

FINANCIAL EVALUATION OF BASIC URBAN SERVICES IN SIX SINDH TALUKAS

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INTRODUCTION

Municipal services in developing countries are not usually regarded to be of a commercial nature. This has been traditionally the approach in small towns of Sindh. Nevertheless this financial evaluation of urban services in six Sindh urban areas has been undertaken by employing the technique of financial internal rate of return which is usually applicable to commercial projects. Our aim is to ensure that basic urban service sub-projects should not be financially so weak that even their current operational and maintenance expenses are not covered from the total yield of the various user charges payable by the beneficiaries on a monthly, quarterly or annual basis.

URBAN SERVICE PROGRAMME

The Basic Urban Services programme covers certain selected talukas in Sindh. These services consist of drinking water, sanitation facilities and solid waste management infrastructure. The total capital cost in March 2006 prices adds up to Rs. 3.82 billion. The capital costs are spread over 5 years. The project goes into operation from the sixth year onwards. The cut-off period occurs in the 25th year of the project life.

The revenue stream being linked to the willingness to pay (WTP) approach works out to Rs. 222 million in the first year of operations. As more and more households become connected with the municipal supplies system the revenue collections grow until

full coverage is attained. The revenue stream is allowed to increase at 5-year intervals, and it goes up to Rs. 406 million in year 25.

The annual operation and maintenance cost of the project also increases over time with expansion in services coverage as well in step with price increase allowed to be incorporated at 5-year intervals. The operating and maintenance cost stands at Rs. 102 million in year 6 and gradually rises to Rs. 211 million in the terminal year.

The costs and benefits streams have been summed up after working out their present values on the basis of different discount rates. That is, the present value of the municipal program has been worked out at different discount rates so as to arrive at one positive net present value and one negative present value. By geometrical interpolation of the positive and negative net present values, we have estimated the financial internal rate of return. In other words, the financial internal rate of return is that rate of discount (interest) at which the net present value of the investment project becomes zero. That is, the financial internal rate of return is the maximum rate of interest which the investment project can pay and register no loss.

Revenue assessment are based on willingness to pay estimates. The modal level of user charges which customers are expected to be willing to pay are given in Table 1.

Table 1. Modal WTP Charges

<u>Water Rate</u>		
One – time Connection Charges	:	Rs. 1000
Recurring Annual Payment	:	Rs 1200
<u>Sewerage & Drainage Rate</u>		
One – time Connection Charge	:	Rs. 1000
Recurring Annual Payment	:	Rs. 600
<u>Solid Waste Management Fees</u>		
Recurring Annual Charge	:	Rs. 600

Tables 2 to 4 present internal rates of return estimations under three scenarios.

Table – 2: Summary Table of Financial Internal Rates of Return

TMAS	WATER SUPPLY	SEWERAGE & DRAINAGE	SOLID WASTE WASTE	ALL SUB- PROJECTS
BADIN	0.03	0	6	1
DADU	4	-2	6	2
KHAIRPUR	2	-1	5	3
MATHI	-16	-7	-12	-4
N. FEROZE	3	1	6	2.6
SAGHAR	-20	-8	-9	-11

Table – 3
Summary Table of Financial Internal Rates of Return
PROSPECTIVE CASE

TMAS	WATER SUPPLY	SEWERAGE & DRAINAGE	SOLID WASTE	ALL SUB- PROJECTS
BADIN	5	4	11	7
DADU	8	3	12	6.9
KHAIRPUR	7	4	10	7
MATHI	-10	-6	-8	-1
N. FEROZE	7	5	11	7
SAGHAR	-7.6	-6	-4	-6

Table – 4
Summary Table of Financial Internal Rates of Return
VISIONARY CASE

TMAS	WATER SUPPLY	SEWERAGE & DRAINAGE	SOLID WASTE	ALL SUB- PROJECTS
BADIN	8.7	8	15	9
DADU	12	6	16	10.7
KHAIRPUR	11	9	14	11
MATHI	-5	-5	-5	0
N. FEROZE	11	8	15	11
SAGHAR	9	0	7	5

Modal WTP rates presented in Table 1 pertain to average households who were interviewed by the survey team of an NGO. The other beneficiaries of the municipal services in question are shops, business offices, industrial enterprises, NGOs, local government agencies etc. We have added 10% of the three user charges receivable from the household as the revenue obtainable from the other users of basic urban services in the selected six TMAs of Sindh.

The capital cost estimates are based on prices prevailing in March 2006. The base cost includes all financial costs less interest during the construction period plus the forecast physical and price contingencies. The project implementation period extends to 5 years and the time horizon has been taken as 25 years. The tariff structure in the base case reflects WTP figures as obtained from the socio-economic survey done by an N.G.O. We have further adopted the rule that both O & M cost and tariff would be adjusted upward to the extent of 25% to allow for inflation of the preceding years. This approach can be defended from the universal practice of changing the base year by nominal GDP projections every five years which has also been adopted in Pakistan. We have, therefore, increased both O & M cost and the tariff by 25% after every five years. As the project life has been put at 25 years (which is short with respect to municipal infrastructure) so we have adopted Salvage Value at 25% of

the initial total capital cost and added the same as revenue in the terminal year of the analysis.

The adoption of WTP tariff is reflected in the base case scenario (Table 2). The FIRR for all sub-projects in the six TMAs turn out very low. In some TMAs they are below 5 percent while they are below zero in the others (Table 2). This implies that beneficiaries are unwilling to pay the initial investment outlays even if the funds are provided as interest free loan. An encouraging finding, however, is that the annual user charges do not fall short of the annual O & M cost. That is, the sub-projects can be financed from grants from the Government of Sindh. Incidentally, this is also the present practice in Pakistan. The provincial and federal governments provide grants for all the local government projects included in the ADP/PSDP. That is, the local government, the TMAs in Sindh, have to adopt financial policies and procedures so that the level of municipal services once developed are sustained in the future through the imposition of reasonably low tariffs.

We are of the view that the WTP approach is not tenable in those towns where the citizens are averse to taxation. The economic value of municipal services must be enhanced over time as represented by the tariff. Using this rationale, we have developed the “prospective case” which raises the tariff by 50% (Table 3). All other premises as adopted in the Base Case remain unchanged. This case yields FIRRs for most of the sub-projects greater than zero with the exception of Mathi-Islamabad and Sanghar where the FIRRs came to (-) 1% and -6% respectively. This means that enhanced user charges would not only recover the O & M cost but they would be sufficient to repay the loan together with a nominal interest charge of 2-3 percent per annum. This conclusion applies to most of the 18 sub-projects in the six TMAs. The level of tariff employed in the Prospective Case may not be considered as high. If we take the annual family income on the average as Rs. 36,000 in the TMAs under study, the municipal service charges would not exceed 10% of this disposable income. Therefore this level of user charges for municipal services should be considered as reasonable for the poorest segment of the society in Sindh. Therefore the sub-projects showing positive FIRRs should be taken as financially sound in the backward towns of Sindh.

Finally, we have developed the “Visionary Case”. In this Case, we have doubled the WTP tariff (Table 4). Under this strategy, the financial status of all sub-projects included in the study register substantial improvement. This FIRRs range from 5% to 11% with the exception of TMA Mathi – Islamabad where the FIRR stands at zero. The weighted average cost of capital (WACC) for municipal projects probably fall below 5% in Pakistan. The 1.5% ADR plus transaction cost of 2.5% adds up to 4% which can be taken as a proxy of WACC for poverty reducing projects in Pakistan. The level of FIRRs with the exception of TMA Mathi – Islamabad are significantly in excess of WACC. Accordingly all the 18 sub-projects in the six TMAs under study exhibit reasonable FIRRs under the Visionary Case which are also in the proximity of opportunity cost of capital in Pakistan.

The “Visionary Case” should not be rejected on the ground of equity. For family income in the subject TMAs is expected to go up in real terms by over 50% by the year 2015. On this basis, the average family income in urban areas would go up to Rs. 54,000. In such circumstances, the municipal services

tariff would still remain below 10% of disposable

income which should be acceptable to the beneficiaries.

The above financial evaluations have been subjected to standard sensitivity tests. The FIRR's are sensitive even to a modest change in capital costs, say, 5% escalation or time-over run of 2 years. If we adopt the strictest approach of raising the capital and / or O & M costs at the same time and reducing the tariff level or increasing the default ratio, the financial standing of the projects would be drastically down – graded. The bottom line of this study is that projects providing semi-public goods which are also supplied by local government agencies must be accepted or rejected on the basis of their economic cost-benefit analysis and not for their financial status because basic urban services are subsidized in the medium term all over the developing world.

Annex Table 1
Financial Internal Rate of Return
Basic Urban Services
Household, Commercial, Industrial & Other Urban Users
Net Operating Revenues of all six Programs
Pak Rupees (Millions)
Base Case

Year	Capital Cost	O & M Cost	Total Cost	Operating Revenue	Net Operating Revenue
2008	235		235		-235
2009	470		470		-470
2010	947		947		-947
2011	947		947		-947
2012	1225		1225		-1225
2013		108	108	222	114
2014		108	108	292	184
2015		108	108	366	258
2016		108	108	208	100
2017		108	108	208	100
2018		135	135	259	124
2019		135	135	259	124
2020		135	135	259	124
2021		135	135	259	124
2022		135	135	259	124
2023		168	168	324	156
2024		168	168	324	156
2025		168	168	324	156
2026		168	168	324	156
2027		168	168	324	156

2028	211	211	406	195
2029	211	211	406	195
2030	211	211	406	195
2031	211	211	406	195
2032	211	211	1494	1283
			FIRR	0.7%

Annex Table 2
Financial Internal Rate of Return
Basic Urban Services
Household, Commercial, Industrial & Other Urban Users
Net Operating Revenues of all six Programs
Pak Rupees (Millions)
Perspective Case

Year	Capital Cost	O & M Cost	Total Cost	Operating Revenue	Net Operating Revenue
2008	235		235		-235
2009	470		470		-470
2010	947		947		-947
2011	947		947		-947
2012	1225		1225		-1225
2013		108	108	332	224
2014		108	108	437	329
2015		108	108	548	440
2016		108	108	312	204
2017		108	108	312	204
2018		135	135	390	255
2019		135	135	403	268
2020		135	135	403	268
2021		135	135	403	268
2022		135	135	418	283
2023		168	168	487	319
2024		168	168	487	319
2025		168	168	487	319
2026		168	168	487	319
2027		168	168	524	356
2028		211	211	609	398
2029		211	211	609	398
2030		211	211	609	398
2031		211	211	609	398
2032		211	211	1697	1486

FIRR 5.3%

Annex Table 3
Financial Internal Rate of Return
Basic Urban Services
Household, Commercial, Industrial & Other Urban Users
Net Operating Revenues of all six Programs
Pak Rupees (Millions)
Visionary Case

Year	Capital Cost	O & M Cost	Total Cost	Operating Revenue	Net Operating Revenue
2008	235		235		-235
2009	470		470		-470
2010	947		947		-947
2011	947		947		-947
2012	1225		1225		-1225
2013		108	108	452	344
2014		108	108	598	490
2015		108	108	746	638
2016		108	108	432	324
2017		108	108	432	324
2018		135	135	540	405
2019		135	135	540	405
2020		135	135	540	405
2021		135	135	540	405
2022		135	135	540	405
2023		168	168	675	507
2024		168	168	675	507
2025		168	168	675	507
2026		168	168	675	507
2027		168	168	675	507
2028		211	211	845	634
2029		211	211	845	634
2030		211	211	845	634
2031		211	211	845	634
2032		211	211	1933	1722
				FIRR	9.2%

