WSUP
Water & Sanitation for the Urban Poor

PRACTICE NOTE

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Financing communal toilets: the Tchemulane project in Maputo

In high-density low-income communities, communal toilets serving small groups of families can be an effective sanitation solution. The big challenge is to achieve regular payments from users, and effective community management of this revenue.

Tchemulane communal facility

Why communal toilets?

In the poorest districts of Maputo (Mozambique), many families live in rented single-room dwellings grouped into compounds. Each compound typically has one or more communal latrines, generally of very poor quality, and often draining to open pits. In communities of this type, the WSUP-supported Tchemulane programme is financing the installation of improved services comprising toilets, showers and laundry stands, each serving 15 - 60 households.

Achieving financial sustainability

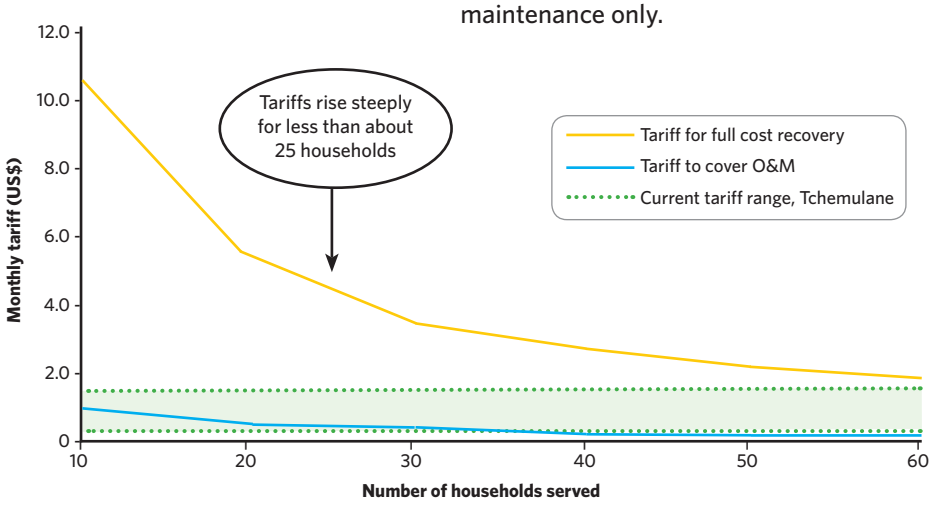
This work, carried out in conjunction with municipal/community-level capacity development and citywide sanitation planning, aims to demonstrate the viability of properly managed communal facilities for water and sanitation service provision. The long-term goal is to minimise dependence on donor funding.

Capital costs

All Tchemulane facilities installed to date have been on land provided free by the municipality, which has also waived construction permit charges. But scalability will require municipal and/or national government to take at least partial responsibility for construction costs (around US$4400–6400 per facility)

Cost recovery

Tchemulane supports communal toilets only if a user group is set up to collect a monthly tariff from households. The diagram below shows per-household tariffs that would be required for full cost recovery (details overleaf), and for operation and maintenance only.



As can be seen, tariffs currently being paid are rather low, reflecting the fact that each user group was allowed to set its tariff: in future, tariffs should perhaps be set by the municipality, taking into account affordability and revenue requirements. Cleaning is done by the householders on a rota basis: this is currently functioning well, but ongoing community liaison will be necessary to ensure sustainability.

Maputo business model more details

To date, the Tchemulane programme has supported installation of communal services in 5 compounds in the district of Chamanculo C, and more are being financed in Chamanculo C, Xipamanine and Mafalala. Each facility has 2 or 4 toilets, 2 or 4 showers, 1 or 2 laundry stands, a standpipe with raised 1500-litre water tank, and a septic tank with leach pit. Based on data for 4 of the 5 Chamanculo C facilities (excluding the first which went significantly over budget), construction cost in 2010 was US$ 4400 for the two 2-toilet 2-shower blocks (serving 45 and 75 users, so per-capita cost US$ 60–99), and US$ 6400 for the two 4-toilet 4-shower blocks (serving 169 and 177 users, so per-capita cost US$ 36–38). [Though note that per-capita costs based on *design capacities* differ little between the 2- and 4-seater facilties.]

1) Capital costs	US$
1a) Land cost[1]	0
1b) Construction cost	4400 or 6400
1c) "Soft" costs (design, management, community liaison)	2200 or 3200
Total capital cost	6600 or 9600
2) Annual maintainance (O&M) costs	**Mean (range) (US$)**
2a) Structural repairs	9 (6–10)
2b) Repainting	17 (10–20)
2c) Desludging (annualised cost; expected every 2-5 years)	66 (35–88)
Total predicted annual O&M cost	91 (51–100)
3) Annual revenues	
3a) Household tariffs, paid monthly to user association[2]	227 (49–618)
3b) Revenue from water sales	306 (230–394)
Surplus (tariff revenue minus O&M)[3]	445 (254–770)

1 *All land is government-owned in Mozambique, and authorisation to construct was granted by the municipality, with no lease fee; construction permit charges (in Maputo US$18) were also waived.*

2 *The wide variation in revenue reflects variation in both number of households served (14-49) and tariff collected (US$ 0.30-1.50, about 0.4-2% of average household income in these communities, though a higher percentage for the poorest households). The tariff variation is because user groups were allowed to choose the amount they wanted to pay.*

3 *This estimate of surplus revenue does not include water resale revenues, which are currently retained by the self-employed kiosk operator (not the user group); retention by the user group and employment of a kiosk operator would probably not make sense in this particular case, because revenues are lower than the wage required (about $790 per year); but note that the kiosk component provides other benefits, notably water for toilet cleaning and handwashing.*

Scale-up in Maputo, wider applicability elsewhere

For sustainable scale-up, it is important to aim for local financing or part-financing of the capital investment, and realistic user tariffs to cover at least O&M. A sustainable donor-independent model for Maputo might be as follows: 50% of the capital cost is covered by subsidy from national and/or municipal government, and the remaining 50% by a concessionary loan to the municipality, from an international financing institution or similar.

Given various assumptions (including that each facility serves 130 people; that around 220,000 of Maputo's 1.9 million population would be best served by this sanitation solution; and thus that a total of 1,685 facilities would be required), city-wide adoption would require a one-off subsidy of US$ 7 million and a loan likewise of US$ 7 million. Under this model, we estimate that coverage of O&M costs, debt servicing and capital replacement costs (CapManEx) would require a higher average household tariff than is currently being collected (around US$ 3.40 per household per month, versus current US$ 0.30–1.50). Alternatively, some or all debt servicing and CapManEx could be covered through a city-wide surcharge on water bills. Coverage of O&M alone would require an average tariff of only US$ 0.33 per household per month, though as noted overleaf the required tariff would rise for facilities serving less than about 25 households. *[These are indicative calculations based on initial data.]*

WSUP believes that communal sanitation models of this type are widely applicable in high-density low-income communities. For more detailed discussion of communal and public toilets (when are they an appropriate solution? how can their design and management be optimised? how can they be financed?), see the WSUP Topic Brief "*When are communal or public toilets an appropriate option?*", available for download from the WSUP website.

Credits: *This Practice Note was researched and written by Francisco Chirrute, Guy Norman and Sam Parker, with important review inputs from Ken Caplan, Sue Cavill, Alan Etherington, Alison Parker, Patricia Schelle and Kevin Tayler. Coordination: Gemma Bastin. Design: AlexMusson.com. Version 1, February 2011.*