Bilateral Comparison of Primary Water Flow Standards between LNE-CETIAT and Metrology LIPI

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The overall objective of the EU-Indonesian Trade Support Programme II (TSP2) is to facilitate the further integration of Indonesia into the international trading system by upgrading the Export Quality Infrastructure (EQI) that supports its access to international markets.

As part of this programme, and to extend the list of recognised CMCs for Indonesia, Metrologi-LIPI has to enhance its measurement capabilities and declare them to APMP for peer review. Before that, the competence for the considered scope has to be underpinned by registered comparisons.

It is in this context that LNE-CETIAT (French Designated Institute for Liquid (water) flow) and Metrology-LIPI (Indonesian National Metrology Institute) performed a bilateral comparison in the field of water flow measurement, registered as project 1361 by EURAMET.

After a presentation of the two facilities of the two participant laboratories, the protocol of the comparison is described. Two turbines are used to cover the flow range from 7.5 up to 570 dm3/min.

The tests, performed on the LNE-CETIAT facility using a gravimetric reference method and Metrologi-LIPI facility using a volumetric reference method through a piston prover, show primarily some discrepancies with a calculated normalized error greater than 1.

An analysis of the results allowsMetrologi-LIPI to improve its facility. After the applied correction, the normalized error becomes lower than 1.

With the enhancement of the measurement capabilities of Metrologi-LIPI in the field of water flow, the objectives of the Support programme are fulfilled and Metrologi-LIPI will be able to propose new CMC entries for Indonesia in a near future.