

CAPACITY BUILDING AND DEVELOPMENT OF THE RIC IN MANILA (PHILIPPINES)

by

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ABSTRACT

The Regional Instrument Centre for the South-West Pacific in Manila, Philippines was recognized by the WMO in 1996. Prior to that, it was a laboratory under the Institute of Meteorology, a project assisted by the UNDP. It had a wind tunnel, barometer and hygro-thermometer calibration chambers, and several electronic measuring devices. Eventually, the laboratory became the Instruments Development and Research Unit under the research and training branch of the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), which is the national meteorological service of the Philippines. Essentially, it performs calibration and repair of basic meteorological instruments and development of new ones using indigenous materials.

At present, the RIC-Manila still has the wind tunnel and two new calibration chambers for temperature and humidity instruments. It has been training meteorological technicians in the repair and maintenance as well as calibration of basic meteorological instruments. It hopes to collaborate with the World Meteorological Organization Regional Association V members in the capacity building of their meteorological technicians.

A project proposal for the upgrading and enhancement of its facilities and equipment is being prepared to enable it to deliver more quality service to its customers, who include private and other government agencies in the Philippines and other WMO Members in the South-West Pacific region. The project aims to establish sub-regional instrument centers in five strategic locations in the country.

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Introduction

The Weather Bureau, now the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), began its modernization program in the late 1960s when the United Nations Development Programme (UNDP) implemented a project that established its Institute of Meteorology. An 8-KB electronic computer ushered the Bureau into modern computing technology, besides the installation of a wind tunnel and calibration chambers for barometers, thermometers and hygrometers, through the project. These pieces of equipment, except the computer, became the main facilities that led to the creation of the Instruments Development and Research Unit (IDRU) under the research and training branch of PAGASA. An oscilloscope, a lathe machine, and other accessories for electronic repairs comprised the minor instruments and machineries of the Unit. There were no significant changes since then.

In 1996, the Philippines through the PAGASA was designated as the WMO Regional Instrument Centre (RIC) for the South-West Pacific. IDRU and the Engineering and Maintenance Division (EMD) are the units that make up the RIC. At present, the IDRU is manned by two meteorologists and three meteorological technicians, who perform research and development, calibration, and repair of meteorological instruments. The EMD has twelve engineers and sixteen technicians, who visit regularly all 60 synoptic stations of the PAGASA for the maintenance and repair of facilities, including instruments, equipment and related infrastructure.

This paper describes the planned upgrading of the RIC-Manila to further improve its services.

Functions and Activities of the RIC - Manila

The following are the functions and activities of RIC-Manila:

- Keep a set of meteorological standard instruments traceable with recognized international or national standards;
- Maintain standard instruments and equipment.
- Calibrate basic meteorological instruments for uniformity of measurements.
- Visit regularly synoptic stations all over the Philippines for installation/replacing, checking, maintenance/repair, and calibration of basic meteorological instruments.
- Undertake research and development of meteorological instruments using indigenous materials.
- Issue and file certificates of calibrations.
- Entertain local inquiries regarding our standard instruments and other relevant materials/information.
- Cooperate with other local instrument center for standardization of basic meteorological instruments.
- Staffs also serve as instructor for basic meteorological instruments in training courses of our agency, and other outside students.

Proposed Structure of the Instrument Centre

Figure 1 depicts the proposed Manila Instrument Centre (MIC), which will be comprised of the IDRU and National Radiation Center (NRC) of the Atmospheric, Geophysical and Space Sciences Branch (AGSSB) and the Basic Meteorological Instrument Unit (BMIU) and Electrical and Electronics Instrument Unit (EEIU) of the EMD. The NRC has the pyranometer and pyrhelimeter standards used in the calibration of global and direct solar radiation. The IDRU is the research and development unit on basic meteorological instruments. The BMIU and the EEIU of EMD are tasked to maintain, calibrate, and repair the instruments, equipment and facilities at the field stations to acquire high quality data as bases for weather, flood and climate prediction.

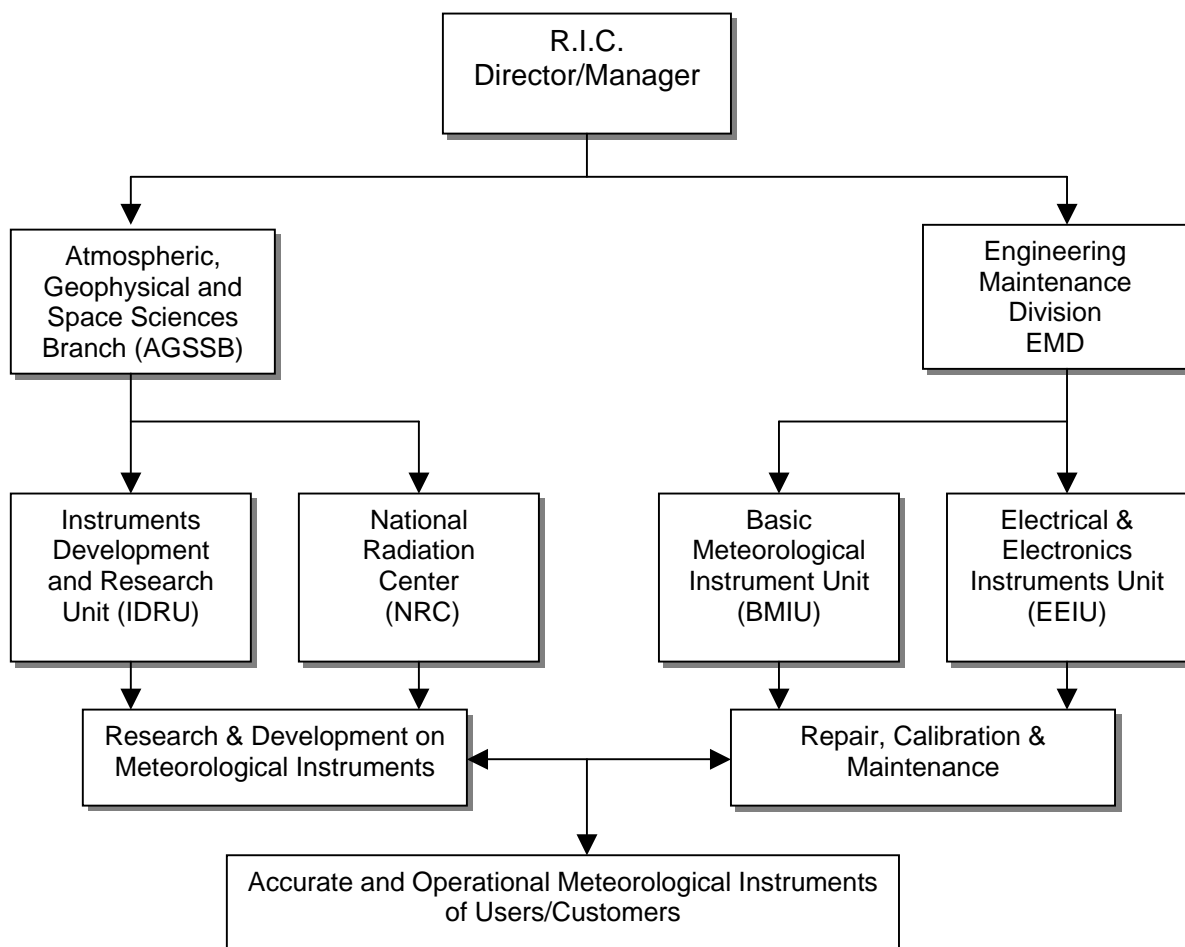


Figure 1. Proposed Manila Instrument Centre

The RIC-Manila has a wind tunnel capable of calibrating wind speeds up to 140 kph., an old barometric chamber using mercurial barometer as standard with a capability of 1020 hPa. down to 820 hPa., and a recently acquired climatic chambers for thermometer/thermograph calibration with 0°C to 50°C ranges and a hygrometer/hygrograph calibration with 40% to 100% RH capability.

The instruments, equipment and related facilities of the RIC-Manila have to be upgraded and will have local instrument centres (Figures 2 and 3) in five strategic locations

in the Philippines at the proposed PAGASA Regional Forecast and Services Centres (PRFSC). Inasmuch as the Regional Training Centre (RTC) for the Southwest Pacific is also based in the Philippines under the Atmospheric, Geophysical, and Space Science Training Section (AGSSTS) of AGSSB, the RIC-Manila likewise can serve as the training center for local and international meteorological personnel using such upgraded instruments, equipment and other related instruments on their maintenance, calibration and repair of basic instruments, and hopes to collaborate with WMO members of RA V.

The Manila Instrument Centre will have five Local Instrument Centers to be located in five strategic locations in Northern Luzon (Tuguegarao City), Southern Luzon (Legazpi City), Visayas (Mactan City), and Northern Mindanao (Cagayan De Oro City), and Southern Mindanao (General Santos City). These centers will provide efficient maintenance, repair, and quality services to the PAGASA field stations and other government and private agencies and WMO Members in the South-West Pacific region.

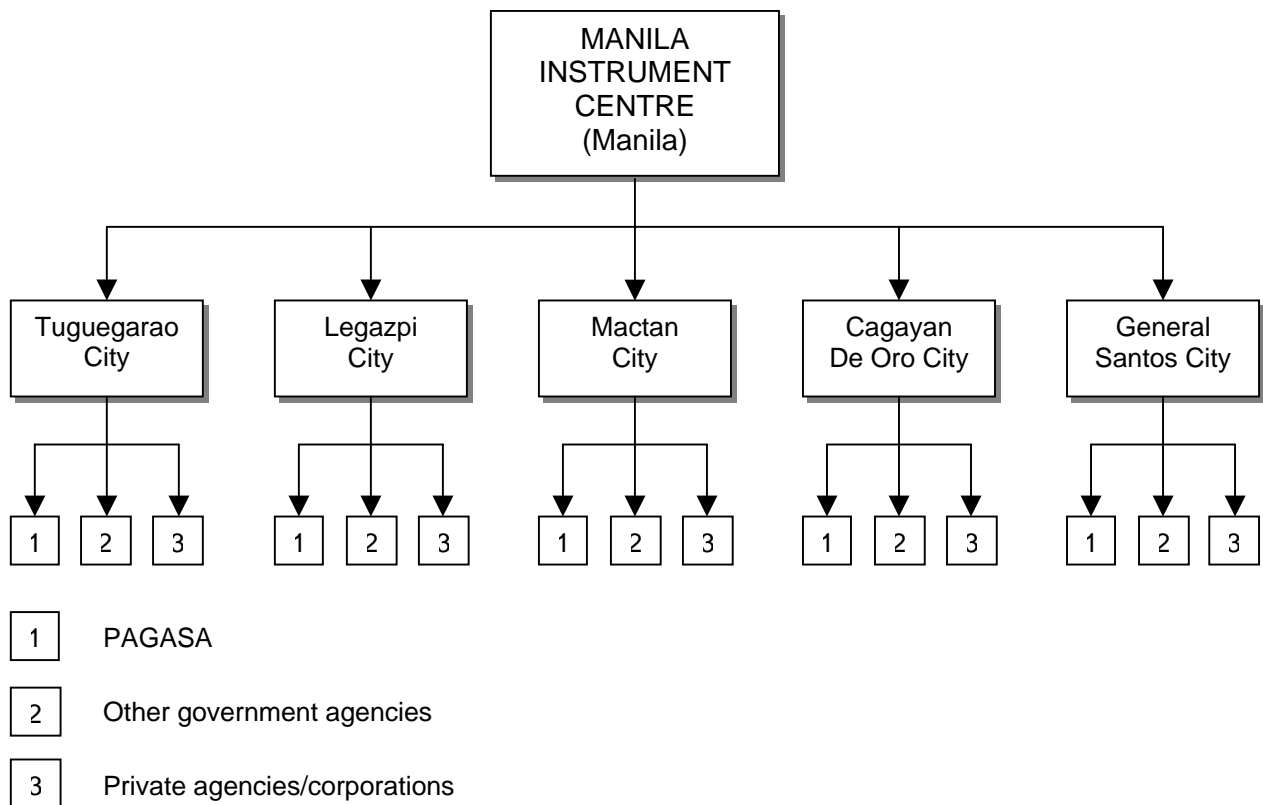


Figure 2. Proposed New Structure of RIC-Manila Philippines

Some of the equipment needed will be a closed-type wind tunnel capable of simulating wind speeds up to 250 kph, a pressure chamber using a new reference quartz barometer, a humidity chamber with accurate reference standard, a new water bath temperature chamber, and some similar and other equipment to be installed at the local instruments centers. Other machines and equipment are the lathe and milling machines, electric and oxy-acetylene welders, and the engraving machine. The electronic laboratory requirements include oscilloscope, multi-testers, and electronic digital barometers, among others. Most of these equipment will be requested under the Voluntary Cooperation Programme of WMO and a project proposal is being prepared for this purpose.

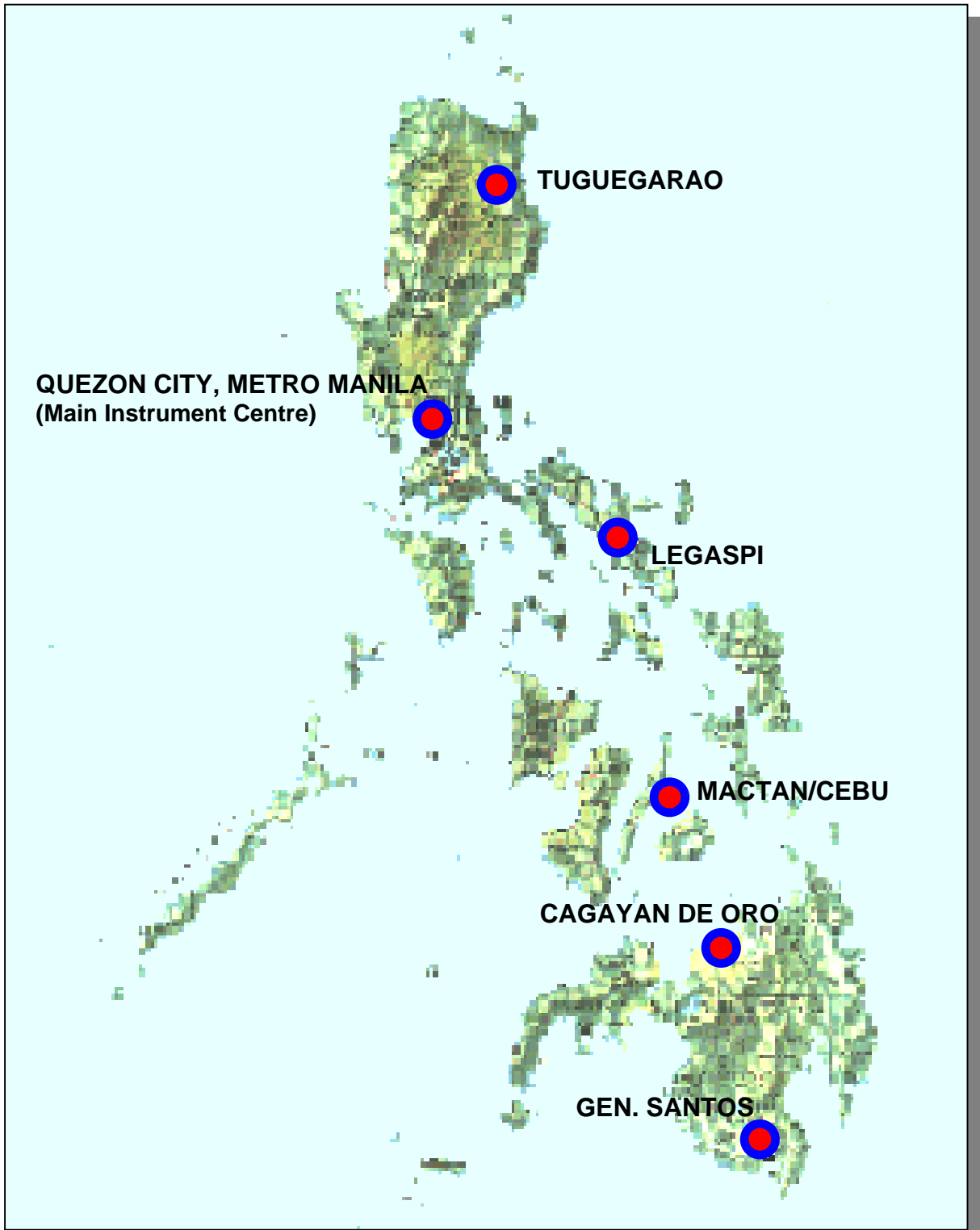


Figure 3. Site location of Main Instrument Centre, and Local Instrument Centres at the proposed PAGASA Regional Forecast and Services Centers

In addition to the functions and activities of the Manila Instrument Centre, RIC-Manila will have the following roles:

- To be able to estimate the quality of our standard instruments;
- To be able to communicate regularly to other members of the region, other RICs, and to WMO on our capacities in terms of training and calibration, and contribute positively to improvement of measurement quality;
- To participate to intercomparison, and instrument certification;
- To participate actively to workshops and conferences organized by WMO.

Conclusion

Upgrading the RIC-Manila with the acquisition of better instruments and equipment, and the establishment of local instrument centers at strategic locations will further strengthen its capabilities and improvement of weather, flood, and climate forecasts not only in the Philippines but also in other Members of WMO in the South-West Pacific region through more accurate measurement of meteorological and hydro-meteorological elements and parameters. Its expansion will lead to a better functional and operational potential.

As a Regional Instrument Centre, it does not intend to be left behind the potential opportunities offered by the advances in meteorological instrumentation. It will strive to be at pace with the emerging technological growth and will continue to pursue and strengthen international relations and collaboration for expeditious and productive fulfillment of the Philippine commitments to play an important role in the natural disaster prevention and mitigation as well as in maintaining instrument performance within the Global Earth Observing System of Systems.

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