

# Ex post evaluation – Morocco

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**Sector:** 14022 - Sanitation and waste water management - large systems  
**Programme/Project:** Waste water disposal in Khenifra / M'Rirt, BMZ No. 1994 65 683\*  
**Implementing agency:** Office National d'Electricité et de l'Eau Potable (ONEE)



## Ex post evaluation report: 2015

		Project (Planned)	Project (Actual)
Investment costs (total)	EUR million	15.24	14.43
Counterpart contribution	EUR million	4.50	4.47
Funding	EUR million	10.74	9.96
of which BMZ budget funds	EUR million	10.74	9.96

\*) Projects in the 2014 random sample

**Summary:** On the one hand the project aimed to improve waste water disposal in the cities of Khénifra and M'Rirt. The key measures in this context were the rehabilitation and expansion of the waste water systems in these two cities as well as the construction of a water treatment plant in M'Rirt. The project was also designed as a pioneering pilot measure to successfully bring the Office National d'Electricité et de l'Eau Potable (ONEE) into the sector. The experience thus gathered in developing and implementing the working methods and instruments required still shape the work of the ONEE today.

**Objectives:** The ultimate objective of the project was to contribute to reducing the health risks to the populations in the cities mentioned above.

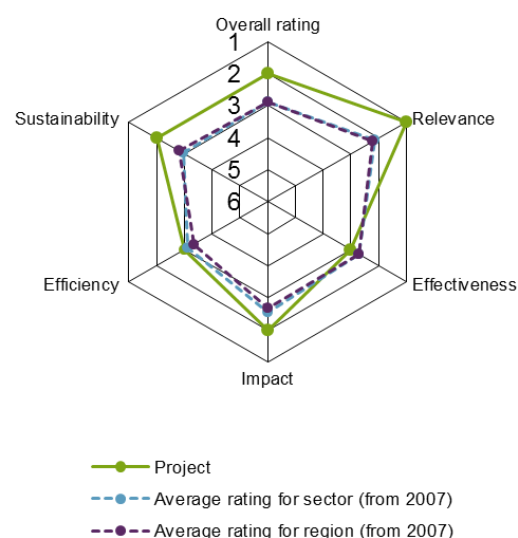
The project objective was to ensure the adequate collection and drainage of household waste water in Khénifra and M'Rirt as well as the treatment of waste water in M'Rirt.

**Target group:** The target group is the population of both cities (2000: 130,000 people; 2013: 168,000 people).

## Overall rating: 2

**Rationale:** The project made a particular contribution to the continued development of the water sector in Morocco, where the problems of waste water had previously been largely neglected. German DC played a pioneering role here in a joint initiative with the partner. This impact for the sector offsets some minor shortcomings in the design and implementation of the project.

**Highlights:** The level of ownership for the project at the ONEE is very high. Several employees who were involved in the implementation process are now in management positions. The experience gathered during the project and the methods developed are now firmly embedded in the "institutional mindset" of the ONEE.



## Rating according to DAC criteria

### Overall rating: 2

The project made a considerable conceptual contribution to the development of the sector. The project objectives were largely achieved and at a justifiable cost. The term of the project was significantly exceeded; this was mostly due to the need to develop working instruments from scratch and initially having to negotiate the required agreements with local participants before recording them in writing. The infrastructures are currently being used. However, the tariffs applied do not yet cover costs; they were not raised for waste water from 2006 to 2013, while the 2014 increase was insufficient. Thus the ONEE's deficit is trending upwards with every additional waste water network and every additional treatment plant taken on. This also increases the dependency on state subsidies, which have to be re-negotiated from time to time. Further challenges - alongside the overdue increase in tariffs - are found particularly in the medium and long-term regulation of sewage sludge disposal at national level.

### Overall context

When the project was designed, the unsolved problem of waste water disposal became increasingly apparent against the background of some positive developments in drinking water supply. The municipalities are responsible for waste water disposal, but they are often not capable of fulfilling this role either financially or in terms of human resources. German FC therefore developed the proposal for the project evaluated here together with its proven partner in the field of drinking water, the Office National de l'Eau Potable (ONEP), now the Office National d'Electricité et de l'Eau Potable (ONEE). The funding was provided as a grant given the innovative character of the project. Khénifra and M'Rirt, both in a delicate situation with regard to waste water disposal, were chosen as the implementation locations. As part of the project, cooperation models in the field of waste water disposal were developed between the municipalities and the ONEE, with the ONEE taking on the management responsibility for this area. The details were and are governed in contracts (then referred to as "Conventions de Co-Gestion", now "Conventions de Gestion Déléguée de Service") between the municipalities and the ONEE for a period of 15 years (including with regard to the handover (and return) of inventories, investment planning and pro rata funding, the composition and functions of a supervisory body as well as consultation obligations, e.g. when agreeing on the annual budget).

Based on the contracts with the municipalities, the waste water systems of both cities were rehabilitated in parts and some new urban areas connected. Furthermore, a water treatment plant was constructed in M'Rirt and put into operation in 2003. This was the first treatment plant operated by the ONEE (today the ONEE is responsible for roughly 60 water treatment plants). The project also supported the construction of drains and the paving of roads to facilitate the drainage of rainwater. A smaller share of funds was dedicated to equipping the municipalities and the ONEE with lorries (to facilitate rubbish collection) and appliances to clear drains.

The approach was supported by the EU (in a separate project) and by GIZ (Capacity Building in the ONEE). The methods developed here form the basis for the ONEE's steadily growing commitment with regard to waste water disposal in small and medium-sized cities, which has been under way since 2006 as part of the Programme National d'Assainissement. This means the ONEE will be active in approximately 140 cities by 2017.

The project not only contributed to improving living conditions in the two cities, it also helped the development of concepts and instruments (management agreements between municipalities and the ONEE; the regulation of municipal funding contributions; the design, construction and operation of treatment plants; the development and introduction of rates for waste water disposal), which although they have been further developed or supplemented in some cases (as part of follow-up FC projects for example), still constitute a key foundation for the ONEE's commitment in this sector.

### Relevance

The project locations were chosen as Khénifra (current population roughly 122,000 people) and M'Rirt (around 46,000 people), located in the Central Atlas mountains. Poverty among the inhabitants of the re-

gion is above the average given the low industrial development and the lack of job opportunities. Both cities were in a delicate situation with regard to waste water: existing infrastructure was ailing, many (new) parts of the cities were not connected, untreated waste water flowed into rivers thereby threatening not only the health of the urban populations but also those downstream (indirectly affecting another 3,000 or so people). This situation was exacerbated by the rapid growth in the populations and the areas of the city. The project facilitated significant improvements (see below).

At the same time, the project helped to develop approaches and instruments to involve the ONEE - an efficient institution with a proven track record - in managing the waste water of small and medium-sized cities. Some of these methods and instruments were adjusted or completed in follow-up phases (also with German support) but, also given the noticeable success of the pilot project, they really paved the way for a fundamental reorientation of the sector, which was rooted politically in the Plan National d'Assainissement in 2006.

No water treatment plant was built in Khénifra as part of the project because according to the programme proposal (PP), the Oued Oum Er Rbia River has a sufficiently high level of water the whole year round, is very capable of purifying itself, and there is no health risk to those living downstream. A water treatment plant was therefore only to be built with the construction of the Imezdilfane dam planned for the supply of water below Khénifra. This approach seems appropriate from today's perspective too. Khénifra's water treatment plant has since been built and the dam project referred to was not realised.

The project is particularly important because it was the first FC project in the Moroccan waste water sector, which is still a focal point of DC in Morocco. The implementation of the Plan National d'Assainissement was the subject of active and intensive donor coordination, led for a long time by German DC.

**Relevance rating: 1**

### Effectiveness

The project aims were achieved in almost every area (household connection rate, treated waste water volume in M'Rirt, drained water volume in Khénifra) and are now exceeded in some cases. In terms of the connection rate, the investments were in some cases implemented in parallel to the phased-out activities of the project evaluated here, also supported by an FC follow-up programme (Waste water supply of rural centres III, 2002 66 171). After a plausibility check, the objectives quantified in the programme proposal were reached with the impacts attributed directly to the project evaluated here.

According to the programme proposal the targeted discharge value for treated waste water at the M'Rirt treatment plant was not reached (BSB5 reduction of 90 %, based on current inflow figures this corresponds to a BSB5 concentration in the outflow of an average of approx. 40 mg/l). This is partly due to the hydraulic overloading of the equipment over the 12 years of operation, and partly due to the unrealistic setting of objectives. The current discharge values are between 110 and 200 mg/l. These figures comply with the Moroccan standards applicable at that time, which up to 2006 prescribed a discharge value of 300 mg/l BSB5. The threshold valid for new facilities from 2006 of 120 mg/l BSB5 cannot be complied with.

The M'Rirt treatment plant emits an odour that was considered normal during the visit of the KfW delegation, but is deemed unbearable by representatives of the municipalities and some residents. With the support of JICA there are currently plans to rehabilitate and expand the facility, which will presumably include the odour problem too. A plot of land adjoining the treatment plant has already been made available by the municipality for the expansion. The odour problem and the overloading issue, which is its main cause, can be attributed to follow-up projects that increased the connection rate but without adjusting the capacity of the treatment plant accordingly.

No separate indicator was determined for the rainwater drainage measures supported by the project. (more explanations under Efficiency).

**Effectiveness rating: 3**

## Efficiency

The project term was markedly exceeded (more than 13 years instead of the anticipated 4 years). This is partly explained by the need to develop assessment approaches for waste water projects and the required underlying conditions (e.g. contracts with municipalities, pricing policy, etc.) first. Furthermore there were laborious consultation processes in the planning phase between the ONEE, the Ministry of the Interior and the municipalities. Providing the local share of the funding by the municipalities was subject to significant delays. The project was also held back owing to the deficient performance and inexperience of the local engineers and construction companies in the waste water sector. In one case, the contract with the building contractor had to be terminated and the work re-tendered. Consulting costs rose moderately, and accounting for approximately EUR 1.83 million out of the total costs of roughly EUR 14.43 million (FC contribution EUR 9.96 million) they are still at an acceptable level. The majority of the construction measures were completed satisfactorily. In the case of the treatment plant there is only one inflow and outflow per pond, which results in a limited purification capacity. Materials were sometimes used for the drainage work (railings, manhole covers, gratings) that are showing signs of early corrosion damage. One rainwater drain in Khénifra does not fulfil its purpose on account of the discharge and height conditions. It is not clear who is responsible for rainwater drainage in the cities, so this has been taken on de facto by the ONEE. The problem here is that the rainwater coming into the cities from the surrounding area (where the municipalities and the water catchment authorities are responsible) is often not held up with appropriate measures, which causes flooding with heavy rain and brings waste and sediments into the sewerage system. That said, the dimensions of the waste water facilities themselves seem appropriate in retrospect too.

Given the sometimes long distances between individual houses and the tricky terrain, the costs of the construction measures seem acceptable. Information on the costs in other projects was not provided by the ONEE, but comparisons would be limited in any case given the very different location conditions. The willingness of users to pay for waste water disposal is good as long as drinking and waste water systems are installed at the same time and billed together. That said, payments by users do not cover costs (see Sustainability).

**Efficiency rating: 3**

## Impact

The targeted improvement of the population's health was achieved according to unanimous statements from contact partners in M'Rirt, Khénifra and Rabat. The little information available on diseases in connection with polluted water suggests the same, but this is not statistically reliable. Several sources also report a significant decrease in mosquito and fly plagues along the rivers. It was correctly stated in the programme proposal that it will ultimately not be possible to quantify these impacts.

**Impact rating: 2**

## Sustainability

The infrastructures cofinanced by the project are in a good condition. The ONEE regional office responsible for operations and maintenance in Khénifra and M'Rirt is staffed with a suitable number of competent personnel supported by subcontractors for routine tasks. However, the waste water segment is constantly in the red as the tariffs come nowhere near to covering costs. This results in the ONEE's operating deficit and financing requirements rising with every additional commitment in this sector. This is compensated for by direct state budget funding from the ONEE as part of multi-year work programmes ("Contrat Programmes"). The current Contrat Programme 2013 – 2017 was signed in May 2014, but is not yet public.

There is another potential sustainability risk related to the increasing amount of sewage sludge; as yet there is no medium and long-term strategy at national level to dispose of it. The municipal rubbish dumps sometimes refuse to accept sewage sludge, while other sites demand a payment (roughly DH 10 or EUR 1 / tonne), which would further increase the deficit of the waste water sector. The legal grounds for the systematic utilisation of sewage sludge in agriculture are lacking. The ONEE is working on possible solutions together with the support of the international donor community, including German DC (cf. NIF projects "Support of National Waste Water Programme PNA", incl. accompanying measure, BMZ No.

2007 70 123). In the project evaluated here, however, the sewage sludge is used in agriculture and does not generate any sustainability risks.

**Sustainability rating: 2**

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

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

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

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

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

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

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

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

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

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