



Newts : Nudges for Economics of Water Tariffs

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I - SOCIAL INCENTIVE PRICING POLICY

EFD on Water - UN SDG 6 Objectives for Pricing :



To deal with, water service managers are making greater use of Increasing Block Tariffs (IBTs) with the aim :

- By setting low prices for first cubic meters, to enable the households (including low income households) to cover their basic needs at socially acceptable economic conditions
- By setting high prices for high consumption levels, to induce households to adopt water-saving behaviors
- With 'water-pays-for-water' principle, taxes charged on high levels of consumption fund the subsidies paid on first consumption blocks.

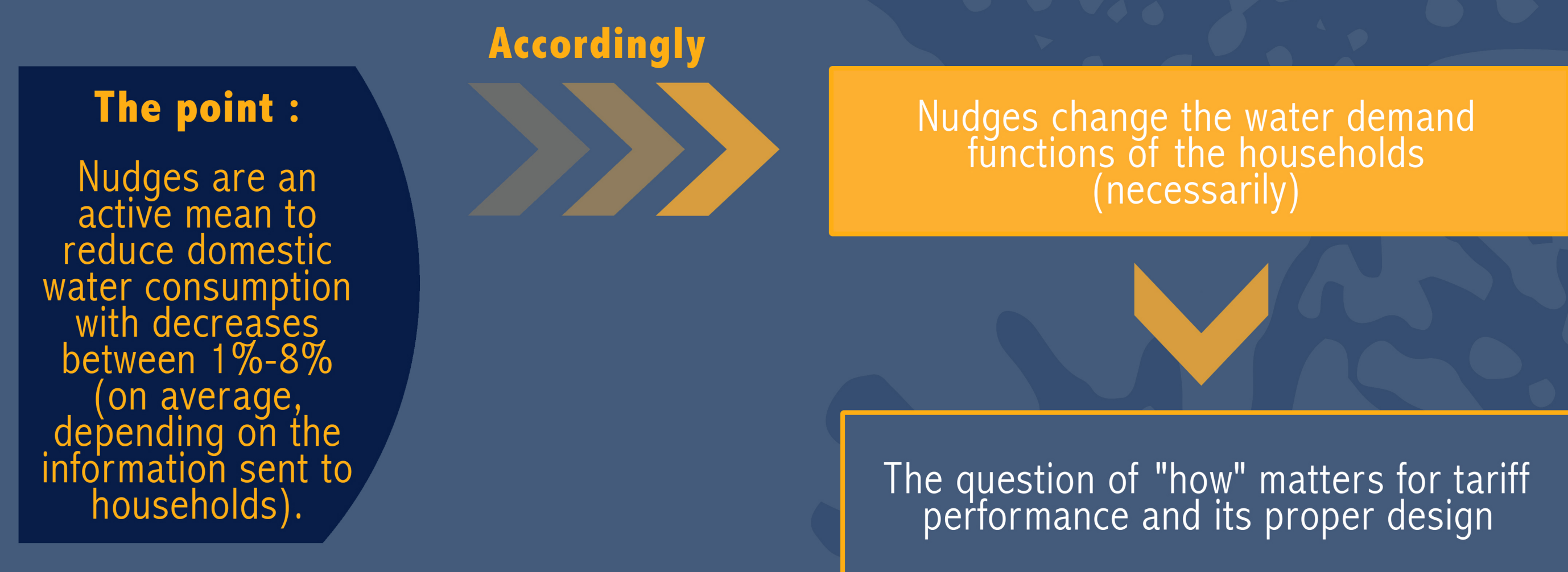
The point IBTs perform poorly given the positive but low correlation between water consumption and household income.

II - BEHAVIORAL INTERVENTIONS (BIs)

To induce behavioral changes, Public Authorities are considering alternative means of action with nudges.

In the field of water, informational nudges nudges focussing on:

- water consumption to address failures around usage of water (benchmarking techniques, SNITs ...)
- proper understanding of tariff scheme to address failures around price of water (marginal price recall, infographics with framing effects ...).



III - THE SCIENTIFIC PROJECT



Linking nudges and water demand functions

Econometric estimate of local water demand functions

Nudges campaign / Randomized control trials / Impacts on water consumption (treatment effects)

Econometric estimation of resulting changes in local water demand functions

Identification of transmission channels:

- decrease in captive consumption?
- greater price-sensitivity?
- improved perceptions of tariffs?

DSM policy design

Socio-economic evaluation of local current water tariffs (through a dashboard of appropriate indicators, in each area of the EDF for water, making use of the information provided by econometric estimates of water demand functions)

Assessment of the contributions of nudges to the socio-economic performance of local current water tariffs.

Simulations of mixed programs, combining nudges and tariff instruments, making use of estimated econometric models and relied data sets.

Advancing research in BIs

Lab experiments to deal with time dimension and spillover effects (social interactions)

Improving the information conveyed by benchmarking and social normal information treatments (large consumer vs. over-consumer)

The use of smart technologies (nudges design, static vs. dynamic infographics, dark patterns)

Nudges perception (additional feedbacks from the field with local public consultation, local stakeholder consultation and focus groups)

IV - RESEARCH CONSORTIUM

Partners / Provided Expertise	Nudges	Econometrics	Evaluation
CEMOI (France) University of La Reunion		Database building - Water demand - Tariff perception - Panel data	Transfer analysis - Tariff design - Optimization - Simulated data
CREM (France) University of Rennes I	Nudges design - Decontextualized lab experiments		Gender dimension
EPRU (South Africa) University of Cap Town	Nudges design - Randomized control trials (experimental design, treatments effects)		Survey analysis
GAEL (France) University Grenoble Alpes	Nudges design - Lab experiments with real people		Differences between lab and field experiments
GRANEM (France) University of Angers	Multi-agents models - Design of nudging programs	Spatial econometrics	
LAREQUAD (Tunisia) University of Tunis - El Manar		Water demand - Time series data - Seasonality - Forecasting methods	Water poverty - Index building
OEG (Spain) University of Oviedo		Water demand - Measure of basic water needs - Impact of water using equipment - Productive inefficiency	Affordability - Incentive effect of water tariff
Stakeholders (EMASA, La Créole, Office de l'Eau Réunion, SEMIDE / EMWIS, SONEDE)	Nudges design - Knowledge of local conditions and population		Indicators selection - Institutional knowledge for DSM micro-simulations and tariff design

V - STUDY SITES

Gijón (Spain, 271,000 inhabitants): Three-blocks water tariff; Special tariff for households living in buildings with a collective metering system (two-blocks); High percentage of water billed to households with collective meters (57% in 2017); Income public policies supporting basic supplies; Pending investments in sanitation systems.

Cape Town (South Africa, 4 million inhabitants): Water crisis (Day Zero); Water restrictions; Green nudges campaign (2015-2016); Free Basic Water Policy; Substantial increases of tariff rates (15.55 €/kl (water + sanitation) for consumption slightly above 10.5 kl /month).

Sfax (Tunisia, 900,000 inhabitants): Semi-arid climate; Very high mobilization cost of water resources; Super-progressive pricing (all the water use is charged at the marginal price); High disparity in regular access to water; Insufficient water supply; High demand of water.

Saint Paul (France, 110,000 inhabitants): Insufficient resources (because of a dry season); High water consumption; High poverty rate (35%); Strong degree of progressivity of water tariff; Mounting deficits; Unpaid water bills; Legal prohibition of water cuts.

VI - EXPECTED OUTPUTS

- Decision Support Tools (DSTs) for study sites (using econometric estimates of water demand and relied dataset to compute the dashboard indicators)
- Simplified versions of DST's available on-line with guidelines, handbooks and Newts-related computer programs
- Multi-Agent model (design of nudging campaign)
- Digital nudging tool (Spain, for providing real-time information about consumption and marginal price)
- Academic working papers and peer-reviewed articles, organization of FAERE symposium on green nudges ...
- Local Stakeholders' days and workshops, local training sessions ...
- Contributions to regular water related on line newsletters (e.g. Semide/Emwis e-flash; 30,000 subscribers) ...
- Local Public Consultations