

Latin America and the Caribbean

## Quality Infrastructure for Renewable Energy Sources and Energy Efficiency in Latin America and the Caribbean

Summary of the Evaluation Report

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### Project Data

Project No.:	2011.2026.0
PTB No.:	
German Contribution:	2 000 000 €
Period :	2011–2015
Evaluation Period:	May–Aug. 2015
PTB Working Group:	Q.5.3
Project Coordinators:	Ulf Hillner Niklas Cramer
Evaluator/s:	Sibylle Braungardt Enrique Wittwer José Ordoñez

This is an independent evaluation. The contents represent the view of the evaluator and cannot be taken to reflect the views of PTB.

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## 1. Project Description

The project “Quality Infrastructure for Renewable Energy Sources and Energy Efficiency in Latin America and the Caribbean” is funded in the framework of the German International Cooperation. Following the guidelines of the Federal Ministry for Economic Cooperation and Development (BMZ), all international cooperation projects are evaluated by external experts.

The project is jointly implemented by PTB and regional Quality Infrastructure (QI) organizations, namely the Inter-American Accreditation Cooperation (IAAC), the Inter-American Metrology System (SIM) and the Pan American Standards Commission (COPANT). GS/OAS is serving as the political counterpart, while the Latin American Energy Organisation (OLADE), the UN Economic Commission for Latin America and the Caribbean (ECLAC) and the International Renewable Energy Agency (IRENA) are invited to participate by providing political advice in the field of energy efficiency and renewable energies.

The project aims at strengthening the capabilities of the Quality Infrastructure (QI) organizations in the region along with their national members in providing services for the fields of energy efficiency and renewable energy sources and to promote mutual coordination in order to support the implementation of the respective national energy policies.

The focus of the project is set on four core topics that reflect the jointly identified priorities: quality assurance for solar thermal water heaters, capacity building for smart grids, strengthening of reliable determination and certification (e.g. labeling) of the energy efficiency of electrical household appliances and raising awareness of the significant role of QI services in this field. The key channels for capacity and institutional building are the provision of short term experts for consultancy work and training measures, the support of seminars and awareness raising events and the facilitation of dialogues and workshops to support know-how transfer between staff members from regional and national QI institutions and international experts.

The aim is to run two projects over a term of 8 years, (2011-2019), where the first project is to be completed in 2015. The German contribution for the first project (2011-2015) amounts to 2 000 000 Euro.

## 2. Assessment of the project

The objective of the evaluation was the assessment of the project’s results in the implementing period from 2011 to 2015 and the elaboration of recommendations for the follow-up project. The evaluation was conducted by a team of evaluators composed of researchers and consultants that are independent from the project team. The roles of the team members are outlined in the following table.

### **Table 1: Evaluation team**

Name	Organization	Role in evaluation
Sibylle Braungardt	Fraunhofer Institute for Systems and Innovation Research	Key evaluator - Conduction of data collection activities including evaluation mission - Responsible for evaluation and reporting
Enrique Wittwer	Private consultant	Technical evaluator - Conduction of data collection activities including evaluation mission - Presentation of evaluation results
José Ordóñez	Fraunhofer Institute for Systems and Innovation Research	Technical support

The evaluation mission was conducted between June 21 and July 2<sup>nd</sup>. It covered Argentina, Uruguay, Colombia and Costa Rica. The evaluation team conducted interviews with 42 of the main stakeholders involved in the project activities. Most of the interviews were conducted face-to-face during the evaluation mission, complemented by interviews via skype and email. Interviews were conducted with experts from 12 different countries of the region. The experts included in the interviews were selected prior to the evaluation mission in collaboration with the project steering committee. Aside from the interviews, the evaluation team had the opportunity to participate in two project activities: The Traceability Workshop on Solar Radiation held in Buenos Aires June 22<sup>nd</sup> and 23<sup>rd</sup> as well as the Forum on Quality Assurance of Solar Water Heaters held in Costa Rica from June 29<sup>th</sup> to 30<sup>th</sup>. The evaluation mission was accompanied by Christian Göthner, a PTB consultant involved in the project, who conducted interviews to plan the upcoming project phase.

The evaluation criteria follow the OECD's Development Assistance Committee (DAC) as well as the capacity works framework. The evaluation followed the DeGEval-standards of the German association for evaluation (Deutsche Gesellschaft für Evaluation).

The main results of the evaluation are summarized in the following sections.

### *1.1 Status of the change process*

Relevance
<p>The project evaluation confirmed that the project activities are highly relevant for strengthening the capabilities of the regional Quality Infrastructure (QI) organizations IAAC, SIM and COPANT along with their national members to develop demand orientated services in the above named selected fields of renewable energy sources and energy efficiency as well as promoting their mutual coordination.</p> <p>A limitation to the relevance of the project arises for countries where the use of energy efficiency or renewable energies is inhibited by factors unrelated to quality infrastructure. Typically, such factors include a lack of political will or capacity to implement policies supporting the use of renewable energies or energy efficiency. Many of stakeholders that were interviewed during the evaluation mission confirmed that the relevance of the project is</p>

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limited if synergies with national or regional policy makers are not achieved. The stakeholder interviews suggest that the relevance of individual project activities differs between the various countries in the region. The interviews confirm that despite the large differences between the various countries, the project was successful in providing relevant activities for all countries.

### **Effectiveness**

The project effectively addresses its overall objective to „strengthen the capabilities of regional QI organizations and of their national members in the selected fields of renewable energy sources and energy efficiency and to promote mutual coordination among them”.

The monitoring of the fulfillment of the objectives is structured using a system of measurable indicators of outcomes and project outputs, where the indicators have been largely fulfilled. Furthermore, the project has very effectively strengthened the mutual cooperation between the regional QI organizations as well as between the QI institutions at national levels. In that context, a remarkable outcome supported by the project is the Quality Infrastructure Council for the Americas (QICA) which was recently established and in which the three regional organizations participate.

### **Efficiency**

**Steering structure:** The efficiency of the project is greatly enhanced by successfully building upon synergies with the implementing organizations IAAC, SIM, COPANT and OAS. The information flows and involvements with the national QI institutions were organized in an efficient way through the structures of the regional organizations.

**Synergies with other organizations:** Apart from the synergies with the regional organizations, in the field of renewable energies, synergies with IRENA were used successfully. In the field of energy efficiency, the use of synergies with organizations involving policy makers was somewhat less successful, which has negatively influenced the efficiency of the project in this field. To some extent, the project achieved collaborations with ECLAC and OLADE, however, both in frequency and character these collaborations lag behind the successful cooperation with IRENA in the field of renewable energies.

**Synergies with other PTB projects:** In some of the countries, the project successfully used synergies with other projects implemented by PTB. Several of the institutions involved in the regional project at the same time were involved in bilateral projects with PTB in similar fields of action, and the synergies between these activities were exploited successfully.

**Use of virtual meetings:** The use of the virtual platform CENTRA enhanced the efficiency of communication in the PSC, as the frequency of meetings could be greatly increased with little additional cost. Some interviewees suggested to rely more on virtual technologies also for capacity building activities to increase efficiency also for the participants.

The **information management and fluctuation of staff** in the participating institutions also influences the efficiency of the project, as inputs are lost if information is not transferred and/or participants leave their organizations. Additionally, improving the dissemination of project results can improve the efficiency in terms of number of people addressed per input.

### **Impact**

The impact chain of the project includes several direct impacts, including market transparency and compatibility as well as an increased integration of renewable energies to the grid. The evaluation finds that at the current stage direct impacts have been achieved to a very limited extent. Slight advances were perceived for market transparency, whereas for compatibility and integration of renewable energies to the grid the interviews confirmed that

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the impacts have not yet been achieved. It is important to note that the impacts are very ambitious, especially considering the time frame of the first implementing phase. Furthermore, the impacts depend on many factors beyond control of the project. The evaluation finds that the project has achieved significant advances towards reaching the impacts and concludes that given the high complexity of the project and the rather short timeframe for the implementation, the project successfully directed activities towards the desired impacts, however, a continuation of the activities is required in order to fully achieve them.

### **Sustainability**

While final conclusions regarding the long-term sustainability of the project are difficult to derive at the current stage, the evaluation mission could identify a number of factors that suggest sustainable results and could identify some relevant factors to take into account in the upcoming implementation phase.

**Cooperation:** The project has supported cooperation between relevant QI institutions and organizations. The large majority of involved institutions and organizations confirmed the usefulness of cooperation and has engaged in cooperation activities apart from the ones organized by the project. An important example for such a cooperation is the QICA. Other examples are cooperations between national QI institutions in various countries.

**Capacities:** Many participants of the project activities confirmed that the participation changed their way of working at their respective institutions. This includes technical capacities as well as organizational issues, such as cooperation between institutions. Some participants remarked that further activities are necessary in order to achieve such a change.

**Continuity of staff and knowledge management:** When members of an organization that participate in training activities leave the organizations, it is essential that the knowledge that was built up during the project activities is conserved in the organization. The interviews conducted during the evaluation mission revealed mixed results both regarding continuity of staff and knowledge management. Some institutions had successfully established a procedure for transferring information acquired in the workshops (e.g. through seminars given by the participants), whereas in other cases it seemed that staff members that had not participated in the events had very limited knowledge about the activities. Fluctuation of staff was highlighted as a challenge especially for institutions from the policy area, whereas for the QI institutions this concern was expressed very infrequently. Even though the project has a limited influence on continuity of staff in the participating organizations, the project team could consider providing further support for the implementation of knowledge management procedures, e.g. by highlighting the importance and presenting best practices at the workshops.

## *1.2 Success factors for the observed results and change processes*

### **Strategy**

The strategy of the project was designed in a participative approach including PTB and the implementing organizations. The project activities were planned based on the needs of the participating institutions. According to the involved institutions, the strategy of the project was clearly defined and provided sufficient flexibility to adapt according to the needs of the participating institution. In general, the strategy of the project is well aligned with the desired outputs and impacts of the project. The inputs of the project in the form of seminars,

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workshops, a proficiency test (PT), and exchange of experience have largely contributed to achieving the defined outputs. The monitoring of the outputs was performed by making use of a set of indicators, which generally were defined appropriately.

Given the importance of the energy policy framework for the project, the strategy of the project could consider a more active integration of this field. For example, the role of energy policy could be included in the impact chain of the project. Furthermore, the selection of PTB consultants could include consultants with a background in energy policy.

### **Cooperation**

Fostering cooperation between QI institutions was one of the main objectives and one of the key success factors of the project. The evaluation finds that cooperation between QI institutions improved significantly in the course of the project and that this cooperation is viewed very positively by the involved institutions. Both at a regional and at national levels the relevant QI institutions and in some cases the relevant actors from the political entities confirm that fostering cooperation was one of the main achievements of the project. Various stakeholders highlighted that the workshops very successfully supported cooperation by providing an open and constructive atmosphere. The limited cooperation with regulators and policy-makers was one of the main challenges that were highlighted in the project evaluation. For the area of energy efficiency, cooperation with policy makers is viewed as a key success factor which should be addressed further in the upcoming implementation phase.

### **Steering structure**

The evaluation confirmed that the structure of the Project Steering Committee, including representatives from PTB, SIM, IAAC, COPANT and OAS, was one of the key success factors of the project. The participative approach allowed for effectively and efficiently developing demand-based activities and for managing the information exchange with the national QI institutions. All of the involved stakeholders confirmed that the members of the Project Steering Committee interacted effectively. Besides the annual meetings of the Project Steering Committee, regular virtual meetings were conducted using the platform CENTRA. All of the stakeholders that participated in the virtual meetings confirmed that the regular information exchange contributed to a successful implementation of the project. Including the participating institutions in the PSC is seen as a key success factor in the project implementation.

### **Processes**

The project involved a large number of processes and activities conducted in parallel, which represented a challenge that according to the participating institutions has been met successfully by the steering structure of the project. Some of the most important processes include:

**Project steering and information exchange within PSC:** The members of the PSC conduct face-to-face meetings on an annual basis. In addition, virtual meetings using the IT-based platform CENTRA were introduced to increase the frequency of interaction. Introducing the virtual meetings has strongly improved the effectiveness and efficiency of the PSC and has contributed to a more dynamic project implementation.

**Information exchange between regional organizations and their national members:** The regional organizations are responsible for informing their national members about relevant project activities and outcomes. Furthermore, the needs and demands of the national members are transmitted to the PSC through the respective regional organizations. The link between the regional organizations and their member institutions is therefore a

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critical success factor in the project implementation. The interviews conducted in the evaluation suggest that the information flow between regional organizations and national member institutions was achieved considerably well, however, in some cases the smaller countries lack resources to react.

**Information management within national institutions:** In order to achieve sustainable outcomes of the project it is essential that the participants of the project activities distribute the acquired knowledge, information and capacities in their organization. This is particularly important for cases where the participant leaves the organization. Most of the institutions that were interviewed during the evaluation confirmed that the information was passed on and managed within the institutions (e.g. through seminars), however, in some cases it was evident that this had not been the case. Even though the information flow within the national institutions is not in direct reach of the project steering structure, it might help to make participants aware of the importance of transferring the knowledge to their organization. Furthermore, it might be useful to provide best practice examples.

**Organization and documentation of project activities:** The project activities are generally organized by members of the steering committee and/or the principal experts, with varying degrees of participation from the respective national QI organization in terms of local event management. The documentation of the event is (in most cases) published on the project web page. However, the project web page leaves considerable room for improvement and it is recommended to dedicate some effort to improve its structure and user-friendliness in the upcoming project phase.

**Interaction between participants at the workshops:** Many participants of the project activities confirmed that an important achievement of the project was creating opportunities for interaction with other countries within the region and with international experts. All workshops were supported by a team of translators in order to facilitate the information exchange. However, in some cases the effectiveness of the information exchange was reduced as the quality of the translations with respect to the technical terms was insufficient, or because translation was available in the plenum but not in all working group activities. For the upcoming project phase it is recommended to use the lessons learned (good translation teams, best practices for subgroups) to reduce the risk of language-related barriers in information exchange. Furthermore, while the priority in selecting experts should clearly be their expertise and experience, if at all possible it would be helpful to invite international experts that have good command of the Spanish language.

### **Learning and innovation**

The implementation of the project involved a variety of learning processes at different levels. In the area of energy efficiency, an example for a learning process that was successfully achieved in the course of the project is the increased focus on policy issues in the area of energy efficiency as a reaction to the demand of the participating institutions. Similarly, for the activities on smart grids an example for a successful learning process was the adaption of the activities to the different levels of capacities in the various countries. For the area of solar water heaters, including IRENA proved to be a successful adaption that for example the organizers of the most recent workshop in Costa Rica considered to be a key success factor. At the level of the project management and project steering committee, learning processes included the introduction of virtual meetings using the CENTRA platform, which according to the participants of the meetings significantly helped to achieve a continuous, effective and efficient communication between the members of the PSC.

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In general, the evaluation finds that the learning processes were managed well and that challenges and solutions have been reflected in a satisfactory way. For the case of the proficiency test for refrigerators, a few interviewees highlighted that it would be helpful to extend the documentation of the learning processes.

### 3. Learning processes and learning experience

One of the main challenges (and at the same time a key success factor) is the project's regional approach. The regional approach requires supporting learning processes in various countries with very different baseline capacities and different viewpoints. The demand-based and participative approach helped to understand and take into account the needs of the various countries, however, in the interviews it was mentioned frequently that it is a challenge to provide activities to address the needs at the very different levels. At the same time, while it is certain that some countries in the region are more advanced than others, the European example shows that despite the differences between the countries (cultural, historic, language etc.), common targets and approaches can be implemented. We consider it important to maintain and strengthen the regional character of the project in the second implementing phase.

### 4. Recommendations

For the current implementing phase, we recommend to **identify and document the key learning processes** to provide guidance for the upcoming implementation phase. One example where stakeholders highlighted a lack of documentation of the learning processes was the proficiency test, which was highlighted as one of the most important project activities in the current implementing phase.

For the upcoming implementing phase, we recommend to redefine the **communication and information management** strategy, in particular:

- **Project webpage:** In principle, the project webpage provides a useful tool to distribute information on upcoming activities, to provide information and documentation of the realized project activities and to raise awareness regarding the project. At the current stage, the webpage seems to only partially accomplish these functions and, given the relevance and the complexity of the project, it seems worth to thoroughly rethink and restructure the website.
- **Newsletter:** A regular newsletter (e.g. biannual) may help to increase awareness of the project and to ensure that the relevant stakeholders receive the information they need. The newsletter could also be linked to the website to make people aware when new content is uploaded.

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- **Information management:** Due to the large number of countries, institutions and individual experts involved, the project inevitably involves rather complex information flows. Even though not all information flows are directly accessible to the project management team (i.e. information flows between regional organizations and national organizations and in particular information flows within national organizations), it may be helpful to discuss the lessons learned from the current implementation and to establish procedures to support information flows where necessary.
  - **Coordination of activities to improve information management:** The consulting company MerkWATT is currently undertaking an analysis of the information requirements of the project participants in order to develop a strategy for information management. As the analysis also involves interviews with the stakeholders and is closely related to some of the aspects of the evaluation it would have been helpful to coordinate these activities to increase efficiency and effectiveness.

Furthermore, we recommend **refining the strategy for interaction with stakeholders from the policy sphere**. The evaluation found a need to reconsider the project's approach for interaction with stakeholders from the policy sphere. Especially in the field of product energy efficiency, during the course of the project the need of involving policy makers to a larger extent than initially planned was recognized and the process was managed remarkably well considering the fact that this went beyond the planned activities. At the same time, the involvement of policy makers has been considered one of the main challenges in the current project implementation phase. For the second implementing phase, we would recommend to clearly define a strategy regarding the involvement of policy makers and link this to the relevance of the project. For each of the fields of actions it should be considered to what extent interaction with policy-makers is required in order to ensure the relevance of the project. The project management team should decide upon the extent to which an involvement of policy makers is desired. If an involvement going beyond the current level is desired, the project team should ensure that synergies with existing projects in the region are used. The project team could consider directly involving experts from the energy policy area to facilitate the connection to existing initiatives and to ensure the alignment of project activities with policy processes. If it is decided to enhance the involvement of actors from energy efficiency policy, it might be useful to include a representative of this area in the project steering committee. A possibility to do so could be by including a PTB principal expert in this field.

Lastly, we recommend including the **certification of installations**. In the current phase of the project, the certification activities included mainly the certification of products. In order to support an increased use of energy efficiency and renewable energies, the next implementation phase of the project should increasingly cover the certification of facilities or installations. The reason being that the successful performance of an efficient product highly depends on its installation.



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