



Theme: Sustainable Development

Are green nudges and technology uptake a solution to water conservation that does not harm the poor?

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Major issues identified and main reasons for persistence of inequality

Water is a basic necessity recognised by the South African Constitution. Since the introduction of the Free Basic Water policy, South African residential households are allowed to consume six kilolitres of free water per month, the amount of water necessary for the minimum requirements of good health. In order to finance the Free Basic Water policy via tariff revenues, municipalities introduced an inclining block tariff system that consists of six tariff blocks – as the volume of household consumption increases, the rate per unit of water increases. The increasing block tariff structure is designed so that rich households consuming in the higher tariff blocks subsidise poor households consuming in the lower blocks.

In times of drought, water tariffs are increased – and disproportionately impact the poor. Necessities such as water usually make up a larger proportion of household income for low-income than for high-income households. Water price increases are hence regressive – the relative burden decreases as household income increases. The impact of a water price increase thus falls more on the poor.

About this brief

This brief was commissioned by the Mandela Initiative to help inform a synthesis report on its work since the 2012 national conference, *Strategies to Overcome Poverty and Inequality*, organised by the University of Cape Town. The MI provides a multi-sectoral platform to investigate and develop strategies to overcome poverty and reduce inequality in South Africa. While the Nelson Mandela Foundation is a key partner, the Initiative has relied on collaborations between academics and researchers, government, business leaders, civil society, the church and unions.

The synthesis report serves as a framework for reporting on the work of the MI at a national gathering on 12 – 14 February 2018 at the University of Cape Town. The MI *Think Tank* has identified the objectives for the gathering as:

- to anchor the contributions of the MI within an analysis of the current South African political and economic context;
- to share the recommendations emanating from the MI-related work streams at a policy/strategic level to advance the goal of eliminating poverty and reducing inequality;
- to critically engage with the potential impact of the recommendations on eliminating structural poverty and inequality; and
- to discuss ways of promoting popular conversations and debate about what needs to be done to eliminate poverty and reduce inequality, beyond the MI.

The synthesis report aims to assist participants to prepare for the national gathering. The report drew on findings from the sectoral research projects of Think Tank members; the MI's *Action Dialogues*; a report on an MI *Community of Practice workshop* with research chairs from different universities to identify cross-cutting themes emerging from the MI's *research programme*; and the work programmes of others who have expressed an interest in contributing to the goals of the MI.

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Low-income residential households can apply for indigent status at the City of Cape Town which allows them to get rebates on services that the City provides such as water, electricity, and waste collection. Households can apply for indigent support or indigent rates relief depending on monthly household income or the value of their property.

Recommendations at macro policy/strategic level to deal with the major issues

During droughts, policy makers have traditionally been using price-based methods such as tariff increases or structural changes such as water pressure reductions. Recently, in addition to conventional tools, public policy designers have increasingly been using applied behavioural sciences to change residents' consumption behaviour. While tariff increases aimed at reducing water consumption tend to be regressive and punitive, green nudges can have similar conservation effects without harming the poor.

In a study conducted by the Environmental Economics Policy Research Unit (EPRU) of the University of Cape Town, in collaboration with the City of Cape Town, over 400 000 residential households received one of nine different behavioural messages over a six-month period (November 2015 – May 2016) with their monthly municipal bill. The first category of messages addressed informational failures around price and usage of water while the second one promoted water conservation via social incentives and appeals to the public good.

The results show heterogeneous effects and suggest that framings for interventions targeting different income groups should differ in order to be effective. The results indicate that the greatest water reduction was achieved by wealthier households. The green nudges tended to motivate middle- and high-income groups with high-water usage who don't feel price increases of water as noticeably and hence don't respond as desired by the municipality. High-income households were particularly responsive to the messages that promoted water conservation via social incentives and appeals to the public good. The message which advised people that the names of the top water savers would be published on the City of Cape Town's website (social recognition treatment) consistently produced the greatest water reduction behaviour. Indigent households on the other hand did not respond to the behavioural messages or had a negative response.

Potential impact of the recommendations on eliminating structural poverty and reducing inequality

The results of the study have shown that water consumption could be less regulated through price changes and more through the use of behavioural green nudges, in addition to more conventional water demand management tools such as water rationing. Preliminary findings have shown that high-income households in the social recognition treatment reduced consumption by 2.3% over a six-month period which is equivalent to a 12% price increase in that category. The green nudges also had

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a more consistent long-term overall impact on residential households' water consumption compared to tariff increases and water restrictions.

Further work has combined behavioural insights with the installation of smart metering technology in combination with an app at schools. This intervention has shown to be extremely effective, saving on average 40% of the school's monthly water consumption. Introducing the app helped to make water consumption more salient and to identify leaks, pipe bursts, or open taps after school hours. Major water savings were realised by fixing broken sanitary structures but this has also effectively been combined with awareness campaigns at schools educating learners about the value of water and the importance of conservation. Daily savings has been in the order of 40kl for schools in the pilot, in rand terms this equates to two senior teachers' salaries, or =x meals in school feeding programs that can feed Y children. Rolling this out across all schools in the province would save Z megalitres per month. The study is currently being scale up and will hopeful roll-out over the whole Western Cape over the next year.

For more information on the Mandela Initiative:

