

# JMA's International Collaboration on Meteorological Instrument Calibration *- RIC Tsukuba Package -*



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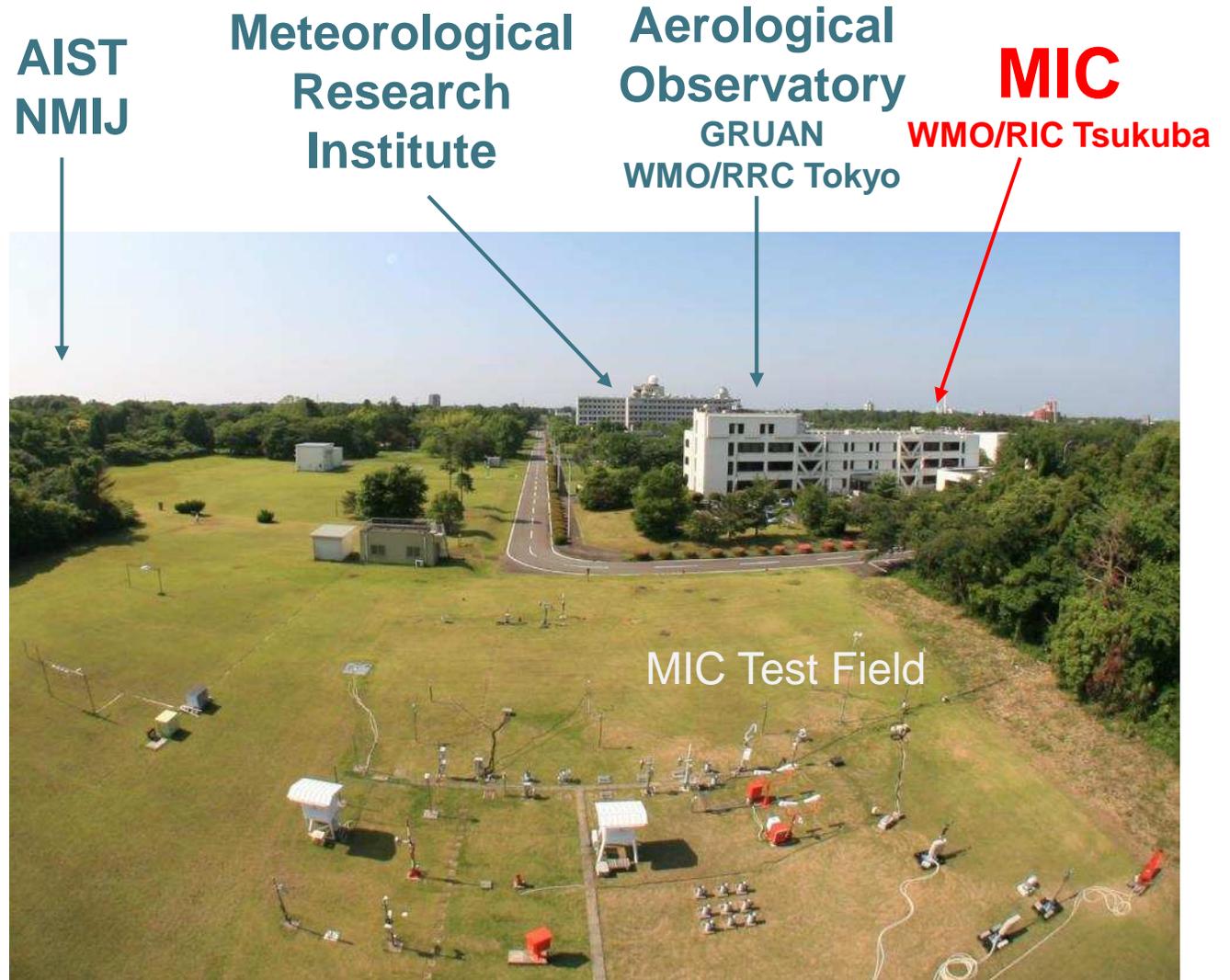
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- Background of RIC Tsukuba Package.
- RIC Tsukuba Package and international traceability.
- Cases in Bangladesh and Fiji.



Meteorological Instrument Center(MIC), JMA  
(WMO/RIC Tsukuba)

# Location of MIC



# International Calibration by WMO/RIC Tsukuba

Month/year	Country/region	Standard instruments calibrated
Mar 2000	 Thailand	Barometer, thermometer
Oct 2001	 Republic of Korea	Anemometer
Aug 2006	 Philippines	Pyranometer
Apr 2007	 Thailand	Barometer, thermometer
Dec 2007	 Hong Kong, China	Barometer
Jun 2010	 Thailand	Barometer, thermometer, anemometer
Feb 2012	 Sultanate of Oman	Barometer, thermometer, hygrometer
Nov 2012	 Indonesia	Barometer, thermometer, hygrometer

Contribution for Development of Traceability



# WMO/JMA Survey of Calibration of Meteorological Instruments in RA II

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The Survey (by Nakashima, K. 2015) revealed that not a few Members of RA II;

- obviously lack for **international traceability** of meteorological instruments.
- do not perform **regular inspection** of meteorological instruments.
- are still using **mercury instruments**.

(Nakashima, K. 2015): Survey on Meteorological Instruments, Calibration and Training, Regional Association II (Asia), WMO IOM Report No. 122.

<http://www.wmo.int/pages/prog/www/IMOP/publications-IOM-series.html>

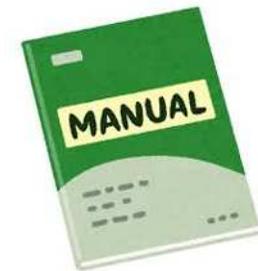


# Calibration of Instruments Needs to be Improved

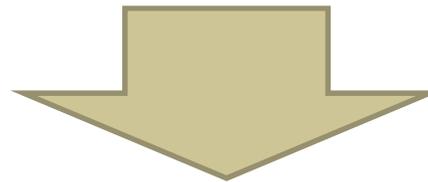
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JMA/WMO workshops and international activities of MIC also identified some countries who have:

- No calibration equipment
- No manual of calibration
- No experience of calibration



EXPERIENCE

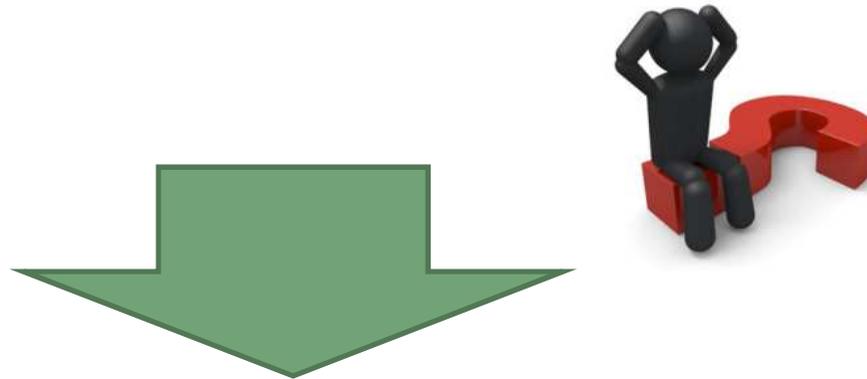


Urgent need to establish the international traceability of meteorological instruments was emphasized.

# RIC Tsukuba Package for International Traceability

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- Serious challenges to international traceability of meteorological instruments in developing countries.



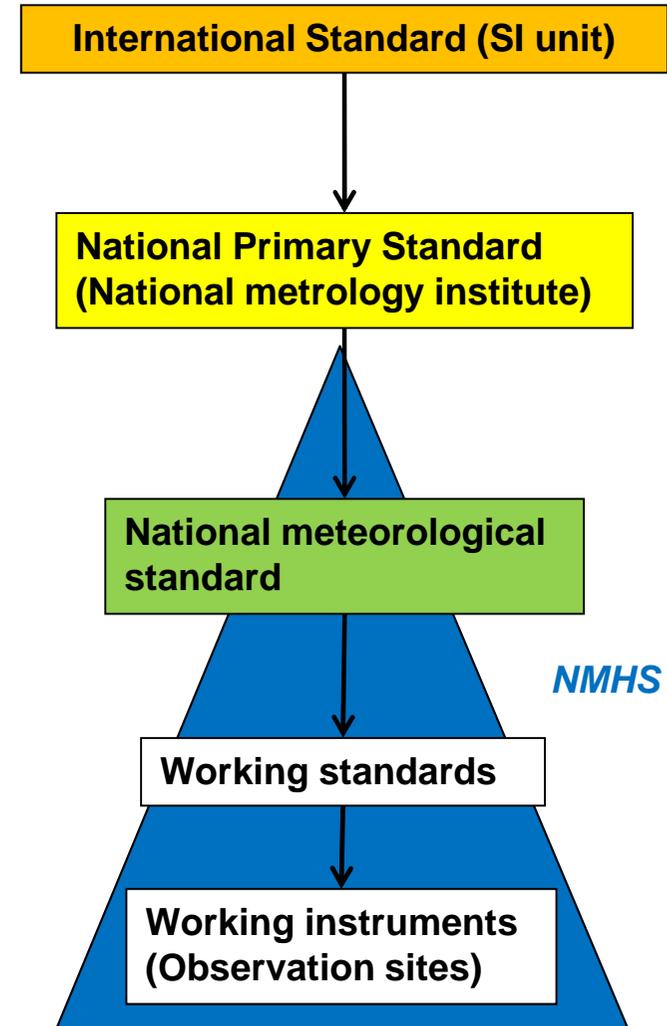
- RIC Tsukuba Package to provide a measure for establishing the international traceability.



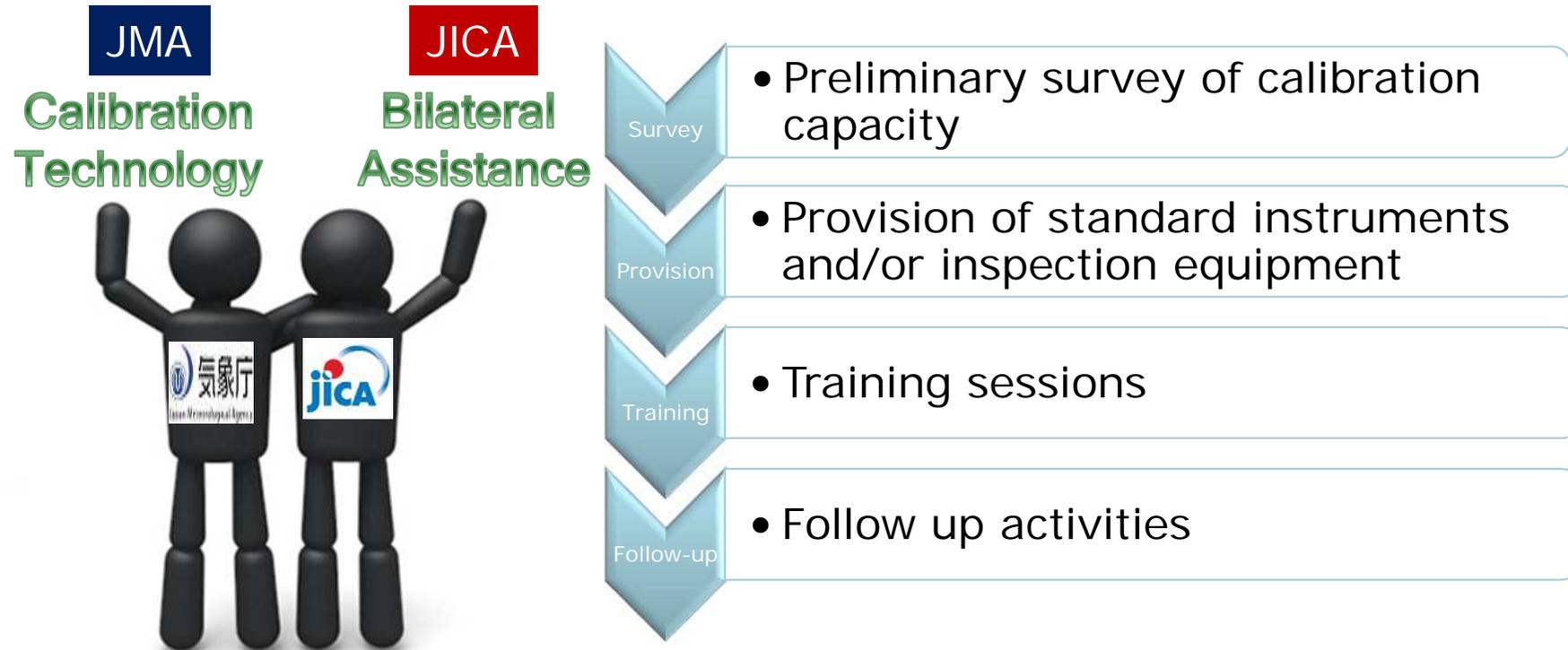
# RIC Tsukuba Package for International Traceability

Objectives of RIC Tsukuba Package are:

- To help establish the international traceability of meteorological instruments in developing countries.
- To work proactively for implementation of WIGOS in WMO RA II.



# Flow of RIC Tsukuba Package



Improvement of technical capacity of NMHS

- To ensure traceability of meteorological instruments.
- To improve quality of surface observation.

# RIC Tsukuba Package for Bangladesh in 2013

RIC Tsukuba Package Improves Quality of Surface Observation

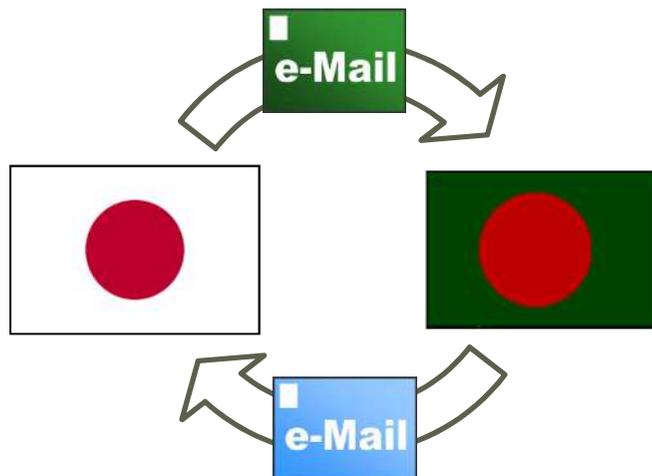
## Survey



## Provision



## Follow-up



## Training



(in Japan and Bangladesh)

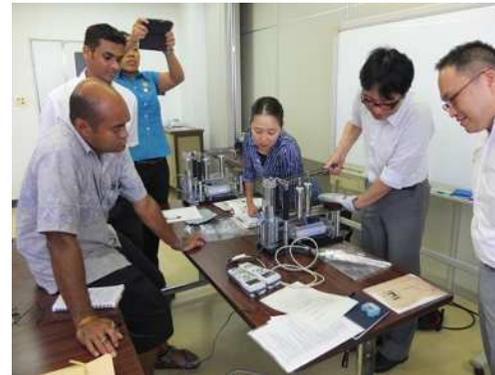


# RIC Tsukuba Package for Fiji in 2015-2016

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Assists Fiji Meteorological Service in its efforts to:

- Establish the meteorological instrument traceability in the South Pacific region.
- Develop a cooperative framework of calibration with the island countries in the region.



WMO/JICA Training Workshop in Fiji with 20 countries in Oceania will be organized in November 2016.

# Achievements of RIC Tsukuba Package

Month/year	Country/region	Standard instruments calibrated	Training
Oct 2013	 Bangladesh	Barometer, thermometer, hygrometer	Barometer, thermometer, hygrometer
Jun 2015	 Fiji	Barometer, thermometer, hygrometer	Barometer, thermometer,
Dec 2015	 Philippines	Barometer	Barometer
Feb 2016	 Mozambique	Barometer, thermometer	Barometer, thermometer
Feb 2016	 Sri Lanka	Barometer	Barometer, thermometer
Jul 2016	 Fiji	Barometer, thermometer, hygrometer	Rain gauge, hygrometer

Note: Red characters show the ISO17025 (General requirements for the competence of testing and calibration laboratories) calibration

# Summary

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RIC Tsukuba Package aims to:

- a) transfer technology of calibration of meteorological instrument to developing countries.
- b) contribute to improvement of the quality of surface observation conducted by developing countries.
- c) support the implementation of WIGOS in RA II.

JMA will continue to assist developing countries for improving the calibration of meteorological instruments and the quality of observations.

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We are happy to collaborate with WMO Members to ensure the sustained and high-quality meteorological observation.

Please visit RIC Tsukuba and talk with us.



Thank you for your attention