Physikalisch-Technische Bundesanstalt
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INTERNATIONAL COOPERATION

EXTERNAL EVALUATION - SHORT REPORT

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Strengthening the Quality Infrastructure for Renewable Energies and Energy Efficiency in Brazil II

Project number:	2019.2255.8
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Lead executing agency:	Physikalisch-Technische Bundesanstalt
Executing agency(ies):	Instituto Nacional de Metrologia, Qualidade e Tecnologia - Inmetro
PTB | Section:	Q.33
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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

ABNT	Associação Brasileira de Normas Técnicas *Brazilian Association of Technical Standards*
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung *Federal Ministry for Economic Cooperation and Development*
Caint	Coordenação Geral de Articulação Internacional, Inmetro *General Coordination of International Articulation, Inmetro*
Cgrce	Coordenação Geral de Acreditação *General Coordination of Accreditation*
DAC	Development Assistance Committee from the Organization for *Economic Cooperation and Development (OECD)*
Dconf	Diretoria de Avaliação da Conformidade, Inmetro *Conformity Assessment Directorate, Inmetro*
Dimci	Diretoria de Metrologia Científica e Industrial, Inmetro *Cientific and Industrial Metrology Directorate, Inmetro*
ENIQ	Estratégia Nacional da Infraestrutura da Qualidade *National Strategy for Quality Infrastructure*
EU	European Union
GIZ	Gesellschaft für Internationale Zusammenarbeit *German Society for International Cooperation*
GPQI	Global Project Quality Infrastructure
Inmetro	Instituto Nacional de Metrologia, Qualidade e Tecnologia National Institute of Metrology, Quality and Technology *National Metrology Institute of Brazil*
KfW	Kreditanstalt für Wiederaufbau *Bank for Reconstruction*, Germany
M&E	*Monitoring and Evaluation*
MDIC	Ministério do Desenvolvimento, Indústria, Comércio e Serviços *Ministry of Development, Industry, Trade and Services*
MME	Ministério de Minas e Energia *Ministry of Mines and Energy*
NDC	Nationally Determined Contribution
NIB	Programa Nova Indústria Brasil *Brazilian new industry program*
PBE	Programa Brasileiro de Etiquetagem *Brazilian Labeling Program*
PTB	Physikalisch-Technische Bundesanstalt *National Metrology Institute of Germany*
RIA	*Regulatory Impact Assessment*
PV	*Photovoltaic*
QI	*Quality Infrastructure*
SDG	*Sustainable Development Goal*
SPE	Secretaria de Planejamento e Desenvolvimento Energético *Energy Planning and Development Secretariat*
UNIDO	*United Nations Industrial Development Organization*

1. Executive summary of the project

The project *"Strengthening the Quality Infrastructure for Renewable Energies and Energy Efficiency in Brazil II"* is part of the German development cooperation programme *"Just Transition in the Energy and Urban Sector in Brazil"*. It was implemented from **01/2021 to 12/2025** with a total volume of **EUR 1.3 million** and commissioned by the **German Federal Ministry for Economic Cooperation and Development (BMZ)**.
The political and implementing partner was **Inmetro** (National Institute of Metrology, Quality and Technology). The **implementing organization** on the German side was the **Physikalisch-Technische Bundesanstalt (PTB)**. The target group comprised institutional actors involved in Brazil's national quality infrastructure system, particularly in the energy and climate sectors.
The module objective was to strengthen Brazil's quality infrastructure (QI) for renewable energy and energy efficiency. This was pursued through the development of new or improved QI services (e.g. calibration and testing for biogas and photovoltaics), support to regulatory reform processes (especially the transversal framework for the Brazilian Labelling Programme – PBE), and the establishment of **InovInmetro**, a platform for institutional innovation and stakeholder dialogue. Additional outputs included enhanced internal cooperation formats and initial steps towards increased client orientation, particularly in the development of biogas services and internal moderation capacities within Inmetro.

2. Evaluation of the project

The evaluation was carried out between **December 2024 and May 2025**, including a field mission to Brazil in **March/April 2025**. It served two main purposes: to ensure accountability regarding the use of public funds and to generate learning for the planning of a potential third phase.
The evaluation followed a **theory-based, utilization-focused approach**, guided by the project's results logic and OECD/DAC evaluation criteria. It applied a **mixed-methods design**, combining document analysis, stakeholder interviews (public sector, private associations, consultants), and a participatory validation workshop. Special attention was given to two learning questions defined by PTB. The five success factors of **Capacity WORKS** were integrated in the assessment of implementation quality.

The six OECD/DAC criteria formed the basis of the assessment:

- **Relevance:** Is the project doing the right things?
- **Coherence:** How well does the project fit?
- **Effectiveness:** Is the project achieving its objectives?
- **Impact:** 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: 2.4 (successful).**

Relevance
The project was well aligned with national and international policy priorities. It directly supported Brazil's NDCs, energy transition goals, and the modernization of the Brazilian Labelling Programme (PBE), while also reflecting strategic orientations such as the *Nova Indústria Brasil* and Inmetro's 2024–2027 plan. On the German side, it was consistent with BMZ's Just Transition agenda.
1. Alignment with partner and donor priorities: The project contributed to climate-related SDGs and decarbonization goals. It addressed Brazil's national commitments under the Paris Agreement and sectoral needs in renewable energy and energy efficiency, making it highly relevant to both BMZ and Inmetro.
2. Orientation to the needs and capacities of the target group: The intervention responded well to the institutional needs of Inmetro, particularly in areas such as biogas metrology, PV calibration, and regulatory reform.

3. Plausibility of the project logic: The project logic was technically sound, but it relied heavily on quantitative indicators and lacked robust mechanisms to assess service uptake or behavioral changes. The results matrix was not adapted during implementation, which constrained strategic responsiveness.
4. Adaptation to context and evolving needs: Some adaptive elements emerged, notably the creation of *InovInmetro* and the piloting of stakeholder dialogues. However, broader adaptive management was limited, and the project design did not respond systematically to leadership turnover or changing institutional dynamics.

- **Overall, the criterion received the mark: 2.0 (successful).**

Coherence
The project was generally coherent with both national reform agendas and the German development cooperation portfolio. It supported Brazil's evolving QI policy frameworks (e.g. ENIQ, Nova Indústria Brasil) and aligned with thematically related German-funded initiatives (e.g. GPQI, H2Brasil). However, the lack of institutionalized coordination mechanisms limited strategic integration and mutual learning.
1. Internal coherence (within German development cooperation): The intervention complemented GIZ and KfW efforts in energy and industrial policy, but collaboration remained informal. Coordination relied on bilateral exchanges rather than structured processes. Staff turnover within PTB, GIZ, and Inmetro hindered continuity and diluted strategic alignment. No joint steering or reporting structures were established between PTB and Inmetro. Coordination with GIZ and KfW occurred but remained informal despite shared programme-level reporting (e.g. annual programme reports).
2. External coherence (with partner systems and other donors): The project respected the subsidiarity principle and worked through existing national structures (e.g. DIMCI, Dconf, Cgcre). It reinforced Inmetro's reform efforts without duplicating or bypassing institutional roles. However, it did not engage systematically with other international actors (e.g. UNIDO, EU) and lacked joint M&E or learning frameworks with Brazilian institutions.

- **Overall, the criterion received the mark: 2.5 (successful to a limited extent).**

Effectiveness
The project largely achieved its intended output and contributed plausibly to expected outcomes. New or improved QI services were developed (e.g. biogas analysis, ISO/IEC 17029 accreditation scheme), and the transversal regulation for the Brazilian Labelling Programme (PBE) was published. Outcome indicators were likely met, although usage data and final monitoring reports were not yet available.
1. Outcome achievement (based on indicators): Most outcome indicators were fulfilled or on track at the time of evaluation. However, results reporting lacked distinction between Phase I and II achievements, and no usage data was available to verify service uptake. The absence of a comprehensive outcome monitoring system limited verifiability.
2. Contribution of activities and outputs to outcomes: The delivery of technical outputs—particularly QI services and stakeholder formats—contributed meaningfully to institutional strengthening and regulatory reform. Yet, outreach to decentralized actors and private-sector users remained limited.
3. Implementation quality (CW success factors): Technical implementation was strong, but strategic steering and learning mechanisms were weak. No formal steering structure existed; the results logic was not adapted. CW factors such as **Cooperation** and **Learning & Innovation** showed selective progress (e.g. InovInmetro, stakeholder dialogues), while **Strategy** and **Steering Structure** remained underdeveloped.
4. Handling of unintended results and risks: Positive side effects included improved cross-departmental collaboration and increased visibility of QI in the biogas sector. However, no systematic risk management or adaptation mechanisms were in place.

- **Overall, the criterion received the mark: 2.5 (successful to a limited extent).**

Efficiency
The project used its resources reasonably and achieved its planned outputs within the available budget. Production efficiency was satisfactory overall, although coordination inefficiencies and missed opportunities for synergy reduced the potential cost-effectiveness at the systemic level.

1. Production efficiency (resources vs. outputs): Most outputs were delivered as planned and within budget. Technical services were developed, and stakeholder engagement formats were implemented. Efficiency gains were achieved through internalized facilitation capacities within Inmetro, reducing reliance on external consultants. However, fragmented mission planning and duplicated coordination efforts led to avoidable transaction costs.
2. Allocation efficiency (resources vs. outcomes): Despite adaptive measures (e.g. project extension, biogas inclusion), allocation efficiency was constrained by weak strategic planning and limited learning. The absence of a joint monitoring system and institutionalized feedback loops hindered optimization. Some decisions—such as delayed private sector engagement—reduced systemic leverage.

- **Overall, the criterion received the mark: 2.5 (successful to a limited extent).**

Impact (higher-level development results)
The project contributed plausibly to long-term changes in Brazil's energy and quality infrastructure systems, particularly in terms of enabling structures. While direct attribution remains limited, several outputs created conditions for broader institutional transformation and increased alignment with decarbonization goals.
1. Achievement or likelihood of higher-level development results: Some impact-level results—such as improved conditions for renewable energy integration and more transparent regulatory frameworks—are plausible but remain partly uncertain. Contributions to SDGs 7 and 13 are plausible but not demonstrably measurable at this stage.
2. Contribution of outcomes to higher-level changes: The project supported the development of enabling frameworks such as InovInmetro, updated QI services, and the transversal PBE regulation. These outputs are relevant to systemic improvement, but their contribution to sustained transformation is limited by gaps in outcome monitoring, institutional continuity, and private sector engagement.
3. Unintended effects (positive/negative): The project generated positive unintended results, including strengthened internal collaboration at Inmetro and increased visibility of the QI agenda in strategic dialogues (e.g. biogas). No significant negative effects were observed, though risks related to internal fragmentation and service uptake persist.

- **Overall, the criterion received the mark: 2.5 (successful to a limited extent).**

Sustainability
The project strengthened technical capacities and initiated relevant institutional reforms, but long-term continuation of results remains uncertain. While key outputs are likely to persist, structural risks—such as financial fragility, leadership turnover, and lack of strategic integration—threaten durability.
1. Capacities of partners and organizations to sustain results: Inmetro departments involved in metrology and energy labelling (e.g. DIMCI, Dconf) showed operational readiness to maintain and further develop services. However, institutional resilience remains uneven, and internal fragmentation weakens sustainability across governance and coordination functions.
2. Project contributions to long-term capacity and system development: The project created structures with potential for continued innovation and collaboration, most notably InovInmetro and stakeholder dialogue formats. Yet, these innovations were not formally institutionalized. Knowledge management and risk mitigation mechanisms were underdeveloped.
3. Likelihood of durability of results: While technical services are likely to remain in use, their long-term integration depends on political support, strategic planning, and budget stability. The absence of formal learning systems and human resource continuity plans increases vulnerability to staff turnover and policy shifts.

- **Overall, the criterion received the mark: 2.6 (successful to a limited extent).**

3. Learning processes and experiences

The evaluation highlighted several key lessons relevant for PTB and its partners when working in politically and institutionally unstable contexts. First, flexibility in project implementation proved essential: the project was able to adjust to external shocks (e.g. COVID-19, leadership changes) and still deliver technical outputs. However, without formal strategic steering mechanisms, learning remained reactive and fragmented.

The emergence of **InovInmetro** as a cross-cutting innovation and dialogue platform demonstrated the value of internal experimentation and participatory processes. Yet, its sustainability depends on institutional anchoring.
Another key insight was the need to structure stakeholder engagement and cooperation formats from the outset. Dialogues initiated late in the project were valuable but could have had greater systemic impact if introduced earlier.
Finally, the evaluation emphasized the importance of resilience planning and adaptive monitoring. Without a dynamic results framework or feedback loops, the project struggled to track behavioural change or adjust its strategic logic over time.

4. Recommendations

Recommendations to the partners:

- Establish a formal cross-departmental steering structure to improve internal coordination and strategic oversight.
- Institutionalize *InovInmetro* by integrating it into Inmetro's planning, budgeting, and governance processes.
- Secure interministerial support for the transversal PBE framework to ensure implementation and regulatory follow-up.
- Strengthen early stakeholder engagement, including private sector and regional actors, through structured dialogue formats.
- Introduce basic business planning tools for new QI services to support long-term adoption.

Recommendations to the project team:

- Set up a joint results-based monitoring and learning framework with Inmetro, including regular outcome reviews and reflection formats.
- Involve Cgcre and ABNT more systematically to align with Brazil's standardization and accreditation systems.
- Anticipate institutional risks through continuity planning and knowledge transfer mechanisms.
- Support the application of regulatory impact assessments (RIA) and link PBE to market incentives where feasible.
- Promote integration of PTB outputs with national policy frameworks such as ENIQ and *Nova Indústria Brasil*.

Recommendations to the International Cooperation Department (Q.3):

- Define minimum standards for stakeholder mapping and resilience planning in volatile settings.
- Strengthen coordination with GIZ, KfW, and other German actors for coherence and joint learning.

Recommendations to the evaluation unit of Working Group Q.01:

- Encourage systematic assessment of institutional learning, risk management, and digital monitoring tools in future evaluations.
- Include context-specific resilience indicators (e.g. leadership stability, interministerial alignment) in the evaluation framework.
- Promote documentation of unintended effects and adaptive strategies as part of evaluation learning.