

REPORT OF THE
HYDROMETEOROLOGICAL
DATABASE MANAGEMENT TRAINING

CITEKO, INDONESIA, 24-27 NOVEMBER 2014



1. BACKGROUND

Referring to the Project document 2nd Phase Joint Cooperation Program Proposal and Work for January 2014 - June 2016, the JCP will contribute to the rejuvenation programs that the Indonesian partners have started in recent years through hiring more qualified junior staff. The focus for the 2014 – mid 2016 program will be on, among others is from baseline data to services for projects/programs of WMO RTC. Furthermore, in point 2.6 concerning the strengthening twinning under this component activities will be carried out in which in general only one Indonesian and one Netherlands partner participates. This kind of activities will in general be carried out in the framework of MoU's between the partners, and an example of activity is to support BMKG and PusAir as WMO Regional Training Centre within RA-V WMO, so called Ina-RTC. In this regards, the training held in Citeko is one of several activities conducted by the Ina-RTC.

2. INTRODUCTION



Fig 1: Dr Suko Prayitno Adi,MSi, Director of Ina-RTC

The Indonesian Agency for Meteorology Climatology and Geophysics (BMKG) and Research Centre for Water Resources (Pusair) kindly hosted the “Hydro-meteorological Database Management Training” at the WMO Regional Training Centre, in Citeko, Indonesia, from 24 to 27 November 2014.

The training was officially opened by Director of Indonesia Regional Training Centre Dr Suko Prayitno Adi, MSi who is also Director of Indonesia State College of Meteorology Climatology and Geophysics (STMKG), that welcomed the participants to the training.

It is informed that the “List of Participants” and the “Training Agenda” are appeared in Appendix I and II.

The TORs are as follows:

1. Examine, report and advise on how best to measure the needs of users regarding aspects of hydro-meteorological database management;
2. Identify ways to meet the needs of NMHSs in their public education relating to hydro-meteorological database management, with a view to ensure more effective use of hydro-meteorological posts and enhancing the usefulness of new products and services;
3. Examine, report and recommend how best to foster partnerships with national and international hydrological and meteorological organizations, and of assisting NMHSs to improve relations with the stakeholders;
4. Monitor and report on the progress and effectiveness of earlier initiatives of hydro-meteorological database management and make recommendations as appropriate to the hydrological and meteorological agency.

2. ORGANIZATION OF THE TRAINING

The Training adopted the agenda and agreed on its working hours. Appropriate time was allowed for coffee and lunch breaks.

3. IMPLEMENTATION OF THE TRAINING

a. Training on Basic Hydrology



Fig 2: Agung Bagiawan, PhD

The instructor Agung Bagiawan, PhD started the course by introducing hydrology as the science dealing with the occurrence, circulation, distribution, and properties of waters of the Earth and its atmosphere.

The topic to be discussed are hydrology cycles, importance of hydrological data, hydrological network stations, type of data required, duration of record data, quality control of data, and data for hydrological analysis.

He described that PusAir and BMKG could strengthen their cooperation toward a better synergy in providing rainfall data for providing Flood Early Warning System for the benefit of society. He presented the course material enthusiastically those encouraged attendees to know more about hydrology.

He further described the importance of cooperation between PusAir as National Hydrological Agency and BMKG as National Meteorological Agency, particularly in the field of data exchange, more specific in rainfall and discharge data exchange. The reason is based on factual condition that hydrological and meteorological analysis needs more accurate and quantitative rainfall data.

b. Training on Database Management



Fig 3: Dr Urip Haryoko

As the trainer, Dr Urip Haryoko outlined the training material as follows: introduction, data acquisition, data quality control, meta data, data rescue, and data exchange. He introduced that climatology can not be practised without data, but often the climatologist unfortunately does not have exactly the kind of data he needed to fulfill his task. In some countries, climate data is still managed partially and not well integrated in one system, so it is difficult to get a complete database.

While data quality check and metadata is often not available, data analysis will be misleading. Climate data is a set of meteorological data which have been collected for a long time, so it should be managed properly by a system, Climate Data Management System (CDMS).

CDMS was introduced by World Meteorological Organization (WMO) and should be adapted by National Meteorological Service. A Climate Data Management System (CDMS) is a set of tools and procedures that allows all data relevant to climate studies to be properly stored and managed (WMO, 2011).

c. Training on Introduction to Tropical Meteorology Dynamics



Fig 4: Miming Saefudin, M.Si

The material forwarded to the training is aimed at understanding the type and pattern of meteorological dynamics influencing the weather condition in tropical area, particularly in Indonesia. It is hoped that the audience have ample knowledge on mechanism of weather pattern formation in global, regional and local scales. The content of training includes Energy balance, Atmospheric structure, General circulation of atmosphere, Interannual, intraseasonal, and decadal tropical region variability, Meso and local scale circulation, as well as Local weather analysis.

The difference of weather and climate pattern in each latitude on the Earth is caused by the difference in solar radiation received at different earth surface. Equator is relatively receives more solar energy compared with other latitude. The atmosphere circulation occurred due to different energy transferred plays an important role in the formation of weather and climate pattern variation. Weather and climate pattern variability in tropical region is relatively smaller than in other latitudes, which is caused by energy surplus during the year in tropical region which then resulted to higher temperature. In higher latitude areas, experiencing the period condition of very hot or very cold which then leads to significant difference in weather or climate pattern for example the occurrence of long dry and cold season that never occur in equator area. The weather pattern in Indonesia area is influenced by regional and local scale of atmospheric dynamics meanwhile its climate pattern is influenced by global and regional scale. Understanding the weather formation pattern in Indonesia area needs knowledge on atmosphere dynamics mechanism in tropical country because the weather pattern in Indonesia are is directly or indirectly influenced by the atmosphere dynamic condition in tropical country.

d. Training on Flood Early Warning System



Fig 5: Daniel Tollenaar, M.Sc

Executive summary

As part of the WMO-RTC training that was conducted from 24 to 27 November 2014, a Flood Early Warning System (FEWS) configuration course was held. The three respective trainers were Mr Daniel Tollenaar of Deltares, Mr Segel Ginting of Pusair, and Mr Bayu Raharja of Deltares. FEWS is presented as a free tool for database management analysis and flood early warning. The training was setup with an introduction presentation and workshops. In workshops the attendees were trained in application of software hands-on, short presentations combined with exercises.

After the training the attendees were able to setup its own FEWS configuration after this training to store, validate and process data. Substance of training consisted of 'Introduction to FEWS', 'User training', and 'Configuration courses'.

As trainer of 'Introduction to FEWS', Mr Daniel Tollenaar presented the capabilities of FEWS to the attendees. An overview of FEWS applications around the world was given. Attention was given to the difference between an application for data storage and analysis 'stand-alone' application and an on line system.



Fig 6: Segel Ginting, S.Si and Bayu Raharja, S.Si

Trainers Segel Ginting and Bayu Raharja jointly forwarded material on 'user training' that was treated capabilities of FEWS which were explored by the attendees using the Jakarta Flood Early Warning System (JFEWS). The JFEWS was installed on attendees' laptops. With support of a presentation given by the trainers, the attendees went through the interface, types of telemetric data, grid-based data (e.g. radar), forecasted data (e.g. WRF) and warning levels.

On the same day trainers Segel Ginting and Bayu Raharja continued material on 'configuration course'. The XML is the language by which FEWS applications are setup. The structure of XML was explained by the use of Oxygen XML, since this software could be used in trail version for this training. A simple free text-editor (e.g. Notepad++) can be used as alternatives. The function of locations and locations sets, parameters and the FEWS explorer elements were introduced to the attendees after which these subjects were trained by exercises.

Furthermore, trainers Segel Ginting and Bayu Raharja continued material on 'configuration course'. This day the import of data, validation data and setting thresholds was explained and exercised in the morning. In the afternoon, gap filling of time series and adding rating curves were explained and exercised.

The two trainers continued trained 'configuration course' concerning importing grid data (TRMM satellite) and the export and dissemination of data was explained and exercised.

4. PROPOSED INA-RTC ORGANIZATIONAL STRUCTURE

Discussion concerning the proposed Ina-RTC Organizational structure was conducted as a side-meeting involving Mr. Wildan Herwindo, Head of Sub Division Cooperation Development, Research Centre for Water Resources, Ministry of Public Works, and Ms Anni Arumsari, Head of Sub Division for International Affairs of BMKG, and Mr. Bambang Suprihadi, Chief of Language Unit of STMKG. The said officers agree to propose such structure and to be included in the Final Report of Hydro-meteorological Database Management Training.

It is noted that the above mentioned Ina-RTC organizational structure is not final, which means that improvement to such structure is widely opened. In the near future, the PR of Indonesia with WMO is expected to determine a decree concerning the Ina-RTC organizational structure includes its officers and duties. The decree could consider the following suggestions:

- a. Steering Joint Committee comprises of high-level officers from BMKG and Pusair. The SJC shall provide program(s) and its budget of Ina-RTC that includes training programs on hydrology,

meteorology, climatology, geophysics, and instrumentation for the benefit of Member Countries in RA V WMO.

- b. The Director of Ina-RTC shall be Dr. Suko Prayitno Adi, MSi, as assigned by the PR of Indonesia with WMO via a notification letter number KS.207/044/KB/IV/2014 of 10 April 2014 that has been sent to the Secretary General of WMO.
- c. The Secretary to Director of Ina-RTC is a person who support the works of Ina-RTC, preferably with English speaking and writing capability and familiar to the cooperation matters.
- d. Manager on Meteorological Affairs should be officer of BMKG and he has the right to develop sub-unit(s) within its affairs.
- e. Manager on Hydrometeorological Affairs should be officer of Pusair and he has the right to develop sub-unit(s) within its affairs.

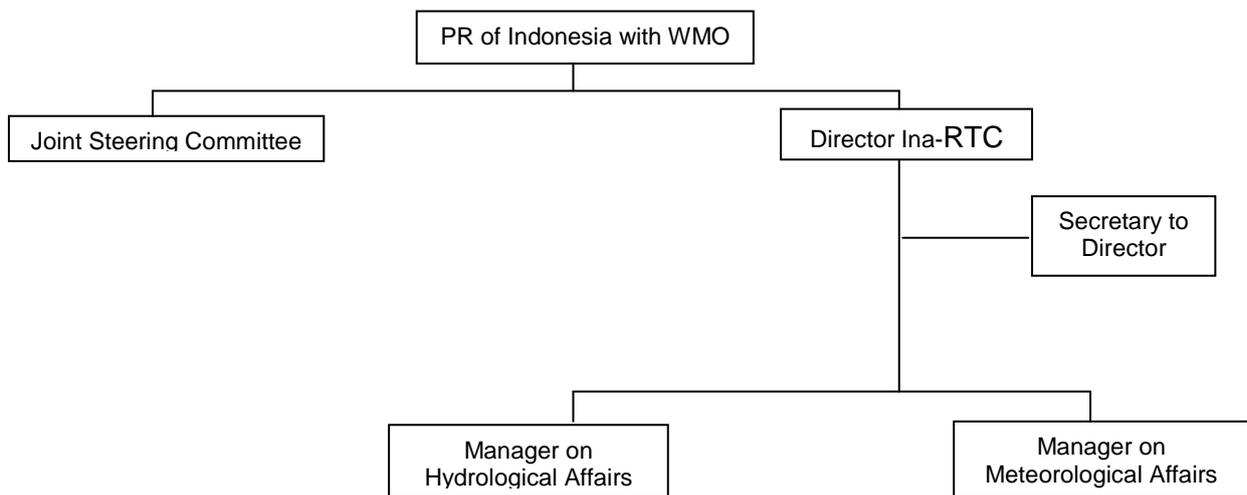


Fig 7: Proposed organizational structure of Ina-RTC

5. VISIT TO KATULAMPA WEIR



Fig 8: Katulampa Weir

Afternoon activities of attendees on 27 November 2014 conducted by visiting Katulampa Weir. Such visit had significant correlation with the training material because the main function of Katulampa Weir is to measure the discharge of Ciliwung river. Besides, due to the position of Katulampa Weir in the middle between Puncak and Bogor, the said weir also functioning as early warning instrument on the height of Ciliwung river which then as an important information for people staying at down-stream.

6. CLOSURE OF TRAINING

The "Hydro-meteorological Database Management Training" closed at 3 pm on Thursday, 27 November 2014.

7. CONCLUSION

The organizing committee requested attendees to fill in the questionnaire concerning the organization of the training. Based on the result of questionnaire, it could be concluded that most attendees found that such training were useful and could improve the attendees' knowledge on database management. However, it is suggested to involve the participants from other Member Countries of RA-V WMO for attending the similar training in the future.

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**LIST OF APPENDICES TO THE FINAL REPORT OF THE “HYDRO-METEOROLOGICAL
DATABASE MANAGEMENT TRAINING”
(CITEKO, INDONESIA, 24 - 27 NOVEMBER 2014)**

Appendix I:

List of Training Participants

No	Name	Institution
1	Nurchahya, ST, M.Si	BBWS Citarum
2	Andi Supriyadi	BBWS CILCIS
3	Kokom Komariah	Dinas PSDA Jabar
4	Desi Windatiningsih, ST	PusAir
5	Randy Esa, S.Kom	PusAir
6	Hanhan Ahmad Sofiyuddin, S.Tp.	PusAir
7	Soni Senjaya Efendi, ST	PusAir
8	Lintang Galih Sukma, S.Si	PusAir
9	Asep Ferdiansyah, ST	PusAir
10	Ratih Kusuma Hartini	Ditjen SDA
11	Riefda Novikarani	Pusat Met Publik BMKG
12	Nurul Pramista	Pusat Met Publik BMKG
13	Nova Nasari	Pusat PIKAM
14	Edi Marsudi	Pusat PIKAM
15	Mugni Hadi Hariadi	Pusat PIKU
16	Utoyo Ajie Linarka	Pusat LITBANG
17	Heru Tribuwono	Pusat DATABASE
18	Toni Satria KW	Staklim Pondok Betung
19	Asep Firman Illahi	Staklim Darmaga
20	Bambang Suprihadi	STMKG

Appendix II: Training Instructors

1. Agung Bagiawan, Ph.D
 2. Dr. Urip Haryoko
 3. Miming Saefudin, M.Si
 4. Daniel Tollenaar, M.Sc
 5. Segel Ginting, S.Si
 6. Bayu Raharja, S.Si
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Appendix III QUESTIONNAIRE



**INDONESIAN REGIONAL TRAINING CENTER
HYDROLOGICAL DATABASE MANAGEMENT TRAINING
CITEKO, 24-27 NOVEMBER 2014**

Instruction: Please fill in the blank

Name:

Institution:

Please indicate your level of agree in the statement below:

- 1: Strongly Disagree
- 2: Disagree
- 3: Neutral
- 4: Agree
- 5: Strongly Agree

No	Question	1	2	3	4	5
1	The objective of the training were clearly defined					
2	Participant and interaction were encouraged					
3	The topics covered were relevant to me					
4	The content was organized and easy to follow					
5	The material distributed were helpful					
6	This training experience will be useful in my work					
7	The trainer was knowledgeable about the training topics					
8	The trainer was well prepared					
9	The training objective were met					
10	The time allocated for the training was sufficient					
11	The meeting room and facilities were adequate and comfortable					
12	The hotel room were comfortable					
13	The food and drinks were delicious					
14	The secretariat were well informed and helpful					

15 What did you like the most about the training?
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16 What aspect of the training could be improved?
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17 What additional Ina-RTC training would you like to have in the future?
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18 Please share your comments or expand on previous response above
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Thank you for your feedback!

Appendix IV

TRAINING AGENDA

1. REGISTRATION
 2. ORGANIZATION OF THE TRAINING
 - 2.1 Adoption of the agenda
 - 2.2 Working arrangements
 3. OPENING REMARK
 4. TRAINING ACTIVITIES
 - 4.1 Basic Hydrology
 - 4.2 Database Management
 - 4.3 Introduction to Tropical Meteorology Dynamics
 - 4.4 Flood Early Warning System
 5. DISCUSSION ON THE ORGANIZATIONAL STRUCTURE OF INA-RTC
 6. DISTRIBUTION OF QUESTIONNAIRE TO THE TRAINING PARTICIPANTS
 7. VISITING KATULAMPA WEIR
 8. CLOSURE OF THE TRAINING
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