

# Ex post evaluation – Uganda

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**Sector:** Water supply - large systems, CRS Code 14021  
**Programme/Project:** Water Supply and Sanitation Programme, Kampala, Phase 1a (BMZ no. 2003 66 096)\* (B), Water Supply and Sanitation Programme, Kampala, Phase 1b (BMZ no. 2004 65 328) (C), Training and Operational Assistance, Gaba III (BMZ no. 1930 04 207).  
**Implementing agency:** National Water and Sewerage Corporation (NWSC)



## Ex post evaluation report: 2017

		Project B (incl. training) (Planned)	Project B (incl. training) (Actual)	Project C (Planned)	Project C (Actual)
Investment costs (total)	EUR million	20.5	26.1	30.5	13.6
Counterpart contribution	EUR million	3.5	2.3**	3.5	1.2
Financing	EUR million	17.0	23.8***	27.0	12.4
of which BMZ budget funds	EUR million	17.0	17.0	12.6	12.4

\*) Random sample 2015, \*\*) NWSC also received around EUR 2.2 million in tax payments, \*\*\*) NWSC took out a loan of EUR 6.8 million from Agence Française de Développement

**Summary:** The two programmes were part of a larger open programme with 2022 as its design horizon, whose implementation was also supported by other donors (World Bank, EU, SIDA, DANIDA, DFID). Work financed during the first phase (2003–2007), within Phase 1a, included the construction of the raw water extraction system, two pumping stations and a drinking water treatment facility (Gaba III) as well as the network expansion including building standpipes and yard connections in three selected slum areas of the city of Kampala. Phase 1b encompassed three main conveyor pipes between Gaba III and the city of Kampala, network rehabilitation in the core area of the drinking water network and measures to support the sector reform.

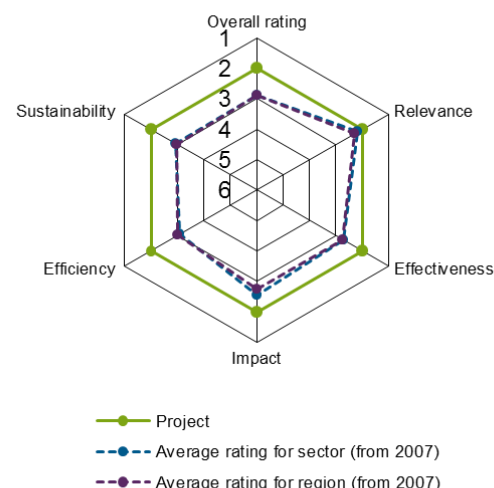
**Development objectives:** The overall objective of both projects was to contribute to improving the health situation of the residents in the programme area. The programme objective was an adequate, fully hygienic and economically viable water supply and sewage disposal system for the population of Kampala.

**Target group:** The combined resident and daytime population of the city of Kampala was the target group, especially the population in the three selected pilot slum areas.

## Overall rating: 2 (both projects)

**Rationale:** Both projects achieved all programme objectives in full and very efficiently. The Gaba III drinking water treatment facility supplies drinking water to around 1 million residents. Together with the rehabilitated Gaba I and II water treatment facilities, security of supply is in place for Kampala's entire resident population. Gaba III has been properly run without any failures since being put into operation. The water supply situation in the pilot slum areas had sustainably and reliably improved for around 42,000 people in the resident population as well as the daytime population by the end of the programme. The pilot measure was so successful that it was continued after the programme ended and 180,000-200,000 people in the slums of Kampala have since benefited from a convenient and reliable water supply. However, the sewage disposal not yet tackled has a limiting effect. The disposal situation continues to be so precarious that cholera cases still arose in Kampala in 2015.

**Highlights:** The innovative pro-poor concept, which includes the installation of prepaid meters, was highly successful and has since also been employed in other countries.



## Rating according to DAC criteria

### Overall rating: 2 (programmes B and C)

#### General conditions and classification of the project

The two programmes under evaluation, B and C, were part of a larger open programme with 2022 as its design year whose implementation was also supported by other donors (World Bank, EU, SIDA, DANIDA, DFID). The execution of five programme components was planned during the first phase (2003–2007):

Programme B encompassed (1) the construction of the raw water extraction system, two pumping stations and a drinking water treatment facility. In terms of further components, the programme included (2) the expansion of the network including building standpipes, yard connections and basic sanitation facilities in three selected slum areas of the city of Kampala. Furthermore, Programme B incorporated a training component for the waterworks staff.

Components of Programme C: (1) main conveyor pipes between the Gaba III waterworks and three elevated reservoirs for drinking water within Kampala, (2) network rehabilitation and (3) supporting the sector's dialogue (including support for the supervisory ministry during the sector reform, for example, with a study on the regulation of NWSC).&

#### Breakdown of total costs

The total costs of both programmes and the training component under Programme B can be broken down as follows:

		Pro- gramme B (Planned)	Pro- gramme B (Actual)	Training (Planned)	Training (Actual)	Pro- gramme C (Planned)	Pro- gramme C (Actual)
Investment costs (total)	EUR million	20.3	26.1	0.2	0.2	30.5	13.6
Counterpart contribution	EUR million	3.5	2.3*	0	0	3.5	1.2
Financing	EUR million	16.8	23.8**	0.2	0.2	27.0***	12.4
of which BMZ budget funds	EUR million	16.8	17.0	0.2	0.2	12.6	12.4

\*) NWSC also received around EUR 2.2 million in tax payments,

\*\*\*) NWSC took out a loan of EUR 6.8 million from Agence Francaise de Developpment

\*\*\*\*) Additional financing from other donors planned in the programme appraisal (PA) could not be raised.

#### Relevance

The overall objective of both programmes was to contribute to improving the health situation of the residents in the target area. The programmes' objective was an adequate, fully hygienic and economically viable water supply and sewage disposal for the population of Kampala.

During the PAs, approximately 50-70% of the population in Kampala had access to clean drinking water. More precise figures were unavailable due to the poor data situation regarding registered customers, because of a high proportion of the population sourcing its drinking water through private water retailers and because of illegal connections to the distribution network. There were more precise figures, based on the preliminary investigations, for the slum areas due to be included in Programme B (Ndeeba, Kisenyi I and II). Around 440,000 people in Kampala lived in slum areas with around 40,000 in the three programme slum areas. The "daytime population" in these areas, which was employed at the numerous markets, was estimated at around 150,000 in addition to those to be supplied. Only about 17% of the resident population had a connection to the central water supply via house and yard connections. Most of the resident population and daytime population were supplied via standpipes, water kiosks, private water retailers or from unsafe wells and sources. The connection rate was even more precarious for sewage disposal. Only about 10% of the population were connected to the rudimentary sewer system. Around another 25% of the population had access to basic sanitation supply facilities. The existing water supply network was in-

sufficient to transport and distribute treated drinking water as well (key problems). The planned measures from phases 1a and b were fundamentally suitable to solve the key problem as stated. This confirms the level of relevance for both programmes.

Water and sanitation has been and continues to be the key sector for German-Ugandan development co-operation. The programme fitted in with this and was adjusted accordingly with Technical Cooperation (TC) measures and other donors' projects/programmes. The local supporting structures were used sensibly. Their further development was crucially supported by the TC in close coordination, expanded appropriately by FC measures on an individual basis to assist the executing agency with operating the systems.

**Relevance rating: 2 (both programmes)**

### Effectiveness

The attainment of the programme objectives for **Programme B** defined at the PA can be summarised as follows:

Indicator	Status PA, target value PA	Ex post evaluation
(1) The drinking water production meets the demand of the population of Kampala completely (100%).	PA status: 50-70% of demand, Target for end of initial phase: meet 100% of demand by March 2007	The production did not meet 100% of demand until the end of the initial phase (March 2008) due to a roughly year-long construction delay. The existing treatment capacities can still scarcely meet the minimum water demand as of the time of the EPE. Follow-up measures are therefore in preparation/being executed. <b>-&gt; Target met</b>
(2) NEW: The population of Kampala has access to drinking water and makes use of this.	PA status: 44% Subsequently defining a target value makes little sense because of the fast population growth.	75% (Kampala Central: 100%, Katwe: 86%, Makindye: 66%, Makawa: 45%, Lubaga: 70%) <b>-&gt; The connection rate has risen compared with the PA.</b>
(3) At least 80% of the population living in the selected slum areas consumes drinking water from standpipes and yard connections.	PA status: about 20%, Initial phase end-target: 80%	March 2008 status: about 70%, EPE status > 95% <b>-&gt; Target met</b>
(4) 80% proper use of sanitation systems	PA status: N/A, Initial phase end-target: 80%	<b>Target has been fully met</b> since start-up of operation.

Demand rose further at the time of the EPE due to the rapidly growing population. The Gaba III waterworks runs at around 112% of its design capacity (around 95,000 m<sup>3</sup>/d). The production, together with the rehabilitated Gaba I and II waterworks, manages to provide an amount calculated at 110% of demand. Construction of another water treatment plant for the still fast-growing population, however, is necessary and is in preparation.

The target achievement for **Programme C** is as follows:

Indicator	Status PA, target value PA	Ex post evaluation
(1) Comprehensive supply in the programme area	PA status: 77% of demand, Target: > 90%	Final inspection, 2012: 70% The existing treatment capacities can scarcely meet the minimum water demand as of the time of the EPE. Follow-up measures are therefore in preparation/being executed to improve the fulfilment of demand. <b>-&gt; Target partially met</b>
(2) Total losses a year after start-up of operation	PA status: 42% Target: < 35%	End of 2005 after implementation: 36%, 32% in financial year 2014/2015, <b>Target</b> was largely achieved by the time the programme was concluded and is now <b>met</b> following the conclusion of further measures.
(3) Collection rate a year after start-up of operation	PA status: 94% Target: > 95%	98% 2014/2015 <b>-&gt; Target met</b>
(4) Water quality a year after start-up of operation	PA status: WHO standard not met Target: WHO standard is met	WHO standard met <b>-&gt; Target met</b>

In fact, almost all indicators have been fulfilled or surpassed. Against the background of the typhus and cholera cases breaking out in Kampala in 2015 (refer to overarching impacts), we nevertheless rate the effectiveness as good by a narrow margin.

**Effectiveness rating: 2 (both programmes)**

### Efficiency

The investment costs for the water treatment plant were around EUR 14.37 million in Phase 1a. Gaba III has produced around 95,000 m<sup>3</sup> of water a day since 2014, thereby utilising around 112% of the design capacity. Around a million residents of Kampala can be supplied with water produced from Gaba III. This puts the specific investment costs per capita at around EUR 14.37, which is low even compared with other projects in the region. Even factoring in the cost for the new water extraction system at around EUR 6.6 million, which also serves the two other water treatment plants along with around two million residents, the investment costs per capita are an inexpensive EUR 17.67.

The total costs for the programme components in the three slum areas were around EUR 2.86 million. The infrastructure created (around 350 pre-pay water standpipes and 56 basic sanitation installations) benefit around 42,000 residents, which is approximately equivalent to specific investment costs of EUR 68 per capita. This does not account for the daytime population, which also uses the infrastructure. The costs are appropriate.

Investment costs per capita cannot be recorded for Phase 1b, as there is no known figure for the number of people living in the districts for which a network rehabilitation was implemented.

Delays lasting around two years occurred during the implementation of Phase 1a (48/45 months versus the 20 planned). While these delays are not pleasant for the target group, they are still reasonable. Delays lasting around two years also occurred in the network rehabilitation component during Phase 1b.

The water prices are standardised for all NWSC-supplied towns and are cross-subsidised between the towns. The costs for standpipe customers (with or without pre-paid meters) are around EUR 0.31 per m<sup>3</sup>. The water rate for customers with a house or yard connection is EUR 0.48 per m<sup>3</sup>. This is affordable for the target group.

In fact, the resident population at that time could also have been fully supplied by means of a larger-scale network rehabilitation than was implemented, without the new construction of the waterworks. The investment costs for this, however, would have proved higher and the implementation period longer. Such a large-scale network rehabilitation would also have only been able to sustain the supply reliability for 2-3 years after the rehabilitation was concluded, because of the fast-growing population. After this point, constructing a water treatment plant would have been inevitable. This demonstrates the allocation efficiency for both programmes.

Overall, we rate the programmes as efficient.

**Efficiency rating: 2 (both programmes)**

### Overarching developmental impact

No indicators were defined for ultimate objective achievement at either PA. During the ex post evaluation, no indicators (such as episodes of diarrhoea) could be compiled for the ultimate objective restated as "reducing waterborne diseases". That is because diarrhoea – the most frequent waterborne disease – is only treated and then recorded at all in hospitals in severe cases. On the other hand, the residents in the pilot areas, in which consumption is 20 L per person per day (for costs, refer to 'Sustainability'), reported that no new cases of cholera or typhus have occurred since the installation of the pre-pay standpipes and the construction of the sanitation buildings. However, this is disproved in 2015 by media reports about cholera and typhus cases in Kampala, including in the pilot slum areas. This may be attributable to the unresolved problems of transport and storage in terms of standpipe consumption as well as the unresolved sewage problems. We can nonetheless assume that supplying drinking water as per WHO standards (for which three ministries check compliance each week/month) has certainly contributed to reducing waterborne diseases for around 1.1 million inhabitants. We can assume that the 177,000 house connections, with an average per person consumption of 60 L/c/d, provide an opportunity to wash in the household. We can assume that the ultimate objective has been achieved for this customer group.

The pre-paid meters, which were first installed in Uganda as part of the pilot measure in Phase 1a, have since had a broad effect (refer to 'Sustainability') and are now also being used in other African countries whose water supply companies have previously exchanged experiences with NWSC.

It should be highlighted that Programme B has made an important contribution to realising the human right of access to drinking water, and therefore also makes an important contribution to development independent of the specific impacts in the health field.

**Overarching developmental impact rating: 2 (both programmes)**

### Sustainability

The water treatment plants and other installations are professionally run and adequately maintained in Programme B, except for sludge disposal. The budgets for operation, servicing and maintenance are provided in an appropriate amount and on schedule.

As mentioned in the 'Sustainability' chapter in Programme A, the water loss reduction must also be continued in the case of Programme C (see also the explanations in this regard in the 'Effectiveness' section).

Around 120% of operating costs are covered and NWSC made a profit of around EUR 2.2 million in financial year 2013/2014, after taxes, write-downs, debt service and capital expenditure of around EUR 7 million. Expansion investments are covered by international donor funds.

In the period following the pilot component, NWSC procured more pre-paid standpipes from its own funds and from donor funds. There are currently around 1,600 pre-paid standpipes in operation across all of Kampala's slum areas. NWSC's management decided around two years ago to issue the pre-paid token for free (minimum amount loaded on for a volume of water equivalent to about USD 2) instead of selling it for a fee of USD 10, in order to facilitate access to clean water for even more poor families. This has since led to around 30,000 tokens being in circulation. Since an average of 6-7 people gain access to water with one token, this sees 180,000 to 200,000 slum inhabitants benefiting from the pro-poor initiative. In this regard, NWSC ensures that the poorest section of the population truly benefits. If a token's monthly consumption differs starkly from the normal consumption, the token holder is paid a visit to clarify why the consumption is much higher or lower than on average. The token is withdrawn in cases of abuse (token being used by water resellers). Pre-paid standpipes are also removed if a slum area develops and the poorest section of the population moves away. These are then installed in other slums. This happens on average for five pre-paid standpipes a month.

The average monthly cost for a six-person household and a consumption of 20 L/c/d is about EUR 1.12 and so can even be paid by the poorest slum residents. As such, this component is sustainable and NWSC is planning to install 3,000 more pre-paid standpipes initially in Kampala in the next two years. NWSC's proximity to its customers, which it achieves with a service office in the slum, is crucial for sustainability in combination with close communication with the users and selected local resident representatives.

As mentioned in Programme A, NWSC is currently covering costs. Although NWSC's business success has been sustainable for over 10 years, it may be necessary in the future to adapt the strategy that is currently in use, as the expansion of the sewage disposal system will place financial burdens on the executing agency.

The situation of the sludge disposal from the waterworks is a limiting factor for the Gaba III component's sustainability in Programme B. The sludge is sometimes dumped into Lake Victoria, since it cannot be fully dried out during the wet season. A solution can only be developed for this in one of the future water and sewage programmes.

The sewage disposal situation also has a limiting effect. The sewage still mostly seeps away in the latrines with the known consequences (latrines overflowing during the wet season and stagnant sewage in the streets as a result, largely improper disposal of latrine sludge, and so on). This situation will gradually start to improve once the ongoing "Protection of Lake Victoria, Phase II" (BMZ no. 2007 65 313) project is implemented.

**Sustainability rating: 2 (both programmes)**

### Notes on the methods used to evaluate project success (project rating)

Projects (and programmes) are evaluated on a six-point scale, the criteria being **relevance, effectiveness, efficiency** and **overarching developmental impact**. The ratings are also used to arrive at a **final assessment** of a project's overall developmental efficacy. The scale is as follows:

<b>Level 1</b>	Very good result that clearly exceeds expectations
<b>Level 2</b>	Good result, fully in line with expectations and without any significant shortcomings
<b>Level 3</b>	Satisfactory result – project falls short of expectations but the positive results dominate
<b>Level 4</b>	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
<b>Level 5</b>	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
<b>Level 6</b>	The project has no impact or the situation has actually deteriorated

Rating levels 1-3 denote a positive assessment or successful project while rating levels 4-6 denote a negative assessment.

### Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability): The developmental efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental efficacy of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected).

Sustainability level 3 (satisfactory sustainability): The developmental efficacy of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability): The developmental efficacy of the project is inadequate up to the time of the ex post evaluation and is very unlikely to improve. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The **overall rating** on the six-point scale is compiled from a weighting of all five individual criteria as appropriate to the project in question. Rating levels 1-3 of the overall rating denote a "successful" project while rating levels 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (level 3).