

Life Cycle Costing Approach as a tool to advise Community Owned Water Supply Organization on appropriate tariff

Case study from Karatu Tanzania



Fig 4: TREND OF MONTHLY SAVINGS WITH THE CURRENT TARRIFO OF TZS 50 PER 20 LITRES BUCKET



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Best practices in Conflict Areas

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Biography and Theme Introduction

- Harold Msanya has six years managing programs with Catholic Relief Services and ten years managing community based programs with World Vision –Tanzania. He holds a Bachelor degree in Civil Engineering. He is currently serves ECHO East Africa as Innovation Coordinator, managing an International Design Innovation Network project.
- His presentation describes a way to overcome water scarcity challenges and conflicts.

Objective of the session

Water is a scarce asset that can cause conflict between various users, for example farmers and pastoralists, downstream and upstream users. One of the contributing factor is setting of unrealistic tariffs leading to a declined level of service. As a result water users fight among themselves. The session describes a way to overcome these challenges

Life-Cycle Cost Approach (LCCA) is a method for assessing the total **cost** of facility ownership. It takes into account all **costs** of acquiring, owning and sustaining the facility not in few years but for many years. It considers many variables such as inflations etc. *By International Water and Sanitation Center*

For example for the case of Water Supply Systems LCCA analyses the following costs

Six types of costs

By International Water and Sanitation Center (IRC)

- 1. Capital costs:** refers to all costs invested to the project at the beginning. Pipes, pumps, paying technicians and training of management committee on operation and management of the system
- 2. Operation and maintenance costs:** this refers to day to day operation costs; paying staff, paying bills, board meetings, transport, minor replacement of system parts

- 3. Capital Maintenance costs:** Costs needed to replace major parts of the water supply system so as to maintain or improve level of service. For example replacing the pump or old pipes after reaching its life time; expansion of the water supply system to the new settlements
- 4. Direct Support costs:** Costs incurred by other stakeholders to support the project directly. For example the support that is given by the district teams to support the project—coming frequently to monitor the project

5. Indirect Support costs: costs done not so directly but they have impact on the water supply system. For example costs incurred to prepare or review water policies and associated by laws. The policies and by-laws are enabling environment for the projects to function sustainably.

6. Repayment of Loan: the project might take loan from the financial institution to support its operations or expansions. Such costs should be considered and repayment made so that the service delivery of the system can be sustainable

How to determine the tariff using LCCA as a tool?

- Collect necessary data
 - Operation of the system
 - Eg fuel, pumping time, quantity of water pumped
 - Financial records
 - Eg how much is collected and expenses
 - Service delivery
 - Eg how do users feel about level of service



- Collect data related to the infrastructures
Eg. When was it constructed, costs during the construction, lifetime of the major components, designing life of the system, existing technical capacity
- Collect information about management and governance of system
Eg. How is it managed? Water committee or board?
Is it registered?
- Other relevant information

Analyze the data collected to generate information

- Basic information to show picture of the existing situation
- Conduct meeting of stakeholders to discuss with them about the situation you have seen in their water system.

- **Meeting with stakeholders**
 - Discuss meaning of LCCA in their local language
 - identify various types of costs related to their water supply system



Develop excel sheet templates and simple graphs to show trends of the information they provide

Capital Expenditure Costs:	172,319,651	-											
Operation and maintenance Expenditure costs (Tsh per year)	31,530,000	33,106,500	34,761,825	36,499,916	38,324,912	40,241,158	42,253,216	44,365,876	46,584,170	48,913,379	51,359,048	53,927,000	56,623,350
Capital Maintenance costs: (Tsh per year)										66,707,113			
Direct Support costs (Tsh per year)													
		-	-	-	-	-	-	-	-	-	-	-	-
Indirect Support costs:													
		-	-	-	-	-	-	-	-	-	-	-	-
Total Recuring Expenditures (TZS)	31,530,000	33,106,500	34,761,825	36,499,916	38,324,912	40,241,158	42,253,216	44,365,876	46,584,170	115,620,492	51,359,048	53,927,000	56,623,350
Total Revenue (TZS)	48,750,000	48,750,000	48,750,000	48,750,000	48,750,000	60,937,500	60,937,500	60,937,500	60,937,500	60,937,500	76,171,875	76,171,875	76,171,875
Difference btw Revenue and Expenditure	17,220,000	15,643,500	13,988,175	12,250,084	10,425,088	20,696,342	18,684,284	16,571,624	14,353,330	(54,682,992)	24,812,827	22,244,875	19,548,525
Savings	17,220,000	32,863,500	46,851,675	59,101,759	69,526,847	90,223,189	108,907,473	125,479,097	139,832,427	85,149,435	109,962,262	132,207,138	151,755,663

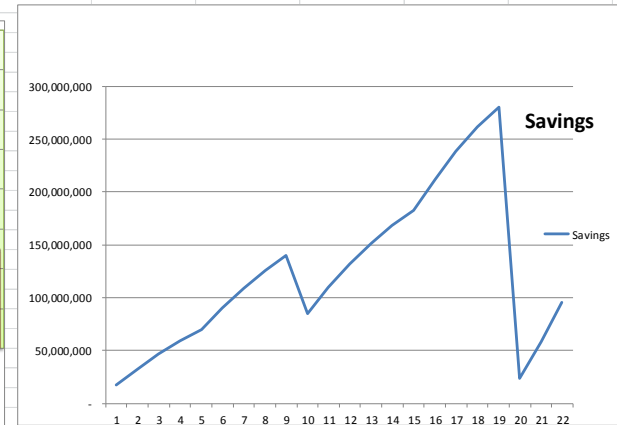
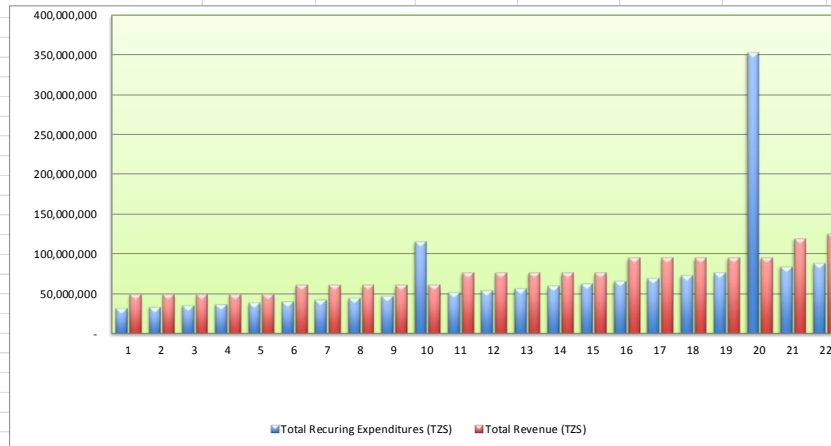
Cost of 1 bucket of water

TZS
50

0

Enter the price of water on the yellow box and see the behavior of graphs below

Comparison of Annual Revenue and Expenditures



- Let members tell their existing tariff and use graphs to show how it affects the future of the project. Let them continue until they reach consensus about the level of tariff they want.
- Then conduct general Assembly meeting of water users and let the users know about the new tariff and why it is important to be at that level. Use vivid examples to show them that the tariff is affordable and it is not as high as they can quickly conclude. For example for karatu case we realized that the cost of one bottle of beer was Tsh 1500. This amount can buy water for a family of 5 people for six days. Let them discuss until they agree.
- If they will agree let them decide the effective date of Implementation of the new tariff
- Conduct Monitoring visit to check their progress and advise them

Results of Karatu case:

- **Result 1: For the first six months BASHAWASU generated saving of TZS 5.8 millions**

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- **Result 2: Increased sense of ownership and start thinking of alternative source of power**

The board members have started to discuss with the District Council for the support to connect their pumping system with electric grid. This was possible because of good relationship resulted from reports they submit to the district which shows good performance. They are intending to use the diesel generator as back-up—the idea which would not come out easily if they were making loss.

- **Result 3: Communities confirmed that the level of service has been improved**

Different from the previous time, Water is available and individuals can access this service at most of the time . Users have now started to realize that with this trend, it is possible to allow private connections to the individuals who need and also to increase public water points

- **Result 4: The board members are motivated with results and are more committed**

As a result of what is happening the board members are motivated . No conflicts among them. They have set good example in the entire district of karatu



Above: Picture showing board members at the pump house May 10, 2015

Conclusion

Setting of proper tariff can improve level of service (quantity, accessibility, quality and reliability) of a Water Supply Organization. Improved level of service will lead to sustainable service delivery as well as keeping the organization from falling into unnecessary conflicts

References

- International Water and Sanitation Center
WASHcosts website at: www.washcost.info/pubs
- Karatu District council
- Catholic Relief Services, Tanzania
- Catholic Diocese of Mbulu, Tanzania
- ECHO East Africa Impact Center:
www.echocommunity.org