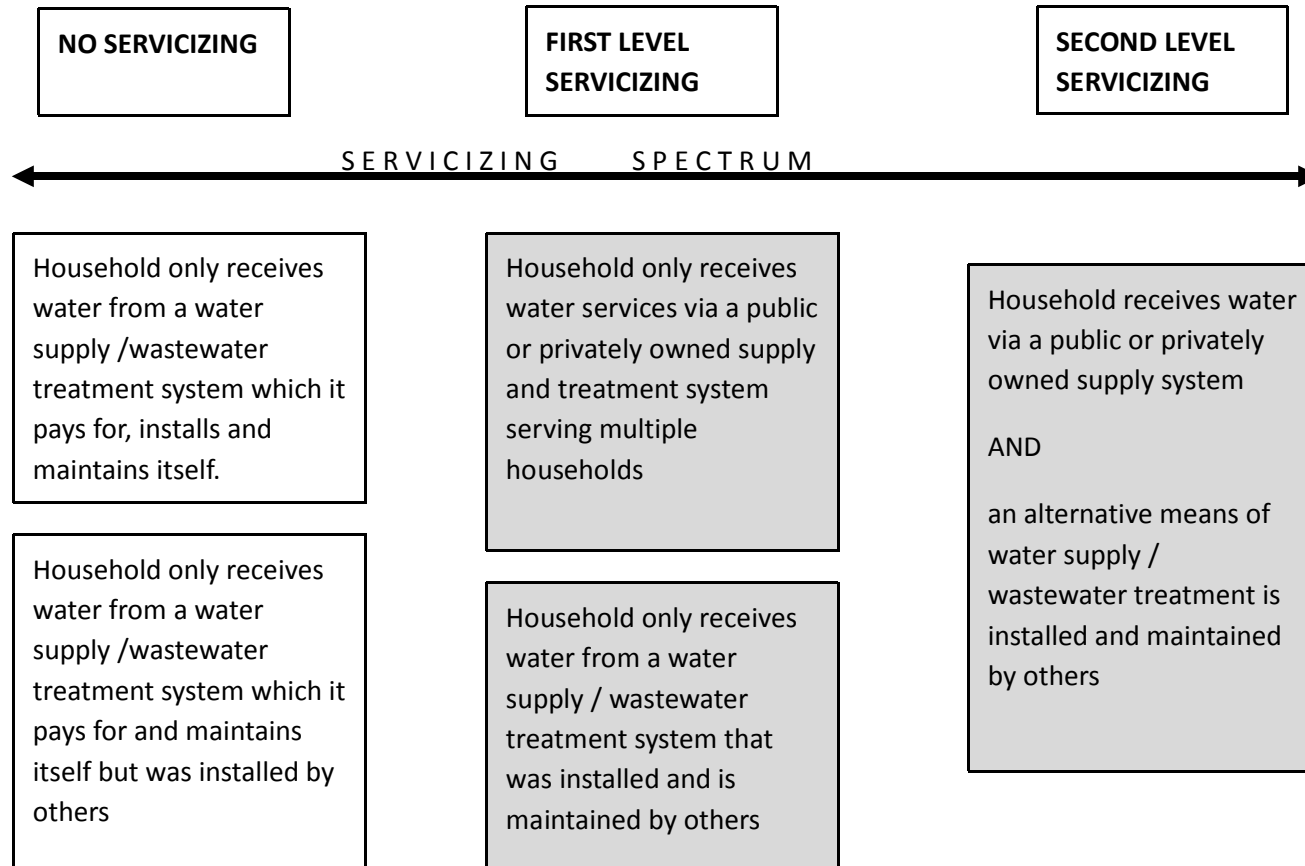


# Servicizing in the Water Sector

- Water is not a conventional good or product
- Water is already servicized to a large extent in many regions in Europe and elsewhere (e.g. EU/OECD countries)
  - *Water is not “consumed” like other resources*
  - *Water quality changes but the majority of water is “returned” to the system*

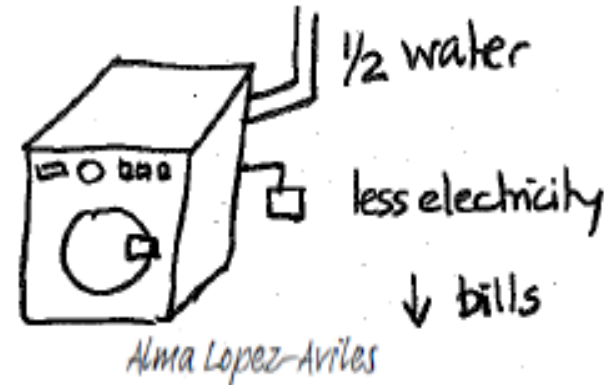


# Servicizing in the Water Sector



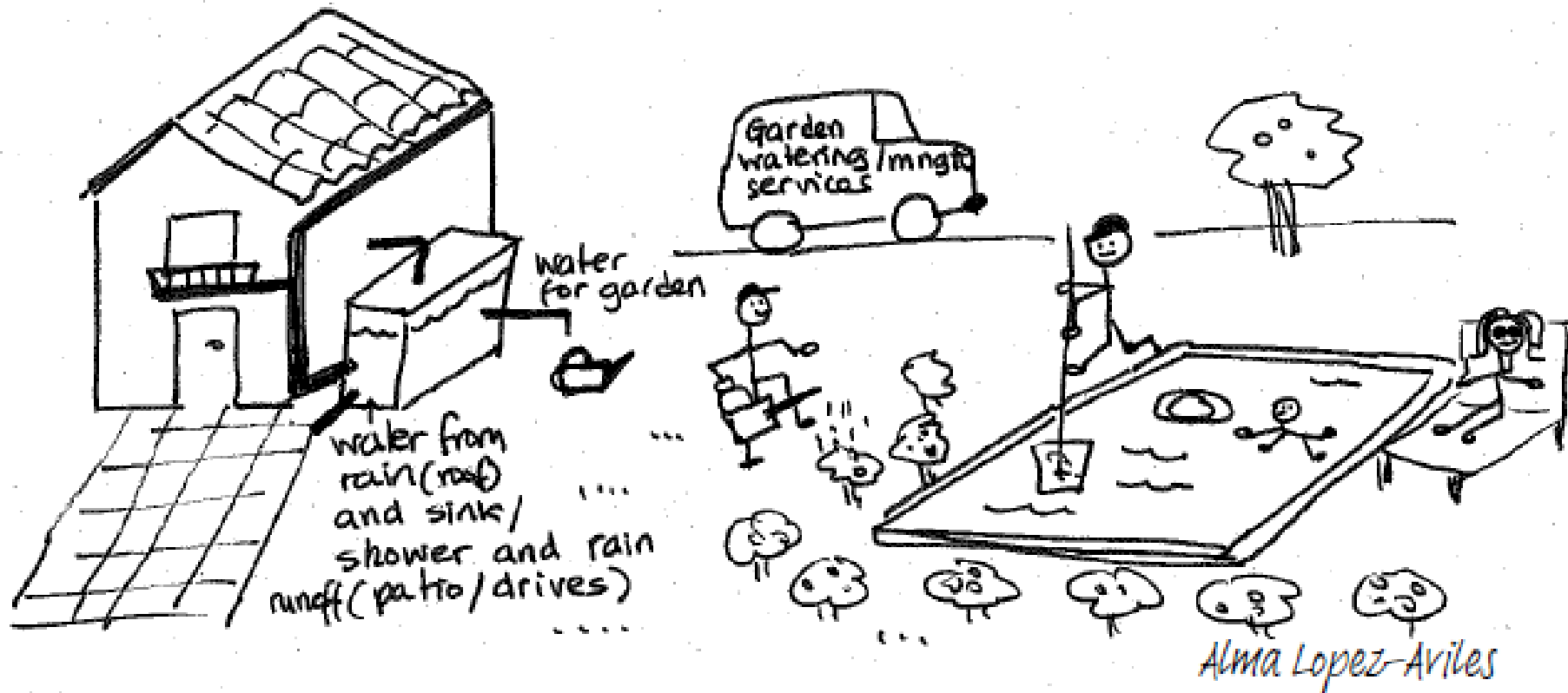
# Decoupling in the Water Sector

- Economic decoupling in the water sector has occurred in some regions due to:
  - *Improved efficiency of appliances*
  - *Improved efficiency by industry in response to regulation*



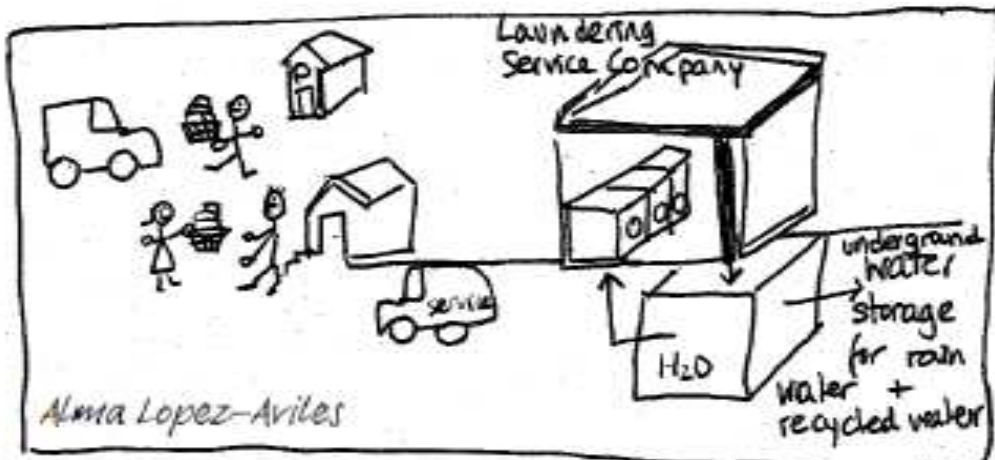
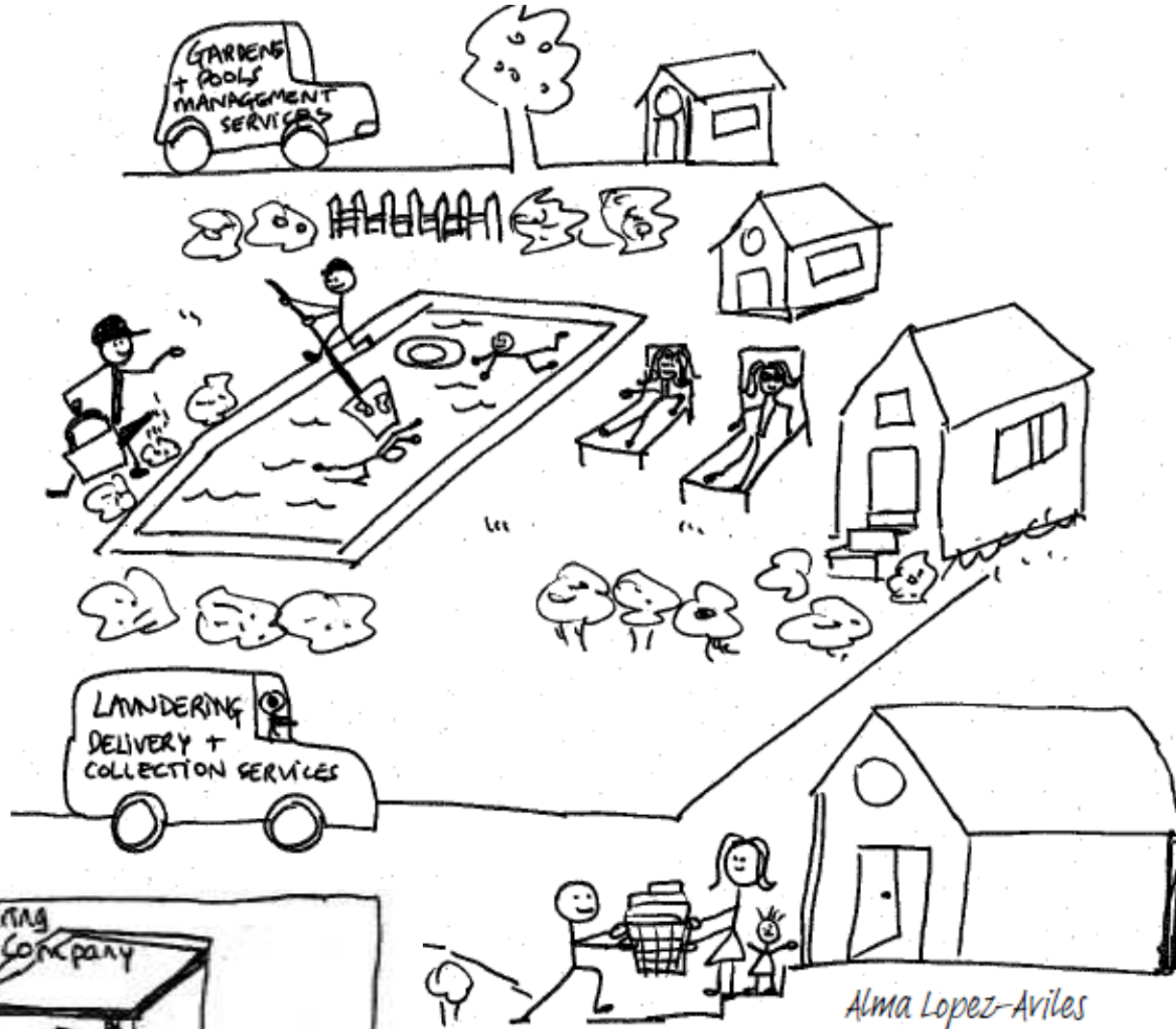
- However, water can be further servicized... and further decoupling may be achieved through servicizing

# Examples of servicizing in the water sector



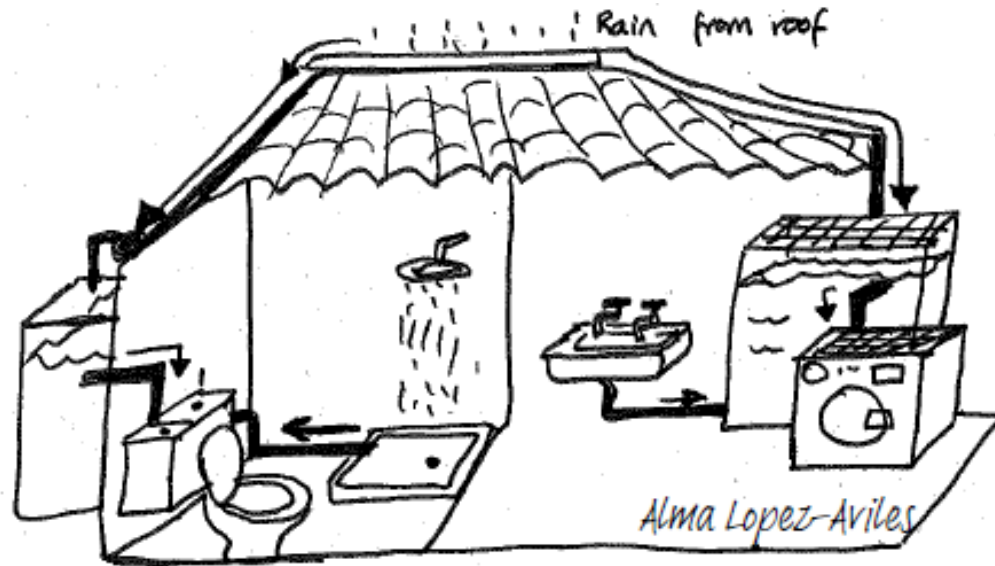
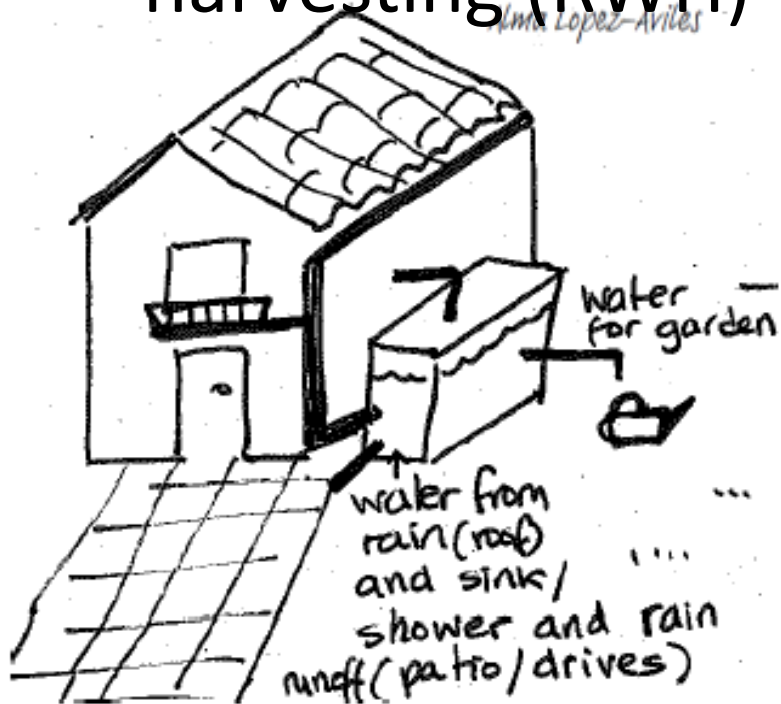


# Examples of servicing in the water sector



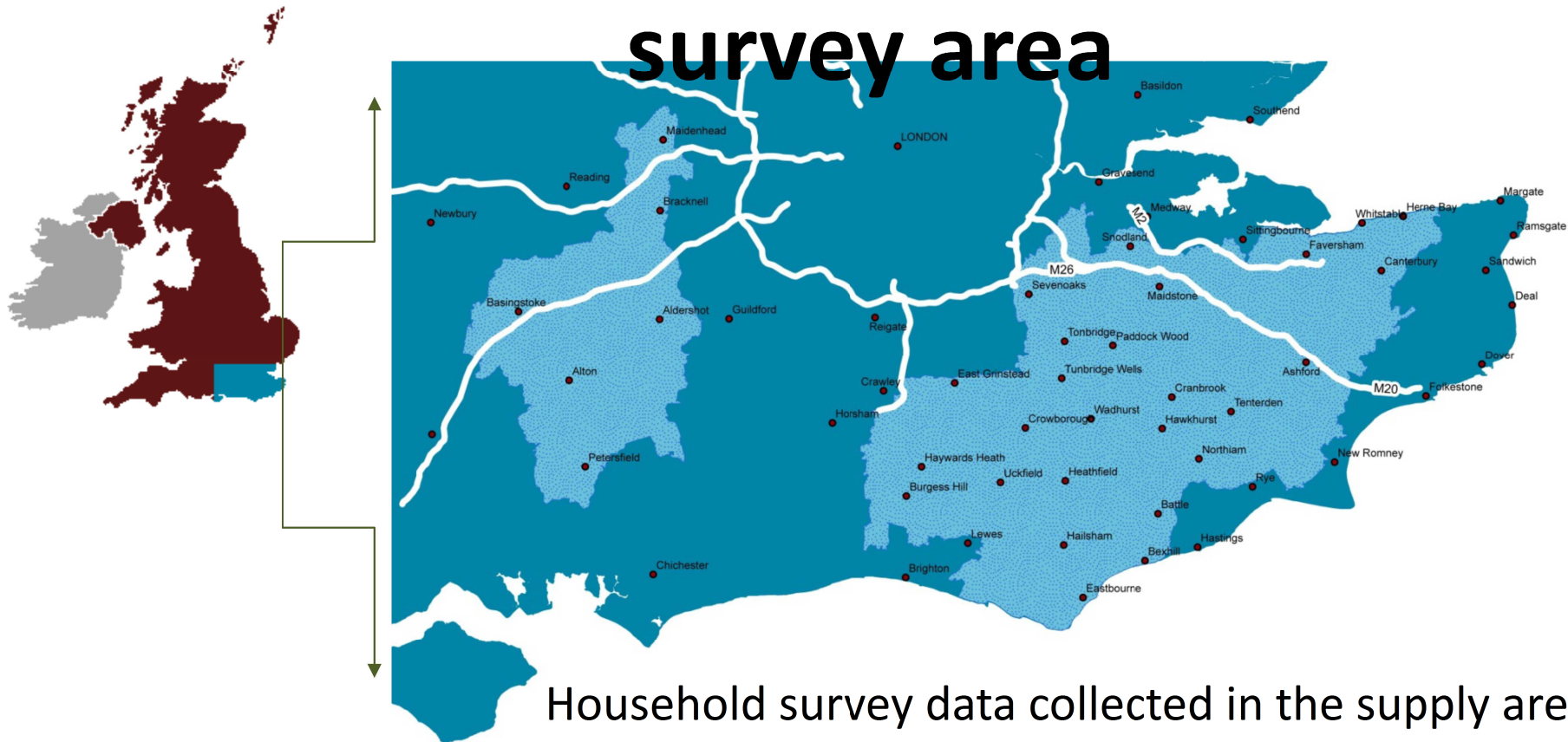


# SPREE case studies: household level grey-water recycling (GWR) and rainwater harvesting (RWH)





# UK Case Study: Household survey area



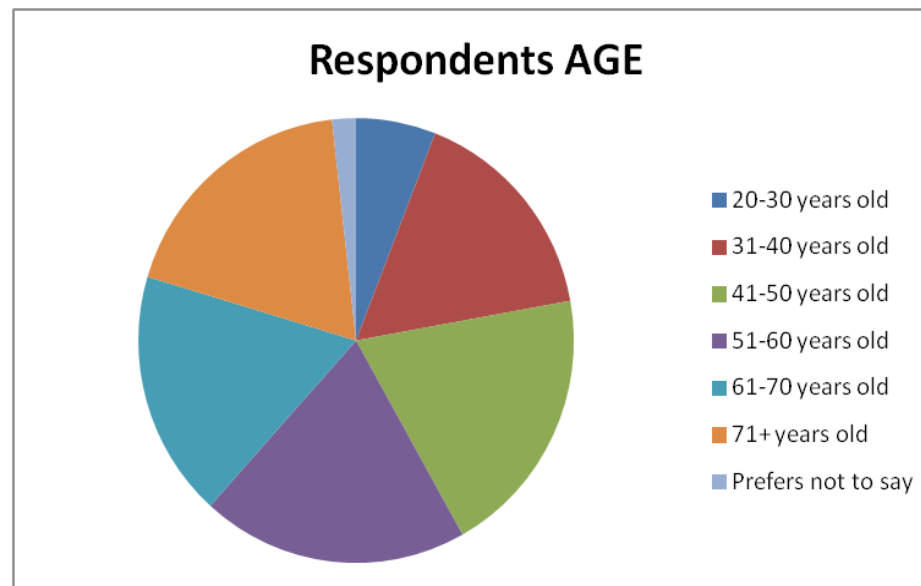
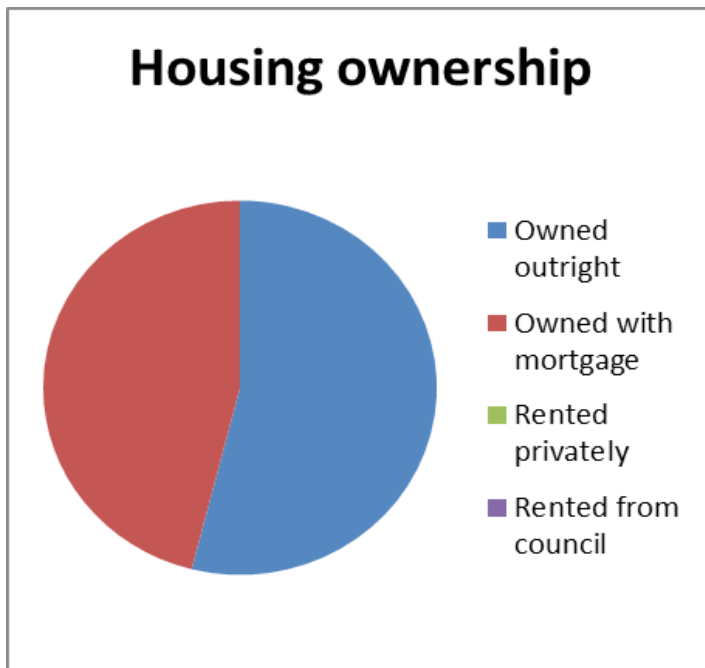
Household survey data collected in the supply area of South East Water on attitudes to water etc

- +300 respondents
- Analysis on-going SE Water consumption data



# Survey

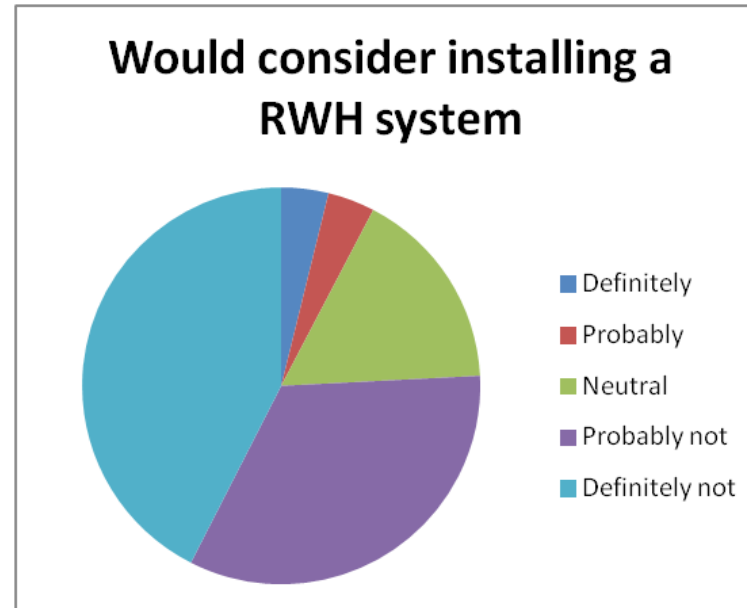
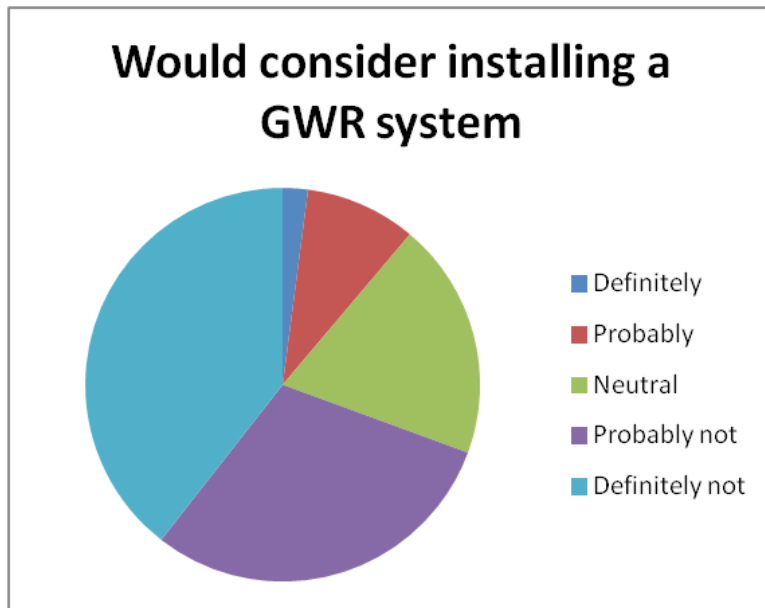
Respondents: home owners, majority own (outright or mortgage) a house with private garden, mature age group, about one third has or plans to install some water saving fitting





# Response to GWR/RWH

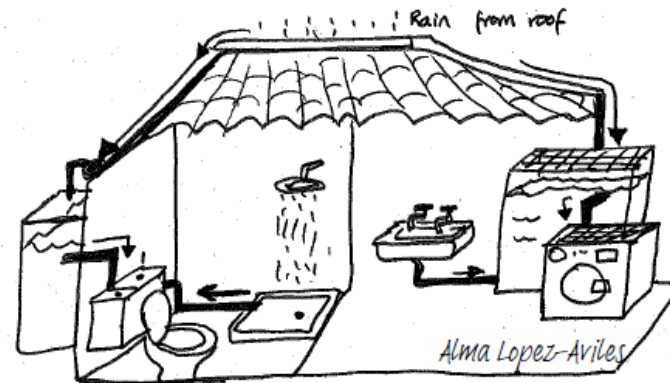
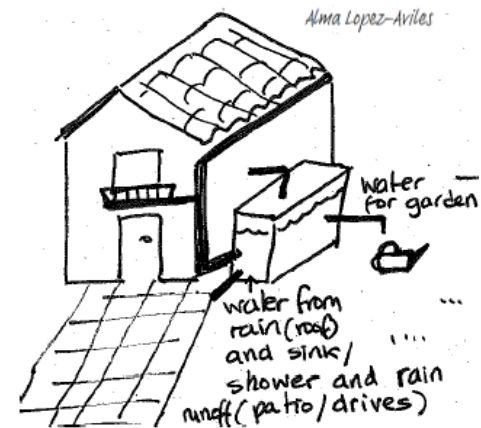
Only between 10-13% of Respondents would definitely or probably consider installing a GWR or RWH system





# Response to GWR/RWH

However – when presented with a range of potential GWR and RWH ***servicized system options*** ~1/3 of respondents selected one of them.





# Response to GWR/RWH

- Results suggest that there is some willingness from consumers to adopt GWR and RWH systems if
  - the right conditions exist, i.e. via servicizing*
  - reduced payment for the system up-front, and maintenance of the system is taken care of.*
- Hence servicizing may be key in promoting water-efficient systems



# Agent Based Modelling (ABM)

- ABM based on survey and consumer choices indicates that uptake of GWR&RWH systems increases during the simulation period
- The level of servicizing (consumers asking for servicized options) also increases
- Supply Chain GDP increases for all scenarios
- Positive environmental outcomes:
  - *embedded carbon emissions decrease*
  - *amount of water consumed per consumer decreases*



# Agent Based Modelling (ABM)

- Various policy combinations modelled which included regulations, incentives and information measures
- Results from policy scenarios informed a rigorous process of grouping policy instruments into 'policy packages' (basic, effective and viable)



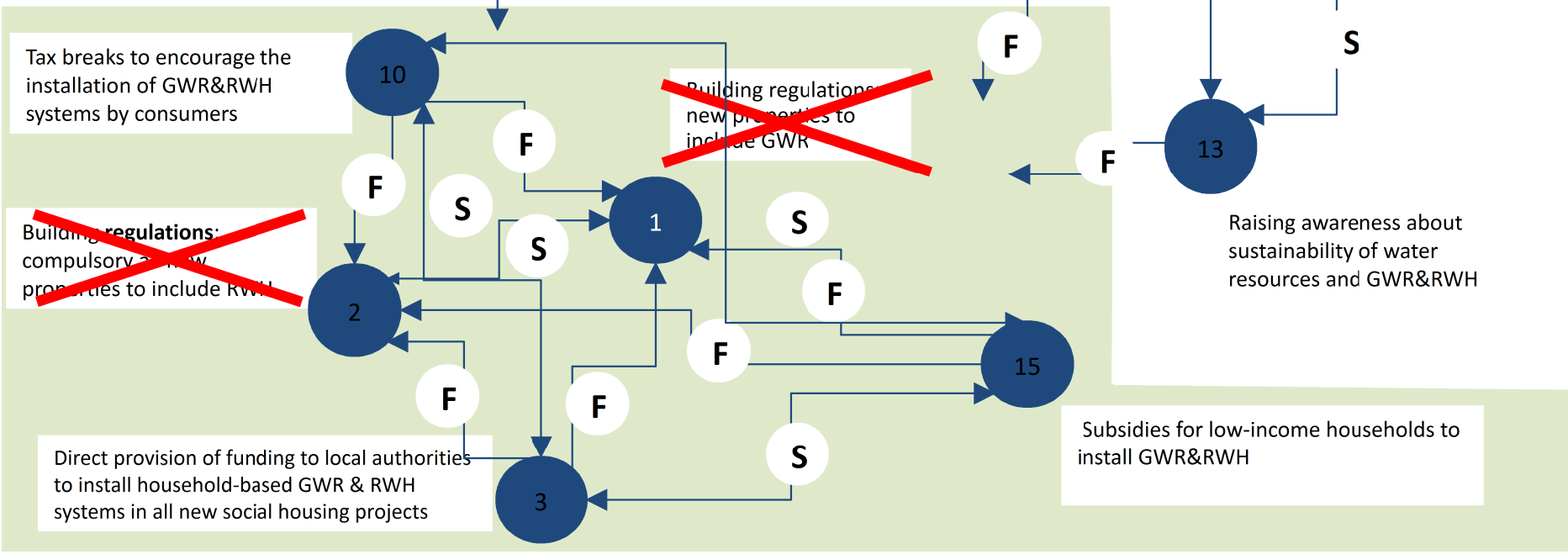
# Viability Policy Package: Water, UK

- 6 Implement universal water metering
- 7 Increased price of potable water and sewage
- 11 Stricter water abstraction limits for existing licensed users

Public information campaigns for households to collect and use rainwater and recycle grey water, i.e. RWH & GWR systems

Clear and transparent bills and cost models for GWR, RWH and mains water

- 16 New regulation/ guidance
- Introduce regulation on maintenance /servicizing of GWR & RWH systems to ensure their good working order (life span guarantee), and to minimise Health and Safety risks (e.g. GWR & RWH and mains pipes cross-connections)
- 17 Additional funding for Local Authorities to deal with planning and enforcement of new regulation/guidance for GWR & RWH





# Key messages: Policy

- GWR is being considered by UK Water Companies
- But RWH considered less promising (periods of high demand)
- Decentralising is a potential issue
- Responsibility over maintenance and Health & Safety aspects still an issue even if financing is OK
- Solution: maintenance /servicizing for all GWR & RWH systems (*regulation?*) to ensure good working order and minimise H&S risks (*e.g. cross-connections between GWR & RWH and mains pipes*).



# Thank you!

**Dr. Alma López-Avilés**

*Email: a.lopez-aviles@surrey.ac.uk*

*Phone: 01483 68 6678*

*Centre for Environmental Strategy (D3)*

*Faculty of Engineering and Physical Sciences*

*University of Surrey*

*GUILDFORD*

*GU2 7XH*

## Any Questions?