

EXTERNAL EVALUATION - SHORT REPORT

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Project title: Strengthening quality infrastructure for photovoltaics

Country/Region: Morocco
Project number: 2019.2085.9
Project term: 12/2021 – 03/2025
Lead executing agency: Ministry of Energy Transition and Sustainable Development (MTEDD)
Executing agencies: MIC/ DPCSMQ, IMANOR, LPEE-LNM, LPEE-CEEE, AMEE, GEP, DGM/DSO
PTB | Section: 9.34
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This evaluation is an independent assessment. Its contents reflect the evaluator's opinion which is not necessarily equivalent to PTB's view.

List of abbreviations

AMEE	Moroccan Agency for Energy Efficiency (<i>Agence Marocaine pour l'Efficacité Énergétique</i>)
BMZ	Federal Ministry for Economic Cooperation and Development (<i>Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung</i>)
DGM/DSO	General directorate für meteorology / observation systems directorate (<i>Direction Général de Météorologie/ Direction des Systèmes d'Observation</i>)
GEP	Green Energy Park
GIZ	German Agency for International Cooperation (<i>Gesellschaft für Internationale Zusammenarbeit</i>)
IMANOR	Moroccan Standards Institute (<i>Institut Marocain de Normalisation</i>)
KfW	Bank for Reconstruction (<i>Kreditanstalt für Wiederaufbau</i>)
LPEE-CEEE	Public Laboratory for Testing and Studies/National Metrology Laboratory, Electrical Testing and Research Centre (<i>Laboratoire Public d'Essais et d'Études - Centre d'Essais et d'Études Électriques</i>)
LPEE-LNM	Public Laboratory for Testing and Studies/National Metrology Laboratory (<i>Laboratoire Public d'Essais et d'Études/ Laboratoire National de Métrologie</i>)
MIC/ DPCSMQ	Ministry of Industry and Trade, Directorate of Consumer Protection, Market Surveillance and Quality
MTEDD	Ministry of Energy Transition and Sustainable Development (<i>Ministère de la Transition Énergétique et du Développement Durable</i>)
PTB	National Metrology Institute of Germany (<i>Physikalisch-Technische Bundesanstalt</i>)
SDG	Sustainable Development Goals

1. Executive summary of the project

Evaluation subject was the project “Strengthening quality infrastructure for photovoltaics” in Morocco, commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ). The project volume is 1.3 million EUR. The project duration was initially scheduled from 12/2020 to 11/2023, but due to a diplomatic crisis between the Kingdom of Morocco and Germany as well as delays in signing the implementation contract, the project duration was postponed from 12/2021 to 11/2024, and later extended until the end of March 2025.

The objective of the project is that “quality infrastructure services that meet national needs are available to the photovoltaic sector”. This objective should be achieved through three outputs: (1) strengthening the capacity of the quality infrastructure institutions for the photovoltaic sector, (2) identifying the needs of the national industry and private and public users of photovoltaic installations in terms of quality infrastructure services, and (3) agreeing on the elements needed to improve the framework conditions for quality assurance in the photovoltaic sector.

Political partner of the project is the Ministry of Energy Transition and Sustainable Development (*Ministère de la Transition Énergétique et du Développement Durable MTEDD*). MTEDD’s Directorate of Renewable Energy and Energy Efficiency is also among the implementing partners, as is the Directorate of Consumer Protection, Market Surveillance and Quality of the Ministry of Industry and Trade, the Moroccan Standards Institute, the Public Laboratory for Testing and Studies with its National Metrology Laboratory and the Electrical Testing and Research Centre. Other partner organizations involved are the Green Energy Park, the Moroccan Agency for Energy Efficiency, and the General Directorate of Meteorology with its laboratory. The project’s direct target group are the employees of these organizations. Indirect target groups are the companies that supply and install photovoltaic installations, as well as the households, companies and other parties that use them.

2. Evaluation of the project

Evaluation period was from 03/2024 to 10/2024, including the inception phase and presentation of evaluation findings to different parties. The evaluation served accountability and learning.

Main data collection methods were document analysis and interviews. All documents provided by the project were analyzed and the results attributed to the respective evaluation criteria. The document analysis also served as a starting point for the interviews. The interviews were semi-structured, based on an interview guide covering the DAC criteria and their dimensions. The interviews were documented in French. Triangulation was applied using different sources (project documents, statistical data, interview transcripts) and different methods (comparing statements in the documents with the results of the interviews). In addition, the two evaluators compared their findings. A debriefing workshop served to also triangulate the evaluation findings with the project partners and the project team.

The evaluation covered all the guiding questions applied to the individual evaluation dimension of the six OECD-DAC criteria. The success factors of Capacity WORKS (strategy, cooperation, steering, processes, learning and innovation) were evaluated in the context of the criterion effectiveness, dimension 3 (quality of implementation).

The six OECD/DAC criteria were used as an evaluation basis for this evaluation:

- Relevance: Is the project doing the right things?
- Coherence: How well does the project fit?
- Effectiveness: Is the project achieving its objectives?
- Impact (higher-level development results): What difference does the project make?
- Efficiency: How well are resources being used?
- Sustainability: Will the results last?

The following marking scale was used for the evaluation:

1	2	3	4	5	6
very successful	successful	successful to a limited extent	rather unsuccessful	mainly unsuccessful	entirely unsuccessful

Overall, the project received the mark: 2,65.

Relevance

The project was in line with Moroccan and German political and strategic priorities and met the needs of the partners - particularly the laboratories - and target groups. The project concept was plausible, even if some indicators seemed too ambitious. As regards adaptation to changes in the context, the project has suffered from difficult conditions (the Covid-19 pandemic, the diplomatic crisis) and an only slow resumption of activities from 02/2022. Given these challenges, particularly the slow implementation, it might have been wise to re-examine the indicators and adapt them to the changing context. At the operational level, the project adapted to circumstances as far as possible.

Overall, the criterion received the mark: 2,25

Coherence

The German cooperation programme in the energy sector ended in 2020, but exchanges between GIZ, PTB and KfW took place until January 2024. After that, there were no more regular exchanges. As the focus of GIZ projects has changed to energy efficiency, the potential for synergies was found to be somewhat reduced. Nevertheless, the exchange of information on site is useful, and the PTB project reinforces the sustainability of certain GIZ results, as for instance the introduction of the label 'Taqa Pro' (a label introduced with help of GIZ for installers of photovoltaic modules) and the support to the Green Energy Park. The only other donor active in quality infrastructure in the sector is KOICA, and no duplication was found.

Overall, the criterion received the mark: 2,5

Effectiveness

The project has achieved its objective indicators on average by 60%. The first indicator that measures the availability of three new or improved quality assurance services for the photovoltaic sector has been fully achieved. Those services are electroluminescence testing, the test of large photovoltaic modules and pyranometer calibration offered by the Green Energy Park, the calibration of pyranometer by the laboratory of the General Directorate of Meteorology, and outdoor performance tests offered by the laboratory of the Moroccan Agency for Energy Efficiency. The indicators relating to the political processes (development of a roadmap defining the national needs for quality improvement in the photovoltaic sector, and regular coordination meetings between quality infrastructure and the energy sector institutions) were partly achieved.

The project's contribution to the achieved results was easily demonstrable; however, at the time of the evaluation, concrete results were only visible regarding the support of laboratories (see above).

The project was well managed with some potential for improvement for instance regarding monitoring of results (also unintended) and stakeholder information; the Capacity WORKS factors were generally well considered and respective tools applied. The fact that some objectives were not achieved was largely due to external circumstances. No unintended effects, positive or negative, were observed.

Overall, the criterion received the mark: 2,75

Efficiency

Regarding production efficiency (input/output), the output indicators are expected to be all be achieved by the end of the project. The indicators assessed for instance the qualification of laboratory staff and improvement of quality management systems in laboratories, the sensibilization of relevant actors concerning quality aspects in photovoltaics, and advice concerning the creation of favorable framework conditions to increase the use of small-scale photovoltaic installations.

The relatively low achievement of indicators at the objective level had a negative impact on allocation efficiency that measures the ratio of input to outcome. What however counted positively were the relatively large contributions of the partners. The additional costs associated with the support of more laboratories than originally planned were limited.

Overall, the criterion received the mark: 3

Impact (higher-level development results)

In the long term, the project will contribute to SDG 7 (environmental sustainability) and SDG 9 (infrastructure, industrialization and innovation), even though it should be kept in mind that these effects only occur with a considerable time delay and are thus not yet visible.

The materialization of impact depends to a large degree on the political will to create the required framework conditions for connecting photovoltaic installations to the electricity grid and, as far as quality infrastructure is concerned, on the necessary decrees that regulate quality control (and that will foster the use of the quality assurance services that were created with the support of the project). The opinions of the interviewees on the temporary horizon were very divided, ranging from fairly optimistic to rather pessimistic.

Overall, the criterion received the mark: 2,7

Sustainability

With regard to the required capacities to maintain the achieved results, the preconditions at laboratory level were assessed positively, as there is a certain personal and financial stability, notably of those laboratories that are in public ownership, as well as a large interest in increasing the range of services. At the level of the political partner, staff capacities were assessed as quite limited, notably given the large scale of the work.

The project has contributed mostly to the technical skills observed at partner level, but certain capacities still need to be strengthened in certain areas, such as the marketing of testing services or quality infrastructure knowledge at ministry level. The evaluators also propose that staff of some Moroccan partners - particularly of quality infrastructure institutions - could be more involved as trainers, which would also increase sustainability.

As with impact, the sustainability of results largely depends on political decisions. But even if progress is slow, there seems to be potential for sustainability, particularly in terms of the appropriation of results at laboratory level and a professional and reliable quality infrastructure ecosystem.

Overall, the criterion received the mark: 2,7

3. Learning processes and experiences

In principle, the project applied a good monitoring system, and some learning processes were documented. In addition, the project concept had integrated the lessons learned from the former bilateral project 'Capacity Building for Environmental Monitoring' that was implemented by PTB in Morocco between 2012 and 2015.

Among those lessons learned were better awareness raising and communication at policy level and the support to networking of quality infrastructure organizations with the photovoltaic sector.

4. Recommendations

Recommendations to the partners (with support of the successor project):

- It was recommended that MTEDD as lead partner of the project should drive the finalization of the roadmap, which would give clear perspectives to photovoltaic market actors.
- Awareness among the private sector and autonomous electricity distribution companies should be raised concerning the importance of quality in the photovoltaic sector. This could be done for example through a high-level event, and by involving private sector organizations.
- At project-management level, it was recommended to approve larger 'packages' of activities; this would reduce the ministry workload and speed up project implementation.

Recommendations to the successor project of PTB:

- Laboratories should be supported (if they express this need) in developing a business plan for marketing the newly developed or improved quality assurances services.
- The exchange between laboratories, and between the energy and quality infrastructure sectors should be continued. In particular, practical events or mutual visits were very much appreciated.
- The project's visibility and standing at national level should be increased. This could be done, for instance, through high-level events that involve decision-makers from Morocco and Germany.
- It should be assessed whether training courses that were so far offered by PTB consultants could be institutionalized by involving Moroccan quality infrastructure partners. This would contribute to sustainability.

Recommendations to the International Cooperation Department (9.3):

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Recommendations to the evaluation unit of Working Group 9.01:

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