



oneM2M Stakeholders' Day

Hosted by

Telecommunications Standards Development Society, India

Supported by

India-EU ICT Standardisation Collaboration Project

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Common alerting protocol for public safety- security perspective

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Alerting Ecosystem

Multiple Organisations and Departments for different kinds of Emergency alerting areas

IMD (HQ & 29 centres)
Meteorological Events

CWC
Floods

INCOIS
Tsunami

DGRE
Avalanches

FSI
Forest Fires

National Center for Seismology (NCS)
Earthquake

GSI
Landslides

NDMA, 36 State/UT Disaster Management Authorities

MoHFW
Health

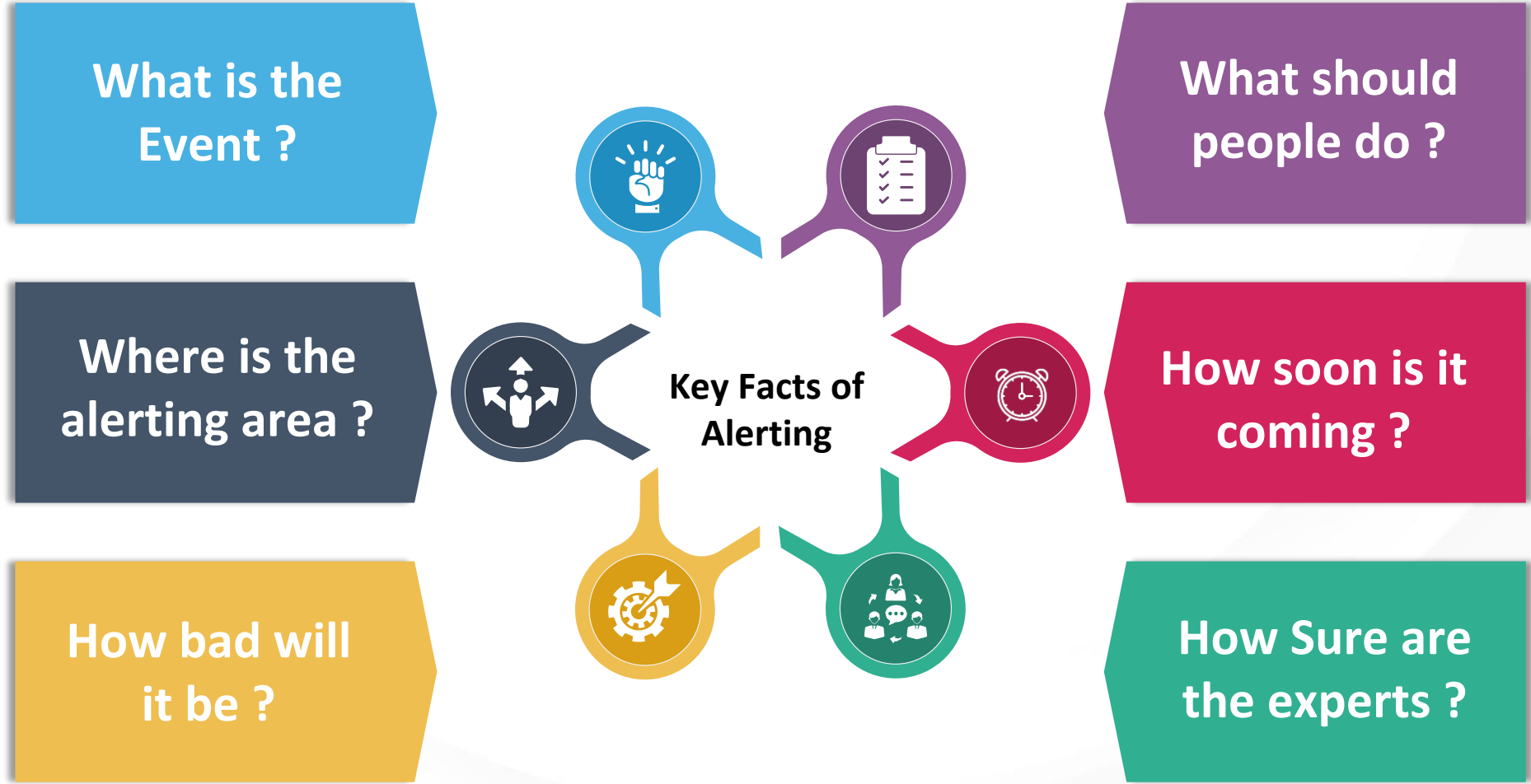
IITM Pune
Air Quality & Lightning

MHA
Law and Order

Other Ministries and Departments.
Ministry of Power, Agriculture etc.

Need for effective information exchange w.r.t emergency alerting for public safety

Key Facts of Emergency Alerting



Communicating Emergency Information for Public Safety: The Traditional Way



No Standardization



Patchwork of Systems

People miss out on alerts

People get alerts not-intended for them

People get confusing messages, missing link of trust

Message not understandable



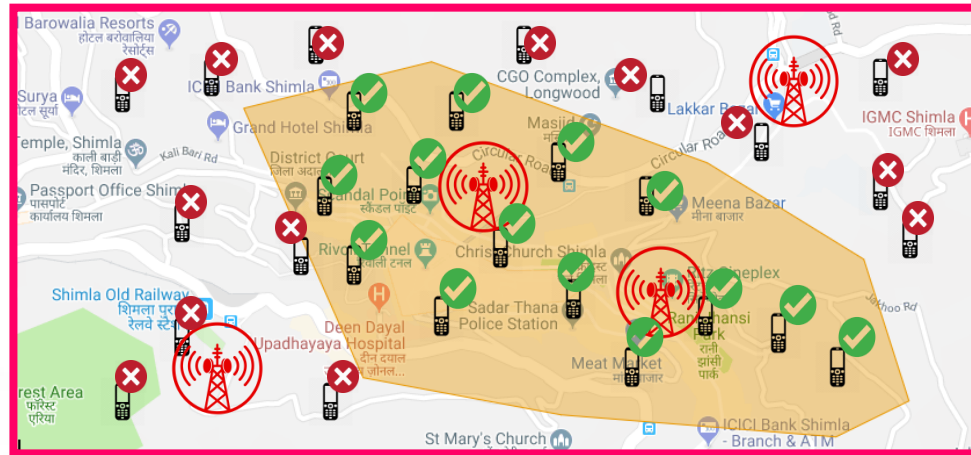
Not Location Specific

Effective Communication in emergencies

Alerts need to go out **as quickly** and **efficiently** as possible

Better people are informed, more lives can be saved, and resources preserved

More targeted alerts increase effectiveness and enables trust among public



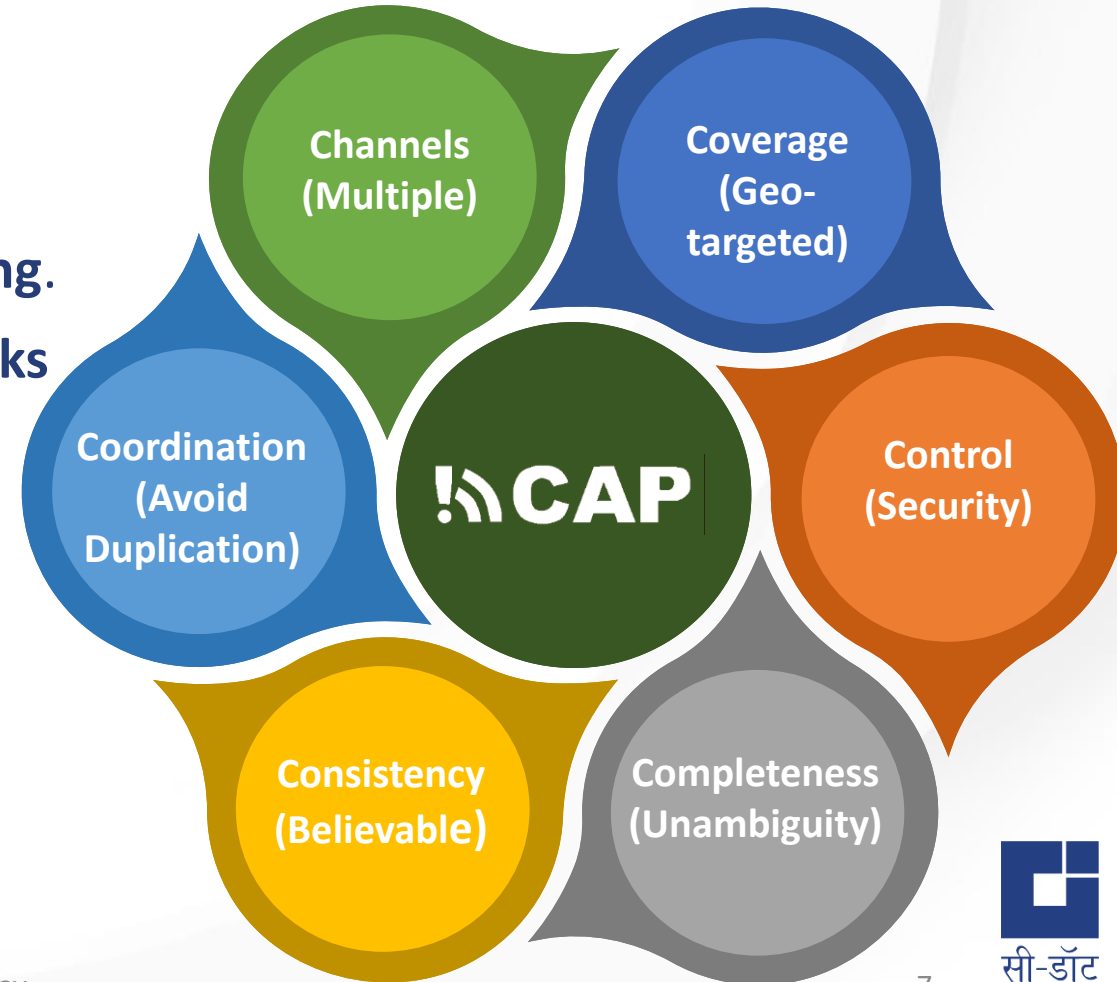


Common Alerting Protocol (CAP)

ITU-T x.1303

Recommendation

- Incorporating all key facts of emergency alerting
- **Standard Business form for All Media All Hazard Alerting.**
- Exchanging public warnings over **all kinds of ICT networks**
- **Flexible geographic targeting**
- Facility of inclusion of **text, images, audio and video**
- Enhanced message **update and cancellation features**
- **Template support** for framing complete and effective warning messages
- Facility for **Digital encryption and signature capability**



Common Alerting Protocol (CAP): CALL TO ACTION

“Ensure that by 2025 all countries have the capability for effective, authoritative emergency alerting that leverages the Common Alerting Protocol”



International Federation Of
Red Cross And Red
Crescent Societies (IFRC)



International
Telecommunication Union
(ITU)



World Meteorological
Organization (WMO)

C-DOT has implemented PAN-India CAP based Integrated Alert System for Disaster Management under guidance of NDMA and DoT

Integrated Alert System: Realizing the Initiatives towards Disaster Resilient India



PM's 10 point agenda for disaster risk reduction

- Use technology for disaster risk reduction

NDMA's Disaster Management Plan 2019

- Systematic approach for disaster management

Sustainable Development Goals (SDGs) 2015

- 17 points to ensure people enjoy peace and prosperity

Sendai Framework 2015-2030

- 7 targets to reduce disaster risk and increase cooperation

Multi media support with multi technology

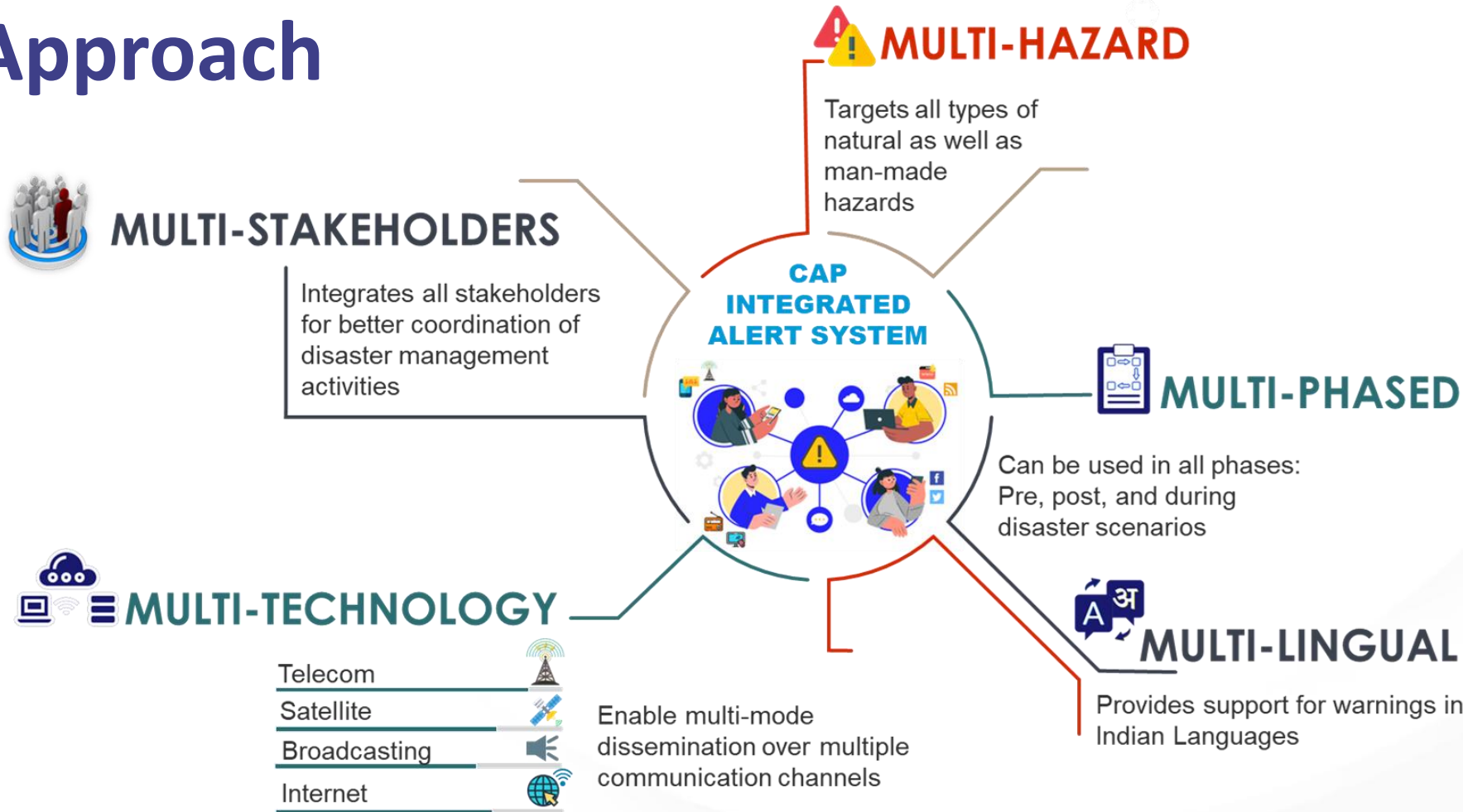
Converging 70+ govt. agencies in single platform

Building resiliency at community-level

Access to multi-hazard early warning system by common man

CAP Integrated Alert System

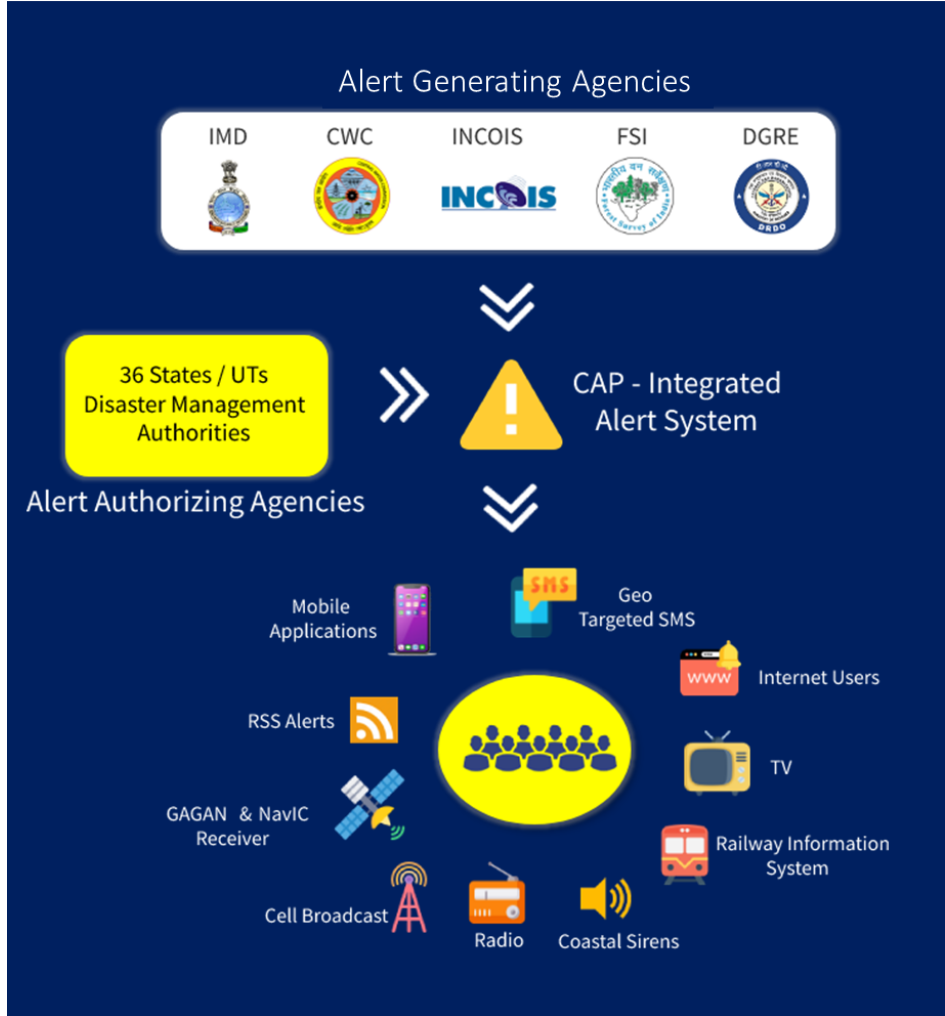
Integrated Alert System: A Standardized Multi-Modal Approach



Common Alerting Protocol (CAP)

- Globally accepted
- ITU-T x.1303 standard
- Enable open exchange of disaster information

Integrated Alert System for Disaster Management



Indigenously developed system brings all agencies together to disseminate **near real-time disaster warnings** (text, audio & video) **to common public**, in a **geo-targeted manner**, across **multiple channels** in Indian **vernacular languages** with clear instructions for action to be taken for saving **Lives, Livelihood** and **Livestock**

Involved Ministries		
Ministry of Home Affairs NDMA	Ministry of Communications DOT, C-DOT, TSPs (BSNL, Airtel, Reliance Jio, VI, MTNL)	Ministry of Information & Broadcasting AIR, Private FM Channels, Doordarshan, DTH, HITS, Cable operators
Ministry of Defence (DRDO) DGRE	Ministry of Civil Aviation (AAI) Department of Space (ISRO) Satellite Communication: GAGAN and NavIC	Ministry of Railways Indian Railways
Ministry of Earth Sciences IMD, INCOIS	Ministry of Jal Shakti CWC	Ministry of Environment, Forest and Climate Change FSI

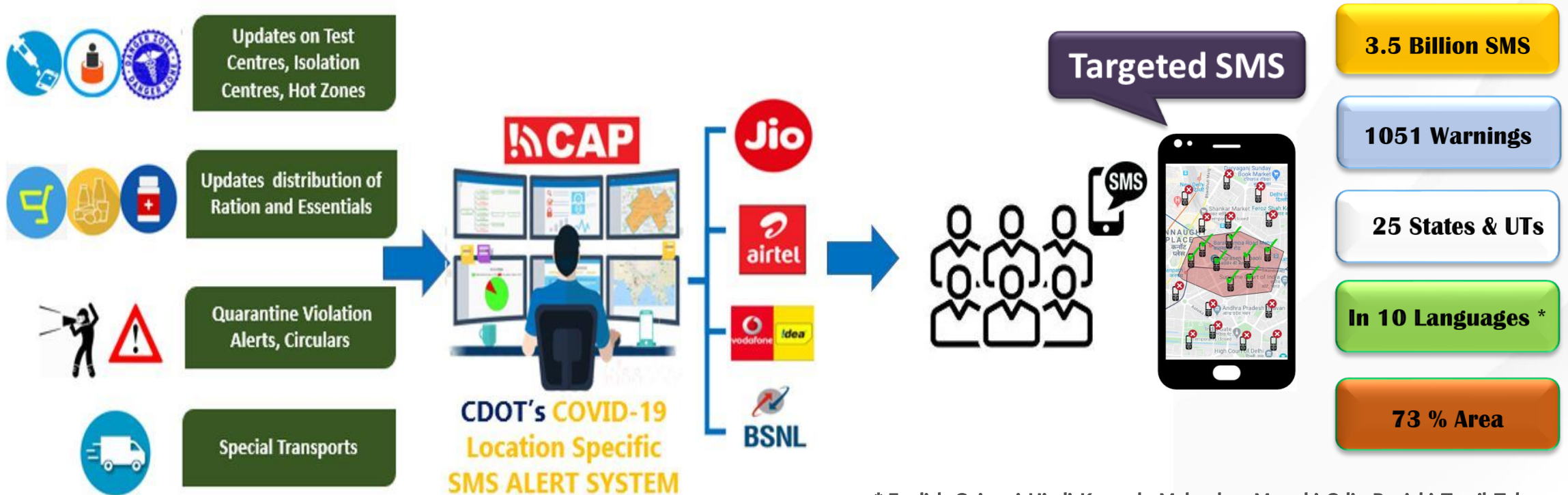
Usage of CAP based alerting

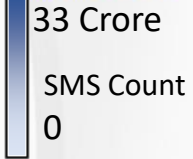
Making Emergency Alerting More Available, Precise, Reliable, Secure, And Faster Than Ever..

- Natural Disasters (Cyclone, Tsunami, Floods, Lightning, Avalanches, etc.)
- Manmade Disasters (Gas & Chemical Leakages, etc.)
- Child Abduction/ missing person
- Evacuation orders
- Managing Pandemics
- Terrorist Attacks
- Civil unrest, Law and order
- Any other location-specific information and updates.
- Internal first-responder communication
- Traffic updates

COVID-19 Sāvdhān

Initiative from the Government of India, **COVID-19 Sāvdhān** is integrated Platform facilitated by NDMA & DOT, through which Central and State Government Authorities are able to seamlessly integrate under one umbrella and disseminate any important information and advisories related to COVID-19 pandemic to target area population identified through the postal Pin codes.





Usage across entire country

SMS **5 Billion SMS**
Covid- 3.5 Billion
Other Disasters- 1.5 Billion

650 Million Citizens

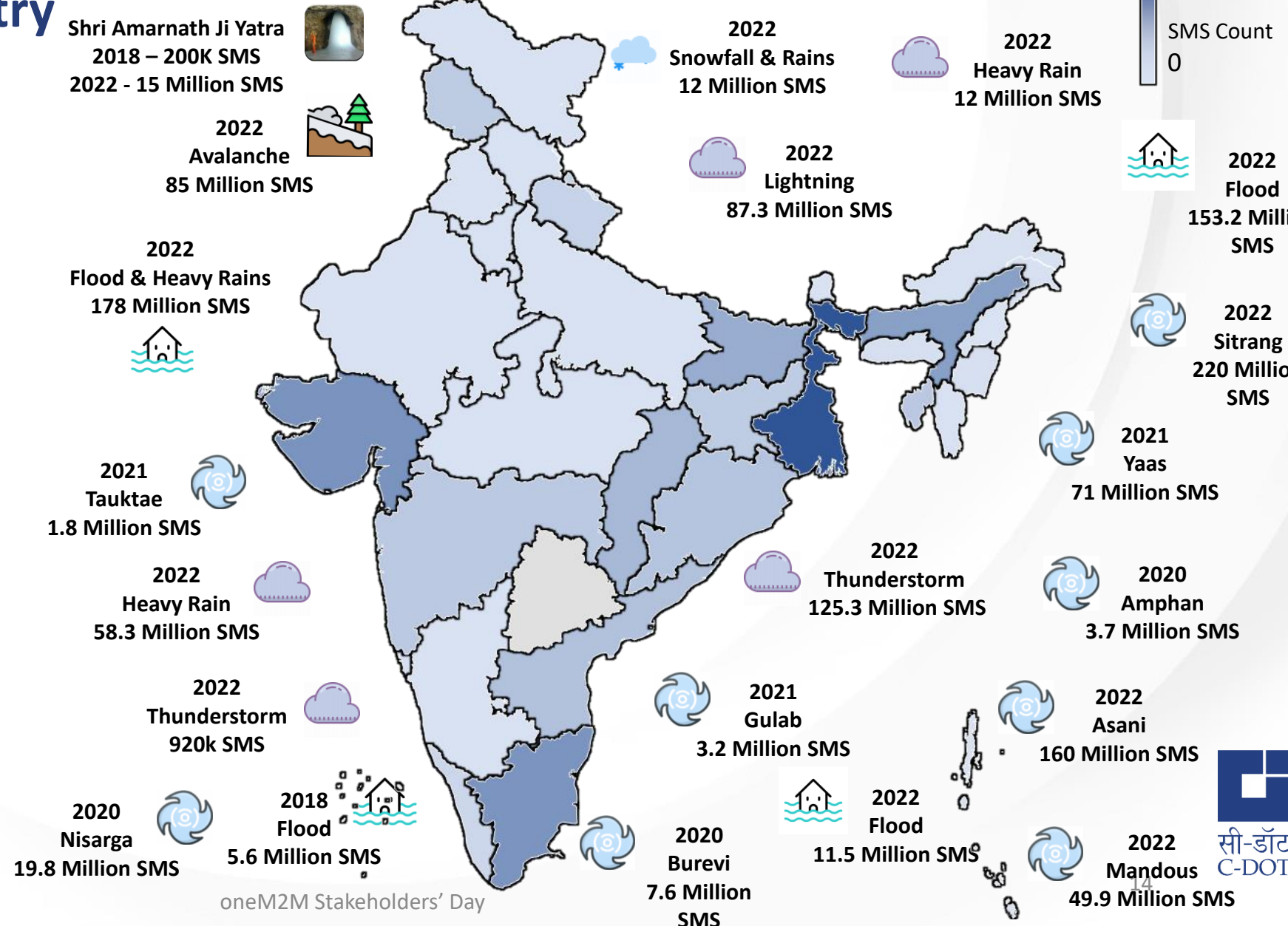
36 States/UTs & 766 Districts Covered

346 Districts Already Benefitted

16 Languages

11,017 subscribers

24 February 2023



Ensuring Security

- End-to-End Security
- Security by Design
- Security Access controls: **IAAA (Identification and Authentication, Authorization and Accountability)**
- Software Bill of Materials (SBOM)
- CIA triad principles
- Zero-Trust Policy



Integration of Telecom Service Providers

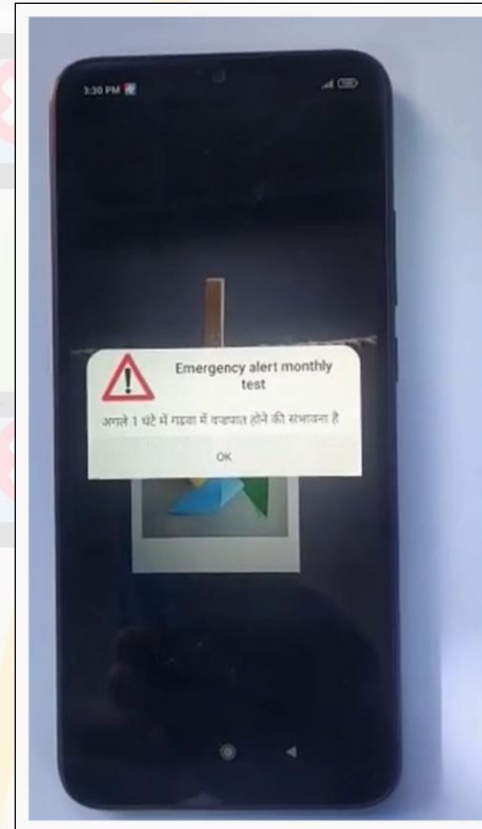
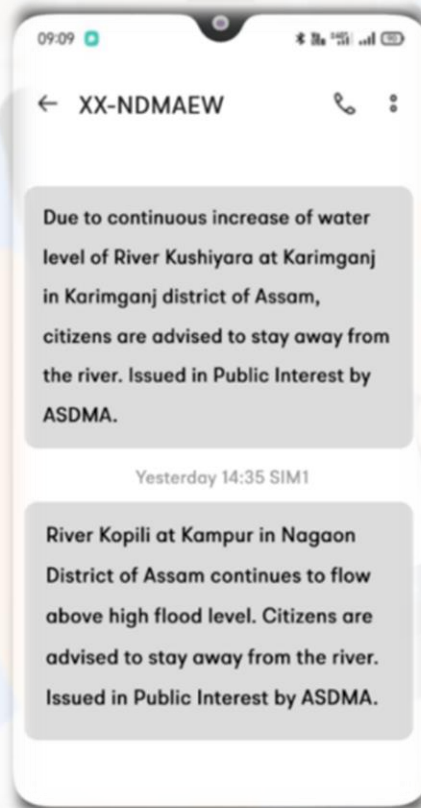
Location based SMS

Cell Broadcast

Device Independent,
No Subscription

Geo-targeted, Multi-
lingual Support

Caters Tourist
Population



Independent of Network
Congestion

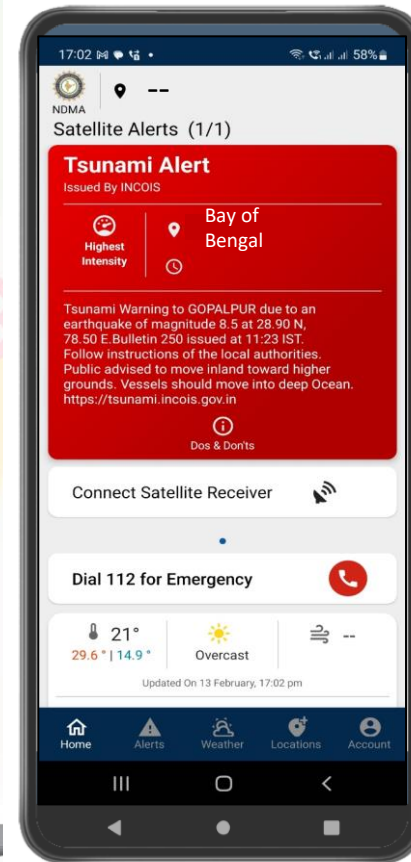
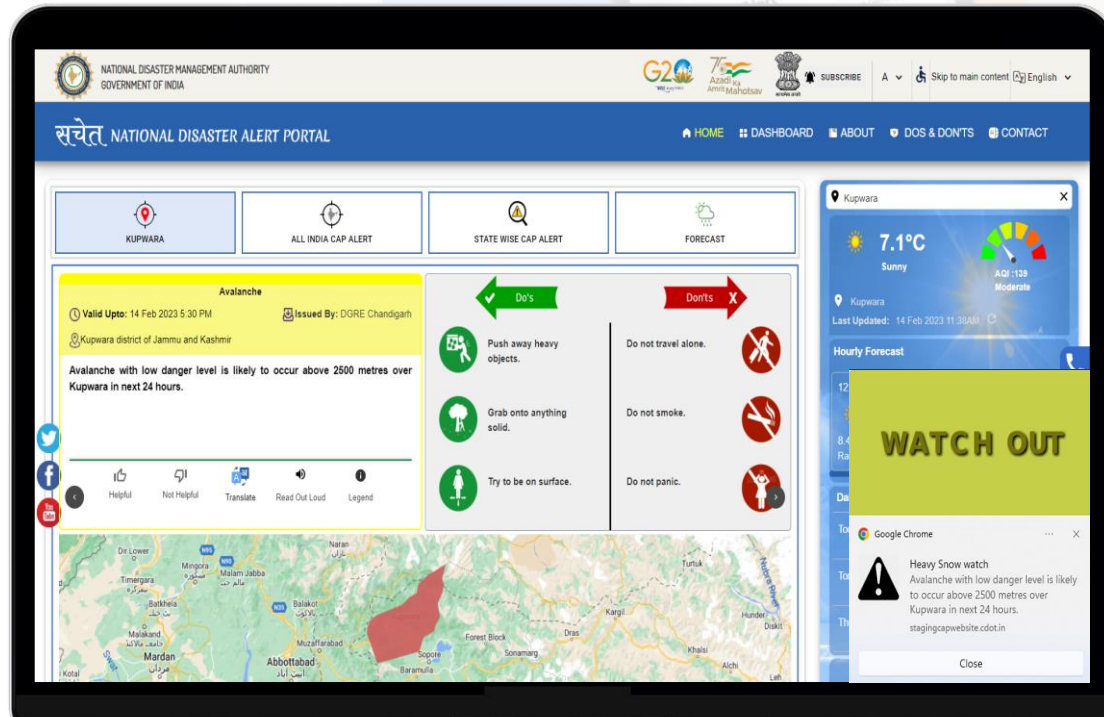
Pop-up notification and
Distinct Warning Sound

Targeting Internet Users

National Disaster Alert Portal

National Disaster Mobile Application

Integration with Google Services



GAGAN/NavIC satellite messaging enabled

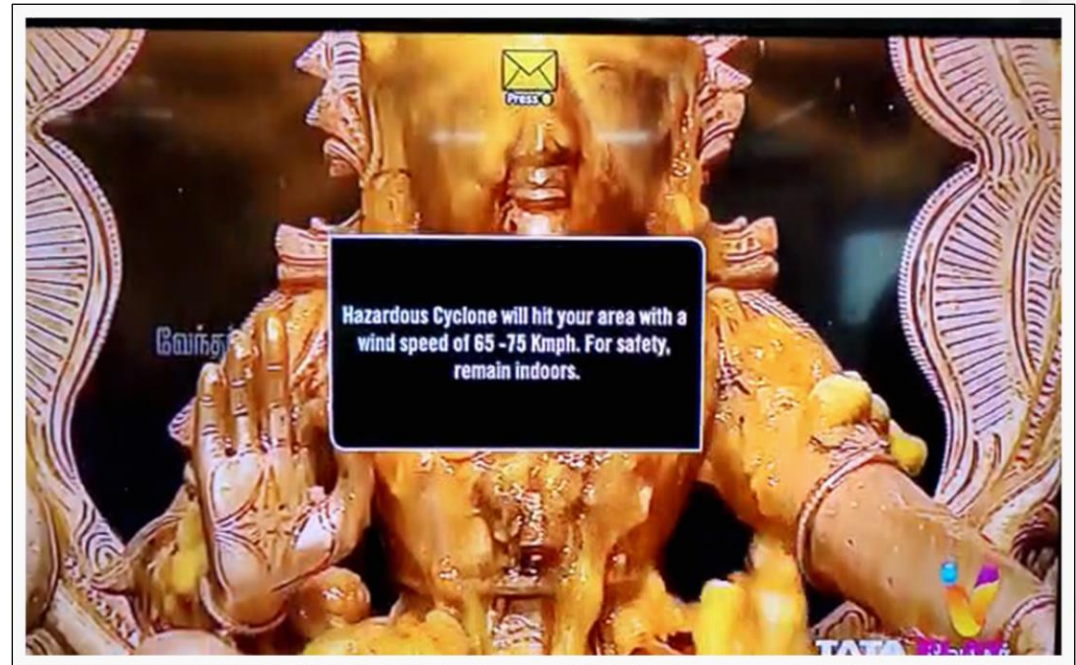
Mobile App and Portal is ready to launch soon

Targeting Broadcasting Sector: Radio & Television

Alert Announcement over Radio

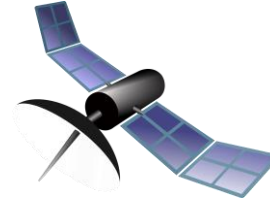


Alert message display over Television



Development of **Inter-working functionalities(IWF)**
to integrate legacy infrastructure

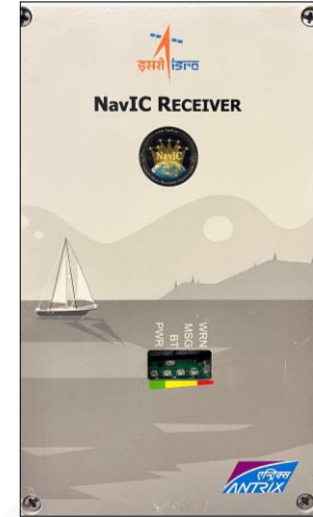
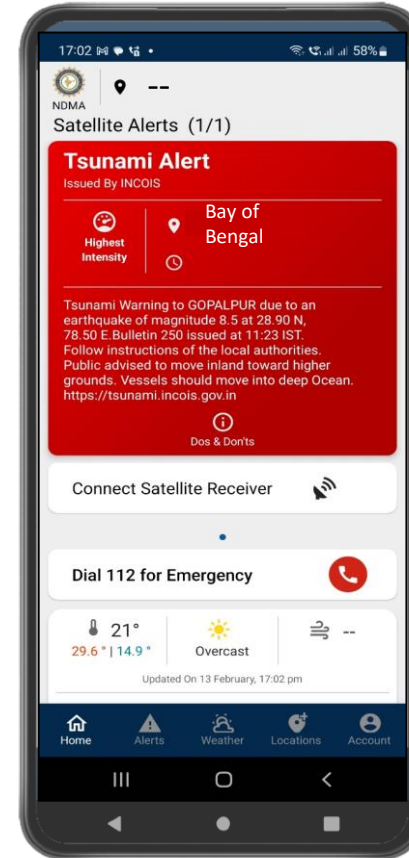
Enabling Satellite Communication



Alert dissemination to end-citizen's Mobile App through GAGAN/NavIC receivers.

Can be used where terrestrial communication service is unavailable.

CAP Unified Message Structure Designed..



NavIC Receiver



GAGAN Receiver



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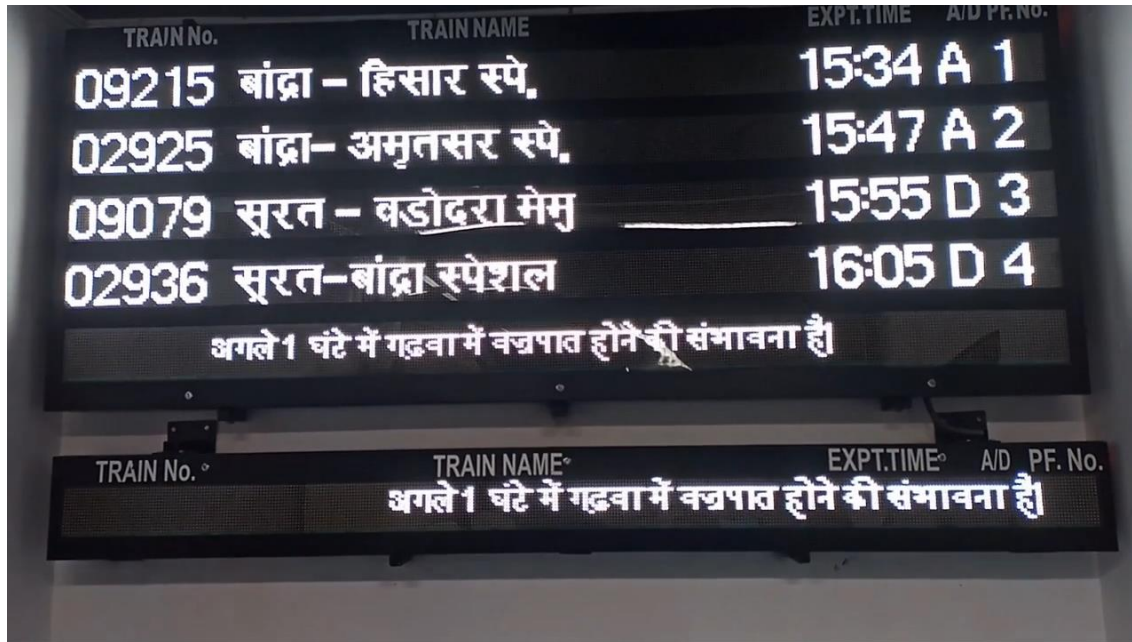
Public Addressing System: Railway & Coastal Sirens

Alert Announcement over Railway Stations

Coastal Sirens

Message display and announcement at Railway Stations Passenger Information System

Alert Announcement over installed Sirens



Towards Standardization

- Participation and contribution towards developing best practices and recommendations for effective disaster management.
- C-DOT contributed the use-case **“AI-enabled Citizen-centric Decision Support System for Disaster Managers”** in **ITU Focus Group on AI for Natural Disaster Management (FG AI4NDM)**



WORLD
METEOROLOGICAL
ORGANIZATION



- Providing support for diverse networks along with past, current, and future technologies; making legacy systems CAP-compliant in standardized manner.

Thank You