

Ex-post evaluation

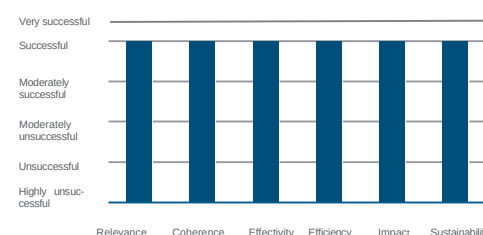
Power Supply Host Communities and Syrian Refugees II, Hashemite Kingdom of Jordan

Title	Power Supply Host Communities and Syrian Refugees II		
Sector and CRS code	Solar energy for interconnected grids (CRS 23230) and electricity transmission, distribution and storage (23630)		
Project number	2016 40 705		
Commissioned by	Federal Ministry for Economic Cooperation and Development		
Recipient/ Project-executing agency	Ministry of Planning and International Cooperation / Ministry of Energy and Mineral Resources		
Project volume/ Financing instrument	EUR 44.0 million / Grant SI Tackling the causes of displacement - reintegrating refugees		
Project duration	March 2017 - May 2021		
Year of report	2024	Sample year	2024

Objectives and project outline

The objective the ex-post evaluation at outcome level was to supply the selected target institutions (Jordanian Ministry of Health, UNHCR and UNICEF) with affordable and sustainable electricity. At the impact level, the underlying goal of the EPE was to improve the living conditions and coexistence of refugees and the local population in host communities. At the impact level, the project also aimed to contribute to global climate protection by generating electricity from renewable energies. The great potential for solar energy in Jordan was utilized through the construction of a solar power plant.

Overall rating:
Successful



Key findings

The project made an important contribution to reducing the economic and social consequences of the Syrian war in Jordan. The following aspects were decisive for the successful overall result:

- The project was highly relevant and, embedded in the policies of the Jordanian and German governments, addressed key bottlenecks in the care of refugees and host communities.
- Due to the very low specific costs, the installed capacity and the quantities of electricity generated far exceeded the originally planned values.
- The developmental impact was particularly significant for the target group supplied by UNHCR and UNICEF in the refugee camps. Although the Ministry of Health realized huge savings in electricity costs, the financial resources saved were not yet available to the ministry for supply services.
- The project also helped to avoid CO₂ emissions and diversify Jordan's power generation capacities.
- Without the curtailment of the solar park due to the transmission grid, the results in terms of effectiveness, (allocation) efficiency and overarching developmental impact could have been even better.
- The quality of execution of the solar park, the professionalism of the parties involved and the long-term regulation of the allocation of the low-cost electricity as well as the wheeling fee for maintenance and operation suggest sustainable effects.

Conclusions

- The project shows that it is possible to support refugees and promote renewable energy even in a crisis context.
- The allocation of cost-effectively generated electricity via so-called wheeling contracts is generally a suitable means of supporting supplying institutions in the context of displacement and crises. However, this requires an early analysis of the necessary preconditions and (legal) framework conditions of the actors involved for such contracts, especially for UN institutions.
- In addition, a mechanism or contractual agreement is required that guarantees the electricity cost savings to the beneficiary target institutions instead of relying on an application and reimbursement process.

Ex-post evaluation - assessment according to OECD DAC criteria

Overview of the partial evaluations:

Relevance	2
Coherence	2
Effectiveness	2
Efficiency	2
Overarching developmental impact	2
Sustainability	2
Overall rating:	2

Abbreviations:

BMZ	Federal Ministry for Economic Cooperation and Development
DAC	Development Assistance Committee
EPE	Ex-post evaluation
EUR	Euro
FC E	FC Evaluation
FC	Financial Cooperation
GDP	Gross Domestic Product
GW	Gigawatt
HDI	Human Development Index
JOD	Jordanian Dinar
MEMR	Ministry of Energy and Mineral Resources
MW	Megawatt
MWp	Megawatt peak
NEPCO	National Electric Power Company
PA	Project appraisal
PAR	Project appraisal report
PCR	Project completion report
PV	Photovoltaics
SEPCO	Samra Electric Power Company
TZ	Technical co-operation
USDUS	Dollar

General conditions and classification of the project

As a result of the civil war in Syria that began in 2011, around 12 million people - more than half of the Syrian population - were forced to flee their own country or outside it. Up to 5.5 million people fled Syria. At the time of the project appraisal (PA), Jordan had taken in more than 1 million Syrian refugees, of whom around 650,000 were officially registered in 2016.¹ As a result of the conflict, German development cooperation (DC) was geared towards combating the causes of displacement, supporting host countries and resilience-building measures, among other things.

The "Power Supply Host Communities and Syrian Refugees II" project was assessed in 2016 as part of the special initiative "Tackling the root causes of displacement - reintegrating refugees"² in order to support Jordan as a host country for refugees by providing affordable and sustainable electricity from a solar power plant. It complements the project "Power Supply Host Communities and Syrian Refugees, Zaatari Camp" (BMZ no. 2015 40 665). The focus of both projects was to improve the supply of electricity to people affected by the Syrian conflict (Syrian refugees and host communities) by expanding a cost-effective and sustainable electricity supply from renewable energy sources (RE). As the funds for the aforementioned project were not sufficient to directly relieve the host communities, its focus was on supplying the host communities. It was also intended to contribute to meeting the electricity needs of the UNHCR refugee camps.

Jordan has very high potential for solar energy with an estimated solar irradiation of approx. 2,085 kWh/m⁽²⁾. At the time of the project appraisal, the share of RE in electricity generation in Jordan was just under 1%. There was a very high dependency on imported fossil fuels. Against this backdrop, the national energy strategy in force at the time defined expansion targets for wind and solar power as well as the expansion of transmission lines with the aim of diversifying the electricity supply. By 2020, 10 % of electricity was to be generated from RE and by 2025 20 %. The regulatory framework feeding RE into the grid was also already in place at the time of the PA. Jordan is also currently setting ambitious targets for the further expansion of RE. The strategy of the Ministry of Energy and Mineral Resources (MEMR) sets the target that 31% of electricity will be generated from RE by 2030 and that RE will account for 14% of electricity generation capacity.³ Specific wind and solar power projects totaling around 1 GW have already been prepared for the coming years. These will be financed by Arab donors, but mostly in project financing structures with international private sector support (EBRD, DEG, IFC, Proparco).

The executing agency of the project was MEMR. Other Jordanian institutions involved in the implementation were the National Electric Power Company (NEPCO), the national transmission system operator responsible for feeding electricity into the high-voltage grid, and the Samra Electric Power Company (SEPCO), the state-owned electricity generation company responsible for operating state-owned photovoltaic plants, which is also responsible for operating the solar power plant that was built. Furthermore, so-called "wheeling contracts" (transmission contracts) were concluded between the three target institutions that purchase electricity (the Ministry of Health as the operator of the public hospitals and health centers, the UN refugee agency UNHCR and the UN Children's Fund UNICEF), NEPCO and the respective local distribution grid operators (see *Overarching developmental impact - contribution to overarching (intended) developmental changes*).

¹ Cf. UNHCR 2017; The Hashemite Kingdom of Jordan, Ministry of Planning and International Cooperation (2016).

² The special initiative is now called "Refugees and Host Countries" (SIGA).

³ IRENA 2021

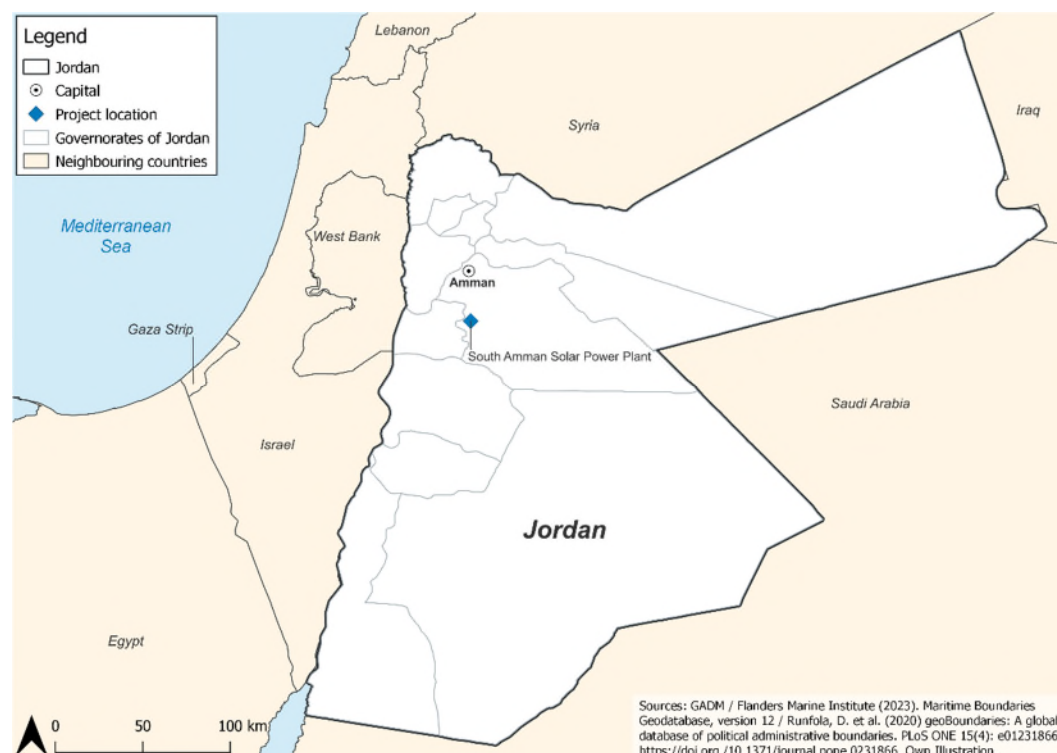
Brief description of the project

As part of the project, a 46 MWp solar power plant was built to supply Jordan with affordable and sustainable electricity. The originally planned 25-35 MWp were thus significantly exceeded. Some of the low-cost electricity generated is credited via wheeling contracts to institutions that support refugees or that have to deal with the impact on the country's overall infrastructure due to the increase in the number of people to be supplied. The wheeling contracts concluded with the target institutions (Ministry of Health, UNHCR and UNICEF) regulate the allocation of low-cost electricity to them. The resulting savings in electricity costs provide the aforementioned target institutions with financial leeway to improve their supply services and thus contribute to improving the basic needs and living conditions of the target group (Syrian refugees and host communities) and to reducing the potential for conflict between Syrian refugees and host communities.

Breakdown of total costs

In EUR million	Inv.. (plan)	Inv.. (actual)
Total costs	49	48.57
Own contribution	5	5
External financing	44	43.57
<i>of which BMZ funds</i>	<i>44</i>	<i>43.57</i>

Map of the project country incl. project areas



Rating according to OECD DAC criteria

Relevance

1. Alignment with policies and priorities

The objectives of the project took into account the framework conditions existing at the project appraisal and were based on the political strategies and priorities of the Jordanian government for dealing with the Syrian crisis and the associated influx of refugees: The Syrian crisis led in particular to a cross-sectoral overload in the provision of public services and infrastructure in the areas of water and sanitation, education and health care due to the co-supply of Syrian refugees (see *Relevance - Alignment with the needs and capacities of those involved and affected*). The energy-intensive water supply/wastewater disposal and healthcare sectors, which spend a significant proportion of their budget on electricity supply, were particularly affected. Consequently, the *Jordan Response Plan for the Syria Crisis 2016-2018*⁴ emphasizes the need for action in the area of energy in addition to education, health and water.

On the German side, the project was part of the special initiative - Tackling the root causes of displacement - Re-integrating refugees and thus part of German development cooperation support for the countries bordering Syria that are particularly affected by the refugee crisis. The objective of mitigating the effects of the Syrian crisis in Jordan and specifically relieving the Jordanian Ministry of Health, UNHCR and UNICEF was also in line with the development policies and priorities of the BMZ. As the project also addressed the energy poverty of the refugee camp residents, poverty aspects were also taken into account.

Even though the aspect of RE expansion only played a subordinate role when the project was appraised in 2016 in the context of the special initiative Refugee, the construction of the solar power plant meant that the project fitted in with the Jordanian government's objectives with regard to the expansion of RE (see *Framework conditions and classification of the project*). It is also in line with the *Sustainable Development Goals* (SDG) of the 2030 Agenda and contributes to SDG 7 (Affordable and Clean Energy) and, by avoiding CO₂ emissions, to SDG 13 (Implement global climate action). In conjunction with SDG 7, the project also contributes to SDG 1 (Reduce poverty), SDG 2 (Ensure global food security), SDG 3 (Good health and well-being), SDG 8 (Sustainable development) and SDG 10 (Reduce inequalities).

2. Alignment with the needs and capacities of the beneficiaries and stakeholders

The core problem of overburdened public services and basic infrastructure was correctly identified during the project appraisal. The core problem primarily affected the refugees living in refugee camps and host communities as well as the Jordanian population living in the host communities.

The project addresses the core problem with the approach of low-cost electricity. Specifically, it was planned that institutions of the Ministry of Health, UNHCR and UNICEF would benefit from the low-cost electricity generated by the solar power plant, as the influx of refugees in the country had led to a significant increase in electricity demand and costs for the above-mentioned target institutions due to the free electricity supply in refugee camps and free health care for refugees. In view of the fact that the aforementioned target institutions spent a significant proportion of their budgets on electricity supply and, at the time of the project appraisal, the Ministry of Health's failure to settle electricity bills also led to power cuts, the energy sector was the logical point of departure for providing relief. This relief in the form of electricity cost savings gives the target institutions financial leeway with regard to the provision of supply services and thus has a direct effect on satisfying the basic needs of the target group (supply electricity and improved supply services).

The project generally aimed at Syrian refugees as a target group. In view of the fact that women and children make up a significant proportion of refugees in Jordan (26% are women, 48% children) effects are particularly obvious for them.⁵ By providing the flow allocated to the Ministry of Health for e.g. explicitly for maternity clinics, gender effects could have been strengthened under certain circumstances.

⁴ The Hashemite Kingdom of Jordan, Ministry of Planning and International Cooperation (2016).

⁵ UNHCR 2023. online at: <https://data.unhcr.org/en/documents/details/103204>

In view of the vulnerability and neediness of the target group as a whole, the general orientation can also be considered appropriate from today's perspective. Further potential through other conceptual designs is also not recognizable ex-post.

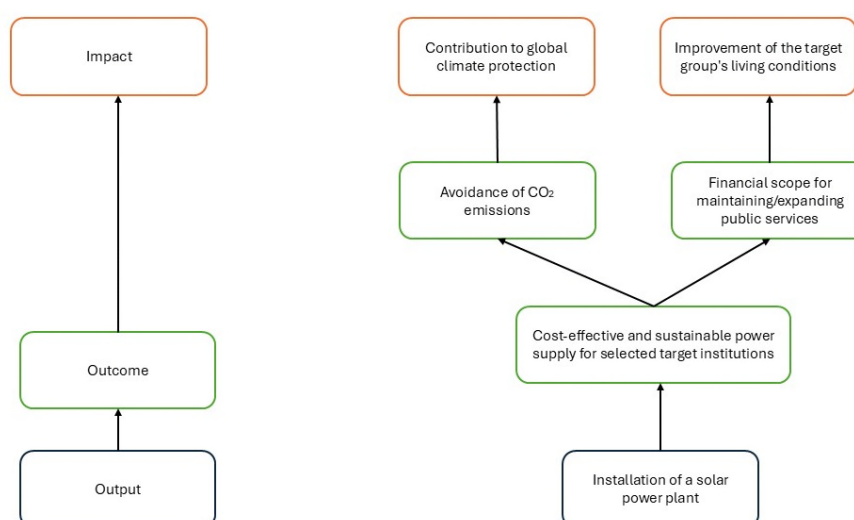
3. Appropriateness of design

From a conceptual point of view, the financing of infrastructural measures (expansion of electricity generation capacities in the form of a solar power plant) was fundamentally suitable for helping to solve the core problem - the overloading of public services and basic infrastructure in Jordan.

The results chain is as follows: Financing (input) and installation of a solar power plant (output) → Wheeling contracts for the cost-effective allocation of electricity to target institutions (Ministry of Health, UNICEF and UNHCR) → Contribution to the cost-effective, sustainable supply of electricity to selected target institutions (outcome) → Electricity cost savings at the selected target institutions → Financial scope for maintenance or expansion of supply services → Improvement in the living conditions of the target group (impact).

At the same time, the funding (input) and installation of a solar power plant (output) also helps to avoid CO₂ emissions by contributing to a cost-effective, sustainable power supply (outcome) and thus also contributes to global climate protection (impact).

Figure 1: Illustration of the impact chain



Source: Own presentation

The impact chain described above and its impact assumptions were generally plausible both during the appraisal and at the time of the ex-post evaluation (EPE) and are confirmed by the EPE. However, for the intended cost savings to have a positive impact on improving the supply situation and living conditions, it is crucial that the budget resulting from the savings is actually available to the target institutions and is not impaired by budget cuts/reductions in allocations, as was shown retrospectively for the MoH (see *Overarching developmental impact - contribution to overarching (intended) developmental changes*).

The target system was designed to be comprehensible and verifiable. The target formulations, indicators and value components were appropriate in their entirety (see *Annex 1*). Only the indicator "Annual avoidance of CO₂ emissions through the project" was from the outcome to the impact level.

The concept pursued a holistic approach to sustainable development. First and foremost, the project aimed at the social dimension of sustainability through the cost-effective power supply, the associated electricity cost savings and the resulting intended maintenance of supply services. At the same time, it contributes to economic and ecological sustainability, as at the time of the project appraisal it represented an economically and ecologically very cost-efficient alternative (see *efficiency - allocation efficiency*) to meeting the increasing demand from fossil-fueled power plants.

The concept envisaged MEMR as the executing agency. MEMR was already the project executing organization for the previous project "Power Supply Host Communities and Syrian Refugees, Zaatari Camp" (BMZ no. 2015 40 665) and had already taken on this role in other (partially) donor-funded photovoltaic projects. With MEMR, the concept therefore relied on established cooperation with an experienced and committed executing agency. Conceptually, this is of great importance given the difficult framework conditions.

The concept of the measure, including its technical, organizational and financial design, is suitable from the perspective of the time and today to contribute to solving the core problem described. The capacities of the partner government and the project executing agency were realistically assessed and essentially taken into account appropriately in the design.

4. Adaptability – response to change

The project was not adjusted in the course of time. The only addition was the construction of a new 2.6 MWh battery storage facility on the substation site, which was financed from residual funds (see *Efficiency - production efficiency*).

Rating summary

The project addressed a central bottleneck and was conceptually suitable for helping to solve the core problem. It fits in with the policies and priorities of the Jordanian and German governments and takes appropriate account of their capacities and potential. The financial relief for the Ministry of Health, UNHCR and UNICEF to maintain their supply services while simultaneously promoting the expansion of RE in Jordan was highly relevant at the time of the PA and still is. The relevance of the project is therefore rated as successful.

Relevance: 2

Coherence

5. Internal coherence

The project complemented the German government's support for the refugees and host communities in Jordan specifically in the transition from emergency aid to resilience-building measures and was integrated into a wide range of German development cooperation measures in the context of the refugee crisis in Jordan, which were complementary to each other and interlinked in a meaningful way.

As part of financial cooperation (FC), the German Federal Government has financed projects in Jordan in the areas of water supply, sanitation and education, among others. In addition, the project evaluated here is a continuation or supplement to the project "Power Supply Host Communities and Syrian Refugees, Zaatari Camp" (BMZ number 2015 40 665), in the course of which a solar power plant was built in Zaatari Camp. As the funds for the aforementioned project were not sufficient to directly relieve the host communities, the focus of this project was also on supplying the host communities. With the cost-effective and sustainable supply of electricity through another solar power plant, the project complemented other DC/ FC projects, which included creation of complete, piped water supply and wastewater disposal systems in Zaatari Camp and cash-for-work programmes for refugees and Jordanians in the host communities. The project was also complementary to numerous other FC projects that support Syrian refugees, UN organizations and host communities in Jordan in the education sector (school construction and teacher salaries) and in water supply and sanitation.

Although the project was implemented outside of a German development cooperation programme, it is complementary to the measures implemented by GIZ in the energy sector, which were active in the area of energy efficiency measures in the water sector, as well as to the TC measures in the context of the refugee crisis. It is also complementary to the German-Jordanian Energy Partnership, which GIZ is supporting on behalf of the German Federal Ministry for Economic Affairs and Climate Protection (BMWK) with the aim of advancing the energy transition in Germany and Jordan.

The project is consistent with the SDGs of the 2030 Agenda and the Paris Climate Agreement (see *Relevance - Alignment with policies and priorities*).

6. External coherence

Jordan made great efforts to deal with the refugee crisis triggered by the conflict in Syria; among other things, the electricity supply in the refugee camps and healthcare for refugees was free of charge (see *Relevance - Alignment with the needs and capacities of those involved and affected*). The Jordanian government also responded to the additional needs in the education sector: a two-shift system was introduced, which provided for the continuation of classes for Jordanian children in the mornings and classes for Syrian children in the afternoons (free education). This was then extended to all nationalities in 2023.⁶ However, Jordan relied on international support for these efforts. The USA and the European Union, among others, provided and continue to provide support. The project supported the partner's own efforts. The *Jordan Response Plan for the Syria Crisis 2016-2018*⁷ identified the need for action in the area of energy (*relevance - alignment with policies and priorities*). By providing low-cost electricity from the financed solar power plant, the project complemented Jordan's priorities and above-mentioned own efforts.

The project was also complementary to Jordan's own renewable energy targets and efforts. At the time of the project appraisal in 2016, the national energy strategy had already set clear targets for the expansion of wind and solar power generation and transmission lines, and the necessary regulatory framework for RE and its grid feed-in had been created (see *Framework conditions and categorization of the project*).

With MEMR as the project organizer and SEPCO for the operation of the solar power plant, the project drew on existing structures in Jordan.

Rating summary:

The project was in line with the German government's strategy and the Jordanian government's approach to tackling the refugee crisis and complemented German development cooperation projects and those of other donors as well as Jordan's own efforts. This also applies to the expansion of RE. The project also drew on existing national structures. The coherence of the project is therefore successful.

Coherence: 2

Effectiveness

7. Achievement of (intended) objectives

The underlying objective of the EPE at outcome level was to supply selected target institutions (Jordanian Ministry of Health, UNHCR and UNICEF) with cost-effective and sustainable electricity.

The achievement of the objective at outcome level can be summarized as follows:

Table 1: Target achievement Outcome

Indicator	Status at PP	Target value PP	Actual value PCR (2021)	Actual value EPE (2023)
(1) Amount of electricity fed in per year (GWh/year)	0	45 (in the 1st full year of operation)	82	64 Fulfilled

⁶ UNHCR 2024: "Vulnerability Assessment Framework: Socio-Economic Survey on Refugees in Host Communities". Online at: <https://data.unhcr.org/en/documents/details/109075>.

⁷ The Hashemite Kingdom of Jordan, Ministry of Planning and International Cooperation (2016).

8. Contribution to the achievement of objectives

As part of the project, a 46 MWp solar power plant was built, including the infrastructure required for operation and feed-in. This included the construction of a transformer station and 2 km of transmission line to the grid connection, a guard house with control room and fencing around the plant. As a result, the originally planned output of 25-35 MWp was significantly exceeded due to lower costs in the bidding process (see *Efficiency - Production efficiency*).

The solar power plant is fully operational, has been working virtually trouble-free since it was commissioned and is making a significant contribution to achieving the objectives by providing the selected target institutions with a cost-effective and sustainable power supply. The battery storage system is also operational and in use.

However, the effectiveness of the project is reduced by the grid-related lockdown of the plant by the transmission system operator NEPCO. This lockdown is due to bottlenecks in the grid operation of the transmission grid under the responsibility of NEPCO. The transmission capacity of the high-voltage grid is partially exhausted and grid overloads are becoming more frequent in the power evacuation corridor of the solar power plant. In 2021, Jordan was affected by a widespread power outage due to grid overload. To ensure a stable energy supply, NEPCO therefore seals off the grid in the event of imminent overload.

The solar power plant has been in since 2020. At the time of the EPE (2024), the solar power plant was therefore in its fifth year of operation. Since commissioning, the solar power plant's electricity generation has remained constant at around 83 GWh. The generation per MWp therefore corresponds to the calculations for PP. However, less electricity is fed into the grid due to grid-related curtailments, in which individual PV-module groups are switched off and therefore cannot generate any electricity.

These curtailments have increased compared to the time of the final inspection in 2021. Due to the curtailments, less electricity was fed into the grid in both 2022 and 2023 than at the time of completion in early 2020. Table 2 shows the potential annual electricity generation and the electricity fed into the grid.

Table 2: Amount of electricity produced compared to the amount of electricity fed in

Year of operation	Potential power generation (in GWh)	Electricity fed into the grid (in GWh)	Number of days with curtailment
2020	84	82	21
2021	84	n.a.	n.a.
2022	n.a.	69	170
2023	84	64	n.a. ⁸

In 2022, almost every second day of the year - 170 days - was affected by curtailment. The duration of the curtailment varied, from a few hours to several hours. As a result of the curtailment, only around 83% of the potentially possible electricity generation was fed into the grid in 2022 and only 76% in 2023.

Even if the amount of electricity fed into the grid is higher than the target value calculated at project appraisal despite curtailments due to the higher installed capacity, the capacities created by the project are ultimately not utilized and the electricity generated does not fully benefit the target institutions, as they receive a relative share of the electricity fed in. Parts of the generation capacities therefore remain unutilized and the savings in electricity costs for the target institutions as well as the climate protection effects could therefore be higher (see *Overarching developmental impact - Contribution to overarching (intended) development policy changes*).

As the technical degradation of solar modules progresses, electricity generation will fall by around 0.5 % per year in future. However, this not expected to have a significant impact on the target value.

⁸ In terms of potential annual electricity generation compared to the electricity fed into the grid, the picture is similar to that for 2023.

The battery storage facility (2.6 MWh) financed from residual funds is in operation and is used by NEPCO, in particular for training purposes. Through the operation of the battery storage facility, NEPCO has gained experience that should benefit other similar projects in the future.

9. Quality of implementation

The quality of the project implementation by all project participants was goal-oriented and characterized by a high level of commitment to ensure the completion of the project within the deadlines for the funds, which had to be disbursed in a fixed amount each year.

10. Unintended effects (positive or negative)

No negative or positive unintended effects on people or the environment were identified during either the construction or operating phase: The facility was built on pastureland with extensive use after careful selection, so no resettlement measures were necessary. Suitable fencing around the facility enabled the continued use of the pastureland after the construction phase. The plant is located in an infertile area with no vegetation worth mentioning. Cleaning methods that generally do not require water are used to clean the solar modules.

Rating summary

The installed capacity and the amount of electricity generated far exceed the values planned at project appraisal. This means that the targets at outcome level have been significantly exceeded. The effectiveness is clouded by the increasing lockdown of the plant in recent years due to grid overload. This means that the cost-effective and sustainable electricity generation capacity is not fully utilized. Overall, the effectiveness of the project is therefore rated as successful.

Effectiveness: 2

Efficiency

11. Production efficiency

At the time of the project appraisal, the potential installed capacity of the solar power plant was estimated at 25-35 MWp with the available budget of EUR 49 million (incl. construction of the connection to the high-voltage transmission grid, assumption of operating and maintenance costs for the years of operation and consulting services). Ultimately, a solar power plant with an output of 46 MWp including the grid connection and an additional 2.6 MWh battery storage system could be built with the available budget. Furthermore, the contractual warranty and operation and maintenance by the general contractor and the corresponding support by the implementation consultant extended from the original two to three years. These aforementioned adjustments were possible due to lower costs in the bidding process.

The construction costs (including consulting costs) result in specific costs of EUR 1.010 million per MW (without battery storage). These costs are due to the localized use of low-cost thin-film modules. However, these are less efficient than other types of modules but were the best choice on site due to the shadows cast during the day in the hilly terrain. The above-mentioned specific costs are significantly below the global average of EUR 1.403 million per MW from 2017 (year in which the construction contract was concluded).⁹ The consulting costs included in the specific costs are also considered to be rather low and appropriate.

The solar power plant and related project components were completed in just under 2.5 years, at the end of 2019. The delay of approximately 6 months compared to the planning was primarily caused by the delayed provision of the grid connection by NEPCO. The battery storage facility realized from residual funds was also completed in 2020, but did not go into operation until early 2022. The reasons for the delay were the Covid-19 pandemic and challenges regarding the control of the storage facility from the national NEPCO control center.

⁹ Statista 2024: Average cost for 1 MW in 2017 was USD 1.586 million (<https://www.statista.com/statistics/809796/global-solar-power-installation-cost-per-kilowatt/>). At an average exchange rate for 2017 of EUR 1 = USD 1.1301, this equates to around EUR 1.403 million (<https://www.exchange-rates.org/de/wechselkursverlauf/eur-usd-2017>).

Overall, this was a very fast implementation time compared to other previous projects in Jordan. The fixed annual disbursements added pressure and had a positive influence on the timely implementation. All stakeholders were forced to adhere to the schedule, as the fixed disbursements left little leeway for late disbursement of funds.

12. Allocation efficiency

In view of the specific costs described above, which are also low by international standards, the project represents the most cost-efficient option for the generation of low-cost and sustainable electricity in this context. Wind and hydropower were not an option in the project context due to their implementation speed, production costs and/or natural conditions. Therefore, the only alternative to cover the demand for electricity was electricity from fossil fueled power plants. In view of the very high dependence on imported fossil fuels and their comparatively high and fluctuating (import) prices, the project offers the possibility of cost-effective and sustainable electricity generation in Jordan and is therefore considered efficient from an economic perspective. In addition, the solar power plant also avoids CO₂ emissions when generating electricity.

The high-voltage grid operator NEPCO receives grid utilization fees according to the amount of electricity fed into the grid by the solar power plant. The operator SEPCO also only receives compensation for the costs of operation, repair and maintenance if the electricity is fed into the grid; i.e. in the event of reduced electricity generation due to curtailment (see *Effectiveness - contribution to achieving the targets*), the operating cost reimbursement for SEPCO is lower (see *Sustainability - capacities of stakeholders and affected parties*). This will affect the operating and maintenance budget available to SEPCO. NEPCO also loses grid utilization fees due to the curtailment. Neither is efficient from a microeconomic perspective.

The electricity allocation to the target institutions is also significantly reduced by the curtailment, as electricity allocation shares depend on the amount of electricity fed into the grid and they are therefore entitled to less cost-effective electricity. Accordingly, their electricity cost savings are lower, which reduces the allocation efficiency from a microeconomic perspective. Irrespective of this, the target institutions still achieve significant electricity cost savings from a microeconomic perspective (see *Overarching developmental impact - contribution to overarching (intended) developmental changes*). Despite the curtailment, the higher installed capacity means that more cost-effective electricity has been made available to them to date than assumed at the time of the project appraisal. A critical point to note is that the allocation of low-cost electricity for the target institutions has only been taking place since 2023, as the conclusion of the wheeling contracts was delayed. This means that the target institutions missed out on considerable electricity cost savings in the first two years (see *Overarching developmental impact - contribution to overarching (intended) developmental changes*).

Rating summary

The production efficiency is well above expectations, as the available budget made it possible to finance a larger capacity and the specific costs were almost 30% below the global average. The project was the most efficient option for the context. However, the allocation efficiency is impaired by the curtailment and the electricity cost savings foregone in the first two years of operation. Overall, the efficiency is therefore assessed as successful.

Efficiency: 2

Overarching developmental Impact

13. Overarching (intended) developmental changes

Overall, the socio-economic conditions for refugees in Jordan, more than 80% of whom live in host communities, are mixed: compared to 2021, a larger proportion of refugees were living in poverty at the end of 2023 (67% compared to 57%). Debt is also on the rise. However, the proportion of refugees with access to healthcare has improved by 30% from 2021 to 76%.¹⁰ In addition, more children between the ages of 5 and 18 are attending school compared to 2021 (2023/24: 78% of Syrian and 85% of non-Syrian children compared to 2021: 75% of Syrian

¹⁰ UNHCR 2024: "Socio-Economic Survey on Refugees in Jordan 2024: at a glance". Online at: <https://data.un-hcr.org/en/documents/details/111279>

and 76% of non-Syrian children).¹¹According to the MEMR, the level of electricity supply security is also 99%.¹²

The underlying objective of the EPE at impact level was to improve the living conditions and coexistence of refugees and the local population in host communities. In view of the dual objective, the project also aimed to contribute to global climate protection at impact level. This was to be achieved by generating cost-effective and sustainable electricity from a solar power plant. The low-cost electricity generated is credited pro rata to institutions that support refugees or that have to deal with the impact on the country's overall infrastructure due to the increase in the number of people to be supplied. The resulting savings in electricity costs provide the aforementioned target institutions with financial leeway to improve their supply services and thus contribute to improving the fulfilment of basic needs and the living conditions of the target group (Syrian refugees and host communities) as well as to reducing the potential for conflict between Syrian refugees and host communities.

The achievement of the objective at impact level can be summarized as follows:

Table Target achievement Impact:

Indicator	Status PP	Target value according to PA	Actual value at PCR (2021)	Actual value at EPE (2023)
(1) Saved electricity costs are available for improved supply to the target group.	no	Yes	no	partially fulfilled
(2) Annual avoidance of CO ₂ emissions (tonnes of CO ₂ per year).	0	26.000	55.000	approx. 36,550 ¹³ Fulfilled

14. Contribution to overarching (intended) developmental changes

Wheeling contracts were concluded between the three electricity-consuming target institutions (Ministry of Health, UNHCR and UNICEF), NEPCO and the respective local distribution network operators have concluded 'wheeling contracts'. These regulate the allocation of the low-cost electricity to the above-mentioned target institutions as well as the "wheeling fee" to be paid, which covers both the operating and maintenance costs as well as the grid utilization/transmission fees.

However, the wheeling contracts were new ground for the partners involved. They were signed between February and July 2023. It was only after lengthy negotiations and the establishment of the legal framework conditions, particularly between NEPCO and UNHCR and UNICEF, that the contracts for these two institutions were signed in May and June 2023 respectively. The wheeling contract with MoH took was signed a few months earlier than for the UN organizations in February and March 2023. The Covid-19 pandemic in particular was identified as a reason for the delay. A total of six wheeling contracts were signed, depending on the local supply network operator. Until then, i.e. during the first three years of operation, the target institutions could not benefit from the allocation of the low-cost electricity. This was fed into the grid for general supply. NEPCO therefore ultimately benefited from the sale of the electricity.

The following distribution of the annual energy volume was agreed with the target institutions:

- The Ministry of Health receives 61.9% of the electricity fed into the grid;
- UNHRC receives 30.3% of the electricity fed into the grid and
- UNICEF receives 7.8% of the electricity fed into the grid.

If one compares the contractually agreed wheeling fee of 2.8 EUR cents/kWh with the previous electricity price of 34 EUR cents/kWh for the target institutions, the low cost per kWh and the resulting electricity cost savings for them after concluding the wheeling contracts are obvious. Currently, the cheapest tariff for public buildings is 5.9

¹¹ UNHCR 2024: "Vulnerability Assessment Framework: Socio-Economic Survey on Refugees in Host Communities". Online at: <https://data.unhcr.org/en/documents/details/109075>

¹² MEMR 2024: "Annual Report Ministry of Energy and Mineral Resources 2023". Online at: https://www.memr.gov.jo/ebv4.0/root_store/en/eb_list_page/annual_report_2023-3.pdf

¹³ This value results from the 63.55 GWh of electricity fed into the grid in 2023. Calculated taking into account the IGES grid emission factor for 2023 of 0.575 tonnes of CO₂/MWh.

EUR cents/kWh and the highest is 34 EUR-cents/kWh.

The project enabled the target institutions to significantly reduce their electricity costs:

- Following the conclusion of the wheeling contracts in February and March 2023, the electricity costs of the 33 hospitals and health centers that received the low-cost electricity in 2023 reduced by 99%, according to the Ministry of Health. The total amount of savings was not specified by the Ministry of Health as part of the EPE. According to a rough calculation, the savings for 2023 - using the most favorable tariff for public buildings (see above) - were at least EUR 1 million. The savings are actually likely to have been significantly higher, as higher tariffs would be applied, especially for hospitals with higher electricity consumption.
- Following the conclusion of the wheeling contracts in May and July 2023, UNHCR was able to reduce its electricity costs in 2023 by around USD 4.6 million (around EUR 4.2 million) compared to the electricity costs in 2022, according to its own figures. The share of electricity costs in UNHCR's total annual budget in Jordan (approx. USD 375 million) fell from approx. 2-2.5% to around 0.6%;
- According to UNICEF, it was able to reduce electricity costs in 2023 by around JOD 150,000 (around EUR 200,000) compared to 2022 following the conclusion of the wheeling contracts in May 2023.

However, in order to improve the living conditions of the target group, it is crucial that the budget resulting from the savings is actually available to the facilities and is not affected by cuts in allocations.

The Ministry of Health was able to significantly reduce its electricity costs compared to the situation without the measure (see above). Regardless of the possibility of applying for the cost savings promised by the Jordanian Ministry of Planning and International Cooperation as part of the project agreements, the resulting financial savings were not available to the Ministry of Health in 2023 for the improvement or expansion of supply services, as the budget had already been reduced in anticipation of the electricity cost savings resulting from the cost-effective electricity allocation. In other words, the financial leeway intended by the project was equalised by the budget reduction and the savings provided a general relief for the national budget. In terms of health care and the target group benefiting from it, the developmental impact in 2023 was therefore limited to avoiding the interruptions in health care that occurred at the time of the project appraisal due to power cuts caused by unpaid electricity bills of the Ministry of Health. For 2024, the Ministry of Health requested reimbursement of 50% of the electricity costs saved.

UNHCR uses the allocated electricity directly to supply power to the living in the Zaatari and Azraq refugee camps. This means that electricity is available more hours a day and in larger quantities for the 24,000 shelters in both refugee camps. While UNHCR was able to provide approx. 2 kW per day per accommodation in 2017, at the time of the EPE (2024) this will be approx. 4 kW per day per accommodation. The daily power supply is guaranteed for an average of around 12-14 hours and power interruptions have decreased. Furthermore, electricity has become more important for education due to the Covid-19 pandemic and home schooling with the support of internet-enabled devices. In addition to these aspects, the electricity cost savings are used for the following activities in refugee camps and to support refugees in Jordanian communities: Cash assistance for vulnerable refugees, counselling services for refugees regarding their legal status and necessary documents as well as access to education and healthcare. The focus is often on women, children, people with disabilities, older people and young people.

In the case of UNICEF, the allocated electricity benefits the activities in the two refugee camps Zaatari and Azraq in the areas of WASH, education and support for young people. This contributes to improved living conditions for more than 120,000 people in the camps. The electricity costs saved by UNICEF also benefit activities outside the camps. For example, UNICEF in Jordan spends around USD 12 million a year on WASH activities. The project also helped UNICEF to continue financing its previous activities when UNICEF's overall budget in Jordan was declining.

At the level of the municipalities hosting refugees, the specific activities of the target institutions and their impact are difficult to determine. However, the 33 hospitals and health centers that receive the MoH's electricity allocations are located in host communities in the northern regions, in the provinces of Irbid and Mafrqa. As there were reports of temporary power cuts in the healthcare sector at the time of the project appraisal, the project ensures a reliable power supply for these facilities. In addition, the Jordanian population as a whole will benefit in the long term from the provision of clean energy. In concrete terms, (temporary) employment effects can also be observed in the vicinity of the solar power plant. For example, 25 people from host communities are employed to regularly clean the solar modules (eight times a year). In addition, 25 security guards are employed in 8-hour shifts to

protect the plant.

To summarize, it can be said that indicator 1 was achieved with regard to UNHCR and UNICEF, but not with regard to the Ministry of Health.

In addition to the main socio-economic impacts of the project, the project also contributed to the diversification of Jordan's electricity generation capacities and to the concrete avoidance of CO₂ emissions through the expansion of electricity generation capacities from renewable energies, and thus to the overarching developmental goal of environmental and climate protection. The target value of indicator 2 was achieved. However, without curtailment, with a potential electricity generation of 84 GWh in 2023 instead of 36,550, around 48,000 tonnes of CO₂ per year can be avoided.

However, the socio-economic as well as the environmental and climate impacts of the project could have been even greater and more positive: The installed capacity of the solar power plant is greater than planned at project appraisal and yet remains unutilized due to the curtailment of the grid feed-in (see *Effectiveness - contribution to achieving the objectives*). The lower grid feed-in of electricity from the solar power plant due to the curtailment leads to a lower allocation of electricity to the target institutions and thus to lower electricity cost savings for them compared to a full utilization of the electricity generation capacities of the solar park.

15. Contribution to overarching (unintended) developmental changes

No (unintentional) developmental changes can be identified in the context of the EPE.

Rating summary

To summarize, it can be said that the project has had a significant developmental impact on the target group supplied by the target institutions UNHCR and UNICEF in the refugee camps.

Although the Ministry of Health was able to reduce its electricity bills for the benefiting 33 hospitals and health centers by 99%, the electricity cost savings were not available to the ministry for improving or expanding care services. Accordingly, the impact is limited to the fact that power cuts in the healthcare system could be avoided. In addition to the socio-economic impacts, the project contributed to the avoidance of CO₂ emissions and the diversification of Jordan's power generation capacities.

The developmental impact at socio-economic level and also in terms of climate protection could have been even greater but was impaired by the shutdown of the solar power plant. Overall, the overarching developmental impact of the project is therefore rated as successful.

Overarching developmental impact: 2

Sustainability

16. Capacities of the beneficiaries and stakeholders

The operator of the solar power plant (SEPCO) and the operator of the substation and battery storage facility (NEPCO) are well positioned in terms of personnel and organization. The professionalism and level of training of the employees are high. Their attitude and understanding of themselves are characterized by motivation and ownership. SEPCO already had experience in the operation of PV systems due to its responsibility for the operation of state-owned photovoltaic systems. The personnel of the operator SEPCO took over the operation of the solar power plant at the beginning of 2023. SEPCO is adequately qualified and maintains the plant in accordance with the applicable national and international standards. The operation of the plant at the time of the EPE and SEPCO's experience indicate sustainable operation.

The Ministry of Health positively emphasized the system operation by SEPCO in comparison to the ministry's own operation of decentralized PV systems (roof systems). Also, in comparison to the previous project "Power Supply Host Communities and Syrian Refugees, Zaatari Camp", the operation by SEPCO should be positively emphasized instead of the outsourcing of the operation by the camp operator. In the previous project

mentioned above UNHCR awarded the operation and maintenance of the system to a specialized company, but the procurement of spare parts was not taken into account. These must therefore be procured from the UNHCR budget for the Zaatari facility.

The costs of operating, repairing and maintaining the system are covered by the wheeling fee, which is to be paid by the target institutions per allocated kWh. It amounts to 2.8 EUR-cents/kWh and is considered to be sufficient. Thereof 1.4 EUR-cents/kWh go to NEPCO for grid utilization and transmission, the remaining 1.4 EUR-cents/kWh to SEPCO. However, in the case of curtailment, this also means that SEPCO is reimbursed less operating costs, as the wheeling fee is only paid when electricity is fed into the grid.

SEPCO's resilience as an operator to respond adequately to technical problems is considered good. In principle, the target institutions that supply the target group are able to maintain the positive effects over time. The successful signing of the wheeling contracts has also given them a certain degree of planning security. With regard to the Ministry of Health, however, the extent to which the electricity cost savings will be reliably available to the ministry for the expansion or improvement of services or whether the budget will be cut again in the amount of the electricity cost savings remains questionable.

Despite the financial relief for UNHCR and UNICEF resulting from the project, the development of their budgets is an external factor that is difficult to assess. The budgets of both UN organisations are dependent on external contributions.¹⁴ Budget fluctuations or cuts cannot be ruled out in the future and could jeopardize the improvement of the care and living conditions of refugees and the local population. In contrast, the contribution to global climate protection will remain intact and would only be jeopardized if the electricity is not used or the plant is destroyed.

17. Contribution to supporting sustainable capacities

As described above, the executing agency already experience in operating PV systems. The three-year operational support financed from the pre-financing supported the further development of expertise.

For the target group, in the case of UNHCR and UNICEF refugees in the Zaatari and Azraq refugee camps, any (additional) care that the two UN organisations can offer due to electricity cost savings strengthens their resilience. With regard to the Ministry of Health, it should be noted that the risk that the cost savings will not be made available to the Ministry of Health to a sufficient extent for care services has materialised in 2023.

Although the above-mentioned wheeling contracts contribute to the resilience of target institutions and the target group, this is specifically affected by the risk of the solar power plant being shut down (see *Effectiveness - contribution to achieving the objectives*). The power cuts also reduce the environmental and climate impact. However, in order to avoid curtailments, the expansion and stabilization of the transmission grid is necessary. These are not currently in the concrete planning stage.

NEPCO was able to gain knowledge about the operation of storage systems in the grid infrastructure through the battery storage system built with residual funds. However, as the operating software only allows limited customization, the learning effects of the battery storage system are limited.

18. Durability of impacts over time

The condition and quality of the solar power plant and the other technical equipment are very good. The number of damages since technical commissioning is considered normal and unremarkable.

The use of thin-film modules has the advantage that a series of interconnected modules continues to generate electricity even if some of the modules in this series are damaged. Operation and feed-in can therefore be maintained without having to replace a damaged module immediately. This would not be the case if a different type of module were selected. SEPCO and/or NEPCO will promptly rectify any operational faults. The substation is normally without personnel and operation is monitored remotely. This means that in the event of faults, it is necessary to travel to the plant.

¹⁴ UNHCR 2024, online at: <https://reporting.unhcr.org/donors/donor-ranking>

Overall, the professionalism and pronounced ownership of MEMR, SEPCO and NEPCO, the operating data and management of the plant indicate sustainable operation, the achievement of the technical service life (25 years) and thus a long-term and sustainable utilization of the solar power plant.

However, it is difficult to say whether the cost savings and the associated goal of improving the care services of the target institutions and the living conditions of the target group will be permanent. With regard to the Ministry of Health, the Jordanian government has made no commitment as to whether and to what extent the electricity cost savings will be reliably available as an additional budget for the entire 20-year term of the existing wheeling contract. UNHCR and UNICEF, on the other hand, are expected to use the electricity cost savings for their supply services, although future budget cuts cannot be ruled out for UNHCR and UNICEF either. In addition, the activities of UNHCR and UNICEF are generally not designed for the long term, but are geared towards crisis management, as in this case the Syrian crisis and the refugee movements of the population to neighboring countries.

Compared to other measures that were implemented with SI escape funds and often only have a short time horizon in terms of their effects, the project can be attributed an overall good to very good durability for the context due to the financing of a long-lasting infrastructure, the solar power plant.

It was agreed between Kew and MEMR that the low-cost electricity generated by the plant also benefit disadvantaged population groups in the event of the end of the refugee crisis. In the event that the refugee camps are dissolved, the planned electricity allocation to UNHCR and UNICEF would go entirely to the MEMR. In the event that the use of electricity in the refugee camps is cancelled due to the departure of its residents would be significantly reduced, it has been agreed that the electricity volumes will be adjusted accordingly as part of an addendum to the Wheeling agreements. Furthermore, in the event that UNHCR and UNICEF leave the refugee camps before they are closed, it has been agreed that the Jordanian government, including MEMR (Zaatari Camp), MoE (schools), MWI (water and wastewater infrastructure), can assume the role of UNHCR and UNICEF as customers and use the electricity in the areas of education and water and wastewater infrastructure. The sustainability of the operation of the plant and the continued use of electricity is thus ensured - provided that UNHCR and UNICEF are no longer present in Jordan by the end of the plant's operating life (25 years).

The plant was built in a desert area with no vegetation to speak of. The modules are cleaned using water-saving technology, taking into account the scarcity of water in Jordan. Local companies with local staff are employed for this purpose. This also contributes to local employment opportunities for the technical service life.

Rating summary

The set-up of the executing agency and operator as well as their professionalism and expertise indicate sustainable operation and lasting effects. The very good execution quality of the solar power plant, the multi-year operational support, the long-term allocation of the low-cost electricity to the target institutions regulated by the wheeling contracts and the reasonable wheeling fee for maintenance and operation also contribute to this.

Uncertainties regarding the sustainability of the effects and their extent exist on the one hand due to the grid-related curtailment of the solar power plant and whether this will be counteracted promptly by grid expansion, and on the other hand in the unclear future use of the electricity cost savings by the Ministry of Health.

In view of the exceptional durability of the project in this context, sustainability is still rated as successful despite the uncertainties.

Sustainability: 2

Overall rating

The project is not a classic approach in the crisis and refugee context. What is special about this project is the long-term nature of the installation of the solar power plant and the project's contribution to overcoming the refugee crisis and reducing CO₂ emissions.

The project was highly relevant and, embedded in the policies of the Jordanian and German governments, addressed key bottlenecks in the supply of electricity to refugees and host communities by allocating low-cost electricity to institutions that supply refugees. Due to the very low specific costs, the installed capacity and the quantities of electricity generated far exceeded the originally planned values despite the grid-related power cuts. The developmental impacts were particularly significant for the target group supplied by UNHCR and UNICEF in the refugee camps. However, the impact on health care provided by the Ministry of Health is limited. Although the ministry was able to reduce the electricity costs for the hospitals and health centers that received low-cost electricity by almost 100%, these electricity cost savings have not yet been available to the ministry for improving or expanding care services. In addition to the socio-economic impacts, the project contributed to the avoidance of CO₂ emissions and the diversification of Jordan's power generation capacities. Without the transmission grid-related curtailment of the solar park, the results in terms of effectiveness, (allocation) efficiency and overarching developmental impact could have been even greater.

The quality of the solar power plant's execution, the professionalism of the stakeholders involved and the long-term reorganization of the allocation of the low-cost electricity as well as the adequate wheeling fee for maintenance and operation suggest that the effects will be sustainable overall, despite uncertainties regarding future curtailment and the use of the electricity cost savings by the Ministry of Health. Overall, the project is rated as successful.

Contributions to the 2030 Agenda

Through solar power generation, the project contributes to the implementation of the goals of the 2030 Agenda, to which the German Federal Government has committed itself, as well as to the implementation of the Paris Climate Agreement. In particular, it contributes to SDG 7 (affordable and clean energy). The solar park enables clean, cost-efficient and more reliable access to energy for the refugees and also reduces the number of diesel generators used. By replacing cost-intensive electricity from fossil sources with electricity generated from renewable energies, the project contributes to the avoidance of CO₂ emissions and thus to SDG 13 (Implement climate protection worldwide). Through the considerable cost savings on the part of the institutions that care for refugees, the project also contributes to improving living conditions and socio-economic development by maintaining/expanding supply services and thus to reducing poverty (SDG 1). Finally, SDG 7 is closely linked to and indispensable for the achievement of other SDG goals such as SDG 2 (Ensure global food security), 3 (Good health and well-being), 8 (Sustainable development) and 10 (Reduced inequalities).

Project specific strengths/weaknesses and general conclusions/lessons learned

The strengths and weaknesses of the project include in particular

- What is special about this project compared to other measures in the context of crises and displacement is the long-term impact associated with the financing and installation of the solar power plant as well as the dual contribution to overcoming the refugee crisis on the one hand and the contribution to reducing CO₂ emissions on the other.
- The late conclusion of the Wheeling contracts meant that although the electricity generated since commissioning (2020) was fed into the grid, it was not available to the target institutions - the Ministry of Health, UNHCR and UNICEF - during the first three years of operation.
- The transmission capacity of the high-voltage grid is partially exhausted, and grid overloads accumulate in the power evacuation corridor of the solar power plant. As a result, the solar power plant is increasingly curtailed. As a result, the capacities created by the project remain unutilized and the electricity generated does not fully benefit the target institutions.
- In the case of the Ministry of Health, the allocation of electricity through the Wheeling contracts is not sufficient to ensure that the electricity cost savings are passed on or retained.

Conclusions and lessons learned

- Supporting refugees and simultaneously promoting the expansion of renewable energies is also possible in the context of crises and displacement. Long-term infrastructure measures such as solar power plants make a direct contribution in the context of crises and displacement through the cost-effective supply of electricity to institutions that care for refugees and also contribute to longer-term effects (sustainable electricity supply and avoidance of CO₂ emissions) through the lifespan of the infrastructure.
- In a crisis and emergency context, it is particularly important to choose a technology that favors the most continuous operation possible.
- To ensure that in similar projects in crisis and refugee contexts, electricity allocation benefits the intended institutions immediately upon commissioning without delays, the necessary conditions for the conclusion of wheeling contracts (contracts for the transfer of the generated electricity to defined institutions) must be analyzed at an early stage. In particular, if UN institutions are involved in contracts, their special legal status and privileges as well as the aspect that UN organizations cannot sign contracts for a time horizon of 20 years must be taken into account.
- A mechanism and a contractual agreement are needed that guarantee the target institutions the electricity cost savings resulting from the purchase of low-cost electricity instead of them having to apply for a refund.

Evaluation approach and methods

Methodology of the ex-post evaluation

The ex-post evaluation follows the methodology of a rapid appraisal, i.e. a data-supported, qualitative contribution analysis and an expert judgement. This involves attributing impacts to the project through plausibility considerations based on the careful analysis of documents, data, facts and impressions. Where possible, this also includes the use of digital data sources and modern techniques (e.g. satellite data, online surveys, geocoding). Causes of any contradictory information are investigated, attempts are made to eliminate them and the assessment is based on statements that are -if possible- confirmed by several sources of information (triangulation).

Documents:

KfW project documents, data and reports from the project organizer, public studies.

Data sources and analysis tools:

Data collection on site, monitoring data from the partner, satellite images.

Interview partner:

KfW employees in the operational area, project organizers, target institutions.

The analysis of impacts is based on assumed interdependencies, documented in the impact matrix developed during the project appraisal and, if necessary, updated during the ex-post evaluation. The evaluation report presents arguments as to why which influencing factors were identified for the identified results and why the analyzed project presumably made which contribution (contribution analysis). The context of the development project is taken into account with regard to its influence on the results. The conclusions are set in relation to the availability and quality of the data basis. An evaluation design is the frame of reference for the evaluation.

For project evaluations, the method offers a - on average - balanced cost-benefit ratio, in which the knowledge gains and the evaluation effort are in equilibrium, and allows a systematic assessment of the effectiveness of FC projects across all project evaluations. The individual ex-post evaluation can therefore not fulfil the requirements of a scientific assessment in the sense of a clear causal analysis.

The following aspects limited the evaluation: None

Methodology of the performance evaluation

A six-point scale is used to assess the project according to the OECD DAC criteria. The scale values are assigned as follows:

- Level 1** Very successful: result significantly above expectations
- Level 2** Successful: result fully in line with expectations, without significant deficiencies
- Level 3** Moderately successful: below expectations, but positive results dominate
- Level 4** Moderately unsuccessful: is significantly below expectations and negative results dominate despite recognizable positive results
- Level 5** Unsuccessful: despite some positive partial results, the negative results clearly dominate
- Level 6** Highly unsuccessful: the project is useless or the situation has worsened

The overall rating on the six-point scale is based on a project-specific weighting of the six individual criteria. Levels 1-3 of the overall rating indicate a "successful" project, while levels 4-6 an "unsuccessful" project. It should be noted that a project can generally only be considered developmentally "successful" if the achievement of the project objective ("effectiveness") and the impact on the overall objective ("overarching developmental impact") as well as the sustainability are rated as at least "moderately successful" (rating 3).

The annex to this report is available upon request (German only).

Imprint

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