Physikalisch-Technische Bundesanstalt
Braunschweig und Berlin
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INTERNATIONAL COOPERATION

EXTERNAL EVALUATION - SHORT REPORT

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Project title: Building up a regional metrology system in the ECOWAS region II

Country/Region:	Economic Community of West African States (ECOWAS)
Project number:	2021.2052.5
Project term:	01 August 2023 – 31 January 2027
Lead executing agency:	ECOWAS Commission
Executing agency(ies):	ECOWAS regional metrology organisation ECOMET
PTB | Section:	Sub-Saharan Africa
PTB | Project Coordinator:	Guillaume Robardet
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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

AfCFTA	African Continental Free Trade Area
AFRIMETS	Intra-Africa Metrology System
AU	African Union
BMZ	*Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung* German Federal Ministry for Economic Cooperation and Development
CD	Capacity Development
CMC	Calibration and Measurement Capability
DAkkS	Deutsche Akkreditierungsstelle
ECOMET	ECOWAS Community Committee for Metrology
ECOWAQ	ECOWAS Agency for Quality
ECOWAS	Economic Community of West African States
EU	European Union
FEWACCI	Federation of West African Chambers of Commerce and Industry
FOPAO	Federation of West African Employers' Organisations
GDP	Gross Domestic Product
GSA	Ghana Standards Authority
ILC	Inter-laboratory comparison
NMI	National Metrology Institute
OECD/DAC	Development Assistance Committee of the Organisation for Economic Cooperation and Development
OIML	International Organisation of Legal Metrology
QI	Quality infrastructure
SME	Small and Medium-sized Enterprise
SOAC	Système Ouest Africain d'Accréditation
TC	Technical Committee
UNIDO	United Nations Industrial Development Organization

1. Executive summary of the project

The subject of this evaluation is the project “Building up a regional metrology system in the ECOWAS region II”, implemented by PTB in the ECOWAS region between August 2023 and January 2027. The project is financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) and has a budget of 1,500,000 EUR. The political partner is the ECOWAS Commission. The implementing partners, and direct beneficiaries of the project, are the ECOWAS Community Committee for Metrology (ECOMET) and the National Metrology Institutions (NMI) of its member states. ECOMET was established in 2017 as the regional metrology organisation of West Africa. It is an operational arm of the ECOWAS Agency for Quality (ECOWAQ), which is yet to be operationalised. The project continues the efforts of a predecessor project to strengthen the capacities of ECOMET and its national member institutions.

The project objective is: “The division of labour and cooperation in the metrology system at ECOWAS level are improved.” To achieve this objective, the project is expected to deliver the following outputs:

1. “The less advanced metrology institutes are strengthened in their service delivery.”
2. “ECOMET and its technical committees are organisationally strengthened.”
3. “Metrology institutions have improved their service orientation and visibility to the private sector”.

The achievement of the project objective is measured by three outcome indicators:

1. “A regional traceability chain is established for four quantities based on ECOMET priorities.”
2. “The Members of ECOMET and the technical committees rate their cooperation in selected areas on a five-point scale on average half a point better than 08/2022.”
3. “Cross-border metrology services provided by public providers increased by 100 compared to the situation before the Covid-19 pandemic (2019).”

Project activities included providing basic equipment, foundational training and advisory services to less advanced national metrology institutions in the region (output 1). In addition, the project supported ECOMET operations by financing the position of the ECOMET general secretary in addition to supporting technical committee work, annual conferences and participation in AFRIMETS General Assemblies at continental level (output 2). Finally, the project offered capacity building (equipment, training, advisory services) to more advanced national metrology institutions to enable them to become pilot laboratories for regional comparisons and provide regional traceability for selected quantities. By February 2026, indicator 1 had not yet been achieved. Indicator 2 was achieved by 50%, and indicator 3 was achieved by 780%, mainly due to the role of the Ghana Standards Authority as regional service provider.

2. Evaluation of the project

PTB has commissioned this evaluation for accountability and learning purposes. It was carried out by Manuela Leonhardt (evaluation expert) and Walter Bich (technical expert). Data collection took place through document review and 30 semi-standardised remote interviews in January and February 2026 with representatives of the ECOWAS Commission, ECOMET members, national metrology institutes, AFRIMETS, the private sector, technical experts, and PTB staff. The results of the evaluation were presented and discussed with the partner on 6 February 2026 during a debriefing workshop.

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: 2.3

Relevance

The project is well aligned with the policies and priorities of ECOWAS and its member states, the political and institutional dynamics of ECOWAS, and the policies and priorities of German development cooperation. It supports the establishment of the African Continental Free Trade Area (AfCFTA) by contributing to the reduction of non-tariff barriers through functioning quality infrastructures. In particular, it contributes to the implementation of the AU Africa Quality Policy (2021), the ECOWAS Quality Policy (2013), and the national quality policies of several ECOWAS member states. The project design reflects the political and institutional characteristics of the ECOWAS Commission, particularly the strong role of its member states.

The project targets ECOMET delegates, its technical committees, and national member institutions. It offers appropriately differentiated forms of support to the more and the less advanced national metrology institutions, focussing on basic levels of operation of less advanced institutions, while supporting the more advanced institutions in becoming regional pilot laboratories. Whilst making important contributions to maintaining ECOMET operations, project activities could be more consistently guided by a systematic assessment of ECOMET's organisational development needs. The project struggles to address the needs of female metrologists and to identify the metrology needs of female-dominated value chains.

The project's design is appropriate. It seeks to strengthen the capacities of less and more advanced national metrology institutions and their exchange through ECOMET for improved cooperation and division of labour. However, the project design is ambitious. The project spreads its resources thinly by aiming to increase the capacities of ten national metrology institutions in addition to building the capacity of ECOMET as an intergovernmental organisation. This may limit its impact on individual institutions. The logical link between planned activities and bold objectives such as organisational capacity building of ECOMET and its members or establishing four regional traceability chains could be strengthened. - The project appropriately reacted to institutional turmoil and blockades at ECOWAS level by focusing its capacity building efforts at national member institutions.

Overall, the criterion received the mark: 2.0

Coherence

The project shows a good degree of internal coherence. There are synergies at impact level with other BMZ-financed projects supporting the ECOWAS Commission in the areas of economic development, energy, and health. In several ECOMET member states, the project complements other German technical cooperation projects supporting value chains that require specific metrology services (e.g. humidity measurements for agricultural products). It further complements PTB support to the continental metrology organisation AFRIMETS as well as bilateral PTB projects in Ghana and Senegal. The project also shows good external coherence with the initiatives of the World Bank, African Development Bank and UNIDO, mainly by providing

technical assistance to national metrology institutions that have been equipped by these players. However, there is space for more systematic coordination between PTB and other international donors in order to ensure the most efficient use of increasingly scarce funding. The project supports ECOWAS' own – albeit limited – efforts to establish a quality infrastructure in West Africa.

Overall, the criterion received the mark: 2.5

Effectiveness

It is possible that the project will achieve its module objective indicators by the end of the project period. It facilitated the formal recognition of the Ghana Standards Authority as regional reference laboratory for the quantities mass, volume, temperature and pressure by the ECOMET general assembly. However, it has been unable so far to establish regional traceability chains for four quantities. The project contributes to improved cooperation among ECOMET members and technical committees by convening the annual general assemblies and technical committee meetings of ECOMET (2023-2026). It also supported the drafting of harmonized technical regulations and guides, which are yet to be adopted. There has been a steep increase in cross-border metrology services provided by public providers within the ECOWAS region, mostly due to dynamic development of the Ghana Standards Authority, which is supported by another PTB project.

The project provides capacity building to less advanced national metrology institutions (Cabo Verde, The Gambia, Guinea, Guinea Bissau, Liberia, Sierra Leone) through the procurement of small-scale equipment and face-to-face training courses (Output 1). While generally useful, the effectiveness of these activities is affected by coordination challenges with other donors providing equipment and training and limited local capacities. The project strengthens the institutional capacities of ECOMET (Output 2) by seconding a staff member to the ECOWAS Commission, who is acting as ECOWAS metrology officer and general secretary of ECOMET, and by supporting ECOMET general assemblies and technical committee meetings. This allows ECOMET to maintain its relevance as a technical network in politically challenging times. The project further provides equipment and advisory services to more advanced national metrology institutions in Benin, Côte d'Ivoire, Nigeria and Togo and completed the interlaboratory comparisons initiated during the previous project phase. There is still room for effectively linking these services to specific value chains, partly due to the private sector's limited understanding of international quality standards. As envisaged, the project helps create the foundations for an improved division of labour and cooperation across the region.

Project management is smooth and shows responsiveness to evolving partner needs. The project built ties with major stakeholders in ECOWAS and its partner organisations. The steering structure, assured by the ECOWAS Commission, is well established. However, project results could be strengthened by a more explicit capacity development strategy, particularly towards ECOMET.

Overall, the criterion received the mark: 2.0

Efficiency

The project was commissioned with a budget of EUR 1,500,000 and a duration of three years. It is implemented by a small team including a part-time coordinator, a part-time assistant, and a full-time regional coordinator based in Abuja, acting also as the secretary general of ECOMET. The project has so far mobilised five technical experts to conduct training courses and provide on-the-lab advisory services. The project has further procured technical equipment for seven national metrology institutions and financed the costs of four ECOMET general assemblies (2023-2026), participation in AFRIMETS general assemblies, and training courses. The project uses its operational resources in a targeted and cost-effective manner, partly by promoting online trainings and meetings. However, there is room for improvement by investing resources in a

more targeted and proactive manner. Efficiency gains could be achieved by streamlining needs assessment processes and by building a regional expert pool for training, on-the-lab advisory services and maintenance, which could partly replace the more costly and not always well-used international experts. As maintaining ECOMET as an organisation is the project's largest investment, the project should encourage ECOMET to carry out more activities consistent with its mandate such as interlaboratory comparisons, the harmonisation of technical regulations, the establishment of a database of accredited regional laboratories, and establishing a shared maintenance facility. Supporting ECOMET in developing and implementing a Strategic Development Plan, that also includes the development of a sustainable funding mechanism, could help ensure the sustainability and thus the efficiency of project investments.

Overall, the criterion received the mark: 2.0

Impact (higher-level development results)

The project aimed to contribute to sustainable development goals, notably decent work and economic growth (SDG 8), industrial development (SDG 9) and international partnerships (SDG 17). By strengthening regional cooperation between national metrology institutions in West Africa, the project is expected to contribute to establishing an internationally recognised quality infrastructure in the region that reduces non-tariff barriers and facilitates international trade. Indeed, metrology services in West Africa have seen some steady development over the past two decades as governments adopted national quality strategies and created or strengthened national metrology institutions. The overall positive development of metrology in West Africa is the result of wider policy shifts towards regional and international free trade promotion, the efforts of national stakeholders, and support programmes of international donors, including those implemented by PTB, UNIDO and others. This has helped a number of West African products, particularly food, minerals and petroleum products, reach international markets, although the contribution of increased exports to poverty reduction remains to be proven. However, other elements of a quality infrastructure such as regulatory standards, accredited testing laboratories, functioning certification bodies, effective enforcement of regulations by the authorities, and private sector compliance have yet to be strengthened. Improved metrology capacities can enhance climate monitoring and strengthen consumer protection.

By strengthening metrology institutions across the region and their regional integration, the project has contributed to these developments to a certain degree. Despite its many positive aspects, the strict enforcement of quality standards in legal and industrial metrology can drive weaker businesses out of the market, if they are unable to comply with tightened standards. This could particularly affect women-owned businesses, which are usually smaller and have less access to capital and information. Overall, by strengthening metrology institutions across the region and their regional integration, the project contributed to the strengthening of the metrology infrastructure in West Africa, although many challenges remain. The project did not meet expectations in terms of strengthening the role of female metrologists and enhancing the access of women-led business to metrology services.

Overall, the criterion received the mark: 2.3

Sustainability

There remain important differences in institutional capacities between the more advanced metrology institutions in Ghana, Senegal and Côte d'Ivoire and the less advanced metrology institutions in Cabo Verde, Guinea, Guinea Bissau, Liberia, Sierra Leone and Togo. While the Ghana Standards Authority benefits from strong capacities and demand, most other national metrology institutions face numerous challenges and are likely to continue relying on external technical support, training and funding. Since its establishment in 2017, ECOMET has made progress in consolidating its structures and processes, now benefitting from formal

recognition by ECOWAS and AFRIMETS, a well-defined structure and regular assemblies. However, its activities are sporadic and the likelihood that embattled ECOWAS will fund ECOMET from its own resources in future is low.

The project assisted national metrology institutions in becoming operational in certain fields of metrology through the delivery of equipment, training and expert advice. Project support was not sufficient, however, to address the more fundamental challenges faced by these institutions such as weak government support, inadequate laboratory facilities, inefficient management structures, low staff qualification, high staff attrition, low financial sustainability and limited client demand. The project helped ECOMET to consolidate its structures and show its value added by supporting an interlaboratory comparison process and the harmonisation of technical regulations. It did not address, however, the important question of a sustainable funding mechanism for ECOMET. The sustainability of project investments in the equipment and staff capacity of national metrology institutions was affected by unsuitable laboratory facilities, low staff capacities and high staff turnover. While ECOMET recognition by AFRIMETS mirrors its institutional consolidation, the lack of independent financial resources threatens its long-term existence. With limited private sector demand, ECOMET and national metrology institutions in West Africa will rely on external technical and financial support. This threatens the sustainability of project results.

Overall, the criterion received the mark: 3.0

3. Learning processes and experiences

The project generated several key lessons for future initiatives. The project design shows the benefits of considering the lessons learned from previous projects. Examples of such lessons learned include the preference for a regional approach, the focus on regional traceability chains and calibration networks, the promotion of a regional centre of excellence, the idea of peer-to-peer monitoring between more and less advanced national metrology institutions, and the staff secondment to the ECOMET secretariat to ensure its day-to-day functioning.

The project experience highlights key challenges that many national metrology institutions in West Africa face and that affect the effectiveness of any external assistance programmes. These include low political understanding and awareness of metrology, a limited understanding of the country-specific demand for metrology services, infrastructure challenges, low budgets, insufficient qualification and high attrition rates of laboratory staff, management challenges regarding procedures and documentation, low maintenance capacities, re-calibration and traceability challenges, and a limited client base. The project shows that traditional forms of support to national metrology institutions – equipment, training and short-term external consultancies – are not sufficient to address these issues. Its experience further shows that a regional approach can help address some of these challenges but requires strong national ownership.

The project experience suggests that issues to be usefully addressed at a regional level can include the regional harmonisation of technical procedures and guidelines, interlaboratory comparisons, a regional training facility for metrology staff, ideally with training options in the three ECOWAS languages, and a regional maintenance facility for metrology equipment. The project experience further suggests that peer-to-peer mentoring between more and less advanced national metrology institutions can be a useful and cost-efficient approach to long-term capacity building, which can be further explored. This may involve the establishment of a regional multi-lingual pool of metrology experts that can be deployed to less advanced metrology institutions.

The project experience highlights that the establishment of regional traceability chains and cross-border metrology services requires a systematic approach that strengthens both the offer and the demand side for such services and actively brings them together.

The project experience demonstrates the urgent need for improved coordination between international partners intervening in the areas of metrology and certification in West Africa. This could be achieved by establishing a regional technical working group, similar to other donor coordination mechanisms, that allows international partners to align their support, particularly in the areas of equipment and training. The project experience also shows that a focus on providing expensive equipment to less-developed metrology institutions can be wasteful, if this is not accompanied by more comprehensive capacity building on management and technical skills.

PTB has comprehensive experience in supporting regional metrology organisations. While the challenges of each organisation are different, it may be worth systematising this experience and draw lessons for future engagement in this field.

4. Recommendations

Recommendations to national governments and metrology institutions:

- Enhance the understanding by relevant decision makers of the importance of metrology to increase competitiveness of national business and enhance their access to international markets as well as for consumer protection. Strengthen exchanges with the private sector on the need for a functioning quality infrastructure.
- For less advanced national metrology institutions, focus initial metrology services on legal metrology and priority sectors (e.g. fuel measurement, electricity meters, food testing) with immediate economic and consumer impact and the potential to generate revenues for the national metrology institute. Then expand to industrial metrology, with a focus on services and value chains that are in high demand. For more advanced national metrology institutions, seek international accreditation.
- Address low qualification levels and high staff attrition in national metrology institutes by including metrology in secondary and tertiary education, developing a cadre of metrology experts, establish systematic on-the-job and lifelong learning programmes (including e-learning), establish progressive salary scales, and systematise staff recruitment and human resources management.
- Provide suitable physical infrastructures for national metrology institutions that offer sufficient protection for sensitive metrology instruments, including stable electricity supply.
- Increase demand for metrology services by raising awareness of their benefits. Provide technical and financial assistance to economic actors to help them comply with national and international regulations.

Recommendations to ECOMET and its members:

- Develop and implement a Strategic Development Plan for consolidating ECOMET as an institution, including the establishment of a sustainable funding mechanism.
- Consider strengthening peer-to-peer exchange between more and less advanced ECOMET members by establishing a pool of regional metrology experts that can be deployed to assist ECOMET members. Deployment can be short-term to address specific issues, or they can involve a long-term partnership to accompany the capacity building of less advanced national metrology institutions. Develop a mechanism to fund the deployment of regional experts.
- Consider establishing regional maintenance hubs for metrological instruments, similar to those established by the West African Health Organisation for biomedical laboratories. Such centres can provide advisory services to less advanced national metrology institutions on the correct operation and conservation of metrology instruments and ensure maintenance and repairs in a cost-effective way.
- Consider enhancing the availability of qualified metrologists in West Africa by establishing a regional training centre that offers educational courses and training for metrologists at technical and academic level. Ideally, courses are offered in English, French and Portuguese. The lessons learned of the

former UEMOA training centre for metrology in Yamoussokro (Cote d'Ivoire) should be considered when establishing the new centre.

- Assert leadership in donor coordination by inviting donors interested in supporting quality infrastructures and metrology in West Africa to participate in a technical working group. Engage with donors through the working group to ensure alignment and harmonisation of their assistance with ECOMET and member state priorities.
- Continue engagement on formalising traceability mechanisms and harmonising technical regulations and guides in the ECOMET region.
- Improve data collection on demand for and utilisation of metrology services in the ECOMET region to guide future policy development.

Recommendations to the project team:

- When supporting national metrology institutions, go beyond the current focus on strengthening technical capacities through equipment and training. Consider strengthening the management capacity of national metrology institutions in the areas of leadership, organisational strategies, quality management systems, human resource management, customer relationships, and financial planning and sustainability.
- Support ECOMET's transition to more institutional independence and stronger reliance on resources available in West Africa. Support the development and implementation of a Strategic Development Plan leading to ECOMET's full sustainability.
- Support the establishment of a regional pool of metrology experts, who can provide training and advisory services, particularly for less advanced national metrology institutions. Establish a structured training of trainers (TOT) programme for members of this pool.
- Conduct a systematic training needs assessment of national metrology institutions in ECOMET member states to develop a strategic approach to training, considering the needs of both more and less advanced national metrology institutions.
- Develop a deeper understanding of the gender dimension of metrology, possibly with support of regional or international gender consultants, and support ECOMET and national metrology institutions in implementing measures that strengthen the role of women within metrology institutions, help women-owned businesses to benefit from metrology services, and reduce disproportionate effects of legal metrology regulations on women, e.g. traders in the informal sector.

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

- Engage in negotiations with ECOMET and interested donors on the establishment of a technical working group under ECOMET leadership to enhance alignment and harmonisation of external support to ECOMET and its member institutions.