

## Costs and services of water in humanitarian context Results of a study conducted in two refugee camps

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In 2014, the UN Refugee Agency (UNHCR) and IRC have started a collaboration to pilot the life-cycle cost approach in the context of refugee camps.

The collaboration consisted in adapting the methodology to understand capital investment and the costs of ongoing operation and maintenance of water systems in refugee camps - both in emergency and post-emergency situations.

Life-cycle cost approach methodology has been adapted to the refugee context and tested in two camps: Bambasi in Ethiopia and Kounoungou in Chad.

**The theory**  
The life-cycle cost methodology has been adapted to understand the financial resources required to provide specific service levels.

It was important to understand not only the costs of minor and capital maintenance, but also the costs of the support required for administration, management, monitoring and reporting functions endorsed by international agencies.

**Reality check**  
Two refugee camps (Bambasi in Ethiopia and Kounoungou in Chad) have provided the reality check for the methodology. UNHCR and IRC have tried to answer the following questions:

- What does it cost to provide a water service in a camp (per person and per cubic meters)?
- What level of service is provided?
- Is the information needed easily compiled for future analysis?

With the methodology it is possible to understand: the cost magnitude, the cost structure and the cost drivers against the level of service that refugees are receiving

**Key findings**  
There are differences reported in monitoring systems and the observed costs and service levels.

Discrepancies include determining the actual volume of water used and the actual number of the refugee population for a given year.

<sup>1</sup> Based on the work of Pezon, C., Bostoen, K. Carrasco, M. and Jacimovic, R., 2015. Costing water services in refugee camps. Camp Bambasi, Ethiopia, and Camp Kounoungou, Chad. The Hague: IRC. Geneva: UNHCR.

**The Life Cycle Cost Approach**  
The Life Cycle Cost Approach (LCCA) developed by IRC and partners provides the methods and tools required to evaluate the costs of water and sanitation services and use that information to improve cost effective and equitable service delivery. This study initiated by UNHCR applies the methodology to the emergency context and in particular to refugee settlements.

The approach consists of calculating the costs of providing a certain level of water service in a given area to a number of users. Costs are built up from historical financial expenditures on initial investment and recurrent activities such as operation and maintenance (O&M) of water systems and support to the water service provider.

The levels of service are defined and scored against the prevailing national or local norms and standards for a service and can include scoring against other standards used in the emergency context such as Sphere.

Indicators of the service levels such as quantity and quality of water, and accessibility and reliability of service apply to most lower and middle income countries, and thresholds vary according to the types of technology and settlement.

Based on the observed number of users, the capital investment is one third (Bambasi) to three times (Kounoungou) higher than if the per capita investment is based on the reported population. Recurrent costs per capita observed are also higher than those reported.

Combining service levels and unit costs shows that refugees in Kounoungou receive on average a better and cheaper water service than in Bambasi.

Compared with regular rural settlements in Africa, the costs are generally higher but the actual levels of service provided in the two camps is also higher when compared with regular settlements in Africa. The water quality, quantity, access and reliability are generally good.

Comparing the unit cost for two refugee camps with regular rural settlements in Africa

	Camp Bambasi	Camp Kounoungou	Regular settlements in Africa
<b>CapEx</b>			
Reported	\$95	\$25	\$30 - \$130
Observed	\$136	\$71	\$80 - \$130
<b>OpEx</b>			
Reported	\$4	\$1.10	\$0.50 - \$5
Observed	\$6	\$3.20	\$1.70 - \$3.50
<b>ExpDS</b>			
Reported	\$4	\$1.25	\$1 - \$3
Observed	\$6	\$3.60	\$4 - \$6

\* Benchmarks in regular rural settlements based on WASHCost benchmark data for the costs of a "basic" level of service, which has a lower standard for distance and crowding than a service in a refugee context.

Findings of the report cannot be used as benchmarks but do provide the first cost figures for the refugee context.

Costing water services in refugee camps is possible using the life-cycle cost methodology

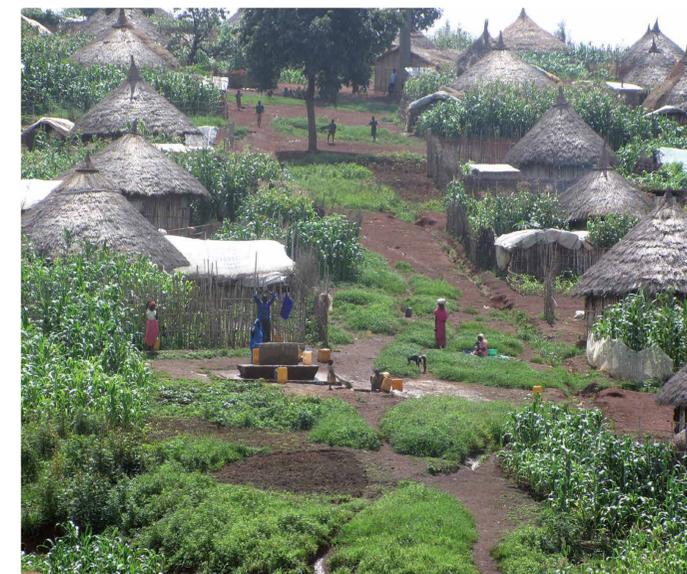
**Recommendations and next steps**  
Because total quantity and quality of water largely drive investment cost, it is crucial to know how much water of what quality is required, based on real demand, so that UNHCR and its partners can determine whether to maintain existing levels of investment per capita, alter the standards or revise the levels of investment.

One recommendation of the report is to regularly monitor water demand (population size) as well as supply (quantity of water being de facto provided).

In the coming months IRC and UNHCR will publish a similar analyses using a world wide database. This work will inform what source data can be used in the future to automate this type of cost and service level analysis.

**More information**  
**Methodological report:** [www.ircwash.org/resources/costing-water-services-refugee-context-methodological-report](http://www.ircwash.org/resources/costing-water-services-refugee-context-methodological-report)

**Research report:** [www.ircwash.org/resources/costing-water-services-refugee-camps-camp-bambasi-ethiopia-and-camp-kounoungou-chad](http://www.ircwash.org/resources/costing-water-services-refugee-camps-camp-bambasi-ethiopia-and-camp-kounoungou-chad)



Water services in refugee camps are higher in general when compared with regular settlements but so are the costs - which are closer to the WASHCost benchmarks

Type of cost component	Components	Component definitions
System related	CapEx	Capital invested in constructing or purchasing fixed assets such as concrete structures, pumps and pipes, boreholes, reservoirs, etc. It includes the first time the system has been built and the extension of the system. It also includes one-off software such as community training and consultation, design, procurement, etc.
	OpEx	Operating and minor maintenance expenditure typically comprises regular expenditure such as labour, fuel, chemicals, spare parts, and purchases of any bulk water.
	CapManEx	Capital maintenance expenditure consists of asset renewal and replacement. This occasional and 'lumpy' expenditure seeks to restore the functionality of a system, such as replacing pump rods in hand pumps, or a diesel generator in motorised systems.
Management related	Cost of capital	Cost of interest payment on any loans to finance capital investment.
	EXDS	Direct support is structured support to decentralised service authorities, service providers and users related to the organisation and management of a water service. It covers technical advice and administrative, organisational or legal support, and monitoring. Direct support is often synonymous with "post-construction support".
	EXDS	Indirect support expenditure covers macro-level support, as well as sector planning, policy making and regulatory framework, both in terms of development and enforcement.

