Water : Global commons, local resource, public service

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IOEA 2025

Three faces of water

- Local public service → economic regulation
- Local resource → local governance
- Global common good → global cooperation

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Characteristics of (water) utilities

- Essential for daily life
- Natural monopoly
- Specific assets with slow depreciation
- Pricing & quality are politically sensitive

Objectives of regulation

1. Increase efficiency
2. Contracting with companies
3. Efficiency vs. equity

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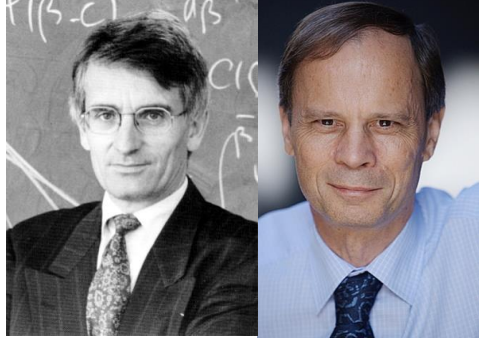
Regulatory tools



Jean-Jacques Laffont & Jean Tirole

Price-cap

- Price is fixed
- Incentive to reduce costs, increase margins
- Skimping quality or being lucky may increase margins

Cost-plus

- Costs refunded with a margin
- No incentive to reduce costs
- Good to encourage investments & innovations

Static efficiency

Dynamic efficiency

Static vs. dynamic efficiency*

	Static	Dynamic
Contract type	Price-cap	Cost-plus
Contract length	Short-term	Long-term
Bidding	Auctions	Negotiations
Complexity	Low	High

*Bajari & Tadelis (2001), Levin & Tadelis (2010)

Benchmarking

- Information asymmetry about efforts but comparison of outcomes is possible

- Yardstick competition*
  - Comparisons to set prices
  - Firms incentivized to stay competitive

- Public Rankings**
  - Naming & shaming
  - Reputational mechanism

*Shleifer (1985) **Bevan, Evans, Nuti (2019)

Improve public water services

	Action	Reward	Condition
Targets	Incentives	Bonus	Identifiable outcomes
Competition for the market	Call for tenders	Stay in game	Easy to switch
Yardstick competition	Yardstick pricing	Remain competitive	Peer comparison possible
Public ranking	Ranking	Reputation	Reputation matters

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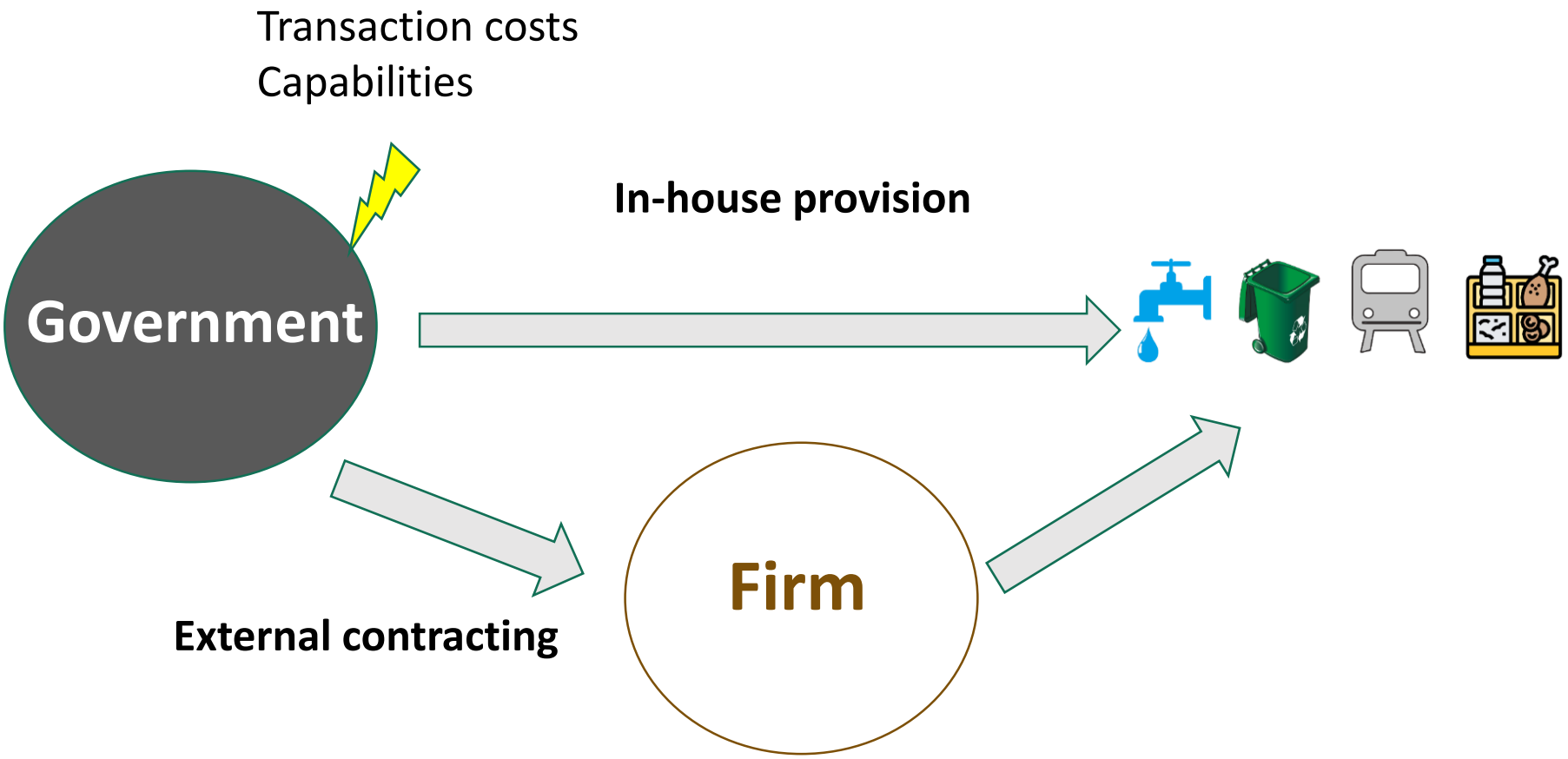
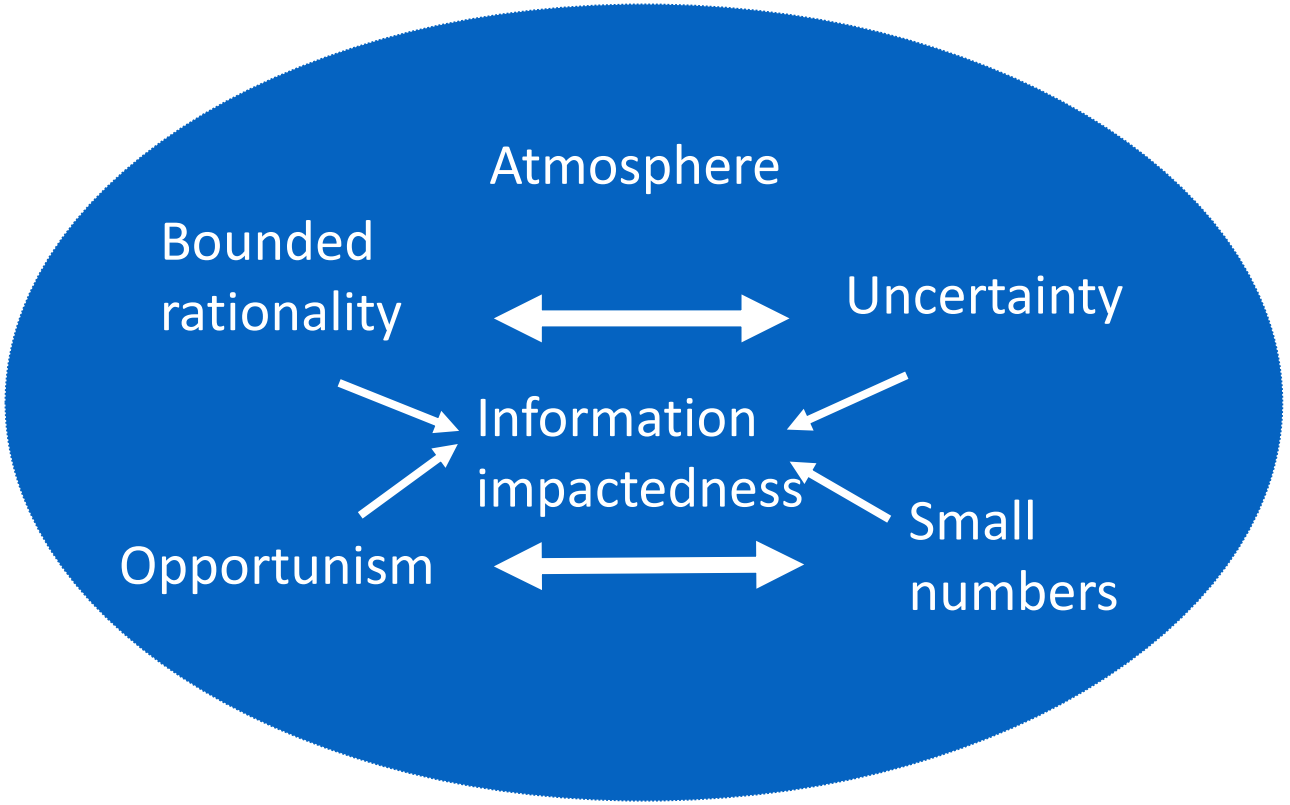
In-house or external contracting



Transaction costs

Oliver E. Williamson



Opportunism & lock-in

- Bidding process
  - *Small numbers*: 1 or 2 competitors
  - *Opportunism*: Renegotiations after signing the contract*

- At the renewal:
  - *First mover advantage*: know-how of the company + Fundamental transformation (90% of renewals)*
  - *Hold-up* risk due to incomplete contract

*Guash, Laffont, Straub, 2002

Real-life example

- City *A* outsources water services to company *B*
- *B* invests in leak detectors
- Contract omits who pays for removal at contract end
- *B* may threaten *A* to cover costs if not renewed

Real-life example

1. One-fix solutions
   - *A* fully integrates *B*
   - *A* goes in court against *B*

2. Explicit terms: *A* and *B* agree on a rebuy or removal clause

3. Implicit terms: *B* behaves fairly / *A* commits to renewing *B*'s contract indefinitely

Learning to contract*

- Contracting experience helps foresee contingencies and safeguard key assets
- Contract design capabilities differ across organizations

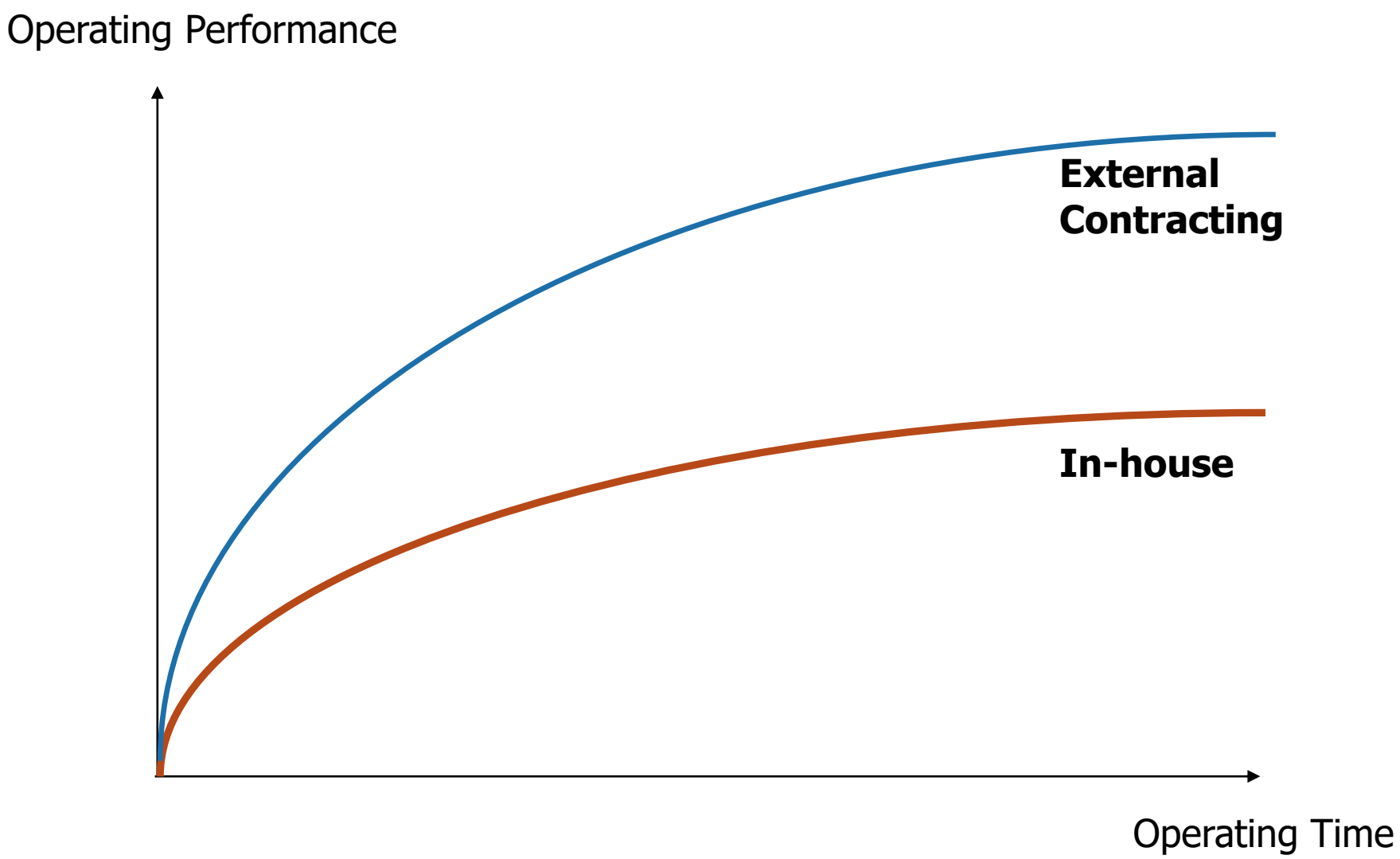
*Mayer and Argyres (2004), Vanneste and Puranam (2010)

Capabilities matter

- Organizations grow or buy capabilities*
  - Production capabilities are *protection* against high transaction costs**
  - Contracting capabilities can *decrease* transaction costs**

*Wernerfelt (1984), Barney (1991) **Porcher (2016)

Contracting and performance*



*Mulotte & Porcher (forthcoming)

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Optimal tariffs: What is the goal ?

- Reduce or increase consumption ?
- Increase social welfare ?
- Increase revenues ?
- Socially just for the poor ?

Optimal tariffs

Coasian tariffs (1946)

- Marginal price set to marginal cost
- Fixed-part set to each customer's share of fixed costs
- Better for welfare maximization

Increasing block tariffs

- Better for water conservation
- Do consumers react to marginal or average price ?

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Common-pool resources*

	Rivalrous	**Non-rivalrous**
Excludable	Private goods	Toll goods
Non-excludable	Common-pool resources	Pure public goods

Excludable: easy to exclude potential beneficiaries

Rivalrous: if one person uses it, it reduces its availability for others

*Ostrom (2005)

Tragedy of the commons

Elinor Ostrom

Critique of centralized state control and privatization, what matters is

"how a particular governance arrangement fits the local ecology, how specific rules are developed and adapted over time, and whether users consider the system to be legitimate and equitable"*

*Ostrom (2009)

Tragedy of the commons

Elinor Ostrom

But building commons governance

- is costly (time, effort)
- requires adaptation & monitoring

Open questions :

- Size of the group ?
- Heterogeneity ?
- Unstable resources ?

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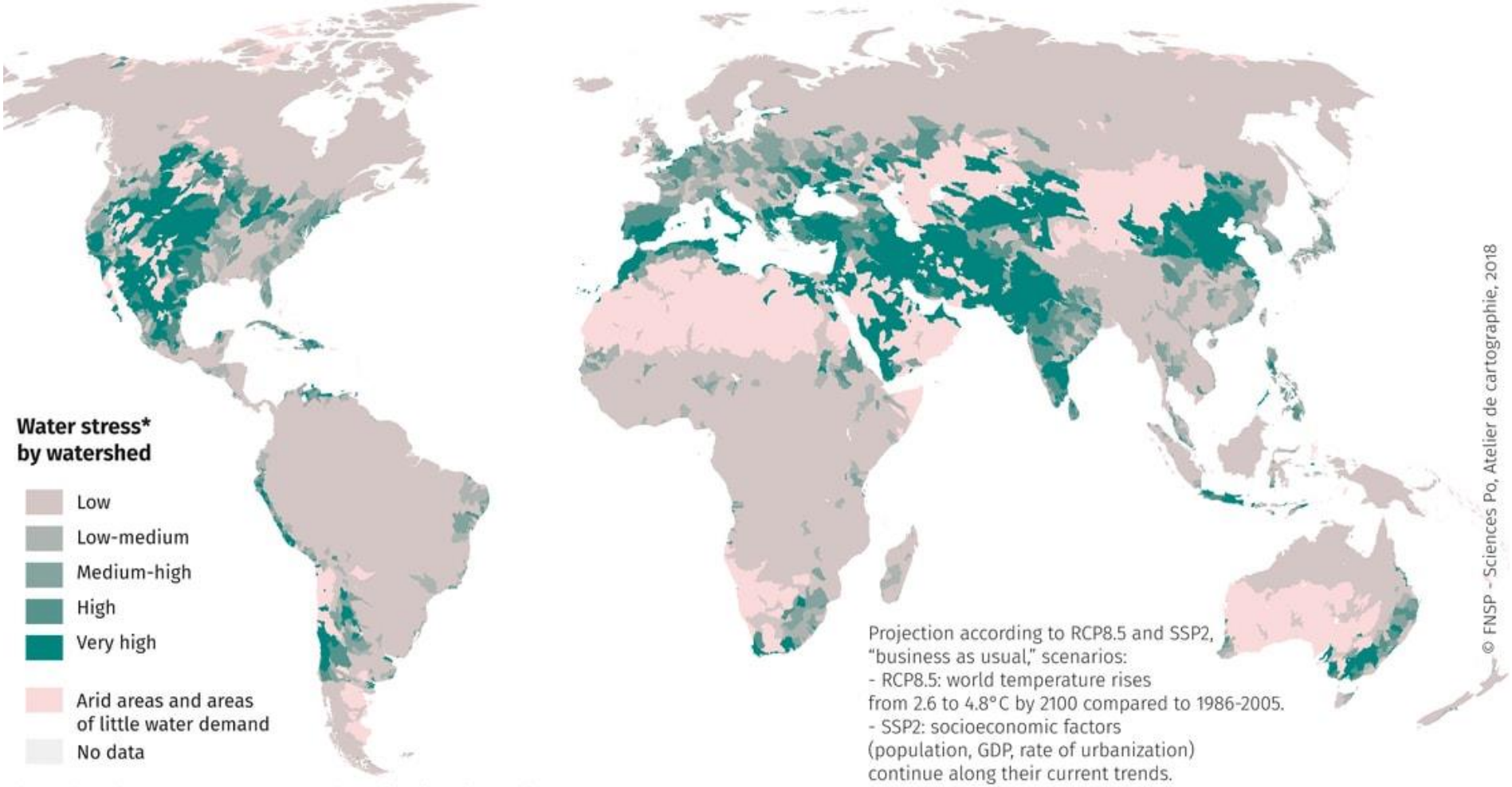
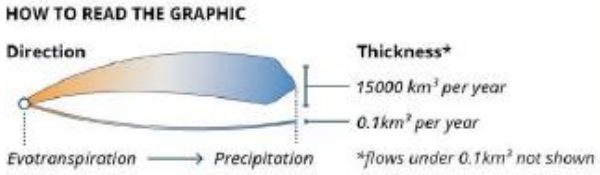
Water stress is a global issue



Water stress in 2040 (WRI)

Water cycle is a global common good



Source: Global Commission for the Economics of Water

Water footprint

1 slice of bread (30 gr)	1 cup of coffee	1 rice bowl (100 gr)	1 steak (220 gr)	1 jean	1 car
					
40 Liters	**140** Liters	**340** Liters	**3100** Liters	**11000** Liters	**30000** Liters
					
2 Dishwasher cycles	**2** Showers	**5** Washing machine cycles	**20** Baths	**3** Weeks of water consumption for a family of 4 persons	**1/2** pool

Source: Suez

Water is related to all SDGs

We need a new economics of water*

- Water scarcity costs: US$ 300 bn annually (Allianz)
- Wetlands degradation: US$ 20 trillion losses of ecosystem services annually (Costanza et al. 2014)
- PFAS in water: €52-84 bn losses for EU social protection systems annually (Goldenman et al. 2019)

*Rockstrom, Mazzucato, Seaby Andersen, FharLänder, Gerten (2024)

Thank you !