KfW Development Bank

Ex post evaluation
Water supply Qena, Egypt

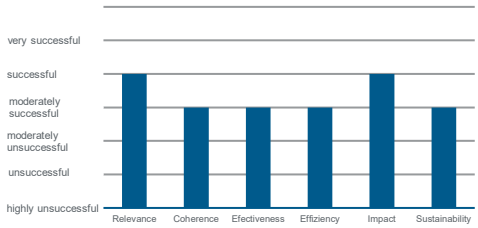
Title	Water Supply / Sanitation Service Qena, phase 1 and phase 2		
Sector and CRS code	14030 Basic drinking water supply and basic sanitation		
Project number	2000 66 233		
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)		
Recipient/Project-executing agency	Republic of Egypt / Qena Company for Water and Wastewater (QCWW)		
Project volume/ Financing instrument	EUR 12.67 million / loan		
Project duration	2008–2020		
Year of report	2022	**Year of random sample**	2022

Objectives and project outline

The objective at outcome level was to ensure a hygienically acceptable, ecologically appropriate, efficient and financially sustainable water supply in the programme region. At impact level, the aim was to improve the sanitary living conditions in the governorate of Qena.

The intent was to achieve the objective in two phases. In phase 1, capacity building and smaller rehabilitation were financed. Phase 2 focused on operational improvements through investments in the water supply.

Overall rating:
moderately successful



Key findings

Despite the small-scale investments and the relatively low budget, the project was able to contribute to improving operations in Qena. The project was rated as being “moderately successful” for the following reasons:

– Several unsuccessful awarding processes, politically related project standstills and very slow bureaucratic processes led to a considerable delay in the project and inefficient use of funds (high consulting costs, higher price level, fewer investments than originally planned). (Efficiency)

– The project benefited from capacity building measures in the first project phase, a parallel GIZ project and, currently, from a USAID project, in which important key figures were developed and operations enabled so that they could manage their activities more independently (impact/coherence). As a result, the KfW-managed follow-up project (IWSP II) will now make significant investments in the wastewater sector.

– The objectives at outcome level were mostly achieved. Operating cost coverage and reduction of unaccounted for water were below the target level. (Effectiveness)

– Although the focus on rehabilitation and operational improvement measures and increasing financial performance results from the water utility’s responsibility for operation and maintenance (not new investments), it thereby takes more account of the sustainability of operations. Above all, the contribution of the central workshop to local maintenance was considered positive. (sustainability)

Conclusions

– The design as an open water programme enabled a response to changing circumstances by adjusting the investments; at the same time, the division into two phases allowed an interim assessment.

– Leaner procurement processes and faster implementation would be helpful for the success of similar projects. Similarly, attention should be paid to similar quality and maintenance in urban and rural areas.

– There are challenges in the Egyptian water sector due to the need for better coordination between intra-Egyptian institutions and the large number of donors.

Ex post evaluation – rating according to OECD-DAC criteria

General conditions and classification of the project

The project is an open programme divided into two phases. In the first phase, the intent was to prepare the executing agency, the Qena water utility operator, which was newly established as part of a sector reform in Egypt in 2007, for FC investments through capacity support and smaller investment measures. In the second phase, the focus was less on further capacity support and rather on implementing further investments. The ex post evaluation pertains to both phases.

The Egyptian government initiated a reform of the water supply and wastewater disposal sector in good time for the phase 1 project appraisal, whereby the newly founded Holding Company for Water and Wastewater (HCWW) and its 25 local subsidiaries – one of them the Qena Company for Water and Wastewater (QCWW), project-executing agency – were to be granted more comprehensive responsibilities beyond the pure operation of the water and wastewater infrastructure, including for the design and implementation of investments. The aim of the reform was to improve services for the population through decentralisation and a more commercial focus on water supply and sanitation. However, the reform was not fully implemented as the responsibility for new investments in the sector remained at national level (including with the Ministry of Housing, Utilities and Urban Communities, MoHUUC). The HCWW and the local water utilities are therefore only responsible for operation, maintenance and rehabilitation. This was reflected in the financed individual measures, which aimed to improve operations and included, among other things, rehabilitation work.

Brief description of the project

The project included various investment measures aimed at improving the operation, maintenance and rehabilitation of the water supply (and isolated wastewater disposal) in the governorate of Qena in Upper Egypt. Furthermore, the project set itself the goal of promoting the development of QCWW, which was newly established in 2007.

In phase 1 of the project (appraisal 2001, implementation 2008–2013), various smaller investments were therefore made, in particular rehabilitation and smaller expansions in the water supply system, in order to help QCWW in the operation and maintenance of existing plants and supply systems. The investments were mainly implemented in the city of Qena; smaller measures were also implemented in Qous, Qift, Naqada and El Waqf. The financed measures (cf. Annex 3) include:

- supply and installation of bulk water meters and building water meters; rehabilitation of the customer service building; rehabilitation of the water network in smaller supply zones in Qous;
- supply and installation of spare parts for decentralised water treatment plants;
- building a training area for leak detection;
- Consulting services for improvement of technical and financial sustainability as well as implementation support.

During phase 2 of the project (appraisal 2010, implementation 2013–2019), additional investments were chosen that meet the criteria (i) income-generating investments; (ii) investments that increase the service level of operation, (iii) helping to improve operations, and (iv) improve customer satisfaction. In accordance with these specifications, the implementation consultant drew up an investment list in consultation with the executing agency, which was approved by KfW. Due to various failed procurement processes and delays in the face of rising costs, the originally planned investments could not be fully implemented. Among them (cf. Appendix 3) are the following:

- network rehabilitation in the city of Qena;
- replacement and rehabilitation of sludge pumps (El Salhya, Dishna, Nagaa Hamady, Qous);
- improvement of the El Manaa central workshop equipment; spare parts for water treatment maintenance, mobile repair trolleys for maintenance of central and decentralised water treatment units; safety and health equipment for operation; implementation consultant for implementing the measures.

Map/satellite image of the project country including project areas/locations

Figure 1: Map of Egypt with Qena (project location)
Source: Open Streetmap, edited by KfW. 2022

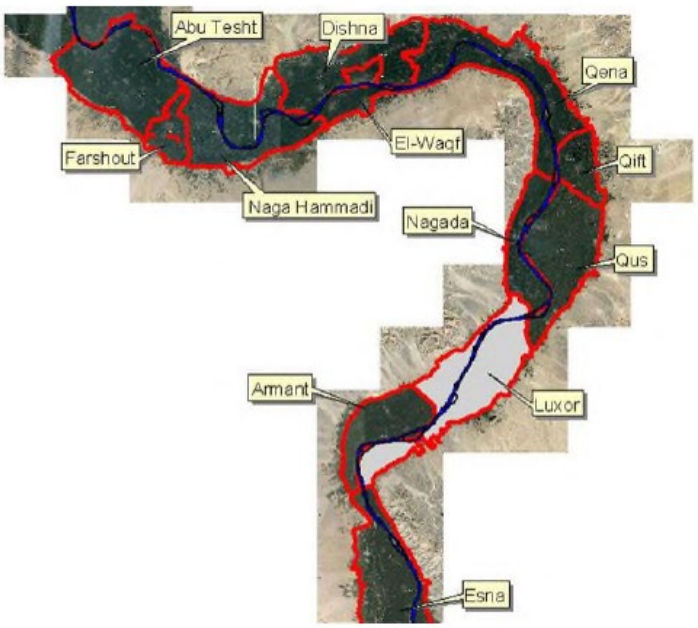


Figure 2: Map of the Qena governorate
Source: Dorsch Final Report (Consulting), 2020

Breakdown of total costs

In phase 1, the total costs amounted to EUR 7.76 million, while the costs in phase 2 amounted to EUR 6.13 million. Overall, of the total costs of EUR 13.89 million, EUR 12.67 million were disbursed from budget funds in the form of FC budget loans of DM 15.00 million (EUR 7.67 million, term 40, grace period 10 years) and EUR 5 million (term: 30 years; grace period: 10 years); each of which was passed on to the project-executing agency with a term of 25 years and a grace period of 10 years by the central government (borrower: Egyptian central bank). Egypt's originally planned counterpart contribution amounted to EUR 4.07 million – however, this was reduced as a result of adverse economic developments during the project period and ultimately totalled EUR 1.22 million.

	Phase 1 (planned)	Phase 1 (actual)	Phase 2 (planned)	Phase 2 (actual)	Total (planned)	Total (actual)
Investment costs total EUR million	8.44	7.76	8.30	6.13	16.74	13.89
Counterpart contribution EUR million	0.77	0.87	3.30	0.34	4.07	1.22
Financing EUR million	7.67	6.88	5.00	5.79	12.67	12.67
of which BMZ budget funds EUR million	7.67	6.88	5.00	5.79	12.67	12.67

Rating according to OECD-DAC criteria

Relevance

Policy and priority focus

Around 95% of the Egyptian population lives in the Nile Valley and the Nile Delta. The Nile is Egypt's main water source, followed by reused water from irrigation systems and treated wastewater, groundwater, rain and desalination of seawater. The annual fresh water resources per capita are extremely scarce and have fallen from 1,972m^3 per year in 1970 to 570m^3 in 2018; according to projections, they will only be 390m^3 per year by 2050. The specific fresh water resources are declining due to population growth,[1] climate change with predicted temperature increases, soil salinity from rising seawater levels, longer and more intensive heat and dry periods, and water management that is too inefficient, especially in the irrigation of agricultural land. Building the Grand Ethiopian Renaissance Dam on the Blue Nile River threatens to accelerate this effect. The associated conflict case was presented to the UN Security Council in 2021; the construction has since progressed further and represents high conflict potential in the region, especially between the Nile-dependent countries of Ethiopia, Egypt and Sudan. The Nile is considered a public good in the Egyptian constitution (Art. 44 – Protection by the state, Art. 79 – Right of access to clean water) and is the most important drinking water resource in Egypt. At the same time, the Nile suffers from heavy pollution caused by the discharge of municipal and industrial wastewater and the use of fertilisers in agriculture. Furthermore, the lack of hygienic treatment and disposal of waste contributes to the contamination of the Nile water, but also to the scarce groundwater.

In addition to the state of the Nile, the major challenges facing residential water management in Egypt include outdated infrastructure, and the associated continuous assurance of adequate water quality, inefficient water use and the improvement of institutional and financial sustainability. Addressing these challenges is in line with the objectives of the German Federal Ministry of Economic Cooperation and Development's water strategy (2017), which aims, among other things, to improve efficiency in the water sector. The objectives of improved water use efficiency and safe and sustainable access to water, particularly in the context of water scarcity, are also reflected in the German Federal Ministry of Economic Cooperation and Development's country strategy for Egypt (2018). At the same time, it can be ascertained that the principle of integrated water resource management in Egypt, which is also set out in the Federal Ministry for Economic Cooperation and Development's water strategy, is only implemented to a limited extent due to the prevailing institutional division of the issues of residential water management and agriculture (different ministries, which also report to different relevant implementation agencies) and that there is still significant potential for improvement here. Due to the basic requirements and the low budget, the measure was therefore only able to focus on the water supply. Furthermore, by encouraging decentralisation under this measure, the intent was to make a contribution to strengthening good governance, the principle of subsidiarity and ownership on the Egyptian side. Both digitalisation (including through digital logging of the water network) and a positive contribution to gender equality (awarding of the GG1 category due to the proximity of the target group to women) were taken into account in the project design. However, the focus was only indirectly on supporting vulnerable groups – through the goal of improving the services of water utilities and thus strengthening rural development. While from today's perspective, more extensive environmental and social impact studies would have to be carried out as part of the currently applicable KfW Sustainability Guideline, the project would not be classified as an ESI risk project (B+ or higher) from today's perspective due to the open nature of the water programme and the numerous smaller investments in improving the operation and maintenance infrastructure associated with it.

The Egyptian strategy for sustainable development 2030 and the National Water Resource Management Plan (NWRM Plan 2017–2037) not only deal with areas of action relating to health, the environment and urban development, but also aim to increase the availability of water resources (e.g. through desalination of seawater, use of rainwater and brackish water), improvement of water quality (through wastewater treatment and waste management) and improvement of efficiency (through reuse of wastewater, reduction of unaccounted for water, etc.), which is also in line with the project objectives of the underlying project from today's perspective. According to Egypt's revised national climate contributions from June 2022, measures to preserve water conservation in agriculture, industry and communities (including rehabilitation measures to prevent unaccounted for water), the con-

[1] Population growth in Egypt, with around 103 million inhabitants in January 2022, was 1.9% in 2021, 1.9% in 2020, and 2% in 2019. In 2014, it was 2.3%. Cf. World Bank: https://data.worldbank.org/indicator/SP.POP.GROW?locations=EG

struction of seawater desalination plants in the Nile Delta and the increased reuse of wastewater are given great importance in climate change adaptation to combat water shortages.

At the start of the project, an environmental action plan was drawn up by the Qena governorate in consultation with the Egyptian Environmental Affairs Agency and the Ministry of Environment. The plan proposed measures in line with the national five-year plan (2002–2007) for economic and social development, in particular the provision of adequate sanitation facilities for all urban centres. In addition, the project was set up in line with the National Water Resources Plan for Egypt, which was launched in 2005. Among other things, it aimed to create access to additional water resources, make better use of existing resources and take measures in the areas of water quality and environmental protection.

According to a reform of the water supply and sanitation sector implemented from 2004 onwards, the intent was for responsibility for the sector to lie with the newly founded Holding Company for Water and Wastewater (HCWW) and its 25 local subsidiaries. The subsidiaries were subsequently spun off as legally independent water companies with the expectation that they would act with more economic efficiency than the previous official water supply. The aim of the reform was to improve services for the population by decentralising and commercialising the water supply and sanitation, which aims to address the core problem of adequate service provision and financial sustainability in the water sector at municipal level. The initial sector reform also aimed to delegate responsibility for investment, operation and maintenance to the newly established companies. However, as this has never been formalised, the central authorities NOPWASD (National Organization for Potable Water and Sanitary Drainage), CAPW (Construction Authority for Potable Water and Wastewater) and NUCA (New Urban Communities Authority) are now responsible for investment measures in the sector under the supervision of MoHUUC, while operation and maintenance are taken over by the Holding Company and the individual water companies at governorate level. The tariff setting and control of the water sector is formally carried out by the regulator (EWRA, Egyptian Water Regulatory Agency), but the tariff setting is heavily politically influenced and must be considered in connection with the government's granting of subsidies due to funding shortfalls in the sector.

Focus on needs and capacities of participants and stakeholders

The measure was implemented following the establishment of QCWW, which requires capacities for planning investments in rehabilitation and maintenance on the one hand, and a corresponding understanding of prioritisation based on predicted benefits and profitability on the other. This was taken into account through the design as an open water programme and the inclusion of extensive personnel support measures – both in the FC and in a parallel TC component. After completion of phase 1, FC reduced capacity building measures, as budget restrictions existed on the one hand, and various offers were already in place by TC on the other. In this respect, the FC measure reacted in an adaptable manner to the current situation and the executing agency's capacities.

From the perspective of the beneficiaries, i.e. the population of the Qena governorate, good water service provision, i.e. sustainable water supply security, water quality, good communication and processing efficiency in the event of complaints or billing, for example, as well as a price that can be financed, was and is of the utmost importance. This was taken into account by selecting measures that were intended to improve operations and their sustainability and thus provide customers with improved service quality. The tariff structure cannot be influenced locally in Egypt, but is designed in such a way that poorer households can also pay the tariffs, which are kept low through policy. The measure was intended to reduce the burden on women as household managers in the gender-specific division of labour in Egypt and to contribute to strengthening the role of women.

Appropriateness of design

The definition of criteria for selecting the individual investments financed by FC are based on the measure's objectives and are comprehensible. Individual investments were selected in a transparent process between the implementation consultant, QCWW and KfW. The investments selected were the most urgent needs of QCWW perceived at the time of selection. Looking back, a few planned investments in phase 1 (e.g. calibration benches, building water meters) were based on an overly optimistic picture of the capacities and situation of QCWW, and some originally planned investments for phase 2 (e.g. wastewater network connections) were based on incorrect assumptions about the quality of the executing agency's plants. From today's perspective, the focus on investments in the areas of rehabilitation, operational improvement and maintenance as well as financial sustainability is still considered justified, as they are crucial for the long-term success of water utilities. It also seems necessary

from today's perspective to initially focus on capacity development and smaller investment measures in phase 1, as the newly established water utility was initially in a period of upheaval.

Against the backdrop of high unaccounted for water, outdated water networks and poor-quality pipe material, outdated house connections, lack of generation and consumption data, lack of digital network mapping, etc. at the time German DC entered into operation, the investments also appear to be very relevant from today's perspective. The results chain underlying the project design (contribution to improving the living conditions and health situation of the population by ensuring a qualitatively and quantitatively improved and economically viable wastewater disposal and water supply) seems plausible from today's perspective. However, the contribution to sanitation proved to be unfeasible, as insufficient funds were available for this purpose and a comprehensive wastewater programme would have been counterproductive without prior improvement of the water supply. Furthermore, from today's perspective, the improvement in the health situation of the population appears too ambitious as, on the one hand, no investments in wastewater disposal have been made and, on the other hand, operational improvements on the water supply side with the existing budget can only lead to minor health effects (e.g. improvement in the water treatment of drinking water), which are also difficult to measure. Accordingly, the impact objective was adjusted as part of the evaluation to the improvement of living conditions, which is to be achieved through improved supply security and better water utility services, among other things. Sanitation was not taken into account in the outcome objective "Ensuring a hygienically acceptable, ecologically appropriate, efficient and financially sustainable water supply in the programme region". The design of the measure takes into account both ecological and economic dimensions of sustainability (focus on loss reduction, collection rate, cost coverage) and social sustainability through customer satisfaction orientation and, accordingly, follows a holistic approach.

Response to changes/adaptability

The division of the FC commitment into two phases allowed for an adjustment of the second phase after learning processes in the first phase. In the second phase, for example, capacity support was reduced after TC promoted capacity development in parallel to FC in the first phase, which occasionally led to overlaps and sometimes overwhelmed the executing agency.

At the same time, it can be noted that many risks identified in the appraisal reports for phases 1 and 2 also occurred (including a lack of tariff increases, unfavourable price and inflation trends, lack of implementation of the sector reform, capacity development activities that do not meet expectations in some cases), indicating that no suitable mitigation measures were developed. However, many of the aforementioned risks – in particular the development of Egypt's economic situation and political decisions such as tariff and sector reform – were beyond the control of QCWW and KfW.

Summary of the rating:

In summary, the very successful alignment with policies and priorities and the appropriateness of the design, consideration of the needs and capacities of the executing agency and target group, and the adaptability of the measure all result in a high level of relevance.

Relevance: 2

Coherence

Internal coherence

The original concept of phase 1 of the project was a parallel Danish Development Cooperation (Danida) project aimed at institutional development at national and regional level. After Danida withdrew from the project, this role was partially replaced by a capacity development component in the implementation consultant use of FC and by TC's commitment to QCWW (since its foundation in 2007 to 2011). In parallel with investment measures, the newly founded QCWW was to be strengthened in its new role as an independent water utility.

In phase 1, both TC and the FC-financed implementation consultant provided training measures in the areas of water loss or non-revenue water reduction, development of customer databases, measures to increase revenues,

etc. In principle, there was good coordination and complementarity between FC and TC assignments. For example, the implementation consultant from FC also offered training sessions with leak detectors in consultation with the procurement department, while TC focused on training on non-revenue water. FC also financed maintenance equipment and spare parts for water treatment, among other things, while TC took on the task of improving the water analysis laboratories. However, initial overlaps were identified for some training components, which would have required close coordination between TC, FC and QCWW. In addition, due to the intensive TC activities and partial overlap in phase 1, the technical advice in phase 2 of the FC project was scaled back; the role of the implementation consultant in phase two was only intended to concentrate on procurement and supervision of works. At the same time, however, TC activities were also discontinued after 2011 because the corresponding project was over. From today's perspective, less parallel use in the first phase and more capacity development in the second phase would have made sense. Overall, the coordination between German FC and TC is therefore rated as moderately successful.

The measures, which placed a strong focus on operational improvement, rehabilitation and maintenance, contributed to the executing agency's ability to improve its competencies and become more independent of external suppliers (e.g. through its own workshop equipment). In this respect, the executing agency's local role is strengthened. The measures are also consistent with international norms and standards – for example, the programme contributes to climate change adaptation through a more resilient water supply.

External coherence

Many donors are active in the water and wastewater sector in Egypt, including AFD, EBRD, EIB, the European Union, FAO, IsDB, USAID, the World Bank, AIIB and various other multilateral and bilateral donors. Most donors are now active in wastewater management. The actors coordinate themselves in formal and informal donor coordination groups, for example in the *Development Partners Sub-Group on Water* donor group coordinated by the EU and Germany as co-chairs. At the European level, for example, resources are already being pooled and joint interests are being externally represented as part of joint programmes such as IWSP II (Integrated Water Sector Programme II with FC as lead donor). However, as not all donors pursue identical objectives, it is still considered important to ensure good political dialogue between the Egyptian government and donors, as well as coherent coordination among donors.

At national level, the World Bank's commitment can be highlighted here. The World Bank is currently working on a Programme for Results (P4R) in co-financing with the Asian Infrastructure Investment Bank (AIIB). P4R includes several objectives that will be paid out if achieved. These include: (i) improved access to wastewater treatment in six governorates in the delta region, measured by connected households, (ii) improving the processes and output of water operations as measured by performance indicators at the Holding Company level and (iii) the finalisation of the national water and sanitation strategy. The strategy is currently being developed by the government with the help of the German consulting company GOPA, with the World Bank setting out some key questions with regard to financial sustainability, efficiency, personnel strategy, consideration of climate change, and the integration of an action plan with a time schedule, among others. The implementation partner is MoHUUC and – in individual implementation areas – the Holding Company.

At the local level, QCWW is currently working with the World Bank and USAID. Through the governorate, the World Bank is financing investments of approx. USD 30 million for the rehabilitation of the water and wastewater sector. These investments originate from another P4R from the regional development sector and have not yet been defined. At the time of the evaluation, QCWW did not know which investments would fall under the released World Bank tranche. Since 2019, USAID has been supporting QCWW in digitalising and improving its processes in asset management (incl. business plan development), service improvement, performance improvement and financial sustainability, among other things. With regard to customer service, USAID is financing an analysis of existing connections, new invoicing software, completion of isolated measurement zones by districts, improvement of data analysis with SCADA, and the continual improvement of water treatment quality and measurement, among other things. In this respect, USAID is now continuing the work started by German DC in Qena, while the World Bank is enabling further investments. In particular, USAID thus relies on existing structures and strengthens the partner locally in advancing its goals. Furthermore, close coordination between KfW and USAID is taking place as part of the IWSP II follow-up project currently being implemented in the wastewater sector, which includes investments in Qena.

In addition to the need for good coordination between donors, there are also many different institutions within Egyptian structures that deal with investments in water and wastewater infrastructure, including the HCWW holding company, which is responsible for overarching coordination in the area of operation, maintenance and rehabilitation. Furthermore, NOPWASD holds the mandate to plan and implement nationwide infrastructure measures in the water sector on behalf of the Egyptian government. NUCA is also investing in water and wastewater infrastructure for new cities in Egypt and CAPW in new infrastructure in Cairo, Alexandria and Giza. Special programmes set up by the president's office (e.g. Haya Karima, English: "dignified living", announced in 2019) aim to improve people's living conditions through infrastructure projects in rural areas, including in the water and wastewater sector. Haya Karima enjoys a very high level of political attention and pursues an ambitious time schedule, which sometimes ties up capacities to the detriment of other projects.

The evaluation team did not feel that these different institutions cooperate fully with each other in various discussions at the local level. Accordingly, there is sometimes the impression that it is not clear who is carrying out which investments at local level and when, to what extent these investments are coordinated in the design and execution with the subsequent operator, QCWW, and to what extent the various investments can be taken into account accordingly in the operator's business plan with sufficient advance notice. Instead, the operator is in a position in which it needs to adapt its concept to central government decisions at short notice. This illustrates the problem that persists due to the lack of implementation of sector reform in 2004: Investment and operation are not handled by one entity, so the principle of subsidiarity is partially undermined by the various central government actors. Due to the complexity of responsibilities, there is a need to increase focus on synergies and coherence between policy areas and implementing agencies and to pay more attention to intergovernmental coordination and cooperation with operating companies such as QCWW at local level.

Summary of the rating:

In summary, we consider the coherence within Germany's DC to be moderately successful for the project at hand, the coordination between the bilateral and multilateral donors to be largely successful to the extent possible, while coordination within the institutions in Egypt and between the national and local levels is considered to be rather unsuccessful. Overall, the coherence can be rated as satisfactory.

Coherence: 3

Effectiveness

Achievement of (intended) targets

The project is based on two appraisal reports, each for phase 1 and phase 2. The module objective defined at the time of the phase 1 project appraisal was "The project-executing agency's performance capacity will be strengthened in order to meet the entry conditions of Germany's FC for a later extension programme". The module objective for phase 2 was "Ensuring a hygienically acceptable, ecologically appropriate, efficient and financially viable water supply and sanitation in the programme region". From the perspective at the time and today, we consider the module objective of phase 2 to be an appropriate outcome objective of a water programme, although the inclusion of sanitation should not be the focus from today's perspective, as these were almost exclusively investments in the water supply. A slightly modified module objective for phase 2, without sanitation, was therefore used for the evaluation.

The following indicators were used to measure target achievement in the phase 2 appraisal report: (1) increasing the collection rate, (2) reducing unaccounted for water (non-revenue water), (3) increasing the cost coverage of operation and maintenance for water, (4) increasing the cost coverage of operation and maintenance for water and sanitation, (5) ensuring the 24-hour supply of water, (6) water quality in accordance with WHO standards, (7) 5,000 new wastewater connections and (8) recording all customers by consumer category. Indicators (5), (6), (7) and (8) were dropped during the implementation of the measure.

Indicator (5) was withdrawn on the grounds that the open water programme is not a targeted measure to improve water supply security. While it is true that no new water resources can be developed and no significant investments can be made in infrastructure with the low budget, we consider a 24-hour supply in the existing network to

be a key indicator of an efficient water supply, which ultimately contributes to improving the living conditions of the population. Accordingly, the indicator was re-incorporated for the evaluation.

Indicator (6) was also dropped with the rationale that WHO parameters would make no sense due to geogenic conditions and existing national thresholds and because the programme does not contain any targeted investment measures to improve water quality. However, since the module aims to achieve a hygienically acceptable water supply and the targeted improvement of the population's living conditions with low-quality water does not seem possible, the indicator is retained for the evaluation, and the ambition level is lowered to national standards.

Indicator (7) was deleted because no investments were made in household connections in the wastewater sector due to the low budget and the discontinued operation of the central wastewater treatment plant of the city of Qena. We consider this to be sensible, as the module's focus is clearly on the water sector, which is extremely useful when FC is undertaking initial measures within the water utilities. Accordingly, the indicator is also dropped as part of the evaluation.

Indicator (8) was withdrawn because only moderate success of the task force for recording customers could be reported in phase 1, partly for political reasons, and a significantly larger complementary measure would have been necessary in phase 2 for target achievement. We do not consider the indicator for measuring the achievement of the module objective to be necessary, as the financial sustainability is already covered by indicators (1), (2), (3) and (4). Accordingly, the indicator is also not included in the evaluation.

The objective adjusted as part of the EPE was: "Ensuring a hygienically acceptable, ecologically appropriate, efficient and financially sustainable water supply in the programme region".

The target achievement at outcome level is summarised in the table below:

Indicator	Status during PA	Target value according to PA/EPE	Actual value at final inspection (optional)	Actual value at EPE
(1) Increase collection rate to 80%	37% (2008)	80%	Expected to be achieved. (56–95% depending on districts, 79.9% on average)	Value achieved. The collection rate for 2020/21 is 83%.
(2) Reduction of unaccounted for water to up to 35%	51% (2008)	35%	Achieved for individual water distribution zones, if applicable. No reliable data for the entire water distribution system.	Value nearly achieved. In 2020/21, the figure was 36% – this figure remains at a high level from today's perspective.
(3) Increase in cost coverage (operating and maintenance costs for water and wastewater) to 75%.	38% (2008)	75%	Achieved. The value is 74% at the time of the final inspection, which was assessed as achieved.	Value achieved. The operating cost coverage (water and wastewater) was 84% in 2020/21.

(4) Increase in cost coverage (operating and maintenance costs for water) to 90%.	38% (2008)	90%	Value not achieved. 83% at the time of the final inspection, meanwhile already 93.7%.	Value nearly achieved. In 2020/21, the figure was 89%.
(5) Ensuring 24-hour water supply	60% (2008)	24-hour water supply	Deleted because the programme was not aimed at security of the water supply	Achieved for QCWW network.
(6) Water quality meets national standards	Not specified	Egyptian drinking water quality standards	Deleted as no water quality improvement measure was planned in the open programme.	Achieved.

Note on indicator (2):
From today's perspective, the ambition level of 35% is at a relatively high level, particularly due to the lower sustainability associated with high unaccounted for water; 25–30% would be more appropriate.
The data provided by QCWW is calculated by dividing the billed water consumption and water production. There are several inaccuracies in the calculation:
(i) water production was not fully measured in the governorate of Qena, so QCWW made assumptions for the decentralised water treatment plants without meters (mainly based on operating hours of the pumps);
(ii) customers have only installed water meters in some instances; customers without meters are billed on a flat-rate basis with estimated consumption. The billed water consumption includes illegal connections, which – as soon as they are known to QCWW – also receive an invoice based on estimated consumption. Finally, flow meters were installed in all water treatment plants in 2022, and based on this, the amount of water produced was lower than estimated in some instances in recent years. Taking into account the newly measured quantity of water produced, the indicator for 2022 was provisionally calculated at 28%. However, the annual report and the associated key figures are still provisional and inaccuracies in the calculation due to the point discussed above still apply.

Note on indicators (3) and (4):
The water and wastewater tariff is set by the government and applies to the whole of Egypt. In this respect, water utilities such as QCWW only have limited opportunities to achieve the targeted percentage of cover for operating costs. One way for QCWW is to reduce the cost of operation and maintenance, but this would have a negative impact on service level and is not recommended. At the same time, the respective operating cost coverage for water was over 100% in 2018/19 and 2017/18. The ratio was negatively affected by rising electricity costs due to the Egyptian government's decision to reduce subsidies and increase electricity prices in recent years, which could not be influenced by QCWW.

Note on indicator (6):
Compliance with national thresholds is regularly checked in Qena in a central, ISO-certified laboratory, as well as in smaller decentralised laboratories at the respective water treatment plants. They are reviewed by the Ministry of Health, which carries out its own investigations into drinking water quality. The quality of the waters is also checked by the Ministry of Health and Agriculture (Nile every two weeks, canals every week).

Contribution to achieving targets

The module objective contribution of this open water programme should be assessed in relation to the specific investments of the project. With total costs for phases I and II of EUR 13.89 million and a population of 3.39 million in 2022 in the Qena governorate, this corresponds to a specific investment of EUR 4.1/resident. Against this

background, it can be assumed that the achievement of indicators was not only due to the individual measures implemented in the evaluated module, but also due to QCWW's use of its own funds and other projects of other donors. Particularly noteworthy here are the commitment of Germany's TC and the commitment of USAID, which pursued similar objectives within the scope of their projects and thus made a contribution. Furthermore, internal factors such as motivated personnel, increased follow-up of performance indicators on the part of management and the Holding Company, etc. can be attributed to the positive development of QCWW since it was founded.

The planned outputs often had to be adapted to new developments during project implementation. Due to initially unsuccessful competitive bidding, there was some delay when awarding the contracts. At the same time, due to price increases due to the devaluation of the Egyptian pound and due to unexpected developments, individual investments had to be adjusted and/or cancelled. One particularly important example is the situation of the central wastewater treatment plant in Qena. When implementation of the second phase began, the wastewater treatment plant was almost out of service, and wastewater simply flowed through without significant treatment. As a result, no investment was made in wastewater connections. It can be stated that the financed infrastructure is used to its full extent in the vast majority of cases and makes a meaningful contribution to improving water utilities. The capacity building measures carried out in phase 1 still have a positive impact on the business operations of QCWW to a large extent. One example is the digitalisation of the network (GIS) and the creation of a hydraulic model, although Quena should place greater emphasis on driving the digitalisation and information-based management forward.

The target group of the measure is the population in the Qena governorate. While no specific access simplifications were provided for vulnerable groups within the scope of the project, it can still be determined that vulnerable groups benefit from the measure. On the one hand, water tariffs in Egypt are at a very low level despite increases in recent years. Poorer households also have access to the water supply due to the high level of subsidies for water tariffs and the consumption-dependent graduation of tariffs. On the other hand, the group of people who benefit in particular from improvements in water infrastructure is the group that is responsible for domestic tasks in everyday life and stays in their own home. These are, in particular, women and children, who are often considered vulnerable due to their position in society and their dependencies. Discussions with residents were sometimes held as part of the inspection of investments in the water network in Qena and Qous. Residents were satisfied with the quality and security of the water supply.

Quality of implementation

The quality of execution of the infrastructure visited is satisfactory to good. It is striking that the quality in rural areas (here: Qous) decreases compared to the investments in the city of Qena. This is due, among other things, to the technical staff's lower level of qualification. An overview of the locations visited can be found in the annex. The executing agency's staff, who were met as part of the evaluation, can be described as largely highly motivated; many specialists in water operations have already taken part in the training courses in phase 1 and are still applying the knowledge acquired today.

Especially in the case of the measures involving workshop equipment and the provision of portable repair units, the quality of the machinery in spite of heavy use, which was the aim, is remarkably good. The willingness and training of personnel using this equipment to maintain and improve operations is at a good level and therefore the quality of the implementation of this component is rated as above average. The same applies to the measures implemented for network rehabilitation. In the project areas visited, the condition of the water supply infrastructure can be described as good, to the extent that it is visible. On the one hand, this can be attributed to the quality of the work carried out and, on the other hand, the target group's handling of this improved infrastructure for water supply (water meters located in the house), which seems to be careful.

Unintended consequences (positive or negative)

Positive, only partially intended impacts can be found in the strengthening of the local structure in the water sector in Qena. The executing agency can act with confidence towards the Holding Company and national stakeholders with the comprehensive knowledge acquired, e.g. setting priorities in network rehabilitation, digitalisation and digital management, and quality measurement. In addition, the executing agency has penetrated the relevant financial and technical improvement opportunities through some donor-financed capacity-building measures, continues to monitor key figures and is working on increasing its performance.

Furthermore, from today's perspective, customer management has improved significantly compared to the situation at the time of the project appraisal for phase 2, although FC no longer provided any support here in phase 2. Complaints, such as incident reports, are recorded centrally by a customer support team, which forwards the reports to the relevant departments and supervises prompt feedback. In this way, damage in the network can be quickly repaired and the service level of QCWW can be continuously improved. The billing department is also continuing to work with its own team to register illegal customers; other teams are working on digitalising the customer register and have already made some progress in this area.

Summary of the rating:

In summary, the success of the various indicators used for target achievement, the quality of the implementation and also the effects beyond the target system can be rated as satisfactory.

Effectiveness: 3

Efficiency

Production efficiency

The measures originally planned for phases 1 and 2 were mainly reduced for technical and budgetary reasons. The technical reasons relate to, for example, the failure to meet the requirements for the wastewater treatment plant at the time of project implementation – the originally planned 5,000 wastewater connections have therefore been omitted. In addition, some problems arose on the procurement side due to the fact that international competitive bidding was initially unsuccessful due to the small volume and an increasingly deteriorating economic situation. Some planned competitive bidding was then cancelled entirely at a later date because the priority of corresponding measures had fallen and the budget no longer allowed all investments to be implemented.

The budgetary reasons for reducing the level of investment include the following elements: (i) devaluation of the Egyptian pound, which led to sharp price increases, (ii) reduced local contribution and (iii) budget shifts due to higher consulting costs.

All budgetary reasons are due to a significant time delay in project implementation. The main reasons for this were, on the one hand, political changes in Egypt, combined with very long waiting times before a project phase could start with the implementation in some cases. For example, the implementation of phase 1 after the project appraisal in 2001 could only start after the establishment of QCWW 2007. When phase 2 was implemented, there were once again long waiting times due to the Arab Spring 2011–2014 (upheavals in the government and associated delayed commitments and contracts), meaning that phase 2 could only be implemented from 2014. Secondly, there were considerable delays in the procurement of consulting services (the awarding process for both phases took at least
one to two years) and in the procurement of construction services and machinery in connection with a high number of new tenders due to price overruns, formal errors and lack of competition. The very lengthy and bureaucratic approval procedures for evaluation reports and draft contracts on the Egyptian side also made the award process more difficult; at the same time, non-transparent delays on the Egyptian side were caused by a lack of competent staff able to make decisions. After several competitive bidding repetitions and very slow progress of the building and supply invitations to tender, the consulting budget was no longer sufficient to ensure that the project was supported over the long implementation period, further cuts had to be made on the part of the investments in order to continue the support by the implementation consultant. As a result, it can be stated that out of a total cost of EUR 13.89 million, approx. EUR 3.98 million (i.e. 26%) was spent on consulting services. From today's perspective, the consulting budget is clearly too high compared to the investment costs. At the same time, from today's perspective, more investments could have been made through early procurement, which could not later be realised due to exchange rate problems and price increases. During phase 2, the agreed Egyptian counterpart contribution was reduced (reduction from EUR 3.3 to EUR 0.34 million) due to economic problems in Egypt. From today's perspective, all budgetary reasons for reducing the scope of the investments could have been prevented or mitigated by more efficient implementation of the project but, at least, the increased costs of the implementation consultant and the increased prices could have been prevented. We therefore rate the overall production efficiency as moderately unsuccessful.

Allocation efficiency

As part of this project, QCWW was able to increase the coverage of operating costs and the coverage of the costs of minor repairs and spare parts in the water supply from around 38% in 2008 to almost 90%. Although this still means a cost shortfall, significant progress can be noted in QCWW. The sectoral framework conditions in Egypt, in particular the centrally defined water tariffs, which are kept low for political reasons, make it difficult for the executing agency to achieve full cost coverage. As part of the evaluation, it was found that the executing agency is already working hard to improve customer registration and collection rates. For example, it was reported that a government building had already been drained of water in order to claim debt from the local administration. However, there is still potential to legalise and bill illegal house connections and to demand outstanding bills. The upcoming digitalisation of the customer register could help here to gain a better overview of data. On the cost side, the executing agency has already reduced its administrative costs by reducing water supply staff and only has limited opportunities to reduce operating and maintenance costs without reducing the quality of service. In addition, rising energy costs due to a reduction in subsidies from the central government since 2019/20 have led to increasing operating costs for the executing agency, which can only be reduced slightly through energy-saving measures. The selected design was the alternative with the best cost-benefit ratio. Overall, we therefore consider the allocation efficiency to be satisfactory.

Summary of the rating:

In summary, the satisfactory allocation efficiency and the less successful production efficiency result in an overall efficiency of the project that is just about acceptable.

Efficiency: 3

Impact

Overarching developmental changes (intended)

This project was not embedded in a DC programme. The overarching developmental objective (impact level) defined at the project appraisal for phase 1 of the project was “Contribution to improving sanitary living conditions in the governorate of Qena” and for phase 2 “Reduction of environmental pollution and health risks for the population in the Qena governorate”. For the evaluation, the overarching objective “Contribution to the improvement of sanitary living conditions in the governorate of Qena” is considered more relevant, as it cannot be expected that measures with a primary focus on the operation, maintenance and technical and commercial aspects of the water supply would have a significant (and measurable) impact on the improvement of the health situation in Qena or the environmental pollution.

The goal, which was adjusted as part of the EPE, was: “Contribution to the improvement of sanitary living conditions in the governorate of Qena”.

No indicators were defined to measure the achievement of the objective at impact level.

Contribution to overarching developmental changes (intended)

The investment measures of the open water programme focused on improving water production (in centralised and decentralised water treatment plants) and water network operation. Particular focus was placed on rehabilitation and maintenance options (e.g. procurement and installation of spare parts, machinery, workshops) and on improving commercial operation, e.g. by procuring and calibrating bulk and building water meters for better water quantity measurement. The consulting services in phase 1 included capacity building in hydraulic modelling, training on the topic of reducing unaccounted for water and improving commercial activities (customer service, billing, collection of customer data). As part of a parallel TC programme, laboratories were equipped and certified, and digitalisation efforts to improve financial sustainability were carried out, among other things.

It should be noted that in 2022 – i.e. approx. 10 years after the completion of phase 1 – operation by QCWW appears to be significantly improved. However, QCWW continues to struggle to reduce unaccounted for water due to insufficient data on technical and commercial losses. While almost 90% of the operating costs are cov-

ered, the gap to full cost coverage is currently being filled by government subsidies, which are decided each year in the state budget for all water operations and then passed on by the Holding Company. The future existence of these subsidies is not guaranteed and depends on the political and economic situation in the country. Accordingly, full financial sustainability has not yet been achieved.

From the perspective of the citizens in the Qena governorate, the security of the water supply has increased (particularly relevant for villages that did not have a 24-hour water supply when QCWW was founded). In addition, water quality and monitoring have improved – since its inception, QCWW has established 16 decentralised laboratories and one centralised ISO 17025-certified laboratory to make sure water quality meets Egyptian national standards. In addition, customer complaints are handled by a new Customer Service Centre that works closely with the relevant departments within QCWW (e.g. planning department, trading department, operation and maintenance department). It can be concluded that the water supply and customer orientation have been improved, which has contributed to an improvement in living conditions in the governorate of Qena.

Through its direct cooperation with QCWW, the project's aim was to contribute to strengthening decentralised structures. This target was partially achieved because capacity in investment planning and implementation, operations and maintenance planning, and commercial activities contributing to improved financial sustainability have improved significantly in Qena since the establishment of the water utility. However, the project's contribution to implementing the sectoral reform started in 2004 was limited insofar as responsibility for investment planning remains at central, national level (e.g. NOPWASD, Haya Karima presidential initiative, etc.). Nevertheless, the coordination between QCWW and the Holding Company as the central government management institution is being strengthened and the local level is being involved and promoted accordingly as part of the follow-up project IWSP II (Improved Water Supply and Sanitation Services Project in Upper Egypt, including in Qena, co-financing from European donors with Germany's FC as lead donor).

Contribution to (unintended) overarching developmental changes

The project did not plan any specific measures to promote access to water for particularly poor and vulnerable people, and there is no measurable evidence that vulnerable groups particularly benefit from the project. However, in Egyptian society, it is women in particular who do most of the domestic work and spend time with the children at home. Accordingly, it can be assumed that improved service quality in the water supply will benefit women and children at least equally. According to QCWW, the percentage of the population with access to water in the governorate is around 98.5% (of 3,435,202 inhabitants, 3,385,320 are connected to the water supply); there are isolated connections in remote villages. The water tariffs applicable in Egypt are standard tariffs for the entire country. Tariffs have been kept extremely low for decades for political reasons and accordingly do not take into account the various realities of life, e.g. income gaps between urban and rural areas, but are instead geared towards lower-income consumers (scale tariffs). At the same time, the average income in Qena is significantly lower than in the Nile Delta, for example, meaning that a higher proportion of income has to be spent on the payment of the water bill in comparison. However, since the project had no influence on the tariff level and contributed to improving the water supply, it can still be assumed that the project had no adverse effects on vulnerable groups.

Furthermore, it can be stated that the equipment of the Qena water utility workshop in particular led to greater financial and technical independence of the water utility. For example, the water utility can carry out important repairs itself at short notice with its own specialist personnel instead of having to rely on more expensive external repairs by companies or – depending on the case – on new orders with an uncertain delivery period. This contributes to increased sustainability of the water utility plants.

Summary of the rating:

Overall, the project's overarching developmental impact successfully contributed to improving the sanitary living conditions in the governorate of Qena, primarily due to the improvements in water treatment, water network operation and service quality achieved through investments and capacity building.

Impact: 2

Sustainability *Capacities of participants and stakeholders*

The number of QCWW employees at the time of the evaluation is 3,994. 2,595 of them work in the water sector. Taking into account a total of 521,000 connections (approx. 510,000 water connections and 11,000 known and billed illegal connections), five employees are employed per house connection, which is within the expected range and represents a significant improvement compared to the project appraisal for phase 2 (nine employees per 1,000 water connections). The situation is different for wastewater: approx. 20 employees per 1,000 wastewater connections is a number that is much too high, but reflects the intention of QCWW to significantly improve the wastewater connections with the completion of new wastewater treatment plants in the short to medium term.

QCWW employees proved to be highly motivated and willing to further improve their business. Since the company was spun off, they have benefited from training and support from international experts and still seem to be applying much of what they have learned to this day. Both the Holding Company and the Chair of QCWW reinforced performance-oriented monitoring on the basis of performance indicators. Accordingly, there is a high level of motivation to also achieve an improvement in indicators and in operations in general. It is plausible to assume that the ownership by QCWW will remain at a high level in the future. The company has its own apprentice school, where 50 students can be trained annually in theoretical and practical water and wastewater management. This enables QCWW to meet future staffing needs.

Contribution to supporting sustainable capacities

The current condition of the infrastructure and machinery visited was generally considered acceptable and shows that maintenance is appropriate. The quality of construction is good to sufficient with regard to the buildings visited in Qena City. The sites visited outside Qena City (Quos) show a significantly lower quality of construction, both for construction work and electromechanical work. The plants visited in Quos provide clean drinking water, but occupational safety could be improved. The rehabilitated water network visited in Quos was technically sufficient. The poorer quality in remote areas compared to the city of Qena can be justified on the one hand by the fact that the infrastructure is older (phase 1). However, the execution quality of phase 1 investments in the city was still better, so further reasons can also be listed: lower maintenance capacities and, where applicable, less qualified personnel in rural areas.

The surveyed beneficiaries during the on-site visit gave the impression that the target group is happy with the current level of service. The water quality is considered good and meets Egyptian standards. The water supply (flow, pressure) is adequate. Against this background, the executing agency and target group appear to be working in one direction (through careful handling of water installations) and thus maintaining the positive impact of the measures.

Non-revenue water levels are still high and need to be further investigated by QCWW to determine the proportions of administrative and physical losses. Flow meters were installed by the Qena water utility in 2022 to reliably determine production data. Accordingly, billed water, i.e. the consumption side, should also be measured extensively. The covering of the costs should be further improved in order to secure the financial sustainability of QCWW in the medium term and to give the company the opportunity to act independently without having to rely on the Holding Company and/or a relevant ministry for repairs and reinvestments. This should be the case regularly, especially for maintenance work and emergency repairs. In principle, the dependence of the water utilities in the governorates in Egypt on subsidies from the central government, which are determined every year, is also regrettable, as on the one hand the consistency of the grants is not guaranteed and can be revised at any time due to political or economic changes. On the other hand, extensive donations generally do not encourage self-sufficient thinking and action.

The above impressions during the on-site visits and the discussions lead to the conclusion that the investments contributed to strengthening QCWW as the executing agency as well as the target group in the individual limited areas in which these were carried out and to achieving identification (ownership) with the implemented individual measures that can be described as pronounced. This was particularly evident during the aforementioned visits to the workshop facilities (consistently positive evaluation of the supplied facility by the executing agency's personnel, accompanied by a high degree of utilisation of the delivered machines, a high level of identification of the personnel with the work that is now possible and the effective benefits for operation). During visits and discus-

sions with the target group in the project areas, where requests for access to the water meters in the houses were gladly met, general satisfaction with the individual investments made was noticeable.

As a result, resilience has been strengthened, particularly with regard to the objectives of increasing the service level of operations and improving customer satisfaction. The increase in resilience, in particular of the executing agency, is also visible and remarkable insofar as the investments were low in comparison to the size of the executing agency, but were implemented in a very targeted manner. The targeted measures for network rehabilitation in Qena have been implemented in areas that are rather low-income, so that the water supply in residential areas of disadvantaged groups has been improved, albeit very selectively.

Durability of impacts over time

The special feature of this open water programme is that it encompasses a large number of individual investments, each of which supports the overarching objectives. The financed infrastructure visited on site is still in operation, fulfils its purpose and helps water utilities to maintain the required level of service. The rehabilitated water network functions sufficiently well, the equipment supplied to the workshops is used extensively and can be regarded as a very effective measure. The hydraulic model developed as part of the project is used daily for planning and maintenance of the plant, but should be continuously updated.

In addition to purely technical implementation, the maintenance of the infrastructure and the attitude of the executing agency and the target group are crucial for the durability of the measures. Execution and maintenance were rated as good to satisfactory during the site visits carried out, at least for the measures located in the urban area of Qena. During site visits in Qous, i.e. outside Qena, the situation is different and the maintenance, as far as is visible, is at a very low level. This fact has a negative impact on the expected durability of the impacts. For the measures in Qena City, the measures appear to be durable, as the current condition of the financed facilities, maintenance and the training of suitable personnel speak in favour of long-term use. The water supply in the areas where network rehabilitation was carried out is also in good condition and is used accordingly. A gender-specific impact can only be derived from the distribution of roles in the local society, where women are predominantly in charge of household activities; a functioning water supply thus offers relief here.

Summary of the rating:

Overall, sustainability is rated as moderately successful, taking into account the executing agency's capacities and ownership, the quality and durability of the investments, the financial sustainability of the water utilities and the project's expected contribution to achieving long-term goals.

Sustainability: 3

Overall rating: 3

Overall, the success of this project can be rated as moderately successful. When determining the overall rating, the individual ratings were weighted equally. The overall rating is based on a special focus on the categories of effectiveness, impact and sustainability.

Contributions to the 2030 Agenda

From today's perspective, the measure contributes to SDGs 6 (Clean Water and Sanitation), 11 (Sustainable Cities and Communities) and 13 (Climate Action – here by strengthening resilience to adapt to the impacts of climate change). Through the division of labour between FC, TC and other donors active in Qena (including USAID), existing systems and structures at the executing agency are used for various donor interventions and a contribution to shared responsibility and accountability is made. The focus of the measure's target system on financial sustainability on the one hand and technical loss reduction on the other, as well as the implementation of various individual investments to improve customer satisfaction and improve water quality, show that there is at least a basic interplay of economic, ecological and social development components in this approach. Despite the proximity of the investments to the target group (e.g. house connections, network rehabilitation), inclusivity

was not the aim of the measure. However, disadvantaged groups, among others, also benefited from the measure.

Project-specific strengths and weaknesses as well as cross-project conclusions and lessons learned

The project had the following strengths and weaknesses in particular:

- Due to the design as an open water programme, individual priority measures could be defined and flexibly changed in the event of changes in circumstances and assumptions (e.g. non-functioning wastewater treatment plant). The division into two phases, in which the first was to prepare the utility for the investments and the second was to be purely investment-based, was generally suitable for entering into DC with QCWW after its establishment and made it possible to take into account the results of an interim balance sheet after the first phase in the second phase.
- The executing agency's good staffing, on the one hand through continuous training in its own apprenticeship school, and on the other hand through various projects with FC, TC and other donors, as well as the ownership shown by the executing agency, are also to be highlighted as strengths of the project.
- Furthermore, the focus on rehabilitation and operational improvement measures as well as increased financial performance contribute to the project's greater sustainability.
- Good coordination between local and national levels is useful and necessary, but is hampered by overlapping responsibilities of ministries and implementing agencies in the Egyptian water sector. It therefore seems all the more important that donor coordination functions and that QCWW plays a key coordinating role for the various donor activities and national investments. This does not always seem to be possible, especially within the Egyptian institutions.
- The efficiency of the measure has suffered greatly from the time delays caused by bureaucratic awarding processes and political standstills, insofar as ultimately fewer investments than originally planned could be realised with drastic price increases and exchange rate devaluations that occurred in the meantime. The consulting costs were also much too high as a result.

Conclusions and lessons learned:

In principle, open programmes, including multi-phase programmes if necessary, should be welcomed, provided that they pursue a generally clear and consistent target system, as these allow more flexibility in determining individual investments compared to pre-defined programmes.

In this project, it has also been demonstrated that improved coordination both between various donors and within DC – in spite of the large amount of effort involved – has a positive effect on the project's results.

When it comes to the procurement of small-scale investments, this project also shows that it makes little sense to award these through international competitive bidding processes. The application of national competitive bidding, possibly in local currency, or other leaner awarding processes possible within the scope of FC could achieve faster successes.

Evaluation approach and methods

Methodology of the ex post evaluation

The ex post evaluation follows the methodology of a rapid appraisal, which is a data-supported qualitative contribution analysis and constitutes an expert judgement. This approach ascribes impacts to the project through plausibility considerations which are based on a careful analysis of documents, data, facts and impressions. This also includes – when possible – the use of digital data sources and the use of modern technologies (e.g. satellite data, online surveys, geocoding). The reasons for any contradicting information are investigated and attempts are made to clarify such issues and base the evaluation on statements that can be confirmed by several sources of information wherever possible (triangulation).

Documents:
Programme proposals for the project, consulting reports, reports from external experts after completion of phase 1 and phase 2, final report and reporting to the Federal Ministry for Economic Cooperation and Development (BMZ), DC programme in the water sector, reporting on the DC programme to the Federal Ministry for Economic Cooperation and Development (BMZ), IWSP II module proposal, IWSP II consulting report, information on TC involvement, strategy documents of the Egyptian government, partner's strategy concept, partner's annual reports, internal key figure reports and partner's key figure calculations.

Data sources and analysis tools:
Google Maps, data collection on site (key figure calculations and analyses of the partner).

Interview partners:
Project-executing agencies, residents (target group), other donors, central government institutions active in the water supply sector in Egypt (Ministry and subordinate institution).

The analysis of impacts is based on assumed causal relationships, documented in the results matrix developed during the project appraisal and, if necessary, updated during the ex post evaluation. The evaluation report sets out arguments as to why the influencing factors in question were identified for the experienced effects and why the project under investigation was likely to make the contribution that it did (contribution analysis). The context of the development measure and its influence on results is taken into account. The conclusions are reported in relation to the availability and quality of the data. An evaluation concept is the frame of reference for the evaluation.

On average, the methods offer a balanced cost-benefit ratio for project evaluations that maintains a balance between the knowledge gained and the evaluation costs, and allows an assessment of the effectiveness of FC projects across all project evaluations. The individual ex post evaluation therefore does not meet the requirements of a scientific assessment in line with a clear causal analysis.

The following aspects limit the evaluation:
Insufficient data from the project partner, e.g. due to a lack of water meters, customer registers in need of improvement, insufficient data recording to some extent.

Methods used to evaluate project success

To evaluate the project according to OECD-DAC criteria, a six-step scale is used for all criteria except for the sustainability criterion. The scale is as follows:

Level 1 very successful: result that clearly exceeds expectations

Level 2 successful: fully in line with expectations and without any significant shortcomings

Level 3 moderately successful: project falls short of expectations but the positive results dominate

Level 4 moderately unsuccessful: significantly below expectations, with negative results dominating despite discernible positive results

Level 5 unsuccessful: despite some positive partial results, the negative results clearly dominate

Level 6 highly unsuccessful: the project has no impact or the situation has actually deteriorated

The overall rating on the six-point scale is compiled from a weighting of all six 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 (“impact”) and the sustainability are rated at least “moderately successful” (level 3).

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List of annexes:

Annex 1: Target system and indicators

Project objective at outcome level		Rating of appropriateness (former and current view)			
During project appraisal: Ensuring a hygienically acceptable, ecologically appropriate, efficient and financially sustainable water supply and sanitation in the programme region		From the perspective at the time and today, we consider the outcome objective of a water programme to be appropriate, although the inclusion of sanitation should not be the focus from today's perspective, as these were almost exclusively investments in the water supply. The evaluation focuses on the water supply and slightly modifies the goal.			
During EPE (if target modified): Ensuring a hygienically acceptable, ecologically appropriate, efficient and financially sustainable water supply in the programme region					
Indicator	**Rating of appropriateness** (for example, regarding impact level, accuracy of fit, target level, smart criteria)	**Optional PA target level: EPE target level**	**PA status**	**Status at final inspection (2020)**	**Optional: Status at EPE (2022)**
Indicator 1 (PA): Increase in the collection rate	Collection rate is an important indicator of financial sustainability, but requires that the water utility also possesses sufficient customer data.	Target level: 80%	37% (2008)	Expected to be achieved. 56–95% depending on districts (79.9% on average)	Left as is
Indicator 2 (PA): Reduction of unaccounted for water	Unaccounted for water is also an important indicator of technical and financial sustainability, which in turn requires availability of at least production and consumption data.	Target level: 35%	51% (2008)	Achieved for individual water distribution zones, if applicable. No reliable data for the entire water distribution system.	Left as is
Indicator 3 (PA): Increase in cost coverage (operating and	Coverage of the costs is highly relevant for the financial sustainability of the utility, as it may no	Target level: 75%	38% (2008)	Achieved.	Left as is.

maintenance costs for water and waste water)	longer be able to carry out maintenance and repair work in the event of a permanent shortfall.			The value is 74% at the time of the final inspection, which was assessed as achieved.	
Indicator 4 (PA): Increase in cost coverage (operating and maintenance costs for water)	See indicator 3. From an investment perspective (WS), it is more relevant to cover the costs in the water supply. However, indicator 3 provides information on the general situation of the water utility.	Target level: 90%	38%	Not achieved. 83% at the time of the final inspection, meanwhile already 93.7%.	Left as is.
Indicator 5 (PA): Ensuring 24-hour water supply	Useful indicator for evaluating an efficient water supply	Target level: 24-hour supply	60% (2008)	Deleted because the programme was not aimed at security of the water supply and the budget was insufficient.	Left as is in the EPE.
Indicator 6 (PA): The water quality complies with WHO standards	Useful indicator for determining a hygienically acceptable water supply. However, either WHO or domestic standards should be applied. The project completion report states that there are national standards in Egypt that deviate from the WHO.	Target level: WHO standards During EPE: WHO or national standards	Not specified	It was deleted because the project was an open programme and not a measure to improve water quality.	Leave as is in the EPE, applying national standards.
Indicator 7 (PA): 5,000 new waste water connections	Only useful if waste water is actually a relevant part of the measure. This was not the case for this project due to the limited funds and problems in the water supply; focus had to be placed on the water sector. Accordingly, the indicator is not realistic and is not very relevant for assessing target achievement.	Target level: 5,000 house connections During EPE: Indicator deleted	Not specified	Was deleted, not realistic.	Deleted in the EPE; not realistic and not very relevant for target achievement.

Indicator 8 (PA): All customers are properly recorded by consumer category	No qualitative indicator; therefore difficult to measure. The usage aspect is also missing.	Target level: Registration of all customers During EPE: Indicator deleted	Not specified	Has been deleted. It turned out that significantly improved customer registration (incl. service) would only have been possible with a high budget for TA (CM) due to the low initial level.	Deleted in the EPE; unrealistic.

Project objective at impact level	**Rating of appropriateness (former and current view)**
During project appraisal: reduction of environmental pollution and health risks for the population in the Qena governorate.	From today's perspective, the focus on environmental and health issues is not appropriate, as no improvement to the environment or health can be achieved with the limited scope of the intervention. In addition, the contribution to this cannot be measured. Improving settlement hygiene is more appropriate, combined with improved living conditions for the population, which benefits from the measures.
During EPE (if target modified): improve the sanitary living conditions in the governorate of Qena.	

Indicator	**Rating of appropriateness** (for example, regarding impact level, accuracy of fit, target level, smart criteria)	**Target level PA / EPE (new)**	**PA status**	**Status at final inspection (2020)**	**Status at EPE (2022)**
Indicator 1 (PA)	No indicators for impact level.	No indicator to apply.		No indicator.	No indicator to apply.

Annex 2: Risk analysis

Risk	Relevant OECD-DAC criterion
Politically motivated low tariffs At the time of the appraisal (both in phase 1 and phase 2), a sustained tariff increase was identified as an essential part of operational improvement. For example, a tariff that covers the full costs of QCWW would have been ten times higher than the combined WS/WW tariff applied at the time of the project appraisal of phase 2. One risk with regard to financial sustainability was therefore that tariffs are kept low due to the population's lack of willingness to pay. This has occurred accordingly. Even from today's perspective, full cost coverage cannot be achieved with the tariff, which is standardised in Egypt. This impairs QCWW's financial sustainability and thus also QCWW's ability to improve its services.	Sustainability, efficiency, effectiveness
Price development and inflation Due to rising prices on the commodities market and high inflation in Egypt, the risk of cost increases due to rising construction and supply prices was recognised during the project appraisal (phase 2). This risk materialised during implementation together with adverse trends in the exchange rate development of the Egyptian pound, meaning that fewer measures could be implemented than originally anticipated.	Efficiency
Effectiveness of personnel development measures, cooperation with TC During the project appraisal of phase 1, the capacity building from Danish cooperation was intended to adequately prepare the water utility in Qena for FC investments at institutional level, improve QCWW's internal processes and increase the executing agency's capacities. Furthermore, it was recognised at the time of the project appraisal (phase 2) that capacity-building measures may be less effective due to a delay in implementation. Close cooperation with TC was therefore rated as particularly relevant. From today's perspective, it can be seen that, due to the Danida project's termination, there was a significant gap that could only be partially filled by TC and FC measures. However, the TC measures carried out later (2007–2011) proved to be largely effective, enabling the executing agency to identify relevant improvement approaches and to pursue them independently (e.g. appropriate financial planning, customer registration, water consumption measurement, identification of unaccounted for water and their strategic control through financial control and technical measures (maintenance, rehabilitation)). USAID is also currently supporting the executing agency in continuing the improvement approaches. In our opinion, close coordination between TC and FC did not always take place; however, specific issues (e.g. customer registration and water loss reduction) were dealt with several times, but in a complementary manner with various consulting assignments from TC and FC.	Coherence, sustainability
Lack of contribution from Egyptian partner In phase 1, the risk of a lack of management performance, insufficient staffing and scarce Egyptian funds was identified. This was demonstrated in the implementation, on the one hand, by lengthy decision-making and implementation processes, which were partly due to indecisive management and non-transparent processes on the partner side. In particular, the capacity development of	Sustainability

phase 1 also showed that the executing agency had set the requirements too high in view of the low level of qualified staff. However, this has improved over time. On the other hand, QCWW was unable to make the originally agreed partner contributions in full due to financial bottlenecks.	
Implementation of sector reform (2004) At the time of the project appraisal (phase 1), the still pending sector reform implementation was identified as a risk. It is still pending to some extent, which was seen during implementation as well as after the end of the measures. In particular, the separation of investment and operational/rehabilitation planning and the multitude of different institutions responsible for investment planning at national level underpin the principle of subsidiarity, which should be at the core of the reform. Proper decentralisation has therefore not taken place and today still leads to cumbersome investment planning and implementation as well as problems with maintenance and operation.	Sustainability, coherence

Annex 3: Project measures and their results

Project measures

For phase 1 and phase 2, the project measures differ in terms of their objective, the selection criteria and, subsequently, the focus of the proposed measures.

Phase 1:

Phase I measures (project appraisal 2001, implementation 2008–2013) originally aimed to support the regional operating company QCWW (mainly in the city of Qena, smaller investments also in Qus, Qift, Naqada and Al Waqf) in its development phase through smaller investments and emergency measures, and to improve the initial situation so that a later phase 2 could aim to expand the supply and disposal systems.

Measures of phase 1:

- supply and installation of bulk water meters and building water meters;
- refurbishment of the Customer Service Centre building;
- rehabilitating the water network in small selected areas of Qus;
- spare parts for small (decentralised) water treatment plants, pumps, motors, valves and pressure gauges, chemical equipment, electrical machinery;
- building a training area for leak detection.
- consulting services (preparation, supervision and coordination of project implementation; on-the-job training)
- comprehensive consulting services for project implementation and technical and financial sustainability improvement, including (i) reduction of unaccounted for water in the network, zoning of the water network, installation and use of bulk water meters, (ii) improved reading of water consumption data for household connections; (iii) improving the company's turnover and income; (iv) digitalisation of water supply plans with GIS (Geo-Information System) and documentation of the network for specific areas, (v) improving operations and maintenance processes, (vi) increasing employee productivity and (vii) increasing customer satisfaction.

Phase 2:

In 2010, the open programme was expanded to include phase 2, which aimed to ensure an appropriate, hygienic, efficient, financially sustainable and environmentally compatible water supply / waste water disposal in the project area.

In preparation for phase 2, an external KfW expert carried out an audit in 2013 to assess the measures of phase 1. He concluded that the measures had largely been implemented as planned. However, he found that measures related to strengthening institutional capacity were too demanding for the existing capabilities in some parts. This also corresponds to the current assessment of these measures from phase 1 (such as the above-mentioned construction of 15 pilot zones located outside Qena). A stronger focus on the implementation of technical measures therefore seemed sensible for phase 2.

The individual measures of phase 2 were defined according to four selection criteria: Income-generating investments, increasing service levels, operational improvements and improving customer management. In the initial stage of phase 2 of the project, the implementation consultant compared the possible measures identified by QCWW with the conditions contained in the programme proposal. This resulted in a selection list for individual projects that were to be implemented.

Due to some unsuccessful competitive bidding and delays, as well as an increase in costs, only limited investments could be made. The following investments have been made:

Measures of phase 2:

- network rehabilitation in the city of Qena;
- delivery and installation of flowmeters in the city of Qena
- replacement and rehabilitation of sludge pumps (El Salhya, Dishna, Nagaa Hamady, Qus);
- Modernisation of the El Manaa central workshop
- Measures to reduce energy consumption (El Sheikh Hussain)
- Equipment for maintenance of sewage collection systems and training
- Spare parts for emergency maintenance of water treatment plants, mobile repair units for maintenance of water treatment plants/compact units
- Replacement and repair of the electrical protective devices in the pump station (El Salhya, Dishna, Nagaa Hamady)
- Equipment for occupational safety in operation
- Consulting services for the implementation

The total costs of the project amounted to EUR 13.89 million, of which EUR 8.44 million was invested in phase 1 and EUR 6.13 million in phase 2. KfW provided a total of EUR 12.67 million, which was granted as a loan to the Republic of Egypt and loaned to QCWW.

Results

The implemented measures were able to create some performance potential on the part of QCWW. However, when presenting and evaluating the results, it is important to include the scale of the investments in relation to the size of the executing agency, i.e. the specific costs should be taken into account. With total costs for phases I and II of EUR 13.89 million and a population of 3.39 million in 2022 in the Qena governorate, this corresponds to a specific investment of EUR 4.1/resident. In view of this situation, the achievement or non-achievement of the indicators is not only due to the measures implemented in this evaluated project, rather the measures may have contributed to the achievement of these objectives and the defined indicators, but are not to be considered solely responsible for the achievement or non-achievement of the objectives.

This includes a large number of small-scale measures in both phases. During the evaluation, an attempt was made to visit many of the sites in order to obtain feedback on the measures from the responsible personnel and, if possible, the population, as well as the visual inspection.

For phase 1, the following selected measures were inspected:

Measure	Observations	Assessment
Procurement of GIS software and IT hardware and creation of a GIS-supported mapping facility within QCWW (consulting)	Large parts of the network are available in a GIS format. This is continuously updated in the event of changes and extensions to the network.	The GIS is useful and should be constantly updated.
Establishment of a team for hydraulic analysis of the system within QCWW (consulting)	A hydraulic model was created based on the GIS system. This model is used daily by several engineers, mainly trained on this system during the first phase.	The hydraulic model is used to support the planning of necessary maintenance work in the system and to evaluate future expansions. It also supports the “hotline” with information on

		possible reasons for a service interruption (high pressure, low pressure, etc.).
Network rehabilitation in Qus (C4)	On-site visit carried out.	The quality of the installation is still satisfactory. The feedback from the population is predominantly positive.
Visit to the Customer Service Centre (“hotline”) (C3)	Tour and discussion with management	The Service Centre operates hotlines that customers and decentralised units of QCWW can use to report problems (water supply, water quality, billing, etc.). The customer should receive feedback within 24 hours.
Delivery and installation of a water meter testing point (C1)	The meter verification system was inspected during the visit. The system is in operation and is used regularly. It appears that the utilisation tends to be medium to low.	The water meter test is only carried out if a consumer complains that their consumption is not measured correctly. The cost of approximately EGP 490 is charged to the consumer.

For phase 2, the following selected measures were inspected:

Contract no.	Measure	Observations	Assessment
8	Supply and installation of a main water meter for the city of Qena	Visited and in operation. Fit for the purpose.	Useful measure for determining unaccounted for water more precisely.
10	Procurement of information boards on occupational health and safety	The signs are placed in appropriate places during the visit.	Visibility could be improved. Despite these signs, the use of appropriate equipment (work shoes, helmet, etc.) is almost non-existent. There is catching up to do.
11	Procurement of mobile repair equipment for the maintenance of existing compact units for water treatment and three mobile units for the maintenance of treatment plants	On-site visit carried out. The equipment is generally in good condition and used intensively.	This equipment helps the O&M department to react immediately to defects in the system and not rely on external repair services.
13	Rehabilitating the water network in the city of Qena	On-site visit carried out. The network was rehabilitated in such a way that old asbestos pipes were replaced by UPVC pipes, including flow control. The project area was classified as a low-income area. The water meter is located inside the house, but is easily accessible to the inspector.	The quality of the installation is satisfactory. The feedback from the population is predominantly positive. The rehabilitated system provides a constant supply of water and no leaks as in the past.
14	Rehabilitation and repair of the protective switch in the pump stations in El Salheya, Dishna and Nagaa Hamady.	The on-site visit has been carried out. The protective switches are in use and protect the existing pumps.	Four pumps are equipped with the protective switches. The pumps are more than 20 years old and energy efficiency is likely to be extremely low.

16	Replacement of sludge pumps (El Salheya – Dishna – Nagaa Hamady)	The on-site visit has been carried out. The pumps are in use.	Appropriate for the purpose.
16	Pump station in Qus. Pumps that were the wrong size were delivered and installed in Qus.	The newly installed pumps are running and serve their purpose. However, the condition of the pumping station (rehabilitation was not part of the measures) is in need of significant improvement. The fenced-in area is untidy, manholes are only covered by makeshift means and access to the pumping station is described as insufficient and does not comply with any safety precautions in any way.	The pumps are running and therefore suit the intended purpose. The poor maintenance of the pump station per se suggests that the pump is not properly maintained and, of all the locations visited, this one gave by far the worst overall impression.
17	Equipping the central workshop in El Maana	On-site visit carried out. The machinery is in good condition and is used intensively. Staff are highly motivated and able to carry out repairs that used to have to be sent to Cairo, which was costly and time-consuming.	This equipment helps the O&M department to react immediately to defects in the system and not rely on external repair services. Occupational health and safety equipment for staff could be used more consistently.

Summarised results:

- Part of the consulting services was the training of staff to build up capacities in various areas. One area was training on the implementation of a GIS system and, on this basis, the implementation of a hydraulic model of the network. This was implemented to the greatest extent possible. Two engineers are currently trained on these systems and are able to localise operational weaknesses, provided these are hydraulic, in order to support operation. This department cooperates closely with the Hotline department, which receives complaints from users. The hydraulic model is thus used on a daily basis to determine whether operating disruptions could be due to hydraulic conditions.
- The installation of bulk water meters within Qena makes it possible to create a more realistic water inventory in a step-by step-in process in order to more accurately quantify and localise unaccounted for water. In 2022, QCWW completed the installation of water meters in all 9 water treatment plants and in all so-called compact units (these are smaller water systems, there are currently 22 compact units). This measure was not part of the FC project, but together with the installation of the bulk water meters supported by the FC project, QCWW will now be able to create an accurate water inventory from 2023 and quantify the physical unaccounted for water and reduce it more precisely.
- The measure for the procurement of material for occupational health and safety has almost exclusively been implemented by providing warning and information signs and protective equipment in QCWW's operating facilities. These were clearly visible everywhere in the facilities visited. The warning signs are observed at least in the water and waste water laboratories, as the main laboratory is certified and has trained personnel. In the departments of the other operations facilities and systems, the use of protective measures is not implemented or only partially implemented, i.e. no use of safety shoes, helmets, etc. The issue has been raised and the responsible persons are aware of this fact, but reference is made to "cultural habits" that make implementation more difficult.
- The quality of the infrastructure and the operations buildings and facilities is in good to satisfactory condition for the facilities visited, at least for the facilities visited in Qena City. Compact systems and pumping stations visited in Qus are in significantly worse condition.

- Equipping the central workshop in El Maana and procuring mobile repair equipment enables QCWW to carry out repairs and maintenance tasks quickly and in a manner that can be planned with its own personnel. Before implementing this measure, QCWW often had to have repairs carried out by suppliers in Cairo in some cases, with the associated high costs and high time requirements. The machinery and trained personnel now enable the company to execute these tasks itself in a cost-effective and timely manner. Staff are highly engaged, and the machinery is in good condition despite heavy use. These measures are consistently rated as very positive and sustainable.
- The replacement of the protective switches in the pump stations in El Salheya, Dishna and Nagaa Hamady and the replacement of the sludge pumps have been implemented in accordance with the purpose. The units are in operation and support operation that is as interruption-free as possible and have been implemented in accordance with the purpose.
- The rehabilitation of parts for the water network has been well implemented. The quality of the execution is good to satisfactory, the population is generally satisfied with the measures, at least that is the impression in the interviews held on site during the evaluation trip.
- Reduction of the originally planned measures: The measures originally planned for phases 1 and 2 were mainly reduced for technical and budgetary reasons. The technical reasons are associated with, for example, the poor performance of the sewage treatment plant at the time of project implementation – the originally planned 5,000 waste water connections were therefore omitted. The budgetary reasons are made up of the following elements: (i) devaluation of the Egyptian pound, which led to sharp price increases, (ii) lower local contribution; and (iii) budget funds reallocated due to price increases in consultancy services. All budgetary reasons are mainly due to significant delays in project implementation. The main reasons for the delays were policy changes, very long and bureaucratic procurement processes for construction work and equipment, combined with a high number of new tenders and lengthy approval procedures.

Annex 4: Recommendations for operation

The operation of the water and waste water system is the responsibility of QCWW. During the evaluation trip, a large number of existing infrastructure locations were visited at which the measures to be evaluated were implemented. In addition to the evaluation of the individual measures, even if not part of FC financing, the following aspects must be highlighted that allow conclusions to be drawn about the development of operation:

- QCWW has equipped all water treatment plants (nine large plants, 22 compact units and mobile units) with flow meters using its own and other external funds, and completed this in 2022. This means that unaccounted for water can be determined more precisely in the future and thus also the physical losses can be quantified. With the more accurate measurements, the calculated unaccounted for water (NRW) fell to 28%, as the previous calculation of NRW assumed higher water production.
- A recurring problem is the availability of qualified personnel. Personnel who receive further training from QCWW with corresponding costs frequently leave the company, as the income opportunities in the private sector or in large cities are better. In order to meet this challenge, QCWW has established its own school in which 50 young people are trained in theory and practice over a period of three years. This is an attempt to counteract the shortage of skilled workers and achieve a certain level of loyalty to the utility in order to keep the majority of specialists.
- For some time now, in Egypt it is permitted to cut off users from the water supply if they are in payment default for more than three months. This is practised in QCWW according to its own statements. Ultimately, this could not be verified during the evaluation trip, but according to statements, private connections as well as major customers such as industry and authorities are blocked if the payment delay persists. Within QCWW, a separate department has been established for this purpose, which carries out these measures with several teams. According to statements, the main purpose of the measure is to encourage solvent customers to make payments, while goodwill rules exist for poor sections of the population.
- Similarly, the digitalisation of customer registers and billing is still in development but not yet completed.
- Development of in-house key performance indicators for operational management. This was introduced and implemented by the current Managing Director of QCWW. The current Managing Director has a long career at USAID and would now like to use and implement this experience in the utility.

The situation of the recommendations for operation made during the final inspection is assessed as follows:

- Increased utilisation of procured machines: the machines visited during the evaluation trip were used very heavily with the exception of the calibration benches for water meters.
- Better mapping and zoning of the water supply in Qena: The aim is to intensively use the already quite sophisticated equipment of the plants and the network to divide the network into zones and to determine the water consumption and unaccounted for water more precisely, in particular the physical unaccounted for water. Flow meters have now been installed on all water treatment plants to better determine production. However, on the consumption side, zoning and consumption measurement should also show even more significant progress.
- Improving maintenance by introducing preventive maintenance processes/improving the operating situation at the Qus sewage pumping station: the maintenance of the plants in the Qena City area is satisfactory, although there is still considerable potential for improvement. However, the field visit to the pumping station in Qus in particular showed that maintenance outside Qena City is extremely poor. This not only has a significant negative impact on occupational safety, but industrial safety also does not appear to be guaranteed. There is still a clear need for improvement here.

- Improving occupational safety: occupational safety in general is still not sufficient. With the exception of the certified laboratories, which take occupational health and safety into account, the provision and use of occupational health and safety equipment (shoes, helmet, clothing) is rather the exception.
- Modernising the billing cycle: in individual zones, meter reading is already performed using mobile equipment, but this is not yet the case everywhere. With regard to the improvement of collection rates (digitalisation of the customer register and billing, tracking of illegal house connections, closure of contracts in the event of non-payment), the digitalisation process should be further promoted. While the sanction mechanism for non-payment can generally be rated as positive, e.g. for non-paying authorities, a corresponding established strategy with goodwill rules should be developed for vulnerable groups.

Annex 5: Evaluation questions in line with OECD-DAC criteria / ex post evaluation matrix

Relevance

Evaluation question	Specification of the question for the present project	Data source (or rationale if the question is not relevant/applicable)	Rating	Weighting (- / o / +)	Reason for weighting
Evaluation dimension: Policy and priority focus	- Clear link between Egyptian objectives and measures? - Contribution to achieving Egyptian objectives and BMZ objectives? - Taking into account the general conditions of German/international donors and the Egyptian government as well as the local context?		1	o	
Are the objectives of the programme aligned with the (global, regional and country-specific) policies and priorities, in particular those of the (development policy) partners involved and affected and the BMZ?	Do the objectives/measures correspond to the Egyptian sector strategy? Do the objectives/measures correspond to the BMZ guidelines and the BMZ strategies for the priority area?	Egyptian strategies, including NDCs, sector targets, etc. BMZ Water Strategy BMZ country strategy and DC programme			
Do the objectives of the programme take into account the relevant political and institutional framework conditions (e.g. legislation, administrative capacity, actual power structures (including those related to ethnicity, gender, etc.))?	Are the measures compatible with institutional realities in Egypt? Does the Qena water utility have the opportunity to invest and modernise its operations? Who has the option of setting tariffs? Influence of other ministries/authorities? Do goals take gender aspects and local conditions into account? Were quality characteristics relevant to the Federal Ministry for Economic Cooperation and Development (BMZ) taken into account (gender equality/human rights, integrity, alleviating poverty, environmental and climate impact assessment, conflict sensitivity, digitalisation)?	DC programme reporting, statutes of the executing agency and the holding company, home page of ministries/authorities; Project design compared to local reality. Consideration of relevant quality characteristics from today's perspective.			

Evaluation dimension: Focus on needs and capacities of participants and stakeholders	- Taking into account the capacities of the executing agency and target group when designing the measure; - Taking into account the needs of the target group and the inclusion of disadvantaged groups		2	o	
Are the programme objectives focused on the developmental needs and capacities of the target group? Was the core problem identified correctly?	Were the capacities and needs of the executing agency and the population in Qena taken into account? Was the core problem identified correctly?	Interviews, consulting reports, project appraisal, final inspection			
Were the needs and capacities of particularly disadvantaged or vulnerable parts of the target group taken into account (possible differentiation according to age, income, gender, ethnicity, etc.)? How was the target group selected?	Were special needs of the disadvantaged people in Qena taken into account? (low-income, women, ethnic groups)? Was care taken to ensure that tariffs remain socially affordable?	Interviews, consulting reports, project appraisal, final inspection			
Evaluation dimension: Appropriateness of design	- Appropriateness of design - Appropriateness of target system / impact assumptions - Three dimensions of sustainability		2	o	
Was the design of the programme appropriate and realistic (technically, organisationally and financially) and in principle suitable for contributing to solving the core problem?	Does the “open programme” concept help to strengthen the water sector in Qena? Comprehensible selection of investments? Was the initial focus on a preparation phase appropriate?	Appraisal report, final inspection, reports, interviews			
Is the programme design sufficiently precise and plausible (transparency and verifiability of the target system and the underlying impact assumptions)?	What impact assumptions are there? Is the target system comprehensible? Is it verifiable (clear measurements, etc.)?	Appraisal report, final inspection, reports, interviews			
To what extent is the design of the programme based on a holistic	Environmental and economic dimension in the design?	Appraisal report, final inspection, reports, interviews			

approach to sustainable development (interplay of the social, environmental and economic dimensions of sustainability)?	To what extent are socially disadvantaged target groups taken into account or is customer satisfaction (social acceptance by target group) promoted?				
Evaluation dimension: Response to changes/adaptability	- Handling risks in advance / during the course of the project		2	o	
Has the programme been adapted in the course of its implementation due to changed framework conditions (risks and potential)?	How were changes to the assumptions handled (deterioration of economic/socio-economic situation, lack of implementation of sector reforms, GIZ only partially successful in strengthening the executing agency)?	Consulting report, final report, interviews			

Coherence

Evaluation question	Specification of the question for the present project	Data source (or rationale if the question is not relevant/applicable)	Rating	Weighting (- / o / +)	Reason for weighting
Evaluation dimension: Internal coherence (division of tasks and synergies within German development cooperation):	- Division of labour with GIZ and complementarity of FC and TC		3	o	
To what extent is the programme designed in a complementary and collaborative manner within the German development cooperation (e.g. integration into DC programme, country/sector strategy)?	Is the measure integrated into a DC programme and was there a division of labour with GIZ?	DC programme. Programme reporting			
Do the instruments of the German development cooperation dovetail in a conceptually meaningful way, and are synergies put to use?	How specific was GIZ-KfW's intended division of tasks? Who specifically should make the executing agency fit for business?	DC programme, programme reporting, interviews			

	Were there gaps that nobody covered and or was there overlap?				
Is the programme consistent with international norms and standards to which the German development cooperation is committed (e.g. human rights, Paris Climate Agreement, etc.)?	WHO or national water standards? Human rights, child labour, etc.? Climate aspects?	Contractual agreements, project appraisal, final inspection			
Evaluation dimension: External coherence (complementarity and coordination with actors external to German DC):	- Coordination between external donors, complementarity of activities		2	o	
To what extent does the programme complement and support the partner's own efforts (subsidiarity principle)?	Who makes investment decisions? What is the division of labour? Is the partner supported in taking care of themselves?	Programme reporting, final inspection, appraisal report, interviews			
Is the design of the programme and its implementation coordinated with the activities of other donors?	Is there donor coordination in the water sector? To what extent was attention paid to ensuring that measures were coordinated?	Programme reporting, interviews			
Was the programme designed to use the existing systems and structures (of partners/other donors/international organisations) for the implementation of its activities and to what extent are these used?	Takeover of structures of other partners and/or structures of development cooperation by other partners? Software systems / awarding of contracts?	Final inspection, appraisal report, consulting report, interviews			
Coherence within Egypt	- Coordination of investment measures within Egypt, at national and local level		4	o	
Coordination within Egypt? Inclusion of all actors in the water sector?	Inclusion of actors and coordination within Egypt, especially the different actors at national level and between national and local levels?				

Effectiveness

<table>
<tr><th>Evaluation question</th><th>Specification of the question for the present project</th><th>Data source (or rationale if the question is not relevant/applicable)</th><th>Rating</th><th>Weighting (- / o / +)</th><th>Reason for weighting</th></tr>
<tr><td>Evaluation dimension: Achievement of (intended) targets</td><td colspan="2">Evaluation question: Have the project objectives (“Ensuring a hygienically acceptable, ecologically appropriate, efficient and financially sustainable water supply in the programme region”) been effectively implemented? The evaluation should be assessed against the backdrop of the low specific investment of the project.</td><td>3</td><td>+</td><td>Of the six indicators, four were fully achieved and two were one percentage point below the target and can therefore be regarded as “almost” achieved.
However, from today’s perspective, the level of ambition for the reduction of unaccounted for water is rather low.
In addition, there are inaccuracies in the underlying data for several indicators.</td></tr>
<tr><td>Were the (if necessary, adjusted) objectives of the programme (incl. capacity development measures) achieved?
Table of indicators: Comparison of actual/target</td><td>Some of the indicators were achieved or almost achieved. Some indicators were highlighted in advance during implementation.</td><td colspan="3"><table>
<tr><th>Indicator</th><th>Status at ex post evaluation</th></tr>
<tr><td>Collection rate over 80%</td><td>Achieved, with 83%</td></tr>
<tr><td>NRW below 35%</td><td>NRW is 36% in 2020/21. The indicator is therefore not achieved, but very close to being achieved.
NB: From today’s perspective, the level of ambition is rather low and would be more likely to be 25–30%. It should also be mentioned that the data provided was calculated by dividing the invoiced water consumption and water production. The calculation has</td></tr>
</table></td></tr>
</table>

			several inaccuracies: (i) water production was not fully measured in Qena Governorate, therefore assumptions were made for compact units without meters from QCWW; (ii) only some customers have installed meters; customers without meters are billed on a flat rate basis with an estimated consumption. The billed water consumption includes illegal connections, which – as soon as they are known to QCWW – are billed on the basis of estimated consumption. In 2022, flow meters were finally installed in all water treatment plants, and based on this, the amount of water pumped was lower than it was estimated to some extent in recent years (mainly based on the operating hours of the pumps). Taking into account the newly measured amount of water produced, the newly calculated NRW was reduced to 28% for 2022. However, this is a provisional figure, and the above-mentioned uncertainties remain with regard to the consumption figures invoiced. It can be concluded that QCWW is approaching its target of achieving NRW below 35%.
		The operating cost coverage (water and waste water) is being raised to 75%. The cost coverage of the operating costs (water) is being raised to 90%.	Partly achieved. The operating cost coverage (water and waste water) was 84% in 2020/21. The operating cost coverage (water and waste water) was 89% in 2020/21. NB: The water and waste water tariff is set by the government and applies to the whole of Egypt. In this respect, water companies such as QCWW have limited opportunities to achieve the targeted percentage of operating cost coverage. The only option QCWW has is to reduce operating costs, but this would have a detrimental effect on service levels and is not advisable. At the same time, the cost recovery ratio for water was over 100% in 2018/19 and

			2017/18 respectively. The ratio was adversely affected by rising electricity costs, as the Egyptian government has decided in recent years to cut subsidies and raise electricity prices, which QCWW had no influence over. The waste water sector is still being set up at QCWW. Therefore, the currently low operating cost coverage in the waste water sector (63% in 2021/22) is not unexpected.
			Security of supply is guaranteed 24/7	Achieved. The security of the water supply around the clock, with the exception of minor maintenance work, has been confirmed, including in the villages.	
			Water quality in accordance with Egyptian national standards	Achieved. Water quality is measured regularly in QCWW laboratories and by external bodies. The central lab is ISO certified.	
Evaluation dimension: Contribution to achieving objectives:	- Achievement of objectives remarkable in view of low budgets; - Frequent adjustment to new developments (re-prioritisation of investments, etc.); - Largely sustainable use of investments / capacity-building measures identifiable; - Customer satisfaction / access to water even for vulnerable groups, but not an objective			2	o
To what extent were the outputs of the programme delivered as planned (or adapted to new developments)? *(Learning/help question)*	What measures were proposed in the PP? What measures were implemented at the end?	Appraisal report; final inspection			
Are the outputs provided and the capacities created used?	Current use of training content? GIS / water meter? Use of vehicles / spare parts / infrastructure?	On-site interview			

To what extent is equal access to the outputs provided and the capacities created guaranteed (e.g. non-discriminatory, physically accessible, financially affordable, qualitatively, socially and culturally acceptable)?	How is the fare system structured? Can water be used by everyone? What is the supply situation like? Was there an improvement?	On-site interview
To what extent did the programme contribute to achieving the objectives?	Were indicators met? Is a clear contribution to the module objective and, if necessary, higher-level political objective visible?	Appraisal report, final inspection
To what extent did the programme contribute to achieving the objectives at the level of the intended beneficiaries?	To what extent does investment benefit the population?	Appraisal report, final inspection, interviews
Did the programme contribute to the achievement of objectives at the level of the particularly disadvantaged or vulnerable groups involved and affected (potential differentiation according to age, income, gender, ethnicity, etc.)?	Tariff system? Other forms of support?	Appraisal report, final inspection, interviews
Were there measures that specifically addressed gender impact potential (e.g. through the involvement of women in project committees, water committees, use of social workers for women, etc.)? (FC-E-specific question)	Was it even possible to achieve the goal with the financial resources? Was it possible with this executing agency and its	Appraisal report, final inspection, interviews

	capacities/willingness to cooperate? What influence did the incomplete implementation of the sector reform have and thus on the move away from decentralisation?				
Evaluation dimension: Quality of implementation	- Execution quality varies between Qena City and more remote areas; - Capacity, use, motivation at the executing agency are to be classified positively.		3	o	
How is the quality of the management and implementation of the programme (e.g. project-executing agency, consultant, taking into account ethnicity and gender in decision-making committees) evaluated with regard to the achievement of objectives?	Implementation and maintenance personnel at the executing agency, motivation of the executing agency? Quality of execution (construction company, consultant, executing agency)?	On-site visit, interviews			
How is the quality of the management, implementation and participation in the programme by the partners/sponsors evaluated?	Capacities and motivation at the executing agency?	On-site visit, interviews			
Evaluation dimension: Unintended consequences (positive or negative)	- Contribute to improving performance at local level and thus enable confident demeanour, improving local good governance; - Improve customer management and dialogue.		2	o	
Can unintended positive/negative direct impacts (social, economic, ecological and, where applicable, those affecting	Contribution to decentralisation/good governance?	Interviews, reports			

vulnerable groups) be seen (or are they foreseeable)?	Contribution to customer management?	
What potential/risks arise from the positive/negative unintended effects and how should they be evaluated?	Potential to continue sector reform?	Interviews, reports
How did the programme respond to the potential/risks of the positive/negative unintended effects?	Sector reform continuation is called for in the DC programme and in political dialogue.	Interviews, reports

Efficiency

Evaluation question	Specification of the question for the present project	Data source (or rationale if the question is not relevant/applicable)	Rating	Weighting (- / o / +)	Reason for weighting
Evaluation dimension: Production efficiency	Evaluation question: Were the small-scale funds used efficiently: In some cases only because planned measures were reduced for technical and budgetary reasons. Technical reason: due to the lack of purification capacity of the sewage treatment plant, the planned 5,000 additional connections were not made. Budgetary reasons consist of the following elements: (i) devaluation of the Egyptian pound, which led to sharp price increases, (ii) lower local contribution; and (iii) budget funds reallocated due to price increases in consultancy services. These elements are due to the enormous delays		4	o	
How are the inputs (financial and material resources) of the programme distributed (e.g. by instruments, sectors, sub-measures, also taking into account the cost contributions of the partners/executing	What were funds spent on? How much?	Final inspection, consulting report			

agency/other participants and affected parties, etc.)? (Learning and help question)					
To what extent were the inputs of the programme used sparingly in relation to the outputs produced (products, capital goods and services) (if possible in a comparison with data from other evaluations of a region, sector, etc.)? For example, comparison of specific costs.	What were the specific investment costs and are they particularly high in a national/regional comparison? If so, why?	Final inspection, consulting report, information from TEs from other tenders.			
If necessary, as a complementary perspective: To what extent could the outputs of the programme have been increased by an alternative use of inputs (if possible in a comparison with data from other evaluations of a region, sector, etc.)?	Would it have been better to invest in more cost-effective measures to achieve the same outputs?	TE analysis			
Were the outputs produced on time and within the planned period?	When were the outputs completed and to what extent did the period deviate from the design?	Consulting report, final inspection, reporting			
Were the coordination and management costs reasonable (e.g. implementation consultant's cost component)? (FC-E-specific question)	Were the costs for the implementation consultant reasonable?	TE assessment, interview, reports			
Evaluation dimension: Allocation efficiency	- Financial sustainability not yet fully in place in some cases, but opportunities on the executing agency side were largely exploited; - Limited opportunities to achieve success elsewhere - If applicable, more focus on initiated measures		3	o	
In what other ways and at what costs could the effects achieved	Would it have been possible to take other measures (more water loss reduction? Cost centre creation/customer	TE assessment, interview			

(outcome/impact) have been attained?	register/financial analysis?) to achieve a similar effect?	
To what extent could the effects achieved have been attained in a more cost-effective manner, compared with an alternatively designed programme?	Costs for alternatives?	TE assessment
To what extent could the positive effects have been increased with the resources available, compared to an alternatively designed programme?	Could positive effects have been increased by a CM?	Interviews
Financial sustainability of the executing agency's management?	Could financial sustainability have been ensured in the company, e.g. through tariff increases?	Interviews

Impact

Evaluation questions	Specification of the question for the present project	Data source (or rationale if the question is not relevant/applicable)	Rating	Weighting (- / o / +)	Reason for weighting
Evaluation dimension: Overarching developmental changes (intended)	- Contribution to improving the living conditions of the target group at impact level - Positive effects at outcome level		2	o	
Is it possible to identify overarching developmental changes to which the programme should contribute? (Or if foreseeable, please be as specific as possible in terms of time).	Reducing environmental impact and health risks? or Improvement of sanitary living conditions?	Project appraisal, final report, availability of data			

Is it possible to identify overarching developmental changes (social, economic, environmental and their interactions) at the level of the intended beneficiaries? (Or if foreseeable, please be as specific as possible in terms of time).	Is/are there better municipal hygiene / health effects / environmental protection in the governorate of Qena? Contribution to technical improvement, improvement of operations, financial sustainability, security of supply, water quality assurance, customer satisfaction? Contribution to decentralisation?	Project appraisal, final report, availability of data			
To what extent can overarching developmental changes be identified at the level of particularly disadvantaged or vulnerable parts of the target group to which the programme should contribute (Or, if foreseeable, please be as specific as possible in terms of time).	Access to water for vulnerable groups?	Interviews, reports			
Evaluation dimension: Contribution to overarching developmental changes (intended)	- Effects at outcome level due to the various investment dimensions (financial sustainability, security of supply/water quality, operational improvements, technical, administrative, digital improvements, etc.) - Contribution to decentralisation - Positive effects for target group		2	o	
To what extent did the programme actually contribute to the identified or foreseeable overarching developmental changes (also taking into account the political stability) to which the programme should contribute?	Contribution to improving hygienic living conditions in the community? Contribution to decentralisation?	Appraisal report, final inspection, interviews			
To what extent did the programme achieve its intended (possibly adjusted) developmental objectives? In other words, are the project impacts sufficiently tangible not only	Are health effects noticeable?	Appraisal report, final inspection, interviews			

at outcome level, but also at impact level? (E.g. drinking water supply/health effects).		
Did the programme contribute to achieving its (possibly adjusted) developmental objectives at the level of the intended beneficiaries?	Improved living conditions of the population? Customer satisfaction, safety?	Appraisal report, final inspection, interviews
Has the programme contributed to overarching developmental changes or changes in life situations at the level of particularly disadvantaged or vulnerable parts of the target group (potential differentiation according to age, income, gender, ethnicity, etc.) to which the programme was intended to contribute?	Improved the living conditions of vulnerable groups?	Appraisal report, final inspection, interviews
Which project-internal factors (technical, organisational or financial) were decisive for the achievement or non-achievement of the intended developmental objectives of the programme? *(Learning/help question)*	Slow executing agency, lack of capacity despite large staffing levels? Consultant possibly incorrect task set?	Appraisal report, final inspection, interviews
Which external factors were decisive for the achievement or non-achievement of the intended developmental objectives of the programme? *(Learning/help question)*	Slow sector reform, confusing responsibilities? Problem of economic stability (currency deterioration) Political problems (Arab Spring, coup, etc.)	Appraisal report, final inspection, interviews
Does the project have a broad-based impact?	Division in the preparation and implementation, open water programme: Reproducible character?	Appraisal report, final inspection, interviews

- To what extent has the programme led to structural or institutional changes (e.g.in organisations, systems and regulations)? (Structure formation) - Was the programme exemplary and/or broadly effective and is it reproducible? (Model character)	Structure formation by supporting the local level despite a lack of sector reform?				
How would the development have gone without the programme? (Learning and help question)	What would have happened without the project? Qena still underperforming?	Appraisal report, final inspection, interviews			
Evaluation dimension: Contribution to (unintended) overarching developmental changes	- No negative effect perceptible to vulnerable groups - Strengthening of financial/technical independence and help with self-help at local level		2	o	
To what extent can unintended overarching developmental changes (also taking into account political stability) be identified (or, if foreseeable, please be as specific as possible in terms of time)?	Strengthening of financial/technical independence beyond conception? Helping communities to help themselves?	Interviews, reports			
Did the programme noticeably or foreseeably contribute to unintended (positive and/or negative) overarching developmental impacts?	Potential future unintended developments?	Interviews, reports			
Did the programme noticeably (or foreseeably) contribute to unintended (positive or negative) overarching developmental changes at the level of particularly	If applicable, Is access to drinking water particularly helpful? Or deterioration due to tariff situation or attempt to request Qena's outstanding invoices?	Interviews, reports			

disadvantaged or vulnerable groups (within or outside the target group) (do no harm, e.g. no strengthening of inequality (gender/ethnicity))?		

Sustainability

Evaluation question	Specification of the question for the present project	Data source (or rationale if the question is not relevant/applicable)	Rating	Weighting (- / o / +)	Reason for weighting
Evaluation dimension: Capacities of participants and stakeholders	- Sustainable personnel development concept; - High level of motivation/ownership at the executing agency; - Further improvements with regard to personnel recruitment and deployment, especially with regard to waste water, are necessary.		2	o	
Are the target group, executing agencies and partners institutionally, personally and financially able and willing (ownership) to maintain the positive effects of the programme over time (after the end of the promotion)?	Capacities, staffing and motivation at the executing agency?	Interviews, site visits, HR statistics			
To what extent do the target group, executing agencies and partners demonstrate resilience to future risks that could jeopardise the impact of the programme?	If applicable, partner's internal target system? Personnel planning and training? Maintenance strategy?	Interviews, inspections			
Evaluation dimension: Contribution to supporting sustainable capacities:	Evaluation questions: • Have the investments been properly implemented and have maintenance and operation been improved? • Is the target group satisfied with the improvements intended for them? • Resilience to adverse developments (e.g. elimination of subsidies)? • Vulnerable groups?		3	o	

	Assessment: • Current condition of the infrastructure and machinery visited and shows that maintenance is appropriate. • The plants visited in Qus provide safe drinking water. The quality of the work could be improved. The rehabilitated water network visited in Qus was sufficient for the work to be carried out. • The investments visited and discussed on site are all still in operation, fulfil their purpose and help the company to maintain the required service level. • The renovated network functions perfectly and the machinery supplied to the workshops is used extensively. • Follow-up is required with regard to financial sustainability and technical improvements (Chairman/USAID support helpful); • Dependence on subsidies is detrimental; • Vulnerable groups sometimes strengthened, but no concrete objective.				
Did the programme contribute to the target group, executing agencies and partners being institutionally, personally and financially able and willing (ownership) to maintain the positive effects of the programme over time and, where necessary, to curb negative effects?	Further training with the executing agency? How does the executing agency train personnel? Is the executing agency making progress with regard to business management? (building up a customer system, reducing NRW, improving income and cost situation) Does the executing agency monitor the water quality? Target group satisfied?	Interviews, data records			
Did the programme contribute to strengthening the resilience of the target group, executing agencies and partners to risks that could jeopardise the effects of the programme?	Resilience to low tariffs? (e.g. subsidies) Resilience to tariffs for the population are too high (e.g. state support?) Resilience to lack of improvement in executing agency capacities, deterioration of the economic situation?	Interviews			
Did the programme contribute to strengthening the resilience of particularly disadvantaged groups to risks that could jeopardise the effects of the programme?	Support for vulnerable groups?	Interviews			

Evaluation dimension: Durability of impacts over time	- Condition of investments; - Use and viability of investments; - Expected durability of the individual investments based on impressions with regard to maintenance.		3	o	
How stable is the context of the programme (e.g. social justice, economic performance, political stability, environmental balance)? (*Learning/help question*)	How easily can the current situation become worse?	Interviews			
To what extent is the durability of the positive effects of the programme influenced by the context? *(Learning/help question)*	Technical durability of investments? Are investments used and maintained? Further maintenance strategy and implementation? Working on capacities?	Interviews / site visits			
To what extent are the positive and, where applicable, the negative effects of the programme likely to be long-lasting?	If applicable, Capacity improvement/ mindset? If applicable, Gender?	Interviews / site visits			