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POLICY BRIEF 2015

Rationalising peri-urban water supply in Can Tho, Vietnam

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Policy pointers

- **Peri-urban residents are often underserved with clean water because of institutional barriers to the expansion of the treated urban water networks.**
- **Despite having a unified administrative jurisdiction for both urban and rural areas, Can Tho City has created two different agencies – one to supply water in the built-up urban area, and the other in the less densely populated rural area.**
- **The technology, costs and water quality of the two suppliers differ substantially, so that their investments are incompatible.**
- **Policy decisions should clarify the respective roles of the two suppliers and simplify the process of transferring concession areas as the city expands and peri-urban population densities increase.**

The two water supply agencies in Can Tho City, Vietnam have contradictory interests when it comes to providing clean water to peri-urban residents. This impedes the provision of high quality treated water and makes water supply more costly. Despite the surplus capacity in the treated water distribution network, the different institutional structures of the two water suppliers do not facilitate a collaborative approach to planning. The city is growing rapidly and faces increasing pressure on the supply of water, which is also exacerbated by climate change. There is a strong argument for rationalising the water supply to improve the quality and availability of water for the growing urban population.

One city, two water suppliers

The City of Can Tho, with a population of about 1.2 million people, is located in the lower reaches of the Mekong Delta and serves as the commercial and administrative centre for the delta region in Vietnam. The Hau River branch of the Mekong flows along the edge of Can Tho and past the central business district of Ninh Kieu, so the city is well supplied with fresh water. However, most of the smaller canals have poor water quality due to the lack of wastewater treatment, limited sanitation and increasing agricultural and industrial pollution.[1] In addition, water quality is likely to be threatened in the future by salinisation due to sea level rises and changing hydrological conditions.

Almost one-third of the population within the city's total area of about 1,000 km^2 is rural, but this proportion is shrinking due to urbanisation and migration. Water supply differs in the urban and rural parts of the city (see Box 1). In the urbanisation process of the rural and peri-urban areas, the two water supply agencies continue to have contradictory policies and investment approaches that make it difficult to expand the urban water supply network as the city grows. At the same time, other sources of rural water supply are of such low quality that they appear to pose risks to human health.

The research team reviewed the administrative decisions related to water supply policies and practices at both the central and local levels, in order to identify gaps and conflicts in policy in the field water supply. They also

Box 1: Differences between the water supply agencies

In the urbanised districts of the city, domestic water is supplied by the Water Supply and Sanitation Company (WSC), which is a linked series of six related companies (five of which are majority- owned by the city) that serve different areas of the city. Each operates at least one treatment plant and a related distribution system. In the urbanised parts of the city, 70 per cent of the population receives their water from one of the WSC networks. Out of the entire population of the city, this means that about 45 per cent are served by the WSC. Total demand for water in the WSC system averages 141,000m^3/day.

In the rural areas, water supply in more densely populated areas is delivered by the Centre for Rural Water Supply (CRWS), which is a local government agency within the city's Department of Agriculture and Rural Development. The CRWS builds and operates small water stations, each typically providing 4–6 m^3/day, to serve a few dozen households with a small distribution system of 1–2 km.

In essence, the WSC is responsible for the extraction, treatment and distribution of treated, piped water in high pressure pipelines for residential, commercial and industrial services in built-up areas of the city. The CRWS is responsible for small-scale groundwater pumping, storage and low-pressure distribution systems for residential customers in rural areas.

conducted household surveys and interviews with officials from several local government departments, as well as the WSC. From these results, this policy brief offers recommendations for policymakers to consider in order to improve the effectiveness of the water supply in expanding peri-urban areas of Can Tho and in other cities in Vietnam.[2]

Peri-urban water supply falling behind. In the 10 years from 2004 to 2014, Can Tho City made outstanding efforts to improve the quality and quantity of its water supply, especially in rural areas where the water quality was poor. The CRWS now operates 439 water supply stations. However, as the urban population grows in Can Tho and the built-up areas of the city expand into surrounding agricultural lands, the expansion of high quality urban water supply services has lagged behind, leaving many peri-urban areas with lower quality water supply even though they are considered new urban zones. This deficit in peri-urban water supply is due partly to technical, financial and institutional barriers to extending the WSC distribution network in these areas.

Water quality is poorer, and not monitored, in the CRWS systems. The groundwater being supplied is not treated except by filtration. As a matter of policy, the water quality standard (national drinking water quality standard 2) for CRWS is lower than that applied to WSC (national drinking water quality standard 1). The differences have to do with the number and level of criteria measured, and the frequency of testing. While the WSC tests water quality in its distribution network on a daily basis as part of its business practice, the CRWS has insufficient budget to test each of its stations more frequently than annually. Although users complain about the quality of water from CRWS stations, local government leaders are generally not aware that this difference in quality exists.

The CRWS standard is not suitable for application in high density urban areas. The CRWS is planning to install costly treatment facilities, expand the size of its stations to overcome quality issues, and extend supply in high-density urban areas, but it is not clear how they will recover these costs.

Concession areas and criteria for service are inconsistent. Can Tho city established concession zones for each water supply agency in 2005 and modified these in 2011, but their boundaries overlap, and the provisions for expanding service into new areas as population changes and urban development takes place are contradictory. Each agency plans for its own expansion in relation to different financial requirements and technical limitations, and they do not share planning assumptions or coordinate investments, so CRWS may make plans to upgrade water stations even though WSC could expand in those areas.

Financial mechanisms are different. As a corporation, the WSC is able to borrow funds commercially or request capital from shareholders (mainly the city), and is self-funded from water tariff revenues. CRWS' capital expansion is funded by the national budget as part of the Ministry of Agriculture and Rural Development (MARD) rural water supply programme, which is partially supported by international donors. The city administers CRWS within its Department of Agriculture and Rural Development (DARD), but does not pay for it. Operating and maintenance costs for the water systems are funded by tariff revenues. So while the WSC has more flexible financial mechanisms, its capital comes either from shareholders or from loans, while from the city's perspective, the CRWS is funded by external sources, although these are limited.

Tariffs are different. WSC basic tariffs for residential service are 6,000 VND (approximately US$ 0.27) per m^3, and increase with consumption. Its tariffs are set by the city People's Committee, based on national guidelines, and include provision for subsidies to designated poor households. On the other hand, CRWS is constrained by national regulations which limit its tariff to 4,000 VND per m3. Part of this revenue goes to the landowner on whose property the rural water stations are installed, who generally also agrees to serve as the CRWS agent by collecting service fees and maintaining the system. This leaves CRWS unable to fund maintenance, water quality testing or treatment upgrades in its stations as the number of customers expands.

Technical standards are different. The different water supply systems have different technical standards that complicate any interconnection between the systems. This is because the WSC distributes fully treated water over long distances under high pressure, while the CRWS relies on small reservoir tanks and low pressure gravity distribution lines for its many small networks. The quality of water, pressure, metering, lines and fittings are all incompatible.

Mechanisms for transferring service are complicated and costly. There is no incentive for CRWS to release its service area to WSC. As the density of customers for CRWS increases, its unit costs go down. However, it cannot meet the higher quality standards or reliability of the WSC distribution network. When a CRWS service area is transferred to WSC, because its assets are owned by the state, Ministry of Finance regulations require that any private corporation acquiring these assets must pay for their full value. So WSC faces the financial burden of paying for assets it cannot use, and then paying for their removal, as well as paying for the extension of its own distribution network, before it can start to recoup its costs through water sales. Urban plans that designate specific peri-urban areas for development and densification do not appear to be used to allocate water service areas, so the result is that in some newly developing areas, water supply is from WSC, while in others it is from CRWS.

Neither organisation communicates with community users to plan service upgrades. Water users have complained about CRWS service quality, and many have disconnected their supply to rely instead on shallow wells. But community leaders and local ward or commune officials do not seem to be well-informed about the quality differences in the water supply, or the plans by both organisations to extend services. Water users appear to have even less information than community leaders, making it difficult for residents to plan for housing investments and upgrades in domestic services. Most peri-urban residents in areas served by CRWS have indicated they are willing to pay more for water in order to receive a higher quality supply, and some have also indicated a willingness to contribute labour or to pay connection charges to speed up the connection to urban services.

Policy recommendations

According to Can Tho's water supply plan, the city's target is to increase the percentage of households connected to a water supply system in 2020 to 95 per cent for urban areas and 80 per cent in rural areas.[3] But the policy is unclear about the quality standards that they seek to achieve in water distribution. Because there are known water quality issues with surface water and groundwater in the area, the only options for high quality urban water supply require costly treatment and regular quality testing. However, the CRWS was never intended to provide services of this standard, and is not equipped financially or technically to do so. It was intended to provide basic rural water supply at low cost, and for this it has been successful at improving rural water supply in Can Tho.

As the city expands and high density urban development takes place in peri-urban areas, or in satellite suburban centres, currently served by the CRWS, provisions should be made to simplify the transfer of this service to WSC, which is better positioned technically and financially to meet the higher quality needs of urban water supply. Recommended measures include the following:

Can Tho City People's Committee should make a policy decision on the roles of CRWS and WSC in providing water to rural and urban areas of the city based on their comparative financial and technical capacities and their legal mandates, and provide guidance on the criteria for each organisation to provide water services in different areas.

Can Tho City People's Committee, with support from the city's DARD and Department of Construction (DoC), should negotiate with the national Ministry of Finance and MARD to simplify the upgrading of service areas from CRWS to WSC, including appropriate depreciation rates on capital assets and recognition of their limited value for urban water supply. These discussions should be based on a shared recognition that rural water supply systems are not suitable in the longer term for sub-urban use, that climate change poses an incremental threat to water supply that should be addressed through service upgrades, and that both organisations should agree on the need to support upgrades to water supply to facilitate urbanisation and poverty reduction.

DARD, DoC, CRWS and WSC, together with district level officials, should apply the different service criteria for the two water suppliers and use approved urban plans as a guideline in order to identify a shared long-term strategy for service area expansion for both WSC and CRWS. This should include specific areas where services will be transferred from CRWS to WSC over the next 10 to 15 years. This strategy should be submitted to the People's Committee for approval as a revised water supply plan.

The WSC should explore whether the existing storage and distribution assets of peri-urban CRWS water stations might be upgraded at low cost, to allow the distribution of treated water from the WSC mains in areas where the CRWS system has been transferred to WSC. As an interim measure, this would allow for improved water quality and build WSC revenues until population densities and construction schedules allow for the completion of new residential service lines. With programmes of community consultation and engagement, WSC could also develop construction options that incorporate community contributions of labour, or provide credits to residential users in exchange for construction labour to reduce direct costs of service expansion. In any case, WSC should engage local residents and commune level officials in transitional service areas to ensure adequate information is provided about water quality, service plans and financing options.

The Ministry of Agriculture and Rural Development should make a policy decision on how to fund CRWS in order for it to meet the role determined by the city People's Committee. In the current situation, state subsidies are too low to enable the CRWS to even meet national water quality standard 2 (including water quality testing provisions), so either subsidies will need to be increased or limitations on tariffs will need to be lifted, in order that CRWS can fund improved water quality and testing as well as system expansion.

Taken together, these measures would provide the needed operational flexibility to the CRWSS, allowing it to improve service quality in rural areas where there are no practical alternative sources of supply, but also to more easily transfer systems and service areas to WSC in peri-urban areas, where higher quality, more costly urban piped water distribution is preferred.

Notes

1. Sen, LS (2013) Technical Report No. 2: Additional Study on Water Pollution and Water Supply. Report prepared for Rockefeller Foundation under project 2011 CAC311, *Enhancing Can Tho City Resilience to Saline Intrusion caused by Climate Change*, Can Tho Department of Natural Resources and Environment.
2. Huy, NN, Phong TVG and Tyler S (2015) Institutional Challenges for Peri-Urban Water Supply in Can Tho, *ACCCRN working paper no. 28*, IIED.
3. Decision No. 279 / QD-Committee on 09 01 2015 of the People's Committee of Can Tho City.

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