



CAP Implementation in India

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– Hong Kong 2018

Contents

- National Disaster Management Plan 2016
- Earlier attempt for Early Warning System Implementation through NCRMP
- All India based Institutional Mechanism for Early Warning System
- Disaster Management Provision in National Digital Communication Policy 2018
- CAP Compliant All India based Institutional Mechanism for Early Warning System
- Project Stakeholders
- Details of CAP Implementation in India
- Challenges in Implementation
- Enhancing CAP
- Way Forward in CAP Implementation



Initiative for Disaster Resilient India through National Disaster Management Plan 2016.

- Indian sub-continent with a very large population spans several biographic, hydro-meteorological and agro-climatic zone is vulnerable to multiple natural and industrial disasters.
- Government of India enacted National Disaster Management Act 2005, and adopted National Disaster Management Policy at 2009.
- National Executive Committee adopted a comprehensive dynamic National Disaster Management Plan in 2016 incorporating 3 inputs from 3 major International Agreements:
 - Sendai Framework for Disaster Risk Reduction, 2015
 - Sustainable Developmental Goals 2015-30
 - Paris Agreement for Climate Change at the 21st Conference of Parties under UNFCCC
- State and District Level Disaster Management Plans prepared and Institutional Standard Operating Procedure (SOP) for disaster situations put in place subsequently.
- Each State Disaster Management Authority prepared hazard profile of State



Attempt for Early Warning System Implementation through National Cyclone Risk Mitigation Project (NCRMP)

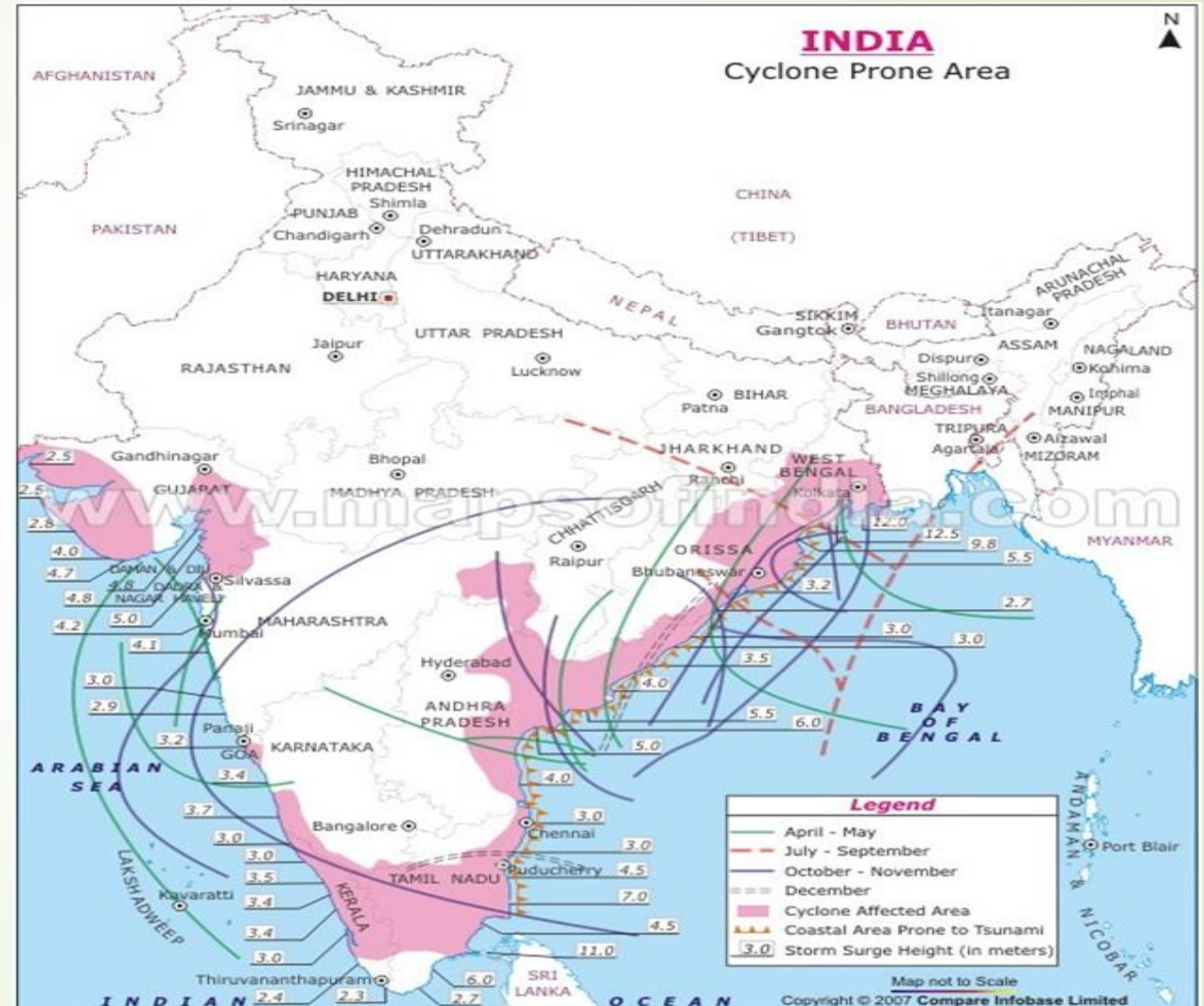
- The Government of India has initiated the National Cyclone Risk Mitigation Project (NCRMP) with a view to address cyclone risks in the country.
- National Disaster Management Authority (NDMA) under the aegis of Ministry of Home Affairs(MHA) was the implement agency for the Project in coordination with participating State Governments and the National Institute for Disaster Management (NIDM).
- **Main Objectives of the Project was:**
 - Early warning and communication system by improving the Last Mile connectivity.
 - Construction and sustainable maintenance of Multi-purpose Cyclone Shelters (MPCSs)
 - Enhanced capacity and capability of local communities to respond to disasters, and Strengthening Disaster Risk Mitigation (DRM) capacity at Central, State and Local levels

Map showing Coastal Areas of India affected by Cyclones.

The Project has identified 13 cyclone prone States and Union Territories (UTs), under following two categories:

Category I: Higher vulnerability States i.e. Andhra Pradesh, Gujarat, Odisha, Tamil Nadu and West Bengal.

• **Category II: Lower vulnerability States** i.e. Maharashtra, Karnataka, Kerala, Goa, Pondicherry, Lakshadweep, Daman and Diu, Andaman and Nicobar Islands.



All India based Institutional Mechanism for Early Warning System

- NDMA from the experience of NCRMP envisaged to build an Integrated Early Warning Platform for Disaster Management and with the massive telecom infrastructure (i.e. 1,186.84 million mobile subscribers, 24 million landline subscribers and 431.21 million internet users) SMS and Cell Broadcasting based early warning system is the de-facto choice.
- For that NDMA approached to Department of Telecommunications (DoT) to form regulation and policies for dissemination of Early Warning and enabling Mitigation Resource Management in Disaster situations.



Disaster Management Provisions for National Digital Communication Policy -2018



(a) Strengthening network resilience by:

- i. Framing and enforcing standard operating procedures to be followed during disasters and natural calamities
- ii. Establishing institutional framework to promote monitoring of activities, **rapid dissemination of early warning disaster notifications** and better coordination and collaboration between relevant Ministries / Departments, including the National Disaster Management Authority of India

(b) Developing a Unified Emergency Response Mechanism

(c) Enhancing the Public Protection and Disaster Relief (PPDR) plan for India by:

- i. Facilitating the establishment of a Pan-India network for Public Protection and Disaster Relief (PPDR)
- ii. Making necessary spectrum available for PPDR including by establishing INSAT satellite-based mobile communication systems
- iii. Implementing global and regional harmonized spectrum Plans for PPDR
- iv. Priority Call Routing

CAP Compliant All India based Institutional Mechanism for Early Warning System

- DoT further involved Centre for Development of Telematics(C-DoT), India's premier telecommunications R&D center, under Ministry of Communication total solutions to architect, design and development of **CAP compliant Integrated Early Warning Platform** along with integrating all forecasting and dissemination agencies.
- *The new platform is also expected to modernize and integrate existing alert and warning systems at the national, state, territorial, local levels in a single, cohesive platform, using which any forecasting agencies can address public or the First Responders of a specific area simultaneously cover all media coverage (SMS, IVR call, TV, Radio, Siren, Road Signage, Railway station announcement system, social media etc.) in vernacular languages.*
- Along with the Disaster Early Warning System this Integrated Platform will also facilitated rescue and recovery operation post disaster through GIS based resource planning and unified platform for disaster response force.

Project Stakeholders

Forecasting/Early warning Agencies

- IMD (23 Regional Centers)
- CWC (13 Regional Centers)
- INCOIS (17 Monitoring Centers)
- GSI (6 Regional Centers)
- NCS (82 Field Observatories)
- SASE
- AERB
- MHA
- MoEFCC
- MoAFW
- MoHFW
- Ministry of Railways
- State/District Authorities
- Any other agency envisaged by Government

Integrated Disaster CAP- Early Warning Platform

MHA NDMA
36 SDMA/
State & UT
Authorities 707 DDMA/
Districts
Authorities

Authority /Controlling Agencies

Dissemination Agencies

- TSPs (12 Wireless and 8 Wireline)
- ISP (157 in 22 LSA)
- Radio (420 AIR station & 157 Private FM)
- Television (16 Doordarshan & 115 Private News Channels)
- Railway Announcement and Display Board (8000 Station)
- Electronic Sirens installed at 13 Cyclone prone State
- Electronic Road Signage installed at National & State Highway
- Social Media
- Any other agency envisaged by Government

Project Stakeholders DoT, TEC

► Department of Telecommunication (DoT):



- Formation of Central Project Monitoring Unit (CPMU) at DoT head Quarter.
- Formation of Project Implementation Unit (PIU) at each state and UT.
- Coordinate activities of C-DOT for implementation of Early Warning Platform, NMS and Project management Platform.
- Coordinate early warning dissemination activities with all TSPs and ISPs
- Coordinate early warning dissemination activities with all stakeholders of all communication media.

► Telecommunication Engineering Center (TEC):



- Standardization of Telecom network equipment, interface and services used in the project.
- Formulation of Standards and Codification of for CAP parameters.
- Standardization of hazard Specific Early Warning Messages.

Project Stakeholder NDMA, SDMAs and DDMA

- **National Disaster Management Authority (NDMA):**



- Formation of Project Management Unit (PMU).
- Coordinate early warning activities between various state and regional disaster management authorities for implementation of EWP.
- Coordinate interaction, exploration and integration with input agencies and disseminating agencies.
- Authorize warnings and advisories of large scale events and major disasters.
- Monitor warning, response and recovery activities using EWP.

- **State Disaster Management Authority (SDMA):**

- Coordinate early warning activities between state and regional disaster management authorities for implementation of EWP.
- Authorize warnings and advisories of disasters.
- Monitor warning, response and recovery activities using EWP.

- **District Disaster Management Authority (DDMA):**

- Coordinate early warning activities regional disaster management authorities, field officers and first responders for implementation of EWP.
- Authorize warnings and advisories of small scale disasters.
- Monitor warning, response and recovery activities using EWP.

Project Stakeholders India Metrological Department

Set of Events for which IMD give Forecasts

1. Rainfall	2. Thunderstorm
3. Cyclone	4. Hail Storm
5. Snow Fall	6. Fog
7. Dust/Sand Storm	8. Dust Raining Winds
9. Storm Surge	10. Fisherman
11. Heat Wave	12. Cold Wave
13. Squall	14. Warm Night
15. Cold Day	16. Frost
17. Sea State	



Head Quarter in New Delhi
5 Regional Meteorological Centers in
Chennai, Kolkata, Mumbai, Guwahati
and Nagpur and 18 Meteorological
Centers across India

Project Stakeholders

Flood: Central Water Commission (CWC) head quarter at **New Delhi** with **13 Regional Monitoring Centre** across PAN India.



Bangalore	Monitoring (South)
Bhopal	Narmada Basin (NBO)
Bhubaneswar	Mahanadi and Eastern Rivers (M&ERO)
Chandigarh	Indus Basin (IBO)
Coimbatore	Cauvery and Southern Rivers (C&SRO)
Delhi	Yamuna Basin (YBO)
Gandhi Nagar	Narmada and Tapi Basin (N&TBO)
Hyderabad	Krishna and Godavari Basin (K&GBO)
Lucknow	Upper Ganga Basin (UGBO)
Nagpur	Monitoring (Central)
Patna Lower	Ganga Basin (LGBO)
Shillong	Brahmaputra and Barak Basin (B&BBO)
Siliguri	Teesta Basin (TBO)

Project Stakeholders

► Tsunami-

Indian National Centre for Ocean Information Services (INCOIS) head quarter at Hyderabad with 17 monitoring centers positioned at Aerial Bay, Chennai, Ennore, Garden Reach, Haldia, Kandla, Karwar, Krishnapatnam, Marmagao, Machilipatnam, Nagapattinam, Paradeep, Port Blair, Vadinar, Visakhapatnam etc.

► Land Slide:

► **Geological Survey of India (GSI)** head quarter at Kolkata with 6 Regional Centre across PAN India in Kolkata, Lucknow, Jaipur, Hyderabad, Shillong, Nagpur, Jaipur.

► Earthquake:

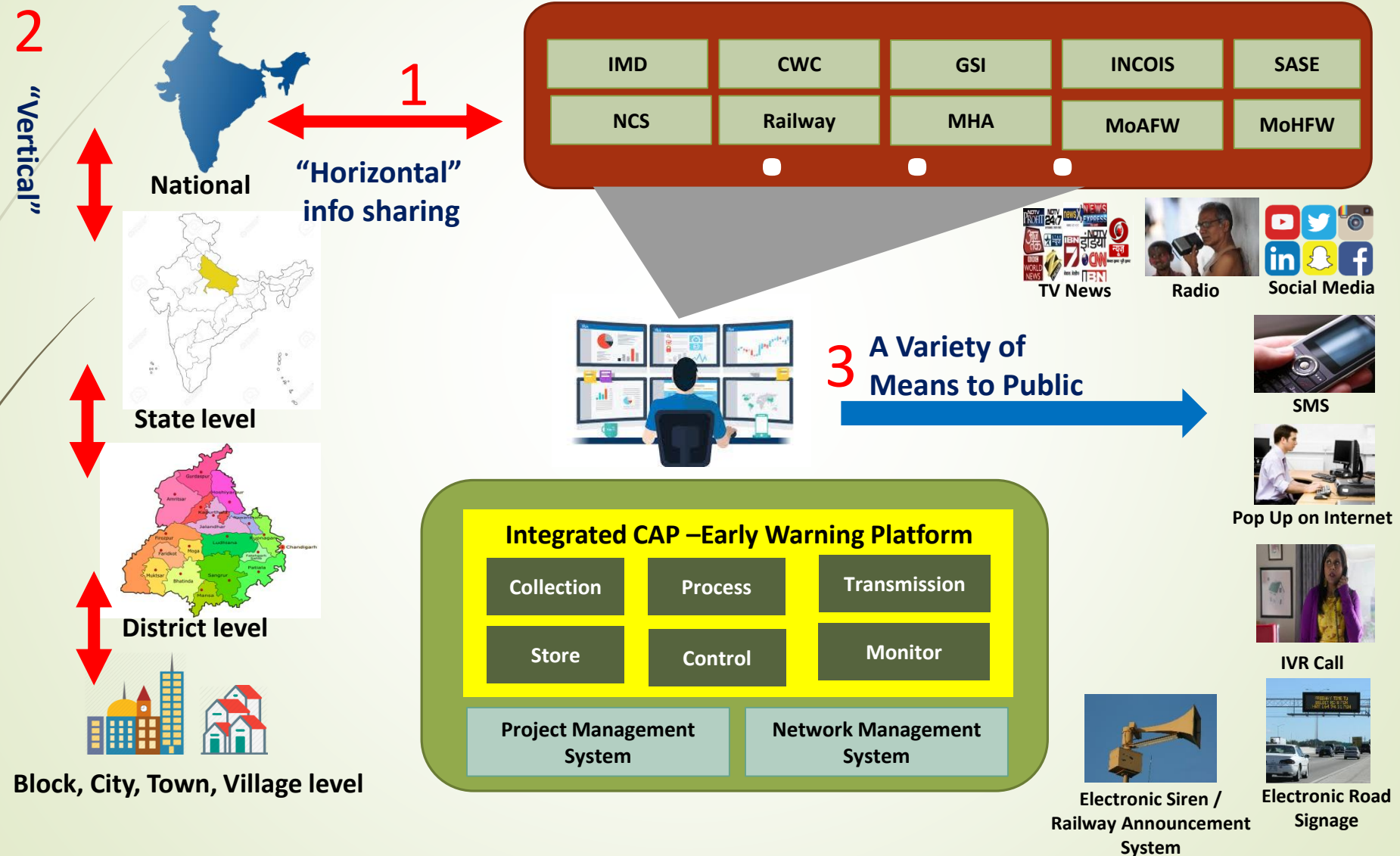
► **National Centre for Seismology (NCS)** head quarter at New Delhi with total 82 Field observatories across PAN India.

Project Stakeholders

- **Avalanche: Snow and Avalanche Study Establishment (SASE)** head quarter at Chandigarh.
- **Forest Fire: Ministry of Environment, Forest and Climate Change (MoEFCC)** head quarter at New Delhi.
- **Drought: Ministry of Agriculture and Farmers Welfare (MoAFW)** head quarter at New Delhi.
- **Epidemic: Ministry of Health and Family Welfare (MoHFW)** head quarter at New Delhi.
- **Chemical, Radiological and Nuclear threat: Atomic Energy Regulatory Board (AERB)** head quarter at Mumbai.
- **Railway Accident: Ministry of Railways** head quarter at New Delhi.
- **Law and Enforcement : Ministry of Home Affairs (MHA)** and different divisions under MHA situated across PAN India.
- **Administrative instructions/Advisories: 35 States/ Union Territories and 707 District Authority** across PAN India.

Common Alerting System Working Model

Typical Vertical Horizontal Integration





Workflow of Early Warning Platform



Forecasting Agencies

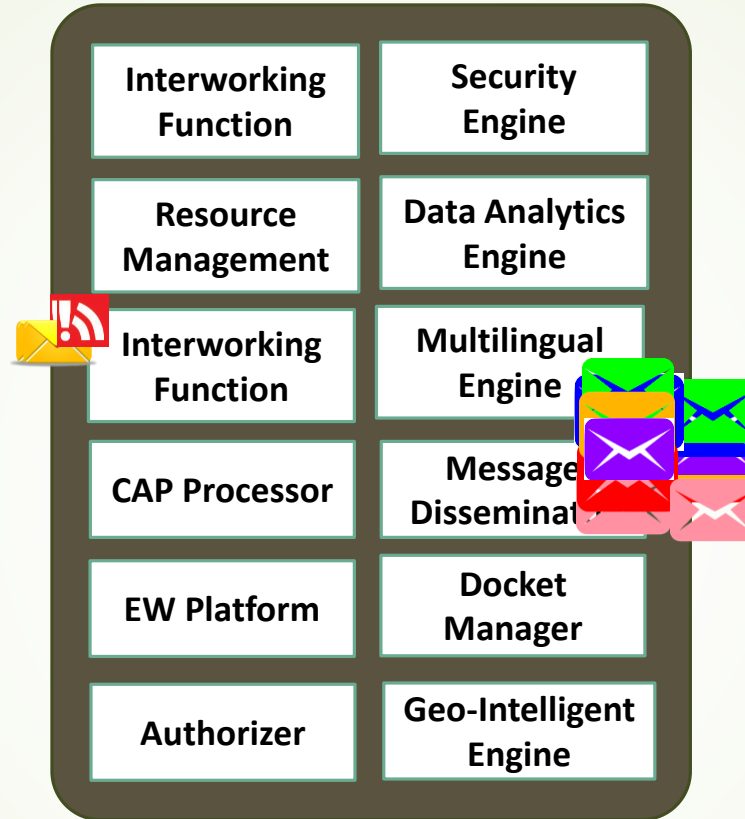


Ministry of Home Affairs



सत्यमेव जयते

EARLY WARNING PLATFORM



Message Dissemination Agencies



NDMA



SDMA



District Level



City/Town Level

Authority/ Controlling Agencies

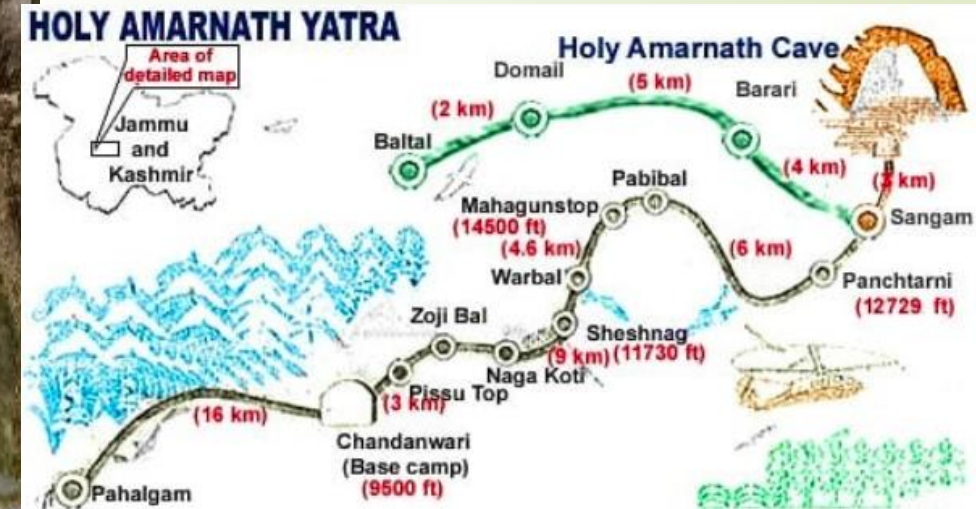


Details of CAP Implementation in India:

- Amarnath Yatra first test case of CAP Platform
- 260,000 People participated in pilgrimage for more than 40 days in 2018, it is one of the Holiest Pilgrimage of India
- Casualties due to Tough Terrain and Extreme Weather Condition



Baba
Darshan 2018





Shri Amarnath Yatra EWS Summary through C-DoT CAP Platform by J & K SDMA and IMD J&K

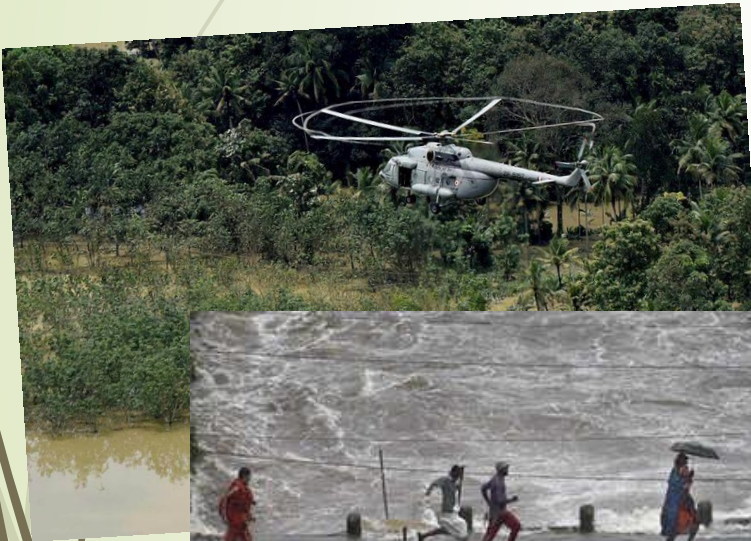


S. No.	Date	No. of Recipients
1.	28.06.2018	BSNL:717
2.	29.06.2018	BSNL: 892
3.	19.07.2018	BSNL:21,771 Airtel 2G customers through Cell-Broadcasting
4.	20.07.2018	BSNL: 30185 Jio:40682 Airtel 2G customers through Cell-Broadcasting
5.	23.07.208	BSNL: 27776 Jio:39161 Airtel 2G customers through Cell-Broadcasting
6.	25.07.2018	BSNL: 29151 Jio:40249 Airtel 2G customers through Cell-Broadcasting

More than **200,000** Weather Forecasting SMSs and Cell Broadcasting has been Disseminated along Shri Amarnath Yatra route by J&K State Government

Early Warning and Relief Operations during Kerala Flood

More than **3 Million** SMSs has been disseminated through C-DOT CAP Platform in difficult situations





CAP Early Warning Platform 14 States Field Trial Summary out of 35 States and UTs weather forecasting messages have been disseminated



S. No.	State	Area/District	BSNL	Reliance Jio	AirTel
1	Tamilnadu	Marina Beach area of Chennai	5181		
		Nungambakkam, Chennai	2768		
2	Kerala	Idduki	883		
3	Andhra Pradesh	Vijaywada	4125		
4	Telangana	Hyderabad	3796		
5	Uttarakhand	Dehradun	1386		
6	Jammu and Kashmir	Civil Secretariat, Shaheed Gunj,	59		Cell Broadcasting
		Amarnath Yatra Route	942		
7	Assam	Assam Secretariat, Dispur	2295		
		Pan Bazar Area , Guwahati	7252		
8	Madhya Pradesh	IHM Bhopal, Shahpura, Bhopal	4474		
	Delhi-NCR	Chattarpur Region	--	--	Cell Broadcasting
9	Himachal Pradesh	Dharamshala area	15121	17328	
		Nahan area	6932	5214	
		Reckong Peo area	2325	3099	
		Himachal Pradesh Secretariat	5321	1437	
10	Karnataka	Dakshina Kannada	2992	--	--
		Vidhana Soudha, Bangalore	1011	--	--
11	Chandigarh	Sector 17, Chandigarh	20307	93322	5400
12	Odisha	Kendapara area	1659	1826	
		Bhubneswar Secretariat Area	6302	3734	--

More than 250,000 SMS disseminated

Yellow alert in eight Kerala districts after MeT warning of rough seas, heavy rains

Laxmi Prasanna | TNN | Sep 27, 2018, 17:39 IST

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File photo of heavy rains in Thiruvananthapuram.

THIRUVANANTHAPURAM: After a lull phase, southwest monsoon seems to be gearing up in Kerala due to convective activity. Heavy rains lash parts of the state on Thursday and are expected to continue till September 30. With that, Kerala State Disaster Management Authority (KSDMA) has re-issued yellow alert in eight districts across the state.

“This yellow alert is issued by way of the common access protocol (CAP) with one-liner alerts not to travel in landslide-prone hilly areas during 7pm to 7am. Similarly avoid visiting flood-prone areas, beaches and swimming in rivers and other water bodies. It is supported by the national platform through the Centre for Development of Telecom (C-DOT) and National Disaster Management Authority,” KSDMA’s State Emergency Operations Centre (SEOC) head scientist Sekhar Kuriakose said. He has also advised people to be cautious that children do not venture out to play in water bodies.

DoT to refine standard operating procedures based on learnings from Kerala’s response to flood

OUR BUREAU

T+ T-

Flood-hit state’s response to be considered ‘best practice’

THIRUVANANTHAPURAM, AUGUST 27

The Department of Telecom (DoT) will consider flood-hit Kerala’s response as ‘a best practice’ and refine the existing Standard Operating Procedure (SOP) for telecom services.

This was stated by Aruna Sundararajan, Telecom Secretary, at a post-floods review meeting held here on Saturday with BSNL, other telecom service providers and telecom infrastructure providers.

EARLY WARNINGS ENABLED

The use of Common Alert Protocol-Early Warning Platform (CAP-EWP) helped the government issue early warnings to the public, the meeting assessed.

The system developed by DoT and CDOT had helped the State Disaster Management Authority (SDMA) issue early warnings to the public through mobiles.

The CAP enabled disaster management professionals to disseminate messages to target the population in select areas quickly, without the intervention of telecom service providers.

This has been implemented using a platform developed by CDOT, interfacing with all telecom networks. This platform would be upgraded to include messages in the vernacular language as well.

DoT will lay out comprehensive Public Protection and Disaster Relief (PPDR) procedures, which can be implemented across India involving all stakeholders, state governments, and various agencies involved to ensure that the effects of the disaster are mitigated substantially.

All resources required for PPDR implementation will be made available through the collective efforts of DoT, the National Disaster Management Authority, the respective state SDMA’s, other agencies and stakeholders.

A standardised common number has been implemented through which customers can get the location of missing family members and friends, for further tracing. This process will also be integrated with common distress numbers such as ‘112’, for which follow-up action will be taken by DoT.



Pilot test of Common Alert Protocol Platform successfully held in Himachal; Alerts were received on over 58,000 cellphones

Source :NewsBharati Date :30-Jul-2018



Shimla, July 30: For the dissemination of early warning and other emergency alert messages for disaster preparedness, the National Disaster Management Authority (NDMA) on Sunday completed the successful pilot test of a new system called Common Alert Protocol (CAP) in Himachal Pradesh.



The test messages about rainfall forecast were developed and sent to selected areas of three districts i.e. S. Drop, Cover and Hold exercise was also disseminated in Chhotta Shimla area through the CAP platform.

Notably, the pilot testing was successfully done from the State Emergency Operations Centre (SEOC) located more than 58,000 Reliance, JIO and BSNL subscribers in the areas of three districts and Shimla Secretariat

The Common Alert Protocol (CAP) has been developed by the NDMA and department of Telecommunication Secretary (Mitigation) from NDMA personally supervised the pilot testing from SEOC, Shimla. On behalf D.C.Rana coordinated the process of testing the Common Alert Protocol in the State.

THE TIMES OF INDIA CITY

City Dehradun Mumbai Delhi Bangalore Hyderabad Kolkata Chennai Agartala Agra Ajmer Amara

Weather Hindi News

NEWS / CITY NEWS / DEHRADUN NEWS / STATE TO ROLL OUT LOCATION-BASED SMS DISASTER ALERT

State to roll out location-based SMS disaster alert

TNN | Updated: Jun 19, 2018, 13:17 IST

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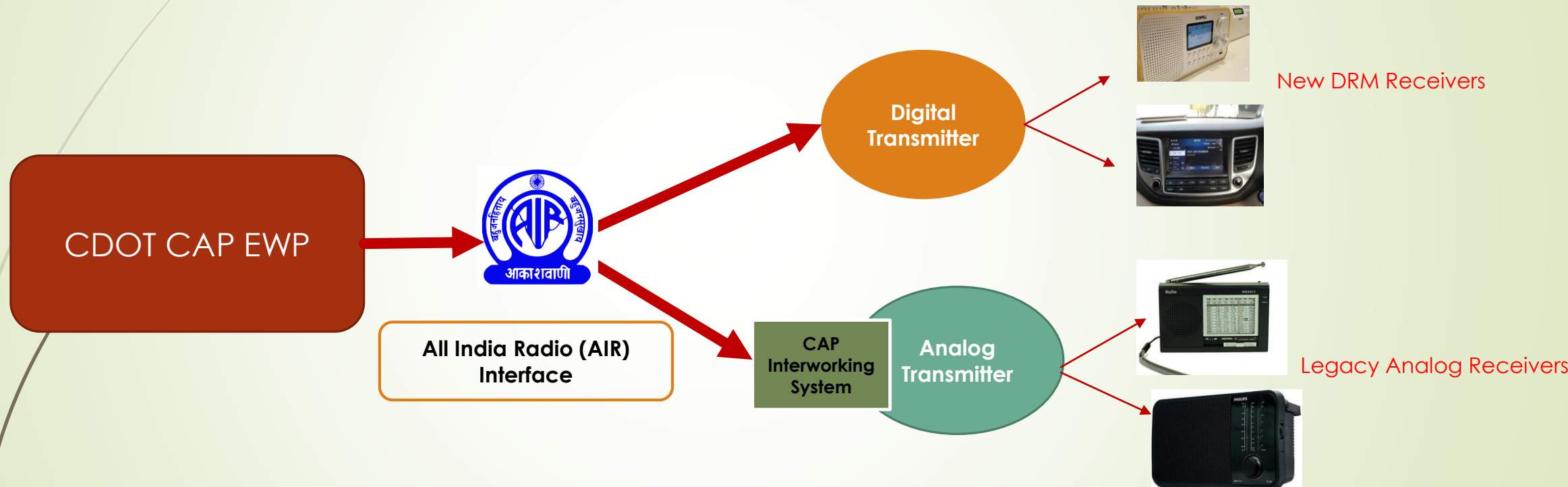


Representative Image

DEHRADUN: The state government will introduce location-based SMS alerts to warn people in vulnerable areas of impending disasters. The system called Common Alerting Protocol (CAP) has been developed by the National Disaster Management Authority (NDMA).

Under the system, an SMS would be sent to those living near disaster-prone areas when extreme weather events like heavy rainfall or thunderstorm are likely to take place.

CAP EWP Platform Integration with All India Radio (AIR) Legacy Analog Transmitters



CAP Implementation Challenges:

- Large Population, density varies
- Alerting mechanism is different for different states
- Different Hazard Profile for Different Areas
- Smartphone penetration is less only 30% cell broadcasting so SMS and Cell Broadcasting both options need to implement
- Support for Multilingual Message broadcast as India has 22 major languages
- Large number of Government and Private Organizations need to be integrated with CAP Early Warning Platform through Inter Working Functions, Support for Legacy systems

Suggestions in Enhancement of CAP

- Prioritization of areas based on Primary, Secondary location. Primary location is the epic centre of disaster event and secondary location is area surrounding that. Different messages need to be disseminated to the users/first responders accordingly.
- Priority of area based on intensity of disaster. So, that different dissemination media can be taken based on priority
- Need a forum to flag CAP implementation problems and resolve them.

Future Roadmap of CAP Implementation in India

- All India Radio (420 stations) and Private FM Channels (157 stations)
- TV – 16 Doordarshan Channels and 115 Private News Channels
- Indian Railway – railway tracks of 121,407 km, more than 8000 stations, In the year ending March 2018, IR carried 8.26 billion passengers and transported 1.16 billion tonnes of freight.
- Electronic Road Signage installed across National and State Highways
- Electronic Sirens installed at 13 Cyclone Prone States
- Integration with Social Media
- Crowd Sourcing Mechanism for Targeted Relief and Recovery of Disaster Affected People



Thank You!