

Ex post evaluation

Hazardous waste sites II, Tunisia



Title	Hazardous waste sites II		
Sector and CRS code	Waste management and disposal 14050		
Project number	Investment: 2003 66 369, training component: 1930 04 579		
Commissioned by	German Federal Ministry for Economic Cooperation and Development (BMZ)		
Recipient/Implementing	Republic of Tunisia / ANGED		
Project volume/ Financing instrument	EUR 4.5 million, FC loan		
Project duration	2004-2018		
Year of report	2020	Year of random sample	2020

Objectives and project outline

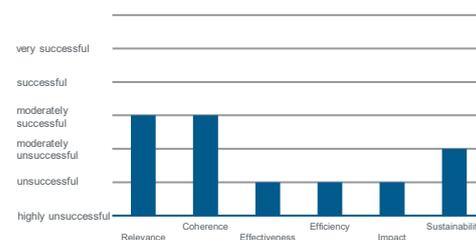
The objective at outcome level was to record, transport, treat and dispose of a large majority of the dangerous hazardous waste in the country's specialist industrial regions in accordance with the applicable environmental standards and legislation. At impact level, a contribution was to be made to protecting Tunisia's environment and natural resources and to reducing the population's health risks. To achieve this, the plan was to create three regional plants (later two, in Sfax and Gabès), from which the most dangerous waste would be transported on to the disposal centre in Jradou (created in the preceding phase), while the remainder was to be pre-treated and disposed of locally. The design was significantly changed.

Key findings

The investment measure was unable to have any effects at outcome or impact level as neither of the two plants built were commissioned. The project was therefore rated as "unsuccessful".

- The project's design was based not least on the fact that the dangerous hazardous waste could be transported to the Jradou waste centre to be treated there. As operations at Jradou had been suspended since 2012, it was not possible to use the plants in the manner planned.
- The plant in Jradou was occupied following resistance from activists and members of the local population against the operation of the plant. The local population was not involved in the decision to locate the plant in Jradou. After the Tunisian revolution (2010/2011), protests against the plant emerged, which also resulted in the expulsion of the plant operator's employees.
- According to a court ruling from 2016, operations in Jradou are permitted to resume with some stipulations. This has yet to take place, but it cannot be ruled out that the project might yet reach its anticipated goals at a later date.

Overall rating:
Unsuccessful



Conclusions

- The project illustrates the importance of actively involving the local population when setting up infrastructure that may be detrimental to the environment or health (e.g. facilities for treating hazardous waste). However, this often cannot be conducted in a productive manner under authoritarian forms of government. For this reason, in partner countries that tend to be repressive, it is important to carefully weigh up whether the financing of potentially dangerous infrastructure appears justifiable from the FC perspective since implementation against the will of the local population cannot be ruled out.

Rating according to DAC criteria

Overall rating: 5

Ratings:

Relevance	3
Coherence	3
Effectiveness	5
Efficiency	5
Impact	5
Sustainability	4

Basic notes

The following evaluation report relates to a project regarding the establishment of 2 centres for collecting industrial hazardous waste in Tunisia but not the construction of the central treatment plant in Jradou, which was the subject of the preceding phase completed in 2010. Due to the travel restrictions related to the COVID-19 pandemic in place at the time of the evaluation and given that none of the plants are operational, the evaluation report is presented in the form of a short report based on a desk audit.

General conditions and classification of the project

With 11.57 million inhabitants living in a total area of around 163,610 km², Tunisia's population is roughly equivalent to that of the German state of Baden-Württemberg in an area that is over four times the size. A strong trend towards urbanisation has been visible since the 1960s, meaning that only around one third of the population now lives in rural areas. Almost half of the population lives in the Tunis metropolitan area or the central-eastern coastal region (Sousse / Monastir / Sfax / Mahdia).

Measured by the UN Human Development Index (HDI), Tunisia is regarded as a highly developed country. With an index value of 0.739 in 2018, the country ranked 91st out of 189 countries. In comparison to the other Maghreb countries, Tunisia is well ahead of Morocco (index value of 0.676, rank 121), but behind Algeria (0.759, rank 82). At the time of the project appraisal in 2003, the country ranked 89th out of 177 nations.

At around USD 39.9 billion, the gross domestic product in 2018 was significantly below the level at the time of the Arab Spring (2011, USD 45.8 billion). During this period, the most important sectors of industry, i.e. oil production and the mining of phosphate as well as iron ore, experienced heavy declines, as did the tourism industry as a result of the terror attacks in 2015 (Tunis and Sousse). Accordingly, the gross domestic product per capita for 2018 was USD 3,448 and thus significantly below the value in 2011 (USD 4,265). Annual economic growth, which still stood at 2.5 % in 2018, slowed down even further in 2019. It stood at only 0.6% in the fourth quarter of 2019, which can be explained by the downturns described above as well as additional deficits in the agricultural sector. At the same time, Tunisia's debt level rose significantly between 2011 and 2018, from 43 % to 77 % (as a percentage of GDP).

Tunisia's unemployment rate stagnated at 15.3 % in early 2019. In 2015, the poverty rate in the rural regions in the north-west and west was around 30 % (national poverty line), while the national average was equal to the unemployment rate (15 %). According World Bank data, 2 % of the population lived in absolute poverty in 2015 (USD 1.90/day).

The Tunisian industry sector, particularly manufacturing, has developed very dynamically since the 1990s. Industrial growth has also been accompanied by a steady increase in industrial waste. This related particularly to waste from the phosphate and mining industry, as well as hazardous waste from the manufacturing industries, which is mainly generated in the country's industrial centres (Tunis metropolitan area, Bizerte, Nabeul, Sousse, Sfax and Gabès). Due to the lack of an environmentally friendly disposal infrastructure, hazardous waste was temporarily stored on company premises or deposited in domestic waste landfills that do not have facilities to avoid emissions. Furthermore, hazardous waste was disposed of by

depositing it in former quarries or gravel pits in an uncontrolled manner or dumping it in the sea. The absence of a regulated disposal system for this waste led to significant environmental risks.

In 1993, the Tunisian government launched a national waste management programme (Programme National de Gestion de Déchets Solides, PRONAGDES) with the aim of developing a suitable treatment and disposal solution for all types of waste across the entire country and building the infrastructure required to do this. The Tunisian environmental authority Agence Nationale de Protection de l'Environnement (ANPE) has been responsible for implementing this programme since 2000. ANPE was responsible for enforcing and monitoring waste management legislation. The Tunisian waste authority Agence Nationale de Gestion des Déchets (ANGed) was set up in 2005 and has been responsible for transporting waste and operating waste utilisation plants ever since.

Around 250,000 t of solid industrial waste were generated in 2009, around 160,000 t of which can be classified as hazardous waste. On top of this, roughly 7,000 t of hazardous waste a year were generated by the health sector, the disposal of which was not part of this project. That year, operations also began at the central national disposal centre (CTDD, Centre de Traitement des Déchets Dangereux) in Jradou, which was built as part of the FC project "Industrial hazardous waste landfill I" (BMZ no. 2000 65 680) for industrial hazardous waste generated in Tunisia.

The disposal centre in Jradou was occupied during the Arab Spring. The reason for this was that the site was selected by the responsible authorities without involving the local population directly affected by the plans. In 2011, this led to the CTDD in Jradou being occupied by activists, who expressed their displeasure with the plant and shut it down. The employees at the operating company were driven out, which led to the operating agreement being terminated in 2012. Following a drawn-out court case, in which the claimants contested the geological suitability of the plant's site, a verdict was finally reached in November, allowing the plant to be re-commissioned under certain stipulations. These stipulations link the resumption of operations to a technical restructuring of the plant prior to operations restarting as well as the removal and disposal of already contaminated soil. However, the CTDD in Jradou is still out of operation today.

In the aftermath of the revolution, a decentralisation process was initiated and local authorities were given responsibility for waste management within their sphere of influence. The local authorities are still able to contract ANGed to perform this management process. The decentralisation process triggered a conflict between ANGed and the Ministry of Local Affairs and the Environment (MALE), particularly over MALE's plans to shift more responsibilities in the waste sector from ANGed to the municipalities. The general director of ANGed was dismissed after the elections in November 2019. This conflict led to some important processes being suspended and projects essentially being blocked. ANGed's capacities have since been significantly weakened and the urgently needed inter-institutional cooperation poses a challenge for Tunisia.

Relevance

The still unresolved disposal of hazardous industrial waste remains a major problem for Tunisia on several levels and the above-mentioned dynamic development of Tunisian industry exacerbates the impact. Similarly to the time of the project appraisal, Tunisian businesses who comply with the law have to store their hazardous waste on their own premises for unspecified periods of time, even though these areas are not always suitable. In some cases, (state licensed) private service providers can be employed to dispose of waste, though no statement can be made concerning the quality and sustainability of their waste handling. The lack of legal disposal options prompts other companies to dispose of their hazardous waste illegally, e.g. at illegal waste dumps or by releasing it into the sea near the coast. This results in obvious and significant environmental risks and health risks for the staff at the companies in question.

Furthermore, this results in negative economic effects as this problem significantly reduces Tunisia's appeal as a location for companies in the manufacturing industry and, for example, may deter European companies from building factories in Tunisia. This core problem, which unfortunately persists to this date, was already correctly identified at the time of the project appraisal.

In addition to the problem of industrial hazardous waste, there are also reports claiming that medical/ infectious waste is disposed of together with domestic waste at domestic landfills, meaning that parts of the population come into contact with toxic/infectious substances.¹

The results chain underlying the project conception also appears plausible from today's perspective. The existing environmental and health risks would be counteracted by setting up regional collection points in key industrial areas, by depositing less critical waste on site and by transporting particularly hazardous waste to the central waste disposal center (Jradou) established in the previous phase for treatment there. Existing businesses would no longer be forced to dispose of waste themselves or illegally, provided that the tariffs are adequate and a suitable monitoring mechanism is put in place.

However, the onward transportation of potentially more hazardous waste to the CTDD in Jradou represented a critical element in the results chain. The use of the collection points (IRST, Installation de Réception, Stockage et Transfert) built during phase II was therefore closely linked to the operation of the CTDD. However, at the time of completion of the two IRSTs in Sfax and Gabès (2012), the CTDD was no longer in operation. The hypothesis that the collection points could rely on the operations of the CTDD did not prove to be true, though this was plausible at the time of the project design. The same applies to the training component, which was unable to have any real impact without the actual commissioning of the IRST. In this case too, the assumptions underlying the theoretical results chain are plausible even from today's perspective as the events and consequences of the Tunisian revolution could not have been predicted. Nevertheless, the failure to involve the population (see General conditions) as early as Phase I represents a problem in the project's design and ultimately has a negative impact on the evaluated phase.

Relevance rating: 3

Coherence

German Financial Cooperation has been supporting Tunisia in establishing a well-ordered waste management system since the end of the 1990s. In the context of the former environmental focus, basic waste disposal infrastructure was established for a large part of the population as part of the previous measures; this infrastructure met the minimum requirements for environmentally sound waste disposal. Germany remains the only significant donor active in the waste sector. Only the EIB, which had already participated in the financing of six domestic waste landfills at the time of the project appraisal, continues to observe the sector and is financing studies and consultancy services to a limited extent. The institutional and personnel-related weaknesses in the waste sector, paired with the crisis of increasing littering, are having severe impacts on the development of the waste sector and the further implementation of FC measures. These currently include several projects in the field of municipal waste management, an investment fund for waste utilisation (FIVAD) and, beyond this, the industrial environmental fund FODEP.

The FC project under evaluation was able to build on the long-standing commitment of German TC in the environmental sector, which was geared both to operational environmental management and to the political framework for sustainable waste management. Furthermore, GIZ established a cooperation and network structure for stakeholders in the waste sector in the MENA countries. GIZ is currently launching a project for improving the preconditions for the recycling economy.

Overall – based purely on the measure's design – there is good dovetailing and clear complementarity with other donor interventions in the sector, which thus points towards the measure's high level of internal coherence.

The project's design is compatible with the existing underlying institutional and legal frameworks in the sector, including the national waste sector programme PRONAGDES. However, since the plants built were never commissioned, external coherence in the sense of actual complementary effects in the waste sector cannot be identified. Only the training components – which play merely a secondary role in terms of their share of the investment volume – are likely to have a coherent effect in the sector environment, though due to a lack of application in actual operations, even the practical effects of the training measures are minimal to non-existent from today's perspective.

¹ "Tunisia faces toxic landfill disaster – and no one is stopping the rot": Middle East Eye, May 2017

From today's perspective, the programme's coherence is rated satisfactory.

Coherence rating: 3

Effectiveness

The achievement of the objective at outcome level was to be measured using the following indicators (five years after commissioning)

Indicator	PA target value	Ex post evaluation
(1) Capacity utilisation rate of the decentralised plants	90 %	0 %
(2) At least 70 % of the waste quantities produced and stored in each of the heavily industrialised zones and in each category of waste is treated in the decentralised plants.	70 %	0 %
(3) The Tunisian standards for emissions and for releasing wastewater are complied with.	Tunisian standard values	n.a.
(4) Dangerous hazardous waste is transported in compliance with legal requirements.	Regular transport checks reveal breaches in less than 10 % of cases	n.a.

None of the project target indicators were met. At the time the two decentralised IRST were completed, operations at the central hazardous waste landfill CTDD in Jradou had already been suspended, meaning that hazardous waste could not have been transported to the CTDD as planned. Furthermore, the operator of the CTDD should also have safeguarded operations at the IRST. However, due to the occupancy of the Jradou site and the loss of income, the operator had terminated his operating contract, meaning that there was no longer an operator for the IRST either. Both factors ultimately led to the decentralised plants never being commissioned.

As a result, no hazardous waste was collected, treated or disposed of and the project did not achieve its objective.

The effectiveness is therefore clearly insufficient.

Effectiveness rating: 5

Efficiency

In the course of the detailed planning process for the three decentralised plants, it became clear that, due to the increase in construction and energy costs, the intended project funds for constructing, installing and equipping the three planned IRST would not suffice. As part of the project, only two decentralised plants were built (in Sfax and Gabès), while the IRST in Bizerte was due to be built using Tunisian financing at a later date.

According to the original schedule, the construction measures were due to be completed during the first quarter of 2008. Due to the significant delays in implementing the preceding Phase I and further significant delays during Phase II, the plants were not actually completed until 2012. This delayed implementation also contributed to the aforementioned cost increases.

The overruns in the construction costs and implementation period described above have a negative impact on production efficiency, while allocation efficiency is not ensured due to the lack of effects (plants not commissioned).

In view of this situation, the project's efficiency is rated as unsatisfactory.

Efficiency rating: 5

Impact

Following the revolution, there was a sharp increase in uncontrolled landfills and a significant deterioration in conditions at controlled landfills. The anticipated direct contribution to protecting the environment and natural resources could not be achieved with the project, nor could the contribution to reducing the population's health risks. It cannot be ruled out that the constructed infrastructure will be put into use in the future and may then contribute to the objectives listed above. However, this is not certain at the time of the ex post evaluation. A tender for the operation of the CTDD and IRST is currently being prepared. However, financing for the required technical refurbishments to the three plants has not been secured.

Furthermore, the project had the potential to encourage industrial companies to settle in the country and to prevent businesses from relocating abroad as the disposal options for hazardous waste for industrial companies could be an important location factor. In this regard too, the project was unable to make any improvements to the location conditions due to the lack of commissioning. Instead, it became clear how difficult the situation in this sub-sector is, despite the many years of hard work and existing infrastructure.

It is possible that the training measures can still have a positive effect, provided that the structures, processes and knowledge created can be accessed within the framework of a future commissioning. The training components include the training of ANGED employees on how to monitor the CTDD and IRST operator and on how to advise producers of hazardous waste, transport service providers and other authorities. Furthermore, teams were put together to record, manage, document and monitor waste movements. From the current perspective, however, the training component cannot contribute to the overarching objectives.

Impact rating: 5

Sustainability

Given the project's small to non-existent positive effects, their sustainability cannot be meaningfully evaluated. In the future, however, there is the possibility that the plants may be commissioned. In any case, it would be necessary to improve the technical fire protection of the plants. Offers in this field are currently being evaluated.

If the infrastructure were to be utilised in the not too distant future, the results of the training component could potentially be built upon. These results include the procedures developed for operating and monitoring the hazardous waste system, including their expansion to the two IRST. Significant progress has also been made in the institutional sector, particularly the separation of operating (ANGED) and supervisory authorities (ANPE) in 2005. Furthermore, the legal requirements have been established for proper hazardous waste disposal. In particular, these legal and institutional framework conditions could become sustainably embedded in the sector and contribute to the project's original objectives should the plants be commissioned. However, there is still the problem of the medium- to long-term financing of the potential future operation of the plant, which is linked to the questionable enforceability of allocating costs to users and would likely only be achievable with the parallel introduction of strict monitoring and sanctioning by government agencies.

Even if positive effects of the project are conceivable in the medium to long term, they remain speculative. From today's perspective, no sustainable positive effects can be identified.

Sustainability rating: 4

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:

Level 1	Very good result that clearly exceeds expectations
Level 2	Good result, fully in line with expectations and without any significant shortcomings
Level 3	Satisfactory result – project falls short of expectations but the positive results dominate
Level 4	Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
Level 5	Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
Level 6	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).