Islamic Republic of Pakistan

Pakistan

Status of quality management in rainfall observation

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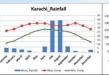
Country report in RAII WIGOS workshop on quality management of observation held in Tokyo, March 2018

1. Challenges in rainfall observation

- ☐ Sparse observing network, Covers limited area
- Lack of skilled/Trained observers
- ☐ Delay in receiving data of Ordinary Rain Gauges(ORGs) installed in other offices than PMD.
- ☐ Most of the observatories are in far flung areas with no extra financial benefits. Observers have to work in hostile conditions which influence the performance. Although the department is working on the up gradation of financial package and improvement of living condition.
- ☐ Ordinary Rain Gauges (ORGs) installed out side the jurisdiction of PMD, are operated by non technical staff. This results delay in data transmission.

2. Annual rainfall map

Majority of the rainfall occurs during summer monsoon. However, northern (& North western) parts receive significant precipitation in winter







Monsoon rainfall (July September causes riverine and urban flooding in the plain areas.



3. Major recent rainfall-related disaster





September 2012 Flood
Claimed 571 lives & 3,000 injured
Floods affected five million people
Damaged 11 million acres land of standing crops,
property and cattle forms
2-days rainfall >200 mm at 2 locations
2-days rainfall >300mm &>400 mm at one each
locations 24-hour rainfall 305 mm at Jacobabad Damages Occurred During July to September 2016

2010 floods: Approximately one-fifth of Pakistan's total land area was underwater, approximately 796,095 square kilometers (307,374 sq mi). 20 million people affected, with a death toll of close to 2,000.



4. Rain gauge network







More than 400 Ordinary Rain Gauges were installed



ORG reading is done every 1 or 3 hours (in case of rainfall the frequency is increased), minimum unit 0.5mm. Data transmission frequency of AWSs are 10minutes and minim recording capacity is 0.2mm.











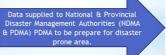
againers infection of the type of station.

□ AWS transmit data to server installed at Islamabad HQ after every 10 minutes.

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□ Amned operated observatories transmit data every hour or 3hours. Data from other Ordinary Rain Gauges received on daily/monthly basis. Data is utilized in variety of Public service the research activities also displayed on web portal for information of general public. National Agro-Met. Centre issues Weather advisory to Farmers. Also crop report is

Applications and users PMD gathers meteorological data including rainfall across the country. Frequency of data collection











6. Quality management

All the Regional Meteorological Centres (RMCs) have qualified inspector. Observers on duty carry out the routine maintenance. Once a year (or in some cases after two years) instrument inspector visits every observatory and calibrate the Rain gauges along with other instruments.

If problem is reported from an observatory then inspection is carried out before the scheduled time in order to repair or replace the faulty instrument.

Training/initial meteorology course is mandatory for Staff/Observers working at different stations. For this purpose PMD has Institute of Meteorology and Geophysics located in Karachi. From time to time refresher courses/training programs are also arranged. At RMCs, MMR/ACWR received from observatories, are checked with pocket registers and then archived. At this stage quality of the data is also scrutinized.





7. Expectation for this workshop

I/we expect to be benefited from this training workshop in the following way:

- ☐ Frame work & Implementation process of WIGOS and its impact on functions of National Meteorological Services.
- ☐ Enhance our knowledge about the quality control of meteorological data especially rainfall.
- ☐ learn latest techniques used in calibration of instruments and quality
- ☐ Sharing of knowledge and experience among the participants.
- ☐ Bring back some materials to share with my colleagues and other staff of
- ☐ Make relationship with participants future exchange of expertise and correspondence.



