

*Additional resources on subsidies in water supply services*

1. Cook J., Fuente D., Matichich M., Whittington D. (2020) A Global Assessment of Nontariff Customer Assistance Programs in Water Supply and Sanitation. In: Chen Z., Bowen W., Whittington D. (eds) *Development Studies in Regional Science. New Frontiers in Regional Science: Asian Perspectives*, vol 42. Springer, Singapore.  
[https://doi.org/10.1007/978-981-15-1435-7\\_17](https://doi.org/10.1007/978-981-15-1435-7_17)

A key strategy for adapting to changing water availability and rapid urbanization is a move toward full cost recovery tariffs for water and sanitation services. Because these services are substantially underpriced in most places, this strategy implies that careful attention must be directed at programs to help the poor manage water affordability. In this paper, we describe the types of “customer assistance programs” (CAPs) available and develop a typology that highlights the connection between CAPs and water scarcity. We then present a broad review of evaluations and case studies of CAPs from both industrialized countries and low- and middle-income countries (LMICs). Although several researchers have documented that increasing block tariffs are a poor targeting mechanism for directing subsidies to the poor, there are relatively few careful evaluations of “nontariff” CAPs, including subsidies to connect households to the network.

2. Komives, Kristin, Foster Vivien, Jonathan Halpern, and Quentin Wodon. “Water, Electricity and the Poor: Who Benefits from Utility Subsidies?” *SSRN Electronic Journal*, 2005.  
<https://doi.org/10.2139/ssrn.3355440>

Utility subsidies to consumers of water and electricity services are often justified as a mechanism for making services affordable for the poor. After all, an estimated 1.1 billion people in the developing world lack access to safe water; 2 billion are without electricity, and 2.4 billion without sanitation. But critics object that such subsidies can work against improving quality of service to existing consumers and extending access to unconnected households. Financially strapped utilities are often inefficient, provide low-quality services, and lag behind in expanding networks. During the 1990s, experts urged that water and electricity services should charge enough to fully cover costs. Households could spend 10–50 percent more on water and electricity without major effects on poverty levels, but in many countries much larger price increases are needed to recover costs. A substantial proportion of the population of lower income countries may find it difficult to pay the full cost of services.

3. Angel-Urdinola, Diego, and Quentin Wodon. "Do Utility Subsidies Reach the Poor? Framework and Evidence for Cape Verde, Sao Tome, and Rwanda." *Economics Bulletin* 9, no. 4 (2007): 1–7.  
<http://www.accessecon.com/pubs/EB/2007/Volume9/EB-06I30004A.pdf>

This article provides a simple framework to analyze the determinants of targeting performance of utility tariffs and applies it to data on electricity in Cape Verde, Rwanda, and Sao Tome and Principe. While most indicators of benefit incidence are silent as to why subsidies are targeted the way they are (they only give an idea as to whether they reach the poor or not and to what extent), we develop a simple decomposition that allows analyzing both "access" and "subsidy-design" factors that influence the targeting performance of subsidies. Our findings suggest that consumption subsidies for electricity in Cape Verde, Rwanda, and Sao Tome and Principe are regressive in large part due to access factors that prevent the poor from using the services. We then conduct simulations to quantify how much targeting performance could be enhanced by changing tariff-structures as well as subsidizing connections instead of consumption.

4. Vivien Foster, Subhrendu Pattanayak, and Linda Stalker Prokopy. "Do Current Water Subsidies Reach the Poor?" *Water Tariffs & Subsidies in South Asia*, April 2003, 1–10.  
<https://openknowledge.worldbank.org/handle/10986/17260>

Reform of the water and sanitation sector is occurring in many countries, and offers the potential to improve services to all. Of particular concern, however, is the situation of the poor, and reform must be designed so that they receive increased access to affordable services. A key issue in this regard is water pricing, which is one of the main variables affecting the distribution of benefits between different stakeholders. However, experience shows that water pricing, and the subsidies which are often delivered through water tariffs, can be a source of major inefficiencies in the sector. While affordability has been one of the prime concerns of those setting tariffs and designing subsidies, there may be significant flaws in many common pricing strategies and subsidy delivery mechanisms. Rather than providing affordable water to the poor, these may in fact be leading to financial unsustainability of utilities, lack of access to services, and inequity. The reform process provides the opportunity to rationalize and reconsider the design of tariff and subsidy structures, and seek new ones which may provide better results.

5. Andres, Luis A., Michael Thibert, Camilo Lombana Cordoba, Alexander V. Danilenko, George Joseph, and Christian Borja-Vega. *Doing More with Less: Smarter Subsidies for Water Supply and Sanitation*. World Bank, 2019.

<https://doi.org/10.1596/32277>

The United Nations' Sustainable Development Goals (SDGs) for 2030 represent a major shift in global ambitions for the quality and coverage of water supply and sanitation (WSS)<sup>1</sup> services. Almost two decades ago, the United Nations' Millennium Development Goals focused on halving the number of people living without access to improved WSS services by 2015.<sup>2</sup> Today, the SDGs envision all the world's people as having equitable access to safely managed water and sanitation services,<sup>3</sup> a more stringent technical standard, by the year 2030. In 2016 the World Bank estimated that it would cost the world's nations approximately \$100 billion a year in the period 2015–30 to attain this (Hutton and Varughese 2016). However high this estimate might sound, it does not even include the maintenance, repair, and replacement of existing infrastructure stock, or investment in climate-resilient infrastructure. These capital demands, coupled with sobering statistics on global rates of access to WSS services, underline a key fact: Securing the basic human rights of access to clean drinking water and sanitation depends on the effective and efficient use of scarce financial resources.

6. Abramovsky, Laura, Luis Andrés, George Joseph, Juan Pablo Rud, German Sember, and Michael Thibert. *Study of the Distributional Performance of Piped Water Consumption Subsidies in 10 Developing Countries*. Policy Research Working Papers. The World Bank, 2020.

<https://doi.org/10.1596/1813-9450-9245>

This paper provides new evidence on how effectively piped water consumption subsidies are targeting poor households in 10 low- and middle-income countries around the world. The results suggest that, in these countries, existing tariff structures fall short of recovering the costs of service provision, and the resulting subsidies largely fail to achieve their goal of improving the accessibility and affordability of piped water for poor households. Instead, the majority of subsidies in all 10 countries are captured by the richest households. This is in part because the most vulnerable population segments typically face challenges in accessing and connecting to piped water services. The paper also reveals shortcomings in the design of the subsidies, which are conditional on poor households being connected to a piped network.

7. Contreras, Dante, Andrés Gómez-Lobo, and Isidora Palma. "Revisiting the Distributional Impacts of Water Subsidy Policy in Chile: A Historical Analysis from 1998–2015." *Water Policy* 20, no. 6 (December 1, 2018): 1208–26.  
<https://doi.org/10.2166/wp.2018.073>

The distributional incidence of the Chilean water subsidy scheme is revisited by analyzing its evolution from 1998 to 2015. This is one of the only means-tested water subsidies in a developing country and is frequently used as an example in policy discussions and recommendations. Many changes have been introduced in the program since its inception and at least three different targeting instruments have been used to identify needy households in the last 20 years. We find that the incidence of the subsidy is progressive but moderate, with a Gini coefficient of close to 0.3. It has also remained stable between 1998 and 2015. The errors of inclusion and exclusion have also remained stubbornly high. These incidence results are surprising given the efforts made in the Chilean welfare system to target social benefits. Possible explanations for these results are given and compared to other developing country experiences.

8. Geissler, Kimberley H., Jeffrey Goldberg, and Sheila Leatherman. "Using Microfinance to Facilitate Household Investment in Sanitation in Rural Cambodia." *Health Policy and Planning* 31, no. 9 (November 1, 2016): 1193–99.  
<https://doi.org/10.1093/heapol/czw051>

Improved sanitation access is extremely low in rural Cambodia. Non-governmental organizations have helped build local supply side latrine markets to promote household latrine purchase and use, but households cite inability to pay as a key barrier to purchase. To examine the extent to which microfinance can be used to facilitate household investment in sanitation, we applied a two-pronged assessment: (1) to address the gap between interest in and use of microfinance, we conducted a pilot study to assess microfinance demand and feasibility of integration with a sanitation marketing program and (2) using a household survey (  $n = 935$ ) at latrine sales events in two rural provinces, we assessed attitudes about microfinance and financing for sanitation. We found substantial stated intent to use a microfinance institution (MFI) loan to purchase a latrine (27%). Five percent of current owners used an MFI loan for latrine purchase. Credit officers attended 159 events, with 4761 individuals attending. Actual loan applications were low, with 4% of sales events attendees applying for a loan immediately following the event (mean = 1.7 loans per event). Ongoing coordination was challenging, requiring management commitment from the sanitation marketing program and commitment to social responsibility from the MFI. Given the importance of improving sanitation coverage and concomitant health impacts, linking functional sanitation markets to already operational finance markets has the potential to give

individuals and households more financial flexibility. Further product research and better integration of private vendors and financing modalities are necessary to create a scalable microfinance option for sanitation markets.

9. Meera Mehta, Kameel Virjee, and Serah Njoroge. The World Bank Group A to Z 2016. The World Bank, 2007.

<https://doi.org/10.1596/978-1-4648-0484-7>

Small-scale providers of water services are no longer seen as merely temporary substitutes for formal utilities. In many developing countries governments and donors increasingly view them as long-term partners in the work to extend and improve water services, particularly as governments accelerate efforts to meet water targets associated with the Millennium Development Goals. But a host of problems complicate efforts to make small-scale providers productive partners, including their lack of access to finance. In Kenya, a collaborative program is bringing together community-based organizations and microlenders to provide better water services.

10. Hoehn, John P., and Douglas J. Krieger. "An Economic Analysis of Water and Wastewater Investments in Cairo, Egypt." *Evaluation Review* 24, no. 6 (December 1, 2000): 579–608.

<https://doi.org/10.1177/0193841X0002400602>

Nonmarket valuation methods have proved useful in planning and evaluating investments in water and wastewater infrastructure in developing countries. This study used contingent referendum methods to estimate household willingness to pay for each of four types of service improvements stemming from water and wastewater investments in Cairo, Egypt. An analysis of the net economic benefits of the investments concluded that benefits exceeded costs for all projects. Cost recovery was not assured with a fixed tariff. Willingness to pay for some households was less than the per household cost necessary for cost recovery. Cost recovery was also sensitive to whether tariffs were set for individual services or charged for a combined package of services.

11. Menard, Claude, George Clarke and Ana Maria Zuluaga (2001) 'The welfare effects of private sector participation in urban water supply in Ghana'. Development Research Group, World Bank: Washington.

<https://ideas.repec.org/p/wbk/wbrwps/2361.html>

In 1989 the government of Guinea enacted far-reaching reform of its water sector, which had been dominated by a poorly run public agency. The government signed a lease contract for operations and maintenance with a private operator, making a separate public enterprise responsible for ownership of assets and investment. Although based on a successful model that had operated in Cote d'Ivoire for nearly 30

years, the reform had many highly innovative features. It is being transplanted to several other developing countries, so the authors evaluate its successes and failures in the early years of reform. They present standard performance measures and results from a cost-benefit analysis to assess reform's net effect on various stakeholders in the sector. They conclude that, compared with what might have been expected under continued public ownership, reform benefited consumers, the government, and, to a lesser extent, the foreign owners or the private operator. Most sector performance indicators improved, but some problems remain. The three most troublesome areas are water that is unaccounted for (there are many illegal connections and the quality of infrastructure is poor), poor collection rates, and high prices. The weak institutional environment makes it difficult to improve collection rates, but the government could take some steps to correct the problem. To begin with, it could pay its own bills on time. Also, the legislature could authorize the collection of unpaid bills from private individuals.

12. Gómez-Lobo, Andrés, and Dante Contreras. "Water Subsidy Policies: A Comparison of the Chilean and Colombian Schemes." *The World Bank Economic Review* 17, no. 3 (December 1, 2003): 391–407.

<https://doi.org/10.1093/wber/lhg028>

Analysis of two water subsidy schemes—a means-tested subsidy in Chile and a geographically targeted subsidy in Colombia—shows that the means-tested system is better able to identify poor households than the geographically targeted scheme. However, the overall distributive impact of both schemes is quite similar, at least for the three lowest income deciles, because the amount of benefits per household in the geographically targeted Colombian scheme are differentiated by the socioeconomic classification of household. Despite the relative merits of the Chilean means-tested scheme, targeting errors are still quite large. More than 60 percent of subsidies accrue to households that are above the third decile of the income distribution. If the policy objective in Chile is to benefit a significant proportion of households in the lowest income deciles, then either the targeting mechanism must be improved or the number of subsidies has to increase to take into account these targeting imperfections. In Colombia almost all households receive some kind of benefit, implying an unnecessarily high fiscal cost. An improvement in the targeting mechanism could lower this cost without jeopardizing benefits to lower-income households. Some suggestions for additional research and for improving both schemes are discussed.

13. Whittington, Dale, Marc Jeuland, Kate Barker, and Yvonne Yuen. "Setting Priorities, Targeting Subsidies among Water, Sanitation, and Preventive Health Interventions in Developing Countries." *World Development* 40, no. 8 (August 1, 2012): 1546–68.  
<https://doi.org/10.1016/j.worlddev.2012.03.004>

The paper challenges the conventional wisdom that water and sanitation improvements and other preventive health interventions are always a wise economic investment. Costs and benefits are presented for six water, sanitation, and health programs—handwashing, sanitation, point-of-use filtration and chlorination, insecticide-treated bed nets, and cholera vaccination. Model parameters are specified for a range of conditions that are plausible for locations in developing countries. We find that the parameter values needed for such cost–benefit calculations are not available for setting global priorities. We reflect on the implications of our findings for more “evidence-based” planning of public health and development interventions.

14. Kelman, J. "Effective Subsidies in Developing Countries." *Water Science and Technology* 49, no. 7 (April 1, 2004): 55–59.  
<https://doi.org/10.2166/wst.2004.0415>

During the last decades, significant subsidies have been allocated to government-owned water and sewerage enterprises in developing countries. However, water and sewerage coverage are still far from desirable and the poor are particularly affected by the shortage of these services. The truth is that a considerable part of these subsidies have been used up to build huge infrastructure works that would make some construction firms happy, while often decreasing the service costs for the richer. The costs associated of delivering water and sanitation services to the poor are significantly higher, as they often live in slums or irregular urban developments without urban infrastructure. It is possible, and desirable, to improve government's effectiveness through the use of appropriate economic incentives. The Brazilian River Basin Pollution Abatement Program, based on the “output-based aid” concept, is a good example of how this can be achieved. The Program is a success story that shows that the quality of expenditures on sanitation can be considerably improved if governments of developing countries refrain from contracting sanitation infrastructure works and start paying for results, not for promises.

15. Angel-Urdinola, Diego F., and Quentin Wodon. "Does Increasing Access to Infrastructure Services Improve the Targeting Performance of Water Subsidies?" *Journal of International Development* 24, no. 1 (2012): 88–101.

<https://doi.org/10.1002/jid.1668>

There is ample evidence that utility subsidies imbedded in inverted block and other tariff structures are not well targeted to the poor, simply because the poor tend to have much lower access rates to water and electricity networks than richer households. This paper provides an analysis of the changes over time in the targeting performance of water consumption subsidies in Nicaragua. Because access rates to piped water increased substantially between 2001 and 2005, the targeting performance of consumption subsidies improved, despite the fact that the tariff structure remained essentially the same over time. It is shown that the observed changes in access rates had a much higher impact for improving the targeting performance of consumption subsidies than changes in the tariff structure could have had if they had been implemented. The results suggest that one of the best ways to improve the targeting of consumption subsidies may be to increase access rates, so that the poor have a better chance of receiving the subsidies.

16. Ahuja, Amrita, Michael Kremer, and Alix Peterson Zwane. "Providing Safe Water: Evidence from Randomized Evaluations." *Annual Review of Resource Economics* 2, no. 1 (October 2010): 237–56.

<https://doi.org/10.1146/annurev.resource.012809.103919>

This paper uses a public economics framework to review evidence from randomized trials on domestic water access and quality in developing countries and to assess the case for subsidies. Water treatment can cost-effectively reduce reported diarrhea. However, many consumers have low willingness to pay for cleaner water; few households purchase household water treatment under retail models. Free point-of-collection water treatment systems designed to make water treatment convenient and salient can generate take-up of approximately 60% at a projected cost as low as \$20 per year of life saved, comparable to vaccine costs. In contrast, the limited existing evidence suggests that many consumers value better access to water, but it does not yet demonstrate that better access improves health. The randomized impact evaluations reviewed have also generated methodological insights on a range of topics, including (a) the role of survey effects in health data collection, (b) methods to test for sunk-cost effects, (c) divergence in revealed preference and stated preference valuation measures, and (d) parameter estimation for structural policy simulations.

17. Olmstead, Sheila M. "The Economics of Managing Scarce Water Resources." *Review of Environmental Economics and Policy* 4, no. 2 (July 1, 2010): 179–98.  
<https://doi.org/10.1093/reep/req004>

This article surveys the literature on the economics of water scarcity and water demand. We examine demand estimation in diverted uses (urban, agricultural, and industrial), as well as the demand for instream uses such as recreation and habitat preservation. The article also assesses what is known about efficient water pricing, water allocation, and water trading within and across sectors. The literature examining the efficiency and distributional impacts of large water projects such as dams for irrigation and hydroelectric power is also discussed. Water conservation is examined from the perspective of efficiency and cost-effectiveness. We highlight water management issues to which economics has made important contributions, as well as areas where further research is needed.

18. Tsimpo, Clarence, and Quentin Wodon. "Targeting Performance of Piped Water Subsidies in Africa." In *Residential Piped Water in Uganda*, 75–87. World Bank Studies. The World Bank, 2018.  
[https://doi.org/10.1596/978-1-4648-0708-4\\_ch6](https://doi.org/10.1596/978-1-4648-0708-4_ch6)

Compares the targeting performance of piped water subsidies embedded in tariff structures in 18 countries, including Uganda, using a framework measuring both "access" and "subsidy design" factors affecting targeting performance. Uganda has the lowest targeting performance to the poor of its subsidies among all sample countries, because so few households in poverty connect to the country's water network. Overall, consumption subsidies for piped water appear very poorly targeted in African countries, because most poor households live in areas without any available service, and even when potential access exists, the equipment needed to use piped water may prove too high. Moving from traditional Inverted Block Tariff (IBT) to volume differentiated tariff (VDT) tariff structures, could lead to lower prices for poorer households' smaller consumption levels, which could help reduce subsidies allocated by governments to piped water consumption. Other alternatives might include providing connection as opposed to consumption subsidies.

19. Bernard Collignon. "Urban Water Supply Innovations in Côte d'Ivoire: How Cross-Subsidies Help the Poor." *Water and Sanitation Program*, August 2002.  
<http://documents1.worldbank.org/curated/en/472381468749780795/pdf/266290PAPE0English0Blue0Gold0no1011.pdf>

Many African water utilities have little capacity or motivation to invest in services for poor people. They concentrate their financial resources on maintaining the main

elements of their infrastructure and on daily running costs. In such a situation, investing in low-income areas such as small towns or peri-urban settlements is not a priority, and most of the programs serving them are externally funded through loans or grants from donors. The situation in Côte d'Ivoire is very different. The water services in small towns and peri-urban areas are much better than in its neighboring countries, while Abidjan, the largest city, has a high household connection rate and good service. The main reason is that the government provides strong policy guidance and a clear separation of the roles of the various organizations involved, while the water services themselves are managed by a private company (SODECI) that has the managerial and financial strength to implement the government's pro-poor aims. SODECI applies three mechanisms to help the poor: subsidized household connections (in effect a recognition of water as a social good), a rising block tariff, and licensed water resellers in informal settlements. The subsidy for the household connections comes from a surtax on water bills administered by a public-sector fund. This internal cross-subsidy avoids dependence on external funding sources, and can be maintained in the long term. The rising block tariff is another type of cross-subsidy from large consumers to small. Since the tariff is fixed across the country, it also boosts the finances, and hence the services, in the small towns from the stronger economic base of Abidjan. The licensing of resellers in informal settlements enables SODECI to exert an indirect influence on the cost and quality of service in such places, in which its own contract forbids it to work directly.

20. Tsimpo, Clarence, and Quentin Wodon. "Targeting Performance of Piped Water Subsidies in Africa." In *Residential Piped Water in Uganda*, 75–87. World Bank Studies. The World Bank, 2018.  
[https://doi.org/10.1596/978-1-4648-0708-4\\_ch6](https://doi.org/10.1596/978-1-4648-0708-4_ch6)

As shown in the previous chapter, piped water subsidies in Uganda are (or would be) very poorly targeted. How does Uganda compare to other Sub-Saharan countries? Using the same framework as in chapter 5, this chapter compares the targeting performance of piped water subsidies in 19 countries, including Uganda. The influence of access factors on targeting performance is such that the subsidies in the various countries tend to be poorly targeted in general. However, in no other country are they as poorly targeted as in Uganda. The chapter also considers the potential performance of connection subsidies under various scenarios—these subsidies would in all like

21. Luengo, Manuel, Sudeshna Banerjee, and Sarah Keener. *Provision of Water to The Poor in Africa : Experience with Water Standposts And the Informal Water Sector*. Policy Research Working Papers. The World Bank, 2010.

<https://doi.org/10.1596/1813-9450-5387>

Standpipes that dispense water from utilities are the most common alternatives to piped water connections for poor customers in the cities of Sub-Saharan Africa. Fifty-five percent of the unconnected urban population relies on standpipes as their first water source. Other informal water providers include household resellers and a variety of water tankers and vendors, which are the first water source of 1 percent and 3 percent of the urban population, respectively. In the cities studied, the percentage of unconnected households ranges from 12 percent to 86 percent of the population. The percentage of unconnected people covered by standpipes is substantially higher for countries with higher rates of household connection, while the percentage of unconnected people covered by water tankers or water vendors is higher for countries with lower rates of household connection. Water prices in the informal market are much higher than for households with private connections or yard taps. Although standpipes are heavily subsidized by utilities, the prices charged by standpipe operators are closely related to the informal water reseller price. Standpipe management models also affect the informal price of water. For example, the shift from utilities management to delegated management models without complementary regulation or consumer information has often led to declines in service levels and increased prices. Standpipes are not the only or even the most efficient solution in peri-urban areas. Programs that promote private household connections and arrangements that improve pricing and services in the household resale market should also be considered by policy makers.

22. Foster, Vivien, Andres Gomez, and Jonathan Halpern. "Designing Direct Subsidies for the Poor-A Water and Sanitation Case Study." *Viewpoint*, June 2000, 4.

<https://openknowledge.worldbank.org/handle/10986/11428>

Direct subsidies are an increasingly popular means of making infrastructure services more affordable to the poor. Under the direct subsidy approach, governments pay part of the water bill of poor households that meet certain eligibility criteria. This approach was first used in water sector reforms in Chile in the early 1990s and is an alternative to the traditional method in which governments pay subsidies directly to utilities, often allowing the price of water to fall below economic costs indiscriminately. This Note illustrates how simulation techniques can be used to inform the design of direct subsidy schemes, ensuring that they are both cost-effective and accurate in reaching the target population.

23. Vivien Foster, Andres Gomez-Lobo, and Jonathan Halpern. "Designing Direct Subsidies for Water and Sanitation Services Panama: A Case Study." *The World Bank*, May 2000. <https://openknowledge.worldbank.org/bitstream/handle/10986/21582/wps2344.pdf?sequence=1>

An alternative to traditional subsidies for water and sanitation services is direct subsidies – funds governments provide to cover part of the water bill for households that meet certain criteria. Issues associated with such a subsidy are analyzed through a case study in Panama.

24. Alzúa, María Laura, Habiba Djebbari, and Amy J. Pickering. "A Community-Based Program Promotes Sanitation." *Economic Development and Cultural Change* 68, no. 2 (January 1, 2020): 357–90. <https://doi.org/10.1086/701214>

Basic sanitation facilities are still lacking in large parts of the developing world, engendering serious environmental health risks. Interventions commonly deliver in-kind or cash subsidies to promote private toilet ownership. In this paper, we assess an intervention that provides information and behavioral incentives to encourage villagers in rural Mali to build and use basic latrines. Using an experimental research design and carefully measured indicators of use, we find a sizeable impact from this intervention: latrine ownership and use almost doubled in intervention villages, and open defecation (OD) was reduced by half. Our results partially attribute these effects to increased knowledge about cheap and locally available sanitation solutions. They are also associated with shifts in social norms governing sanitation. Taken together, our findings, unlike previous evidence from other contexts, suggest that a progressive approach that starts with ending OD and targets whole communities at a time can help meet the United Nations' 2015 Sustainable Development Goal of ending OD.

25. Saurí, David, and Xavier Garcia. "Non-Conventional Resources for the Coming Drought: The Development of Rainwater Harvesting Systems in a Mediterranean Suburban Area." *Water International* 45, no. 2 (February 17, 2020): 125–41. <https://doi.org/10.1080/02508060.2020.1725957>

The city of Sant Cugat del Vallès (Spain) has made mandatory the installation of rainwater harvesting systems in new housing units with large gardens but also has provided subsidies to households to build these systems on a voluntary basis. We conducted a survey of households in both groups (mandatory and voluntary) to explore the effectiveness of these different types of policies. We see many similarities between the two groups, especially concerning satisfaction with the systems, and with their perceived environmental and economic benefits. The main difference was the preferred size of rainwater tanks.

26. Grafton, R. Quentin, and John Williams. "Rent-Seeking Behaviour and Regulatory Capture in the Murray-Darling Basin, Australia." *International Journal of Water Resources Development* 36, no. 2–3 (March 3, 2020): 484–504.  
<https://doi.org/10.1080/07900627.2019.1674132>

Research examines water governance in the Murray-Darling Basin using the frameworks of rent-seeking and regulatory capture. These frameworks are used to evaluate two government programs intended to ensure an environmentally sustainable level of water diversions in the basin: targeted one-on-one purchases of water entitlements from designated sellers; and subsidies for irrigation infrastructure to increase irrigation efficiency. Deficiencies in delivering the stated environmental goals of both programs, and questions about their 'value for money', are highlighted. Specific recommendations are provided about how to mitigate both rent-seeking and regulatory capture of water reform initiatives in large river basins.