

MINUTES OF THE REVIEW MEETING ON INCEPTION REPORT OF THE STUDY 'HYDRO-METEOROLOGICAL RESILIENT ACTION PLAN (HmRAP)' HELD THROUGH VC ON 08.10.2020 AT 3:30 PM IN OPS ROOM, NDMA BHAWAN, NEW DELHI.

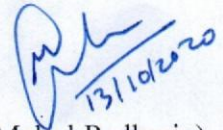
A Review meeting on Inception Report (First Deliverable) of the Study 'Hydro-meteorological Resilient Action Plan (HmRAP)' was held through VC under the Chairmanship of Dr. Pradeep Kumar, Spl. Secretary & Project Director, NDMA on 08th October, 2020; 3:30 PM in Ops. Room, NDMA Bhawan, New Delhi. The meeting was attended by Officials from NDMA, the World Bank, City Nodal Officers, and the Consultant (M/s RoyalHaskoningDHV JV). List of Participants is attached at Annexure-I.

2. The meeting started with a welcome note from the Spl. Secretary & Project Director, NDMA. A presentation was made by the Consultant Team on Inception Report of HmRAP study, followed by a detailed discussion on implementation of the HmRAP study.
3. Prof. A K Gosain, IIT Delhi suggested that the HmRAP should be implementable leading to results. The Consultant's Team Leader (Dr. Chari) confirmed that the HmRAP would be supported by an investment matrix, implementation framework and performance audit framework. The implementation would be in three-time horizons; short term (up to 3 years), medium term (up to 10 years) and long term (beyond 10 years). Dr. Chari also explained the actions that would be undertaken in the three-time horizons. Prof. Gosain further expressed that while capturing baseline information about the cities the underground infrastructure such as storm water drains, sewerage network, etc., be surveyed to address the issue of mixing of storm water and sewerage during floods. Dr. Chari apprised that the appropriate data shall be collected from the City Stakeholders, which shall be supplemented by the ground survey to address the concern.
4. District Collector (DC), Ernakulum informed that they have nominated Ms. Afsana Praveen, District Development Commissioner as the liaison Officer for city level actions for Kochi City. He also informed about a vulnerability survey conducted for the city. District Collector Ratnagiri apprised that he shall contact Mr. Harshad Dhande, the Consultant's City Coordinator of Ratnagiri, for specific hydromet hazard issues of the city.

5. After deliberation involving views/suggestions of participants, the following actions were agreed to:

- i. Details on assessment and risk identification/scoping for potential impacts w.r.t. Landslides, Thunderstorms and cyclonic wind are also to be included in the report. In this connection please refer to Para 14 (d) of the ToR (Scope of work & tasks) and appropriate action to be taken.
- ii. The Consultant to finalize schedule of Kick-Off Workshops/Stakeholders' meeting in all six project Cities before 31st October 2020 and share link with NDMA.
- iii. City Coordinator, Ratnagiri to organise Stakeholders' meeting before 25th October 2020.
- iv. City Coordinator, Bidhannagar will coordinate with the City Nodal Officer to organise Stakeholders' meeting before 17th October 2020.
- v. Multi-date satellite imageries should be analysed to monitor the landuse pattern w.r.t. the urban growth, loss of coastal wetlands, green belts, lakes/ponds etc..
- vi. The combination of hazards such as river, coastal and urban flooding needs to be studied together wherever applicable. Water scenarios to be created & analysed.
- vii. Existing storm water drain should be reviewed to safely pass the pluvial flood from the urban catchment and also with respect to latest CPHEEO guidelines. Similarly, other infrastructure in the coastal areas to be reviewed in coordination with local city stakeholders for attributing secondary data.
- viii. Financial impact and economic impact need to be assessed.
- ix. All project generated data shall be archived in a database and linked to NDMA GIS platform. Dashboard of HmRAP to be prepared & shared with NDMA.
- x. Traditional nature-based resilience solutions should be explored. Actions shall be area based upto ward and city level rather than hazard based. Also, the actions can be categorized as low, medium and high cost solutions.
- xi. One of the activities for vulnerability and risk assessment at urban level (one of the task) is formulating approach/methodology to create DEM/DTM of the study area through survey method (*Total Station and DGPS*) with 30 cm vertical resolution having 95% accuracy level. A detailed process/methodology for creation of DEM/DTM through survey method (*Total Station and DGPS*) to be included in the Inception Report.
- xii. The high resolution DTM data created for the study area to be used in hydrological modeling for flood analysis/mapping.

- xiii. Suitable MIS/Dashboard should be developed right away to capture and depict various activities including geo-referencing/geo-tagging of relevant assets.
6. In view of the above, it is decided that the consultant will incorporate above mentioned action point in the Inception report and same be re-submitted duly revised at the earliest.
7. Meeting ended with thanks to the chair and all the participants.

A handwritten signature in blue ink, appearing to read 'Mehul Padharia', with the date '13/10/2020' written below it.

(Mehul Padharia)
Project Coordinator
NCRMP, NDMA

Annexure-I**MINUTES OF THE REVIEW MEETING ON INCEPTION REPORT OF THE STUDY 'HYDRO-METEOROLOGICAL RESILIENT ACTION PLAN (HmRAP)' HELD THROUGH VC ON 08.10.2020 AT 3:30 PM IN OPS ROOM, NDMA BHAWAN, NEW DELHI.**

Sl. No.	Name of Officials with Designation	Organization
1.	Sh. Samir Kumar Dy. Project Director	NDMA
2.	Sh. Rajendra Piplonia Project Manager	NDMA
3.	Dr. Sanjay K Sharma Env. Specialist	NDMA
4.	Mr. Mehul Padharia Tech. Specialist	NDMA
5.	Dr. Ajay Katari Vulnerability Expert	NDMA
6.	Sh. Brijendra Mishra GIS Consultant	NDMA
7.	Prof. A K Gosain Deptt. of Civil Engineering	IIT Delhi
8.	Sh. Anup Karanth Sr. DRM Specialist & TTL (NCRMP)	World Bank
9.	Mr. Abhay Yawalkar Director, Disaster Management Department	Maharashtra
10.	Mr. Himalaya Roy Chief Engineer	West Bengal
11.	Mr. Satyajit Sen Special Secretary, Disaster Management and Nodal Officer	West Bengal
12.	Mr. Sumitava Mukherjee Superintendent Engineer	West Bengal
13.	Dr. Suhas S District Collector and Nodal Officer	Ernakulam, Kerala
14.	Sh. Dattatray Bhadakawad, Resident Deputy Collector and Nodal Officer	Ratnagiri, Maharashtra
15.	Dr. Srinivasan Thiruvengadachari Team Leader	RHDHV
16.	Mr. Anil Kumar MD-Water	RHDHV
17.	Mr. Raman Kumar Project Manager	RHDHV
18.	Dr. Balaji Angamuthu Technical Head-Resilience	RHDHV
19.	Mrs. Asma Khan Senior Engineer-Project	RHDHV

20.	Mr. Arvind Sharma Senior Engineer-Projects	RHDHV
21.	Mr. Jitendra Kesharao Hatwar City Coordinator-Panjim	RHDHV
22.	Dr. Ruchi Kalra City Coordinator-Kochi	RHDHV
23.	Dr. Ramesh H City Coordinator-Mangalore	RHDHV
24.	Mr. Suvranil Banerjee City Coordinator-Bidhannagar	RHDHV
25.	Mr. Harshad Dhande City Coordinator-Ratnagiri	RHDHV
26.	Mr. Apruban Mukherjee Flood Management Specialist-1	RHDHV
27.	Dr. Sujana Dhar Flood Management Specialist-2	RHDHV
28.	Mr. Kunwar Gopal Batra Urban Development Expert	RHDHV
29.	Mr. Nikhil Shyam Deshpande Urban Planning Expert	RHDHV
30.	Dr. Pawan Kumar Rai Modelling Expert	RHDHV
31.	Mr. Sanjeev Dhawan GIS Expert	RHDHV
32.	Dr. Ashish Kumar Singh Vulnerability Expert (Structure) -1	RHDHV
33.	Mr. Manu CEO	TARU
34.	Mr. Binu Mathew Technical Manager	TARU
35.	Mr. Tejas Patel Project Coordinator	TARU