

**सेवा आवश्यकताएँ**

**सं:टीईसी/एसआर/आईटी/सीएपी-२११/०२/मार्च-20**

(सं: टीईसी/एसआर/आईटी/सीएपी-२११/०१/मार्च-१९ को अधिक्रमित करता है)

**SERVICE REQUIREMENTS**

**No.: TEC/SR/IT/CAP-211/02/MAR- 20**

(Supersedes No. TEC/SR/IT/CAP-211/01/MAR-19)

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**समन्वित आपदा प्रबंधन प्रणाली  
कोमन अलेर्टिंग प्रोटोकॉल का उपयोग करते हुए  
INTEGRATED DISASTER MANAGEMENT SYSTEM  
USING COMMON ALERTING PROTOCOL**

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**Release 2: MAR, 2020**

**Price: ₹ 800/-**

## FOREWORD

Telecommunication Engineering (TEC) functions under Department of Telecommunications (DOT), Government of India. Its activities include:

- Issue of Generic Requirements (GR), Interface Requirements (IR), Service Requirements (SR), Essential Requirements (ER) and Standards for Telecom Products and Services
- Field evaluation of products and Systems
- National Fundamental Plans
- Support to DOT on technology issues
- Testing & Certification of Telecom products

For the purpose of testing, four Regional Telecom Engineering Centers (RTECs) have been established which are located at New Delhi, Bangalore, Mumbai, and Kolkata.

## ABSTRACT

This SR pertains to the Service Requirements of the Integrated Disaster Management System (IDMS) based on Common Alerting Protocol(CAP) which uses various dissemination/propagation media such as Indian Telecom Network, Indian Broadcasting network and other media to disseminate/spread timely and meaningful warning information about the possible extreme events or disasters (eg: Flood, drought, earthquake, volcanoes, landslides, tsunami, cyclone, gas leak, thunderstorm, fire etc.) and other hazardous situations (terror attack, child abductions, disease outbreaks, air quality warnings, beach closings, transportation problems, power outages etc.). IDMS utilizes the common alerting protocol standardized by ITU-T Standard x.1303.

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## HISTORY SHEET

<i>Sl. No</i>	<i>SR. No.</i>	<i>Title</i>	<i>Remarks</i>
1.	TEC/SR/IT/CAP-211/01/ MAR-19	Service Requirements of the Integrated Disaster Management System(IDMS) using common alerting protocol (CAP)	1st issue
2.	TEC/SR/IT/CAP-211/02/ MAR- 20	Service Requirements of the Integrated Disaster Management System(IDMS) using common alerting protocol (CAP)	2 <sup>nd</sup> issue

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## REFERENCES

<i>Sl. No.</i>	<i>Document No.</i>	<i>Title/Document Name</i>
1	ITU-T X.1303 bis	Common Alerting Protocol(CAP 1.2)
2	IETF RFC 2046	Multipurpose Internet Mail Extensions
3	IETF RFC 5905	Network Time Protocol v4
4	IETF RFC 1305	Network Time Protocol v3

### Note:

- I. For all ITU-T recommendations referred in this document, the latest release/issue with all associated amendments, addendum and corrigendum shall be applicable.
- II. The RFC documents of the IETF are subject to periodic revision. Hence where ever RFC's are mentioned in this document, the offered product shall meet the updated version of the referred RFC with all update amendments/addendum. Wherever a feature of the RFC is mentioned, product shall comply with the relevant part of the RFC specifying the feature.
- III. The interpretation of the clauses of the RFC's shall be as per RFC 2119.

## 1.0 Introduction

1.1 This SR pertains to the Service Requirement for the Integrated Disaster Management System(IDMS) based on Common Alerting Protocol(CAP) which uses various dissemination/propagation media such as Indian Telecom Network, Indian Broadcasting network and other media to disseminate/spread timely and meaningful warning information about the possible extreme events or disasters (e.g.: Flood, drought, earthquake, volcanoes, landslides, tsunami, cyclone, gas leak, thunderstorm, fire etc.) and other hazardous situations (terror attack, child abductions, disease outbreaks, air quality warnings, beach closings, transportation problems, power outages etc.). IDMS utilizes the common alerting protocol standardized by ITU-T Standard x.1303.

1.2 This system is designed to enable various disaster identifying agencies to modernize and integrate existing alert and warning systems at the national, state, territorial levels in a single cohesive interface. It has been envisaged to build CAP compliant IDMS to facilitate alert generating entities such as IMD, CWC, INCOIS, SASE etc. as shown in figure-1 & figure-3. The system provides a means to alert citizens through multiple communications methods simultaneously, requiring composition of only one alert message and increasing the likelihood that the message will successfully reach the public.

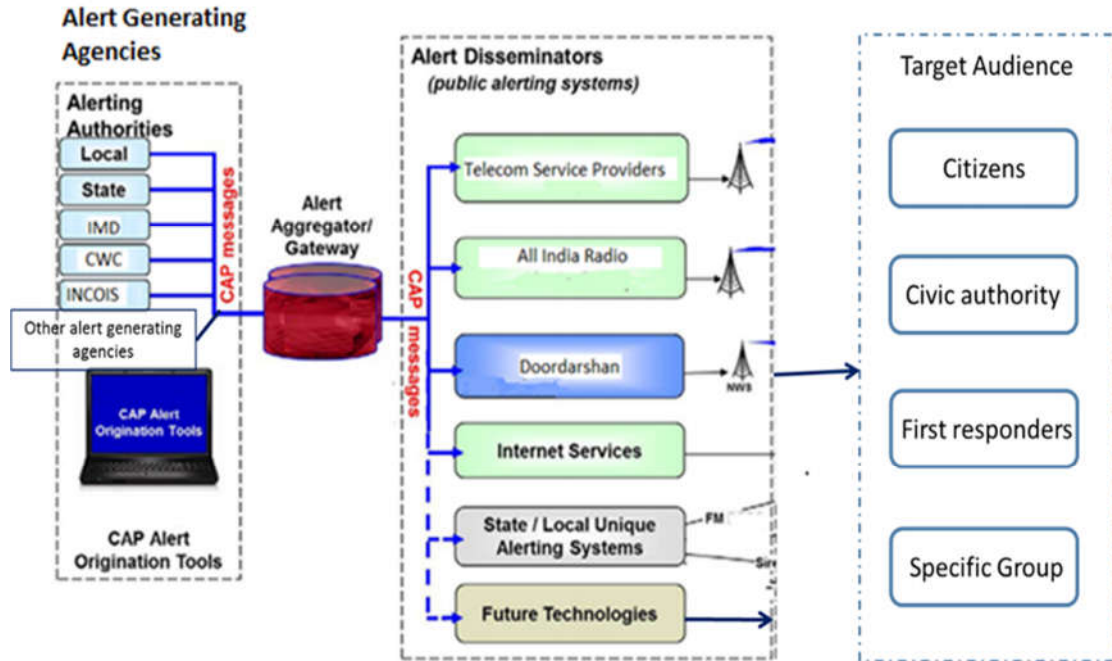


Figure-1: CAP compliant IDMS

1.3 The Common Alerting Protocol (CAP) provides a consistent format for emergency messages distributed by the system. CAP also presents an opportunity to enhance emergency message delivery to all the citizens in the country.

2.0 **Scope:**

2.1 The scope of the document covers aspects/requirements related to CAP message format, alert generating agencies, the IDMS requirements, disseminating media, authenticating agencies and target audience. The alert messages can be automatically sent to CAP compliant alert disseminating agencies. The document covers the alert message dissemination in form of text, audio and video messages by Indian Telecom service providers, Broadcasting Service Providers and others channels using the SMS, cell broadcast method, radio, television, display boards, public addressing system etc. The message flow among the above agencies and the governing structure is described.

### 3.0 Description

3.1 The architecture of the IDMS is as given below.

3.1.1 The process begins when an alerting authority wishes to compose an emergency message for dissemination within the target community. The message is composed using a CAP Alert Origination Tool, a software program commonly referred to as a messaging or CAP tool. Then the message is transmitted over the Internet to IDMS where it is authenticated and checked for proper format and permissions. At this point, IDMS sends the message to the appropriate public alerting authorities, such as MHA, NDMA, SDMA, DDMA, State and District authorities etc. After authorization IDMS then sends the message through the applicable communications media where it can be seen or heard by members of the public in the target geographic area. The provisional governing structure in clause 3.6 of this document can be referred for further details. Before sending the CAP message to IDMS, the preview of compiled message shall be available to the alert generating agency.

3.1.2 Common Alerting Protocol (CAP) is a XML based standard message format especially designed for All-Media, All-Hazard, multi-hazard and communications

- Over any or all media (television, radio, telephone, SMS, cell broadcast, fax, highway signs, e-mail, Web sites, Rich Site summary (RSS) "Blogs", social media etc.)

- About possible extreme events or disasters (eg: Flood, drought, earthquake, volcanoes, landslides, tsunami, cyclone, gas leak, thunderstorm, fire etc.) and other hazard situations (terror attack, child abductions, disease outbreaks, air quality warnings, beach closings, transportation problems, power outages etc.).

- To anyone: the public at large; designated groups (civic authority, responders, etc.); or specific people.
- Enables simultaneous communication of alerts over many different alerting systems, thus increasing effectiveness while simplifying the alerting task

The figure-2 mentions various hazards and media that can be used.

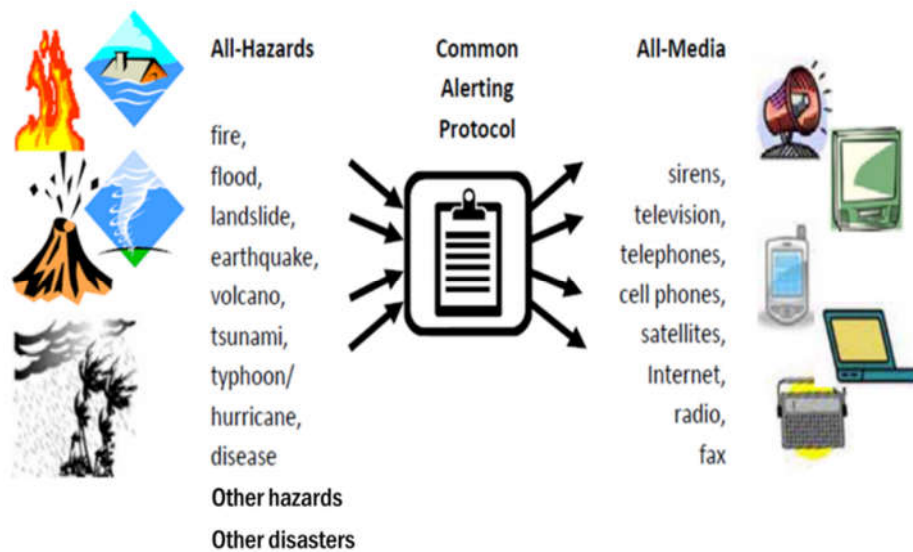
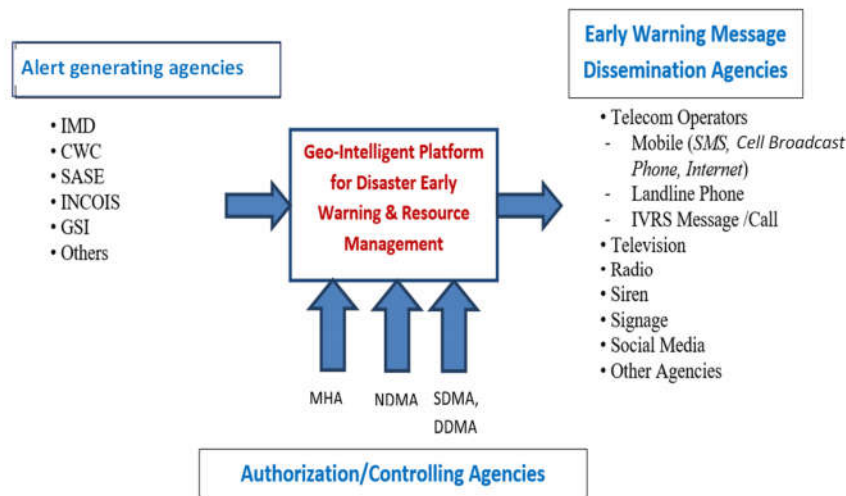


Figure-2: Hazard information message through different media using CAP



**Figure-3: Alert generating agencies and disseminating media**

**3.1.3 The capabilities of the IDMS are described as follows:**

- 3.1.3.1 The system shall be capable of exchanging alerts and warnings over various types of networks using simple and standardized format.
- 3.1.3.2 The system shall be compatible with legacy and emerging “transport” methods, such as Radio, Amateur radio, Web Services.
- 3.1.3.3 The system shall be capable of flexible geographic targeting by using latitude/longitude “polygons” or “circles” and other geospatial representations in three dimensions.
- 3.1.3.4 The system shall be capable of Multilingual and multi-audience messaging
- 3.1.3.5 The system shall be capable of phased and delayed effective times and expirations
- 3.1.3.6 The system shall be capable of message update and cancellation features till message dissemination has been started.
- 3.1.3.7 The system shall be capable of including inline digital images, audio and video
- 3.1.3.8 The system shall be capable of digital encryption and signature capability

**3.2 Messaging Protocols**

- 3.2.1 CAP Alert Origination Tools use CAP as the messaging protocol for creation and processing of an IDMS alert. CAP, based on Extensible

Markup Language (XML), is an industry standard format for exchanging emergency alerts simultaneously between multiple alerting technologies. The CAP standard ensures that CAP messages share the same format regardless of the tool used to create the message. CAP messages always contain text, but can also contain audio, video, and geolocation data.

3.2.2 For agencies that are having any other CAP engine, the validation of this platform shall be done after working out the appropriate interface.

3.2.3 The figure-4 depicts the standard message flow in the IDMS.

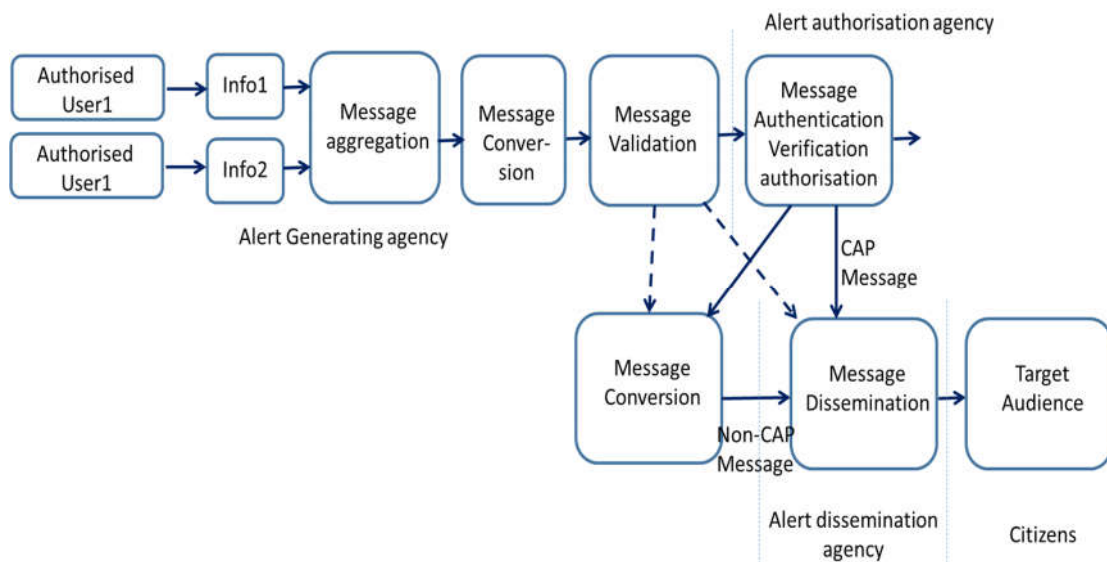


Figure-4 Alert Message Flow

### 3.3 Structure of CAP message

3.3.1 CAP Message structure contains 4 components, Viz. Alert, Info, Resource and area as shown in Figure 5

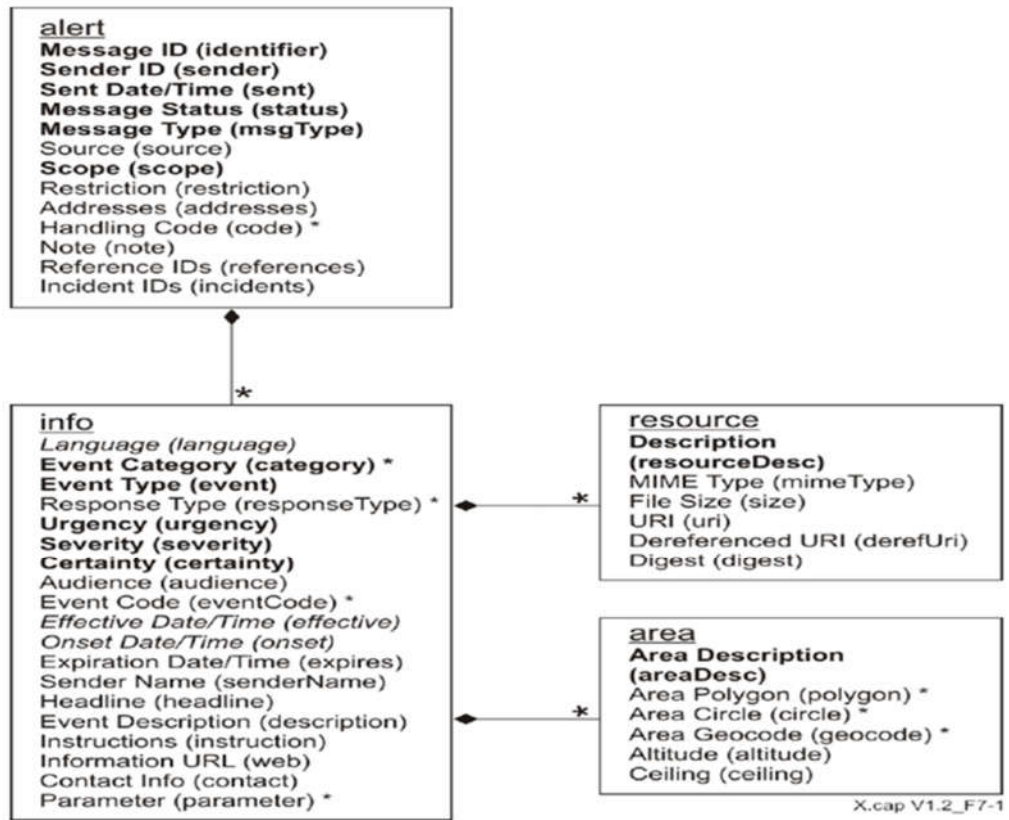


Figure-5: Structure of a CAP message

3.3.2 The CAP messages are formatted with one alert segment that may contain one or more info segments, each of which may contain one or more area and resource segments. A sample format of the multiple segment usage in CAP message is as shown in figure-6.

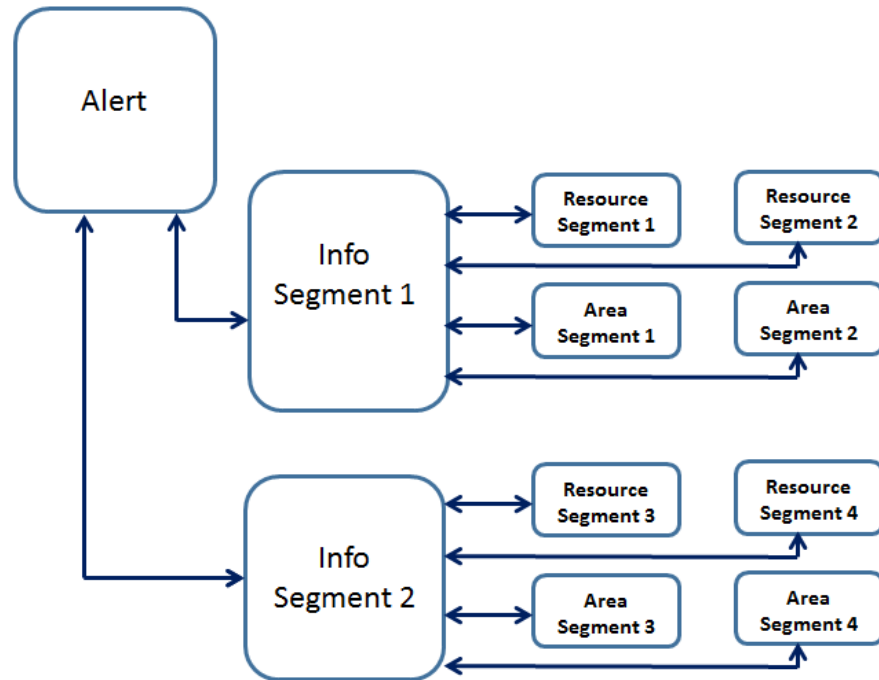


Figure-6: Multiple segments usage in CAP message

(a) Alert segment—contains information on the following:

- Unique message identifier;
- Date/time stamp;
- Status, such as “Actual”;
- Type of message, such as “Alert” or “Test”;
- Source, such as an emergency operations centre (EOC); and
- Scope, such as “Public” or “Private”.

(b) Info segment—describes the event in terms of: Category, such as “CBRNE” for a chemical, biological, radiological, nuclear, or explosive emergency;

- Response type, such as “Evacuate”;
- Urgency, such as “Immediate”;
- Severity, such as “Moderate”;

Certainty, such as “Likely”;  
Description of the emergency; and  
Instructions for appropriate response.

(c) Resource segment—provides an optional reference to additional information such as an image or audio file.

(d) Area segment—describes the geographic area of the event in terms of:  
Area description, such as postal code(s);  
Geospatial shapes;  
Geocodes;(for future purpose)  
Altitude; and  
Ceiling.

#### **4.0 Functional Requirements**

##### **4.1 Integrated Disaster Management System**

The disaster management system shall aggregate, authenticate and disseminate messages simultaneously to multiple public alert systems.

##### **4.1.1 Common Alerting Protocol Implementation**

4.1.1.1 The system shall implement Common Alerting Protocol (CAP) as per the ITU-T Recommendation X.1303 for exchanging all-hazard emergency alerts and public warnings over all kinds of networks.

4.1.1.2 The system shall allow a consistent warning message to be disseminated simultaneously over many different warning systems.

4.1.1.3 The system shall provide a template for effective warning messages (as per decided sample message format) based on best practices identified in academic research and real-world experience. However, concerned National, State, District authority may change this effective warning messages based on requirement.

- 4.1.1.4 The system shall require to build structure & create a CAP compliant mechanism for simple and standardized format for exchanging alerts and warnings over various type of media.
- 4.1.1.5 The system shall be compatible with legacy and emerging warning systems.
- 4.1.1.6 The system shall create CAP compliant mechanism for flexible geographic targeting by using latitude, longitude “polygons” or “circles” and other geospatial representations in 3D.
- 4.1.2 **Alert from multiple alert generation agencies**

The system shall require to build structure & create a mechanism for receiving Alert from various alert generation agencies.
- 4.1.2.1 **CAP compliant online message**
  - 4.1.2.1.1 The alert generating agencies shall be able to automatically push the ITU-T 1303.x based CAP compliant alert messages to the IDMS.
  - 4.1.2.1.2 The system shall automatically validate, notify and generate CAP compliant alert messages and forward it to message dissemination agencies based on the authorization.
- 4.1.2.2 **Non-CAP compliant online message**
  - 4.1.2.2.1 A web based interface shall be provided to the alert generating agencies, those does not have readymade ITU-T 1303.x based CAP compliant alert messages for providing forecasting /warning information. IDMS shall automatically generate the CAP Compliant message from entered information and it shall be re-verified by the respective alert generating agency. On successful verification the system shall automatically notify and generate CAP compliant alert messages and forward it to message dissemination agencies based on the authorization.
  - 4.1.2.2.2 The message, once converted as CAP compliant message, shall be available to the alert generating agency for verification before authorization/dissemination.

4.1.2.2.3 In future if the alert generating agencies make their alert message CAP compliant, the system shall be able to work seamlessly with minor configuration changes.

4.1.3 **Processing of received alerts in different formats**

4.1.3.1 The system shall be able to receive alert information from different agencies through different interface based upon predefined format.

4.1.3.2 The system shall be able to first authenticate received alert.

4.1.3.3 The system shall validate the CAP Compliant message format to ensure that it is a valid format.

4.1.3.4 The system shall ensure the permissions for the sender are verified, the sender is authorized to send that type of alert to the identified geographic region and the sender has approved access to the different message dissemination agencies. The OTP on mobile and e-mail validation shall be done for the person sending the CAP message. As message cannot be modified after validation, the window shall be an eye-catching one.

4.1.3.5 The system shall notify alert generating agencies on failures, integrate correct alert information & convert the different alert information in a uniform structure to forward the alert message to message dissemination agencies and notify the Authorization/Controlling Agencies.

4.1.4 **CAP compliant Alert Generation**

4.1.4.1 The CAP message shall be designed and developed as per The ITU-T Recommendation X.1303 message format.

4.1.4.2 Each CAP alert message shall consist of an alert segment which may contain one or more info segments, each of which may include one or more area and/or resource segments.

4.1.5 **Multilevel Authentication and Authorization mechanism**

4.1.5.1 The system shall have multilevel of validation/authorization in case alert generating agencies do not have an online automatic mechanism to

minimize the error before alert message dissemination and hierarchical message acceleration to different stakeholders.

- 4.1.5.2 On receiving the notification, the designated person shall be able to login to view the received alert information from the alert generation agencies in the portal.
- 4.1.5.3 The IDMS portal shall have the options to edit/verify the received alert information update by the authorised stakeholders if the alert message has not been disseminated yet. The content of the original message may/may not be changed by the message disseminating agencies. (As covered in the SOP/Governing structure)
- 4.1.5.4 These system features shall enable hierarchical message propagation from national level to state/district level then local authorities for better management and proper warning message dissemination to the public.
- 4.1.5.5 When all the alert agencies will upgrade their alert information notification mechanism into automatic online ITU-T 1303.x CAP complaint system for alert generation, then there shall be no need of manual entry for alert generation through web portal. The received CAP alert shall be directly passed to the IDMS. To increase warning effectiveness while simplifying the warning task, the received alert validation shall be done automatically and finally passed to the dissemination agencies. For those agencies preferring automatic upload, shall receive an appropriate mechanism (REST API) for automation purpose.
- 4.1.5.6 The system shall have capabilities to receive message delivery status to verify if the alert was successfully transmitted to the intended audience from the message dissemination agencies.
- 4.1.5.7 The system shall visually display the total number of people who have actually received the warning from the message dissemination agencies along with the total number of people in that area as per census data for better early warning message penetration.

4.1.5.8 Access to the message delivery status shall be available to the alert generating agencies /authorizing agencies through a web platform.

#### 4.1.6 **Multilingual Message Support**

4.1.6.1 The system and Dissemination agencies both shall support various Indian languages (UTF-8 supported) to disseminate different warning message for disasters and other hazard situations to different set of population with different local languages. Clause 3.2.2 may be referred for list of the languages.

#### 4.1.7 **Alert message dissemination via multiple media**

4.1.7.1 The system shall have capabilities to disseminate warning messages simultaneously over many different warning media. For every mode of alert message dissemination, the system and dissemination agencies both shall provide interface to integrate with.

4.1.7.2 The system shall have capabilities to build a mechanism/ interworking system to forward alert messages through agreed interfaces to support legacy systems.

4.1.7.3 The system shall have all hazard alert feed capability to disseminate/spread warning messages via internet or social media systems like Facebook, Twitter etc.

#### 4.1.8 **Functional Requirement of IDMS**

4.1.8.1 The system shall support multilingual (Indian Languages) and multi-audience messaging as defined in CAP.

4.1.8.2 Phased and delayed effective times and expirations of alert message shall need to be implemented in the system as per CAP standard.

4.1.8.3 The system shall provide the facility for including inline digital images and audio as per CAP standard.

4.1.8.4 The message update and cancellation features shall be provided as per CAP standard.

4.1.8.5 The system shall provide a mechanism for restricted or private messaging in case alert message is only to restricted users with a known operational requirement or only to a group of intended recipients of some specific organization instead of general dissemination to unrestricted audiences.

- 4.1.8.6 The system shall have geospatial Intelligence capabilities to create mechanism for flexible geographic targeting by using latitude, longitude “boxes” (polygons, circle, predefined area) and other geospatial representations in 3D for efficient targeting of disaster/other hazard affected people.
- 4.1.8.7 The system shall have necessary provisions to integrate different existing alert generating/forecasting agencies and the framework should accommodate any forthcoming alert generating/forecasting agency in future.
- 4.1.8.8 The system shall have necessary provisions to integrate different existing alert disseminating agencies and the framework shall accommodate any forthcoming alert disseminating agency in future.
- 4.1.8.9 The system shall create mechanism to monitor network connectivity in between various stakeholders like alert generation agencies, message dissemination agencies, authorization/controlling agencies. In case of failure, it shall automatically raise alarm and notify responsible person to take immediate action.
- 4.1.8.10 Sufficient network connectivity redundancy shall be maintained between alert generating agencies, IDMS system and alert dissemination agencies to avoid disruptions in the connectivity in the disaster/other hazard prone areas.
- 4.1.8.11 The IDMS portal shall be responsive & can be viewed on multi-channels/devices i.e. Phone/Tablet/Displays & support voluminous user base.
- 4.1.8.12 The IDMS Portal shall be accessible through web interface, so that alert messages can be generated simultaneously. The system shall be able to handle multiple requests.
- 4.1.8.13 The system shall have help feature to access a quick reference guide of IDMS and view a set of FAQs, which make the access of this web portal easier.
- 4.1.8.14 The system shall provide the following functionalities by doing data analytics on the previous alert data:

- a) Estimate the reach of alert based on feedback from message dissemination agencies
- b) Monitor the preparedness of an area based on the reach of alert and underlying infrastructure, effect of the disaster/hazard (post the event) etc.
- c) Detect patterns in local warnings of various kinds, which might indicate an undetected hazard or hostile act.
- d) Predict the hazards affected area and magnitude based on the previous hazards data pattern and analysis.

#### 4.1.9 **IDMS Platform**

4.1.9.1 **Alert Management:** The system shall have capacity to manage the alert from its generation till its cancellation/expiry/dissemination and shall perform following functions:

- I. Monitor the status of the alert (the department at which its approval is pending)
- II. Set the frequency of reminders generated for action on alert(approval/cancellation)
- III. Set the number of reminders after which the alert verification request passes on to official's immediate supervisor/subordinate
- IV. Monitor the response time of acknowledgement of alert
- V. Manage group of related alerts and apply group operations on them
- VI. Manage successful alert recipient details

4.1.9.2 **User and Configuration Management:** The system shall be capable of defining and managing the role of each user. For each user it shall define:

- I. Users contact details
- II. Notification management as per defined priority
- III. Name and contact details of his/her immediate supervisor/subordinate
- IV. The users/group of users to which he/she can notify about the alert.

4.1.9.3 **Administrative Module:** An administrative module shall be required to cater to the following needs:

- I. To Add/Manage input agencies and dissemination agencies.

- II. Manage authorizing agencies i.e. the authority to decide the privileges of individual agencies.
- III. Hierarchical message propagation and acceleration management.
- IV. login to view the logs.
- V. Any other required configurations.

4.1.9.4 **Report Generations:**

- I. Statistical report of the disaster/hazard (alert generated, actual disaster occurred, affected areas) in specified time period.
- II. Report of alert messages generated by different users and dissemination agencies.

**4.2 Data dictionary:** The clause provides a description of the CAP data dictionary as per ITU-T standard X.1303 bis

4.2.1 **Table 1: “Alert” Element & Sub-system**

Element	Context.class .attribute. representation	Definition and (Optionality)	Notes or value domain	Notes or Values to be used in IDMS
alert	cap.alert.group	The container for all component parts of the alert message (REQUIRED)		
identifier	cap.alert.identifier.identifier	The identifier of the alert message (REQUIRED)	(1) A number or string uniquely identifying the message, assigned by the sender. (2) Must not include spaces, commas or restricted characters (< and &).	As single organization generating alerts for multiple types of hazard and from different regional centre,

			(3) Sender code/Date/Time/ID e.g IMD2018-01-03T17:50:50+05:30	these points need to be added in Identifier codification. XYZ-PQRS-YYYY-MM-DDTHH:MM:SS + Time Zone e.g IMD-DEMS-2018-01-03T17:10:15+5:30 PQRS DENOTES AGENCY CENTRE.
sender	cap.alert.sender.identifier	The identifier of the sender of the alert message (REQUIRED)	(1) Identifies the originator of this alert (2) Must not include spaces, commas or restricted characters (< and &). (3) as per annexure I	(XYZ as per annexure I for various alert generating agencies)
sent	cap.alert.sent.time	The time and date of the origination of the alert message (REQUIRED)	(1) The date and time shall be represented in the Date Time Data Type. (2) YYYY-MM-DDTHH:MM:SS + Zone time	YYYY-MM-DDTHH:MM:SS + Time Zone
status	cap.alert.status.code	The code denoting the appropriate	Code Values: (1) "Actual" – Actionable by all targeted recipients.	ACT-Actual EXE- Exercise SYS- System TST- Test

		handling of the alert message (REQUIRED)	<p>(2) "Exercise" – Actionable only by designated exercise participants; exercise identifier should appear in &lt;note&gt;.</p> <p>(3) "System" – For messages that support alert network internal functions.</p> <p>(4) "Test" – Technical testing only, all recipients disregard.</p> <p>(5) "Draft" – A preliminary template or draft, not actionable in its current form</p>	DFT-Draft
msgType	cap.alert.msg Type.code	The code denoting the nature of the alert message (REQUIRED)	<p>Code Values:</p> <p>(1) "Alert" – Initial information requiring attention by targeted recipients.</p> <p>(2) "Update" – Updates and supersedes the earlier message(s) identified in &lt;references&gt;</p> <p>(3) "Cancel" – Cancels the earlier message(s) identified in &lt;references&gt;</p> <p>(4) "Ack" – Acknowledges receipt and acceptance of the message(s) identified in &lt;references&gt;</p> <p>(5) "Error" – Indicates rejection of the message(s) identified in &lt;references&gt;; explanation should appear in &lt;note&gt;</p>	ALERT UPDATE CANCEL ACKNOWLEDGE ERROR Advisory
source	ap.alert.sourc e.identifier	The text identifying	(1) The particular source of this alert;	Source shall be the user id of

		the source of the alert message (OPTIONAL)	(2) e.g., an operator or a specific device.	the operator personnel or the automatic device identity. Between 3 to 16 characters
scope	cap.alert.scope.code	The code denoting the intended distribution of the alert message (REQUIRED)	Code Values: (1) "Public" – For general dissemination to unrestricted Audiences (2) "Restricted" – For dissemination only to users with a known operational requirement (see <restriction>, below) (3) "Private" – For dissemination only to specified addresses (see <addresses>, below)	PUBLIC RESTRICTED PRIVATE
restriction	cap.alert.restriction.text	The text describing the rule for limiting distribution of the restricted alert message (CONDITIONAL)	(1) Used when <scope> value is "Restricted".	Restricted Group name created by the alert generating agency containing users from same agency and other agencies. Group name 3 to 16 characters with user parameters such as

				Designation, name, mobile, email, district, state
addresses	cap.alert.addresses.group	The group listing of intended recipients of the alert message (CONDITIO NAL)	(1) Required when <scope> is "Private", optional when <scope> is "Public" or "Restricted". (2) Each recipient shall be identified by an identifier or an address. (3) Multiple space-delimited addresses may be included. Addresses including whitespace must be enclosed in double-quotes.	Private Group name created by the alert generating agency containing specified users Group name 3 to 16 characters and containing the fields such as Designation, name, mobile, email, district, state
code	cap.alert.code.code	The code denoting the special handling of the alert message (OPTIONAL)	(1) Any user-defined flag or special code used to flag the alert message for special handling. (2) Multiple instances may occur.	Agreed for future use
note	cap.alert.note.text	The text describing the purpose or significance of the alert message	The message note is primarily intended for use with <status> "Exercise" and <msgType> "Error".	200 characters length

		(OPTIONAL)		
references	cap.alert.references.group	The group listing identifying earlier message(s) referenced by the alert message (OPTIONAL)	(1) The extended message identifier(s) (in the form <i>sender, identifier, sent</i> ) of an earlier CAP message or messages referenced by this one. (2) If multiple messages are referenced, they shall be separated by whitespace.	Drop down option referencing earlier sent message based on Sender, identifier, sent
incidents	cap.alert.incidents.group	The group listing naming the referent incident(s) of the alert message (OPTIONAL)	(1) Used to collate multiple messages referring to different aspects of the same incident. (2) If multiple incident identifiers are referenced, they shall be separated by whitespace. Incident names including whitespace shall be surrounded by double-quotes.	Eg: name of the cyclone. Alerting agency shall mention the incident/event name.

4.2.2 Table 2: "Info" Element & sub-Elements

Element name	Context.class.attribute.representation	Definition and (Optionality)	Notes or value domain
Info	cap.alertInfo.info.group	The container for all component parts of the info sub-element of the alert message (OPTIONAL)	(1) Multiple occurrences are permitted within a single <alert>. If targeting of multiple <info> blocks in the same language overlaps, information in later blocks may expand but may not override the corresponding values in earlier ones. Each set of <info> blocks containing the same language

			<p>identifier shall be treated as a separate sequence.</p> <p>(2) In addition to the specified sub- elements, may contain one or more &lt;resource&gt; blocks and/or one or more &lt;area&gt; blocks.</p>		
Language	cap.alertInfo.language.code	The code denoting the language of the info sub-element of the alert message (OPTIONAL)	<b>SI No</b>	<b>Language</b>	<b>Language Code</b>
			1	English	en-US
			2	Hindi	HI
			3	Assamese	AS
			4	Bengali	BN
			5	Bodo	BD
			6	Dogri	DG
			7	Gujarati	GJ
			8	Kannada	KN
			9	Kashmiri	KA
			10	Konkani	KO
			11	Maithili	MA
			12	Malayalam	ML
			13	Marathi	MR
			14	Meitei (Manipuri)	MN
			15	Nepali	NP
			16	Odia	OD
			17	Punjabi	PN
			18	Sanskrit	SA
			19	Santali	SN
			20	Sindhi	SI
			21	Tamil	TN
			22	Telugu	TL
			23	Urdu	UR
category	cap.alertInfo.category.code	The code denoting the category of the subject event of	1. "Geo" – Geophysical (inc. landslide)		

		the alert message (REQUIRED)	<ol style="list-style-type: none"> <li>2. "Met" – Meteorological (inc. flood)</li> <li>3. "Safety" – General emergency and public safety</li> <li>4. "Security" – Law enforcement, military, homeland and local/private security</li> <li>5. "Rescue" – Rescue and recovery</li> <li>6. "Fire" – Fire suppression and rescue</li> <li>7. "Health" – Medical and public health</li> <li>8. "Env" – Pollution and other environmental</li> <li>9. "Transport" – Public and private transportation</li> <li>10. "Infra" – Utility, telecommunication, other non- transport infrastructure</li> <li>11. "CBRNE" – Chemical, Biological, Radiological, Nuclear or High- Yield Explosive threat or attack</li> <li>"Other" – Other events</li> </ol>
event	cap.alertInfo.event. text	The text denoting the type of the subject event of the alert message (REQUIRED)	<p>Detail Description about the Event.</p> <p>Drop down options of the events under the category eg: Meteorological – Cyclone, Heatwave, Coldwave, heavy rain fall warning, weather</p>

			forecast, snow fall, cloud burst etc
response Type	cap.alertInfo.respo nseType. code	The code denoting the type of action recommended for the target audience (OPTIONAL)	Code Values: (1) "Shelter" – Take shelter in place or per <instruction> (2) "Evacuate" – Relocate as instructed in the <instruction> (3) "Prepare" – Make preparations per the <instruction> (4) "Execute" – Execute a pre- planned activity identified in <instruction> (5) "Avoid" – Avoid the subject event as per the <instruction> (6) "Monitor" – Attend to information sources as described in <instruction> (7) "Assess" – Evaluate the information in this message. (This value should NOT be used in public warning

			<p>applications).</p> <p>(8) "AllClear" – The subject event no longer poses a threat or concern and any follow on action is described in &lt;instruction&gt;</p> <p>(9) "None" – No action recommended</p> <ul style="list-style-type: none"> <li>■ Multiple instances may occur within an &lt;info&gt; block.</li> </ul>
Urgency	cap.alertInfo.urgency.code	The code denoting the urgency of the subject event of the alert message (REQUIRED)	<ul style="list-style-type: none"> <li>■ The &lt;urgency&gt;, &lt;severity&gt;, and &lt;certainty&gt; elements collectively distinguish less emphatic from more emphatic messages.</li> </ul> <p>Code Values:</p> <p>(1) "Immediate" – Responsive action should be taken immediately</p> <p>(2) "Expected" – Responsive action should be taken soon (within next</p>

			<p>hour)</p> <p>(3) "Future" – Responsive action should be taken in the near future</p> <p>(4) "Past" – Responsive action is no longer required</p> <p>(5) "Unknown" – Urgency not known</p>
Severity	cap.alertInfo.severity.code	The code denoting the severity of the subject event of the alert message (REQUIRED)	<p>■ The &lt;urgency&gt;, &lt;severity&gt;, and &lt;certainty&gt; elements collectively distinguish less emphatic from more emphatic messages.</p> <p>Code Values:</p> <p>(1) "Extreme" – Extraordinary threat to life or property</p> <p>(2) "Severe" – Significant threat to life or property</p> <p>(3) "Moderate" – Possible threat to life or property</p> <p>(4) "Minor" – Minimal to no known threat to life or property</p> <p>(5) "Unknown" – Severity</p>

			<p>unknown</p> <p>EXTREME</p> <p>SEVERE</p> <p>Above normal</p> <p>MODERATE</p> <p>MINOR</p> <p>UNKNOWN</p>
certainty	cap.alertInfo.certainty.code	The code denoting the certainty of the subject event of the alert message (REQUIRED)	<ul style="list-style-type: none"> <li>■ The &lt;urgency&gt;, &lt;severity&gt;, and &lt;certainty&gt; elements collectively distinguish less emphatic from more emphatic messages.</li> <li>■ Code Values: <ul style="list-style-type: none"> <li>(1) "Observed" – Determined to have occurred or to be ongoing</li> <li>(2) "Likely" – Likely (p &gt; ~50%)</li> <li>(3) "Possible" – Possible but not likely (p &lt;= ~50%)</li> <li>(4) "Unlikely" – Not expected to occur (p ~ 0)</li> <li>(5) "Unknown" – Certainty unknown</li> </ul> </li> </ul> <p>OBSERVED</p> <p>LIKELY</p> <p>POSSIBLE</p> <p>UNLIKELY</p> <p>UNKNOWN</p>

audience	cap.alertInfo.audience.text	The text describing the intended audience of the alert message (OPTIONAL)	First responder, public depending on hazard type.
eventCode	cap.alertInfo.eventCode.code	A system-specific code identifying the event type of the alert message (OPTIONAL)	<p>(1) Any system-specific code for event typing, in the form:</p> <pre> &lt;eventCode&gt;   &lt;valueName&gt;valueName &lt;/eventCode&gt; valueName&gt; &lt;value&gt;value&lt;/value&gt; </pre> <p>where the content of "valueName" is a user-assigned string designating the domain of the code, and the content of "value" is a string (which may represent a number) denoting the value itself (e.g., valueName="SAME" and value="CEM").</p> <p>(2) Values of "valueName" that are acronyms should be represented in all capital letters without periods (e.g., SAME, FIPS, ZIP).</p> <p>(3) Multiple instances may occur within an &lt;info&gt; block.</p> <p>Future use</p>

effective	cap.alertInfo.effective.time	The effective time of the information of the alert message (OPTIONAL)	If this item is not included, the effective time shall be assumed to be the same as in <sent>. Effective time may be mentioned. By default "sent"
onset	cap.alertInfo.onset.time	The expected time of the beginning of the subject event of the alert message (OPTIONAL)	The date and time shall be represented in the Date Time Data Type. Expected onset of the event
expires	cap.alertInfo.expires.time	The expiry time of the information of the alert message (OPTIONAL)	<ol style="list-style-type: none"> <li>1. The date and time shall be represented in the Date Time Data Type.</li> <li>2. If this item is not provided, each recipient is free to set its own policy as to when the message is no longer in effect.</li> </ol> <p>Expiry time as announced The Message expiry time is the validity time</p>
senderName	cap.alertInfo.senderName.text	The text naming the originator of the alert message (OPTIONAL)	User id
headline	cap.alertInfo.headline.text	The text headline of the alert message (OPTIONAL)	A brief human-readable headline. Note that some displays (for example, short messaging service devices) may only present this headline

			<p>; it should be made as direct and actionable as possible while remaining short. 160 characters may be a useful target limit for headline length.</p> <p>*Headline shall contain the message body of the message that to be disseminated to the public or Subject of Email that to be disseminated to the restricted group of First responders.</p> <p>* Headline shall be limited to 160 characters</p>
description	cap.alertInfo.description.text	The text describing the subject event of the alert message (OPTIONAL)	<p>An extended human readable description of the hazard or event that occasioned this message.</p> <p>* Description shall contain the detailed information. e.g.: email body part.</p>
instruction	cap.alertInfo.instruction.text	The text describing the recommended action to be taken by recipients of the alert message (OPTIONAL)	<p>An extended human readable instruction to targeted recipients. If different instructions are intended for different recipients, they should be represented by use of multiple &lt;info&gt; blocks.</p> <p>Instructions to recipients</p>
web	cap.alertInfo.web.identifier	The identifier of the hyperlink associating additional information with	<p>A full, absolute URI for an HTML page or other text resource with additional or reference information regarding this alert.</p> <p>The URL is to be mentioned.</p>

		the alert message (OPTIONAL)	
contact	cap.alertInfo.contact.text	The text describing the contact for follow up and confirmation of the alert message (OPTIONAL)	Help line or control room number may be mentioned
parameter	cap.alertInfo.parameter.code	A system-specific additional parameter associated with the alert message (OPTIONAL)	<p>(1) Any system-specific datum, in the form:</p> <pre>&lt;parameter&gt; &lt;valueName&gt;valueName&lt;/valueName&gt; &lt;value&gt;value&lt;/value&gt; &lt;/parameter&gt;</pre> <p>where the content of "valueName" is a user-assigned string designating the domain of the code, and the content of "value" is a string (which may represent a number) denoting the value itself (e.g., valueName="SAME" and value="CIV").</p> <p>(2) Values of "valueName" that are acronyms should be represented in all capital letters without periods (e.g., SAME, FIPS, ZIP).</p> <p>(3) Multiple instances may occur within an &lt;info&gt; block.</p> <p>system-specific additional parameter to be mentioned</p>

4.2.3 Table 3: "Resource" Element & Sub-Elements

Element name	Context.class.attribute.representation	Definition and (Optionality)	Notes or value domain
resource	cap.alertInfoResource.resource.group	The container for all component parts of the resource sub element of the info sub-element of the alert element (OPTIONAL)	(1) Refers to an additional file with Supplemental information related to this <info> element; e.g., an image or audio file. (2) Multiple instances may occur within an <info> block.
resource Desc	cap.alertInfoResource.resourceDesc.text	The text describing the type and content of the resource file (REQUIRED)	(1) The human-readable text describing the type and content, such as "map" or "photo", of the resource file. (2) e.g Audio, Image, Text Video file, Etc. AUDIO IMAGE TEXT VIDEO
contentType	cap.alertInfoResource.contentType.identifier	The identifier of the MIME content type and sub-type describing the resource file (REQUIRED)	MIME content type and sub-type as described in [IETF RFC 2046].
size	cap.alertInfoResource.size.integer	The integer indicating the size	No of Bytes.

		of the resource file (OPTIONAL)	
uri	cap.alertInfoResource.uri.id entifier	The identifier of the hyperlink for the resource file (OPTIONAL)	A full absolute URI, typically a Uniform Resource Locator that can be used to retrieve the resource over the Internet * URI shall store the path of image/audio/video. * Disseminating agencies shall access the image/audio/video from the path for dissemination. (e.g. All India Radio shall access the recorded message in audio format from the URI tag and override the current program with this audio.)
derefUri	cap.alertInfoResource. derefUri.data	The base-64 encoded data content of the resource file (CONDITIONAL)	May be used either with or instead of the <uri> element in messages transmitted over one- way (e.g., broadcast) data links where retrieval of a resource via a URI is not feasible. Uri Can be filled

digest	cap.alertInfoResource. digest.code	The code representing the digital digest ("hash") computed from the resource file (OPTIONAL)	If input agency hash code is not computed, then the system generated hash code shall facilitate this.
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4.2.4 Table 4: "Area" element and sub-element

Element name	Context.class.attribute.representation	Definition and (Optionality)	Notes or value domain
area	cap.alertInfoArea.area. group	The container for all component parts of the area sub-element of the info sub-element of the alert message (OPTIONAL)	(1) Multiple occurrences permitted, in which case the target area for the <info> block is the union of all the included <area> blocks. (2) May contain one or multiple instances of <polygon>, <circle> or <geocode>. If multiple <polygon>, <circle> or <geocode> elements are included, the area described by this <area> block is represented by the union of all the included elements.  It's a container of Area sub-elements. Hence, no values to be mentioned here.
areaDesc	cap.alertInfoArea.areaDesc. text	The text describing the affected area of	Text Description of the affected Area

		the alert message (REQUIRED)	
polygon	cap.alertInfoArea.polygon. group	The paired values of points defining a polygon that delineates the affected area of the alert message (OPTIONAL)	<p>(1) Code Values: The geographic polygon is represented by a whitespace-delimited list of coordinate pairs.</p> <p>(2) A minimum of four coordinate pairs must be present and the first be the same.</p> <p>(3) Multiple instances may occur within an &lt;area&gt; block.</p> <p>*by Selecting Predefined area boundary</p> <p>*by creating polygon on map by mouse click</p> <p>* Polygon data structure has been mentioned below.</p>

circle	cap.alertInfoArea.circle. group	The paired values of a point and radius delineating the affected area of the alert message (OPTIONAL)	<p>1) Code Values: The circular area is represented by a central point given as a [b-WGS 84] coordinate pair followed by a space character and a radius value in kilometers.</p> <p>2) Multiple instances may occur within an &lt;area&gt; block.</p> <p>*by creating circle on map</p> <p>* Circle data structure has been mentioned below.</p>
geocode	cap.alertInfoArea.geocode. code	The geographic code delineating the affected area of the alert message (OPTIONAL)	
altitude	cap.alertInfoArea.altitude. quantity	The specific or minimum altitude of the affected area of the alert message (OPTIONAL)	text value in 'meter'

ceiling	cap.alertInfoArea.ceiling.quantity	The maximum altitude of the affected area of the alert message (CONDITIONAL)	(1) Must not be used except in combination with the <altitude> element. 2) The ceiling measure is in feet above mean sea level per the datum.  * text value in 'meter'
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**Polygon tag data structure:**

```

<polygon>
    polygon1-point1.latitude,polygon1-point1.longitude "space"
    polygon1-point2.latitude,polygon1-point2.longitude "space"
    polygon1-point3.latitude,polygon1-point3.longitude "space"
    polygon1-pointN.latitude,polygon1-pointN.longitude "space"
    polygon1-point1.latitude,polygon1-point1.longitude
</polygon>

```

- **Circle tag data structure:**

```

<circle>
    Circle1-Center.latitude,Circle1-Center.Longitude "space" Circle1-
    Radius(in Km)
</circle>

```

- 4.2.5 The IDMS shall implement all the required and optional fields of element and sub-elements of CAP data dictionary.
- 4.2.6 The above data dictionary contains parameters and the standardize value of sub element of Alert as described in clause 4.2.1, 4.2.2, 4.2.3 & 4.2.4 after consultation meeting with alert generating agencies and other stakeholders.
- 4.2.7 The Annexure I contains the list of alert generating agencies.

### **4.3 CAP Alert Message Examples**

- 4.3.1 The CAP alert message shall contain “alert” element & sub element, info element & sub element, resource element & sub element and area element & sub element.
- 4.3.2 The five xml CAP alert message examples based upon the data dictionary for MHA, CWC and INCOIS are placed at Annexure II.

### **4.4 SMS Format and Cell broadcast**

- 4.4.1 IDMS shall provide templates for creation of custom built standard messages for alert generating agencies.
- 4.4.2 Some of the examples of standard messages of the alert generating agencies are given below:
  - 4.4.2.1 The water level of Yamuna River at Delhi Railway Bridge was measured at 205 meters at 18:00 on 2018-05-03. This exceeds the danger level of 204.83 meters, but is below the previous highest flood level of 207.49 meters recorded in 1978. It is expected to rise to 206 meters by 18:00 on 2018-05-04.
  - 4.4.2.2 Cyclone Vardah located about 150 km east-northeast of Chennai wind speed 100-110 kmph cross coast close to Chennai by today afternoon.
  - 4.4.2.3 Thunderstorm accompanied with squall winds speed reaching 60 kmph and rain/shower would occur over Ranchi during next 2 hrs. Visit: <http://imd.gov.in/pages/nowcast.php>
  - 4.4.2.4 Moderate Hail Storm accompanied with rain would occur over NCR Delhi during next 2 hrs. Visit: <http://amssdelhi.gov.in/>
  - 4.4.2.5 In association with WD intense spell of snowfall would occur over Sri Nagar in next 2 hrs. Visit: <http://amssdelhi.gov.in/Nigam/MCSRINAGAR/mcsrn.html>
  - 4.4.2.6 Intense spell of heavy rain would occur over Mumbai & suburbs in next 2 hrs. Visit: <http://www.imdmumbai.gov.in/>
  - 4.4.2.7 Very dense fog would prevail over Delhi/NCR during next 2-4 hrs reducing visibility to less than 50 m. Visit: <http://amssdelhi.gov.in/>
  - 4.4.2.8 Dust Storm would occur over Alwar and adjoining areas during next 2 hrs. Visit: <http://amssdelhi.gov.in/>

- 4.4.2.9 Dust raining winds would occur over Rajasthan during next 24 hrs. Visit: <http://amssdelhi.gov.in/>
- 4.4.2.10 Storm surge associated with cyclone Vardah by 1-2 metre would inundate low laying areas of Nellore district Andhra Pradesh at the time of landfall of cyclone. Visit: [www.rsmcnewdelhi.imd.gov.in](http://www.rsmcnewdelhi.imd.gov.in)
- 4.4.2.11 Fishermen are advised not to venture into the sea along Odisha coast during next 24 hrs. Visit: [www.rsmcnewdelhi.imd.gov.in](http://www.rsmcnewdelhi.imd.gov.in)
- 4.4.2.12 Heat Wave /severe heat wave /hot day will prevail at isolated places over Haryana Visit: <http://amssdelhi.gov.in/>
- 4.4.2.13 Cold Wave/ Severe Cold wave /Cold day will prevail at isolated places over Madhya Pradesh Visit: <http://amssdelhi.gov.in/>
- 4.4.2.14 Back ploughing should be done to facilitate in situ conservation of rainwater due to pre-monsoon showers
- 4.4.2.15 ಭೂಮಿಯನ್ನು ಉಳುಮೆ ಮಾಡಬೇಕು. ಇದರಿಂದ ಮುಂಗಾರು ಪೂರ್ವ ಮಳೆಯ ನೀರು ಭೂಮಿಯಲ್ಲಿಯೇ ಇಂಗಲು ಸಹಾಯವಾಗುವದು.  
The land should be plowed. This will help monsoon pre-rain water in the earth.
- 4.4.2.16 आगामी सप्ताह में वातावरण का तापमान सामान्य से अधिक रहने की संभावना को देखते हुए किसान भाई अपने पशुओं को दिन में दो तीन बार साफ व स्वच्छ पानी दिया जाए तथा खुरपका व मुहपका बीमारी से बचाव हेतु नजदीकी पशुचिकित्सालय से संपर्क कर टीकाकरण अवश्य कराएं।  
In view of the possibility of the atmospheric temperature being more than normal, the farmer should give their animals clean and pure water two-three times in a day, and to prevent from foot and mouth disease should be contacted to the nearest veterinary hospital for vaccination.
- 4.4.3 The alert message SMS shall contain the sender information along with message.

The SMS format is as given below.



Figure -7 SMS format

- 4.4.4 The alert message SMS shall not contain more than 160 characters. For vernacular languages, the character limit will be 65.
- 4.4.5 cell broadcast shall support 90 characters. The message format shall be decided by concerned user agency.
- 4.4.6 The IDMS shall have capabilities to generate SMS messages in all official languages of the country.
- 4.4.7 The SMS shall be delivered before the expiry time of the message. The message shall not be sent beyond the expiry time and no retry shall be done to send the SMS shall be done by the TSP.
- 4.4.8 IDMS generated message shall be delivered at highest priority overriding any user preference or choices. The concerned operator shall deliver the alert messages to all the target customers/audience including in-roamers.

**4.5 Detailed operational procedure for sending SMS by Telecom Service Providers(TSPs)**

- 4.5.1 The CAP messages are proposed to be delivered to the telecom service providers. The TSPs shall deliver the SMS to the general public. From CAP message, the TSP shall utilise the predefined tags and disseminate the message to the target population immediately without any manual intervention.
- 4.5.2 A predefined XML file (see CAP XML Sample) shall be transferred from Integrated Disaster Management System to TSPs through HTTPs request (POST method) using receiver URL (developed by respective TSPs).
- 4.5.3 After receiving the XML file, TSPs shall extract the polygon and circle information and shall find the BTSs under the designated area and forward SMS with content of appropriate tags to the designated users.
- 4.5.4 After forwarding the SMS to the subscribers, TSPs shall share back the selected tower information along with number of customers identified against given CAP message over REST services in predefined format.
- 4.5.5 Feedback information template as given below from the TSPs to IDMS:

Identifier	CAP identifier
TSP Name	
SMS Dissemination Start Time	

SMS Dissemination End Time	
Total Subscribers	
Total SMS Delivery Success	
Total SMS Delivery Failure	
Total Cell Count	BTS count
Cell Broadcast start date & time	
Cell Broadcast stop date and time	
Total Cell Count	BTS count

**Table 5:** Feedback Information template for TSP

**4.6 Detailed operational procedure for dissemination of alert messages by broadcasting service providers and other non-CAP compliant channels**

4.6.1 The interface of CAP compliant dissemination media like broadcasting media utilises the received XML file from IDMS to deliver the alert message to the targeted population.

4.6.2 In case of non-CAP complaint dissemination media like non-CAP compliant broadcasting media, railway/highway or any other city display system etc., adaptation (some Interworking system-IWS) shall be required to receive the CAP compliant message with/without manual intervention.

4.6.3 The system specific IWS system which will enable interworking with any non-CAP compliant message dissemination shall broadly perform following functions:

- I. The IWS receive the XML file from IDMS and deliver the same manually or automatically on supported interface and format of non-CAP compliant dissemination media in secured manner.

4.6.4 The AIR/ Doordarshan or any other dissemination media owner's CAP compliant nodes shall utilise the predefined tags and generate/download the text/Audio /video alert messages to broadcast or display it to the targeted people immediately without human intervention.

4.6.5 The electronic log report of message dissemination shall be captured, wherever feasible, by respective dissemination media owner and made available in the IDMS system.

#### 4.7 Standard Operating Procedure(SOP) and Governing structure for dissemination of Early warning messages/Alert/Advisory.

4.7.1 The early warning messages/alert/advisory to the citizens will be disseminated by selecting geographical areas (geo-fencing) over web based IDMS. There are 5-major components in IDMS: -

4.7.1.1 **IDMS:** A web based system for early warning messages/alert/advisory generation and dissemination.

4.7.1.2 **Alert Generating agencies:** The agencies/authorities for generating early warning messages/alert/advisory about an imminent disaster/hazard are mentioned in Annexure-I.

4.7.1.3 **Media:** Telecom service providers (TSPs) e.g. Bharat Sanchar Nigam limited (BSNL), Reliance Jio, Airtel etc. Internet service providers (ISPs), Radio, All India Radio (AIR), Doordarshan, TV, Siren, Signage and other media will be integrated with the IDMS in co-ordination with concerned licensor or regulator.

4.7.1.4 **Authenticating agency:** MHA, NDMA, state/UT authority, district authority. All other early warning messages/alert/advisory generating agencies in exceptional cases under the authorization of MHA/NDMA/State and UT Govt.

4.7.1.5 **Target citizens:** Policy decision maker, First responders, Administrative officers, People responsible for disaster management and general public.

4.7.2 The Login-ID & Authentication shall be made in following ways: -

4.7.2.1 The authentication process shall be of 2 tier,

➤ 1st – User ID & password and

➤ 2nd - One Time Password (OTP) on mobile & E-mail.

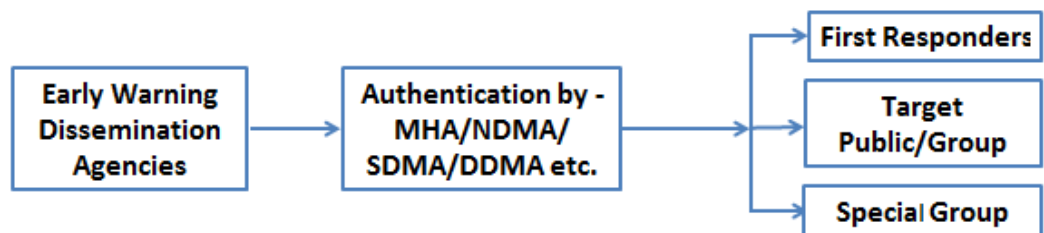
4.7.2.2 MHA, NDMA, All States, UTs and Alert Generating Agencies will detail a Nodal Officer for login ID and Password along with his/her Mobile Phone No. and E-mail ID for One Time Password (OTP) for entering into the IDMS system for sending/receiving CAP messages.

4.7.2.3 As a standby arrangement, MHA/NDMA/All States/UTs and Alert Generating Agencies may also detail an Alternate Nodal Officer.

4.7.2.4 All the Nodal officer will be responsible for sending/receiving /disseminating CAP messages on case to case basis.

- 4.7.2.5 The IDMS system shall be capable of generating alert on mobile and e-mail ID of Nodal officer and Alternate Officer on receipt of new CAP message from Alert Generating Agency, if any.
- 4.7.2.6 Concerned IDMS Custodian will issue a login ID and password for each Nodal Officer. The Nodal Officers will create themselves subsequent user ID & password for their Alternate Nodal Officer, respective Subordinate offices and Districts in their State/UT and offices of alert generating agencies etc.
- 4.7.2.7 IDMS Custodian will make an arrangement of capacity building of Nodal Officers for creation of login IDs and updation of data of Nodal Officers.
- 4.7.3 The following instructions shall be followed for sending early warning messages/alert/advisory to the citizens: -
  - 4.7.3.1 The IDMS will be used over and above the existing early warning messages/alert/advisory dissemination system available with various stakeholders.
  - 4.7.3.2 It would be appropriate for the authenticating agencies to authorise the alert generating agencies to disseminate messages/alert/advisory direct to the target citizen when lead time is very less between dissemination of alert and imminence of disaster/hazard. However, the CAP Message flow shall be in following ways:

(a) When Lead Time is more: -



(b) When Lead Time is less: -



Figure 8: Governing structure for CAP message flow

- 4.7.3.3 In general, alert generating agency shall forward early warning messages/alert/advisory to the concerned authenticating agency/authority

i.e. MHA, NDMA, State/UT Govt./District Authority for dissemination to target citizens on case to case basis.

4.7.3.4 If early warning messages/alert/advisory pertains at national level, the information dissemination to the citizens will be made by concerned state/UT. However, in exceptional cases where the time is less, it can be disseminated by MHA/NDMA/Alert generating agency to the citizens under proper authorisation.

4.7.3.5 By default, the IDMS shall also send copy of early warning messages/alert/advisory to concerned SDMA/SDRF/DDMA, NDMA, MHA, NDRF, concerned Ministries and Department, other organisations responsible for disaster management at district/UT/state/national level. These organisations will be predefined and programmed in IDMS.

4.8 The forecasting agencies/alert generating agencies shall need to fill the information in the Web based IDMS. The information required to be filled in is enclosed as Annexure-III. The IDMS shall provide the requisite fields/menus to fill the information sought in Annexure-III.

## **5.0 Security Requirements**

5.1 One of the primary concerns regarding public alerting is the potential for the issue of contradictory, redundant, or fake emergency messages.

5.2 Prior to being granted access to IDMS, each alerting authority may sign an MOU and Rules of Behavior, which outline the access control, proper use, password complexity, safeguarding of credentials, accountability, and incident reporting requirements. Failure to adhere to these fundamental security practices may result in loss of access and civil or criminal prosecution. Regarding IDMS, security breaches can result in revocation of the agency's agreement with NDMA, as defined in the MOU and Rules of Behavior signed by the alerting authority.

5.3 The alert generating agency shall carry out careful management of email addresses, user accounts, and physical devices/computers used to access IDMS.

5.4 Digital encryption and signature capability shall be implemented in the system using approved encryption methods along with access control

policy, proper use, password complexity, safeguarding of credentials, accountability, and incident reporting requirements.

5.5 The system shall provide data security and confidentiality for all data provided by the different agencies.

5.6 The data shall not be used for other purposes, and a privacy policy shall be provided to the agency and persons “opting in.”

5.7 Agencies shall designate IDMS users with a level of access commensurate with their roles and authority. Agencies can implement sound password security practices, such as password strength requirements, periodic prompts to change the password, and limitations on repeating passwords. Access to physical devices used for IDMS shall be limited and approved.

5.8 All alert generating agencies and message dissemination agencies shall also employ security mechanism at their sides.

5.9 Security Audit: The vendor shall provide the security audit clearance certificate from CERT-IN empaneled agency for hosting the solution on cloud environment where-so-ever as per extant guidelines

5.10 The web portal of IDMS should follow relevant Guidelines of Indian Government Websites(GIGW) as decided by the user agency.

**6.0 Synchronisation:** The Server shall support Network Time Protocol (NTPv4 as per RFC 5905 or NTPv3 as per RFC 1305) for synchronizing with a central NTP server.

**7.0 Disaster Recovery:**

7.1 In case of failure of the primary server, a disaster recovery server (located in different locations and seismic zone than primary) shall be functional.

7.2 When the primary server will crash the disaster recovery server shall up without any human interruption.

**8.0 Training**

8.1 The training about the system & portal workflow shall be provided to stake holders. The e-learning material in form of power point presentation, and training material in PDF form shall be available.

8.2 Complete security awareness training required to prevent any false alert generation and also preventing access of the portal from unauthorized person shall be provided.

8.3 A 'Help document' shall be available on the IDMS portal for the purpose of training and operation of IDMS portal along with screenshots for all level of users.

## Glossary of Terms used:

**Alert generating agencies:** The agencies/authorities for generating early warning messages/alert/advisory about an imminent disaster/hazard.

**Disaster:** A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources. (eg: Flood, drought, earthquake, volcanoes, landslides, tsunamis, fire etc and other hazard situation such as terror attack, child abductions, disease outbreaks, air quality warnings, beach closings, transportation problems, power outages etc.)

**First responders:** Those individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers.

**IDMS (Integrated disaster management system):** The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organisations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

**IDMS Platform:** A web based portal for Common Alerting Protocol (CAP)) based IDMS for early warning messages/alert/advisory generation and dissemination to the target citizens.

**Lead Time:** Period of a particular hazard between its announcement and arrival.

**Media:** Telecom Service Providers (TSPs), Internet Service Providers (ISPs), Radio, AIR, Doordarshan, Siren, Signage and other media.

**Target citizens:** Policy decision maker, First Responders, Administrative Officers, Peoples responsible for disaster management and general public.

**Authenticating Agency:** MHA, NDMA, State Authority, District Authority, all other early warning messages/alert/advisory generating agencies in exceptional cases.

**Category of Alert:** (Green/Yellow/Orange/Red)

**Red:** Warning (take action)

**Orange:** Alert (be prepared)

**Yellow:** Watch (be updated)

**Green:** No warning (no action)

## ABBREVIATIONS

For the purpose of this document the following abbreviations apply:

AC	: Alternating Current
ANSI	: American National Standards Institute
BTS	: Base Trans Receive Station
CAP	: Common Alert Protocol
CPU	: Central Processing Unit
CWC	: Central Water Commission
DOT	: Department of Telecommunication
DC	: Direct Current
DDMA	: District Disaster Management Authority
IDMS	: Integrated Disaster Management System
IETF	: Internet Engineering Task Force
IMD	: INDIA METEOROLOGICAL DEPARTMENT
INCOIS	: Indian National Center for Ocean Information Services
ISP	: Internet Service Provider
MHA	: Ministry of Home Affairs
NDMA	: National Disaster Management Authority
OTP	: One Time Password
RFC	: Request for Comments
RSS	: Rich Site Summary
SASE	: Snow & Avalanche Study Estt
SDMA	: State Disaster Management Authority
TEC	: Telecom Engineering Centre
TSP	: Telecom Service Provider
XML	: Extensible Markup Language

### Annexure I

S. No	Abbreviation code	Name	Full Name	Primary Event*
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1.	INC	INCOIS	Indian National Centre for Ocean Information Services	Tsunami
2.	INC	INCOIS	Indian National Centre for Ocean Information Services	High Wave Alert
3.	INC	INCOIS	Indian National Centre for Ocean Information Services	Storm Surge
4.	IMD	IMD	India Meteorological Department	Severe weather events - IMD
5.	NCS	NCS	National Centre for Seismology	Earthquake
6.	CWC	CWC	Central Water Commission	Flood
7.	RLY	MOR	Ministry of Railways	Train accidents
8.	FFR	MEFCC	Ministry of environment, Forest and Climate Change	Forest Fire
9.	AVL	SASE	Snow and Avalanche Study Establishment	Avalanche
10.	LSL	GSI	Geological Survey of India	Landslide
11.	JSD	MHA	Ministry of Home Affairs	

12.	NDM	NDMA	National Disaster Management Authority	
13.	SDM	SDMA	State Disaster Management Authority	
14.	DDM	DDMA	District Disaster Management Authority	
15.	DOT	DOT	Department of telecommunications	
16.	OTH	OTHER ORGANISATIONS	Any other organisation	Any other event not covered under s.no 1-11 such as Security, Health, Infra, Chemical, Biological, Radiological, Nuclear, Explosive, Terror etc.

**\*Note : Any alert generating agency may generate alert at any level/time/type on case to case basis.**

## Annexure II

## Example of XML CAP alert messages

The CAP alert message shall contain “alert” element & sub element, info element & sub element, resource element & sub element and area element & sub element.

### 1. CAP Alert Message by MHA for Terror Attack

```
<alert xmlns = "urn: oasis: names:tc: emergency:cap:1.2">
<identifier>MHA-CRPF-20180521-203040.555</identifier>
<sender>amar_crpf@mha.gov.in</sender>
  <sent>20180521-203040.555</sent>
  <status>Actual</status>

  <msgType>Alert</msgType>
  <scope>Public</scope>
  <info>
    <category>Security</category>

    <event>Terrorist attack</event>
    <urgency>Immediate</urgency>
    <severity>Severe</severity>
    <certainty>Likely</certainty>

    <senderName> amar_crpf@mha.gov.in
  </senderName>
  <headline>Terrorist Attack at CRPF Camp</headline>

  <description>The Ministry of Home Affairs has elevated the
Security Advisory System threat level to ORANGE / High in response
to intelligence which may indicate a heightened threat of terrorism.
</description>

  <instruction> A High Condition is declared when there is a high risk of
```

terrorist attacks. In addition to the Protective Measures taken in the previous Threat Conditions, MHA and agencies shall consider agency-specific Protective Measures in accordance with their existing plans.

</instruction>

<web>http://www.mha.gov.in/crpf/display?theme=29</web>

<parameter>

<valueName>HSAS</valueName>

<value>ORANGE</value>

</parameter>

<resource>

<resourceDesc>Image file (GIF)</resourceDesc>

<mimeType>image/gif</mimeType>

<uri>http://www.mha.gov.in/crpf/getAdvisoryImage</uri>

</resource>

<area>

<areaDesc>Jammu</areaDesc>

</area>

</info>

</alert>

## 2. CAP Alert Message by CWC for Flooding

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<alert>

<identifier>CWC-XXXX-20180520-203050.555</identifier>

<sender>amit\_CWC</sender>

<status>Actual</status>

<msgType>Alert</msgType>

<source></source>

<scope>Public</scope>  
<restriction>0</restriction>  
<info>  
<language>en-US</language>  
<category>Met</category>  
<event>Flood</event>  
<responseType>Shelter</responseType>  
<urgency>Expected</urgency>  
<severity>Minor</severity>  
<certainty>Unlikely</certainty>  
<audience>0</audience>  
<headline>**A FLOOD alert has been issued for Delhi Railway Bridge by CWC . This event is rated as Severe and is Likely. Responsive action shall be taken Avoid River Front. </b></headline>  
<description></description>  
<instruction></instruction>  
<web></web>  
<contact></contact>  
<resource>  
<resourceDesc>audio</resourceDesc>  
<mimeType>audio</mimeType>  
<size>0</size>  
<uri><https://drive.google.com/file/d/120zJOTrl-vJ0eB43FSSRJ3tzzAF5lcoT/view?usp=sharing></uri>  
</resource>  
<area>  
<areaDesc>Delhi </areaDesc>  
<polygon>28.914543,76.858553 28.868853,76.990389 28.683484,77.116732 28.623228,76.973910 28.635282,76.828341 28.762968,76.732210 28.914543,76.858553</polygon>  
<circle>28.974631,76.861300 26.087</circle>  
<altitude></altitude>  
<ceiling></ceiling>**

</area>

</info>

</alert>

CWC: CAP Alert Message for Flooding is issued by CWC and the alert message issued by CWC is in the format : *The water level of Yamuna River at Delhi Railway Bridge was measured at 205 meters at 18:00 on 2018-05-03. This exceeds the danger level of 204.83 meters, but is below the previous highest flood level of 207.49 meters recorded in 1978. It is expected to rise to 206 meters by 18:00 on 2018-05-04. For further instructions and details please visit CWC website:*

*<http://www.india-water.gov.in/ffs>*

### **3.0 CAP Alert Message for Earthquake**

## Earthquake Information:

```

<?xml version="1.0" encoding="UTF-8" ?>
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.2">
  <identifier>INCOIS_Tsunami_20120411083800</identifier>
  <sender>tsunami@incois.gov.in</sender>
  <sent>2012-04-11T08:46:00+05:30</sent>
  <status>Actual</status>
  <msgType>Alert</msgType>
  <source>NTWC</source>
  <scope>Restricted</scope>
  <incidents>dss120411083800</incidents>
  <info>
    <language>en</language>
    <category>Geo</category>
    <event>Earthquake information</event>
    <responseType>None</responseType>
    <urgency>Unknown</urgency>
    <severity>Moderate</severity>
    <certainty>likely</certainty>
    <expires>2012-04-11T12:56:00+05:30</expires>
    <senderName>Indian Tsunami Early Warning Center</senderName>
    <headline>8.7 Magnitude earthquake at off W Coast of Northern Sumatra </headline>
    <description>Earthquakes of this size sometimes have potential to generate tsunamis.
    However, so far there is no confirmation about the triggering of a tsunami. An investigation is under
    way to determine if a tsunami has been triggered.
    ITEWC INCOIS shall monitor sea level gauges near epicenter and report if any tsunami wave
    activity has occurred.</description>
    <instruction>
      No immediate public action is required. This Bulletin is being issued as an advice. Only
      national/state/local authorities and disaster management offices have the authority to make
      decisions regarding the official threat status in their coastal area and any action to be taken in
      response.
    </instruction>
  </info>
  <web>http://www.incois.gov.in/DSSProducts/Product_NTWC/dss120411083800_index_NTWC_pub
  .htm</web>
  <contact>Indian Tsunami Early Warning Centre (ITEWC)
    Indian National Centre for Ocean Information Services (INCOIS)
    Address:"Ocean Valley", Pragathi Nagar (BO), Nizampet (SO),
    Hyderabad - 500 090, India.
    Tel: 91-40-23895011
  </contact>

```

Fax: 91-40-23895012  
 Email: tsunami@incois.gov.in </contact>

<parameter>  
 <valueName>EventLocationName</valueName>  
 <value>off W Coast of Northern Sumatra</value>  
 </parameter>

<parameter>  
 <valueName>Magnitude</valueName>  
 <value>8.7</value>  
 </parameter>

<parameter>  
 <valueName>MagnitudeType</valueName>  
 <value>Mw(mB)</value>  
 </parameter>

<parameter>  
 <valueName>EventOriginTime</valueName>  
 <value>2012-04-11T08:38:00+05:30</value>  
 </parameter>

<parameter>  
 <valueName>EventDepth</valueName>  
 <value>10 km</value>  
 </parameter>

<parameter>  
 <valueName>EventLatLon</valueName>  
 <value>2.4,93.07</value>  
 </parameter>

<resource>  
 <resourceDesc>Earthquake Epicentre Map</resourceDesc>  
 <mimeType>image/jpeg</mimeType>

<uri>http://www.incois.gov.in/DSSProducts/Product\_NTWC/Web/images/01\_dss120411083800\_epi  
 center\_region\_zoom\_A.jpg</uri>  
 </resource>

<area>  
 <areaDesc>off W Coast of Northern Sumatra</areaDesc>  
 <circle>2.4,93.07 50.0</circle>  
 </area>

</info>  
 </alert>

#### 4.0 CAP Alert message by INCOIS for Tsunami Warning Message:

<?xml version="1.0" encoding="UTF-8" ?>  
<alert xmlns="urn:oasis:names:tc:emergency:cap:1.2">  
 <identifier>INCOIS\_Tsunami\_20120411083800</identifier>  
 <sender>tsunami@incois.gov.in</sender>  
 <sent>2012-04-11T08:50:00+05:30</sent>  
 <status>Actual</status>  
 <msgType>Alert</msgType>  
 <source>NTWC</source>  
 <scope>Restricted</scope>  
 <incidents>dss120411083800</incidents>  
 <info>  
 <language>en</language>  
 <category>Geo</category>  
 <event>Tsunami Warning Advisory</event>  
 <responseType>None</responseType>  
 <urgency>Expected</urgency>  
 <severity>Moderate</severity>  
 <certainty>Likely</certainty>  
 <expires>2012-04-11T14:50:00+05:30</expires>  
 <senderName>Indian Tsunami Early Warning Center</senderName>  
 <headline> Tsunami Warning for INDIRA POINT GREAT - LITTLE NICOBAR  
ISLAND,KOMATRA - KATCHAL ISLAND,NICOBAR </headline>  
 <description>Based on pre-run model scenarios, the zones listed below are POTENTIALLY  
UNDER THREAT.</description>  
 <instruction>  
 **For regions under WARNING (RED), public shall be advised to move in-land towards higher  
grounds. Vessels shall move into deep ocean.  
This bulletin is being issued as advice. Only national/state/local authorities and disaster  
management officers have the authority to make decisions regarding the official threat and warning  
status in their coastal areas and any action to be taken in response.** </instruction>  
  
 <web>[http://www.incois.gov.in/DSSProducts/Product\\_NTWC/dss120411083800\\_index\\_NTWC\\_pub  
.htm](http://www.incois.gov.in/DSSProducts/Product_NTWC/dss120411083800_index_NTWC_pub.htm)</web>  
 <contact>Indian Tsunami Early Warning Centre (ITEWC)  
 Indian National Centre for Ocean Information Services (INCOIS)  
 Address:"Ocean Valley", Pragathi Nagar (BO), Nizampet (SO),  
 Hyderabad - 500 090, India.  
 Tel: 91-40-23895011  
 Fax: 91-40-23895012  
 Email: tsunami@incois.gov.in </contact>

```

<parameter>
  <valueName>EventLocationName</valueName>
  <value>off W Coast of Northern Sumatra</value>
</parameter>
<parameter>
  <valueName>Magnitude</valueName>
  <value>8.7</value>
</parameter>
<parameter>
  <valueName>MagnitudeType</valueName>
  <value></value>
</parameter>
<parameter>
  <valueName>EventOriginTime</valueName>
  <value>2012-04-11T08:38:00+05:30</value>
</parameter>
<parameter>
  <valueName>EventDepth</valueName>
  <value>10 km</value>
</parameter>
<parameter>
  <valueName>EventLatLon</valueName>
  <value>2.4,93.07</value>
</parameter>
<parameter>
  <valueName>predictedArrivalTime</valueName>
  <value>"INDIRA POINT GREAT - LITTLE NICOBAR ISLAND"; 2012-04-
11T08:55:00+05:30;;;;"CAP-TSU:1.0"</value>
</parameter>
<parameter>
  <valueName>predictedWaveHeight</valueName>
  <value>"INDIRA POINT GREAT - LITTLE NICOBAR ISLAND";"6.3 m";;;;;"CAP-
TSU:1.0"</value>
</parameter>
<parameter>
  <valueName>predictedArrivalTime</valueName>
  <value>"KOMATRA - KATCHAL ISLAND"; 2012-04-11T09:08:00+05:30;;;;"CAP-
TSU:1.0"</value>
</parameter>
<parameter>

```

```

    <valueName>predictedWaveHeight</valueName>
    <value>"KOMATRA - KATCHAL ISLAND";"5.3 m";;;;"CAP-TSU:1.0"</value>
</parameter>
<parameter>
    <valueName>predictedArrivalTime</valueName>
    <value>"NICOBAR"; 2012-04-11T09:18:00+05:30;;;;"CAP-TSU:1.0"</value>
</parameter>
<parameter>
    <valueName>predictedWaveHeight</valueName>
    <value>"NICOBAR";"3.0 m";;;;"CAP-TSU:1.0"</value>
</parameter>
<resource>
    <resourceDesc>Threat Map</resourceDesc>
    <mimeType>image/jpeg</mimeType>

<uri>http://www.incois.gov.in/DSSProducts/Product_NTWC/Web/images/02_dss120411083800_ex
c_box_status_A.jpg</uri>
</resource>
<resource>
    <resourceDesc>Directivity Map</resourceDesc>
    <mimeType>image/jpeg</mimeType>

<uri>http://www.incois.gov.in/DSSProducts/Product_NTWC/Web/images/02_dss120411083800_dir
ectivity_A.jpg</uri>
</resource>
<resource>
    <resourceDesc>Tsunami Travel Time Map</resourceDesc>
    <mimeType>image/jpeg</mimeType>

<uri>http://www.incois.gov.in/DSSProducts/Product_RTWP/Web/images/02_dss120411083800_tra
vel_time_A.jpg</uri>
</resource>
<area>
    <areaDesc>INDIRA POINT GREAT and LITTLE NICOBAR ISLAND</areaDesc>
    <polygon>8.948397,93.74844700000001 7.972489,94.12266999999999
7.669504,93.059127000000002 8.520298,92.684201 8.948397,93.74844700000001</polygon>
</area>
<area>
    <areaDesc>KOMATRA and KATCHAL ISLAND</areaDesc>

```

<polygon>8.822506000000001,93.165845 8.65372,92.647429 9.299861,92.437057  
9.468648,92.955473 8.822506000000001,93.165845</polygon>  
</area>  
<area>  
<areaDesc>NICOBAR</areaDesc>  
<polygon>11.069949,92.969956 10.285625,92.969956 10.279992,92.965869  
10.279992,92.039322 11.069949,92.039322 11.069949,92.969956</polygon>  
</area>  
</info>  
<info>  
<language>en</language>  
<category>Geo</category>  
<event>Tsunami Alert Advisory</event>  
<responseType>None</responseType>  
<urgency>Expected</urgency>  
<severity>Moderate</severity>  
<certainty>likely</certainty>  
<expires>2012-04-11T14:50:00+05:30</expires>  
<senderName>Indian Tsunami Early Warning Center</senderName>  
<headline>Tsunami Alert for LITTLE ANDAMAN;NORTH SENTINEL ISLAND;PORT  
BLAIR;FLAT ISLAND;CUDDALORE; PONDICHERRY;  
VILLUPURAM;KANCHIPURAM;NAGAPATTINAM TO  
RAMESHWARAM;NELLORE;KRISHNA;CHENNAI; TIRUVALLUR;PRAKASAM; GUNTUR;EAST -  
WEST GODAVARI;VISAKHAPATNAM; VIZIANAGARAM;TIRUNELVELI;</headline>  
<description>Based on pre-run model scenarios, the zones listed below are POTENTIALLY  
UNDER THREAT. </description>  
<instruction>  
**For regions under ALERT (Orange), public shall be advised to avoid  
beaches and low-lying coastal areas. Vessels shall move into deep ocean  
This bulletin is being issued as advice. Only national/state/local authorities and disaster  
management officers have the authority to make decisions regarding the official threat and warning  
status in their coastal areas and any action to be taken in response.** </instruction>  
<web>[http://www.incois.gov.in/DSSProducts/Product\\_NTWC/dss120411083800\\_index\\_NTWC\\_pub  
.htm](http://www.incois.gov.in/DSSProducts/Product_NTWC/dss120411083800_index_NTWC_pub.htm)</web>  
<contact>Indian Tsunami Early Warning Centre (ITEWC)  
Indian National Centre for Ocean Information Services (INCOIS)  
Address:"Ocean Valley", Pragathi Nagar (BO), Nizampet (SO),  
Hyderabad - 500 090, India.  
Tel: 91-40-23895011

Fax: 91-40-23895012

Email: tsunami@incois.gov.in </contact>

```
<parameter>
  <valueName>EventLocationName</valueName>
  <value>off W Coast of Northern Sumatra</value>
</parameter>
<parameter>
  <valueName>Magnitude</valueName>
  <value>8.7</value>
</parameter>
<parameter>
  <valueName>MagnitudeType</valueName>
  <value></value>
</parameter>
<parameter>
  <valueName>EventOriginTime</valueName>
  <value>2012-04-11T08:38:00+05:30</value>
</parameter>
<parameter>
  <valueName>EventDepth</valueName>
  <value>10 km</value>
</parameter>
<parameter>
  <valueName>EventLatLon</valueName>
  <value>2.4,93.07</value>
</parameter>
<parameter>
  <valueName>predictedArrivalTime</valueName>
  <value>"LITTLE ANDAMAN"; 2012-04-11T09:40:00+05:30;;; "CAP-TSU:1.0"</value>
</parameter>
<parameter>
  <valueName>predictedWaveHeight</valueName>
  <value>"LITTLE ANDAMAN"; "2.8 m";;;; "CAP-TSU:1.0"</value>
</parameter>
<parameter>
  <valueName>predictedArrivalTime</valueName>
  <value>"NORTH SENTINEL ISLAND"; 2012-04-11T09:47:00+05:30;;; "CAP-
TSU:1.0"</value>
</parameter>
<parameter>
```

```

    <valueName>predictedWaveHeight</valueName>
    <value>"NORTH SENTINEL ISLAND";"2.4 m";;;; "CAP-TSU:1.0"</value>
</parameter>
<parameter>
    <valueName>predictedArrivalTime</valueName>
    <value>"PORT BLAIR"; 2012-04-11T10:02:00+05:30;;; "CAP-TSU:1.0"</value>
</parameter>
<parameter>
    <valueName>predictedWaveHeight</valueName>
    <value>"PORT BLAIR";"2.8 m";;;; "CAP-TSU:1.0"</value>
</parameter>
<parameter>
    <valueName>predictedArrivalTime</valueName>
    <value>"FLAT ISLAND"; 2012-04-11T10:13:00+05:30;;; "CAP-TSU:1.0"</value>
</parameter>
<parameter>
    <valueName>predictedWaveHeight</valueName>
    <value>"FLAT ISLAND";"2.4 m";;;; "CAP-TSU:1.0"</value>
</parameter>
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SOUTH,SRIKAKULAM,PURI,JAGATSINGHAPUR,GANJAM,KENDRAPARA; BHADRAK;
BALESHWAR,KOLLAM,THIRUVANANTHAPURAM,KANYAKUMARI,MINICOY,ALAPPUZHA,AND
ROTH,PURBA MEDINIPUR; SOUTH - NORTH 24
PARGANAS,KAVARATTI,AGATTI,MALAPPURAM; THRISSUR;
ERNAKULAM,AMINI,KOZHICODE,KANNUR,KASARAGOD,SINDHUDURG,UTTAR
KANNADA,NORTH - SOUTH GOA,RATNAGIRI,UDUPI; DAKSHIN
KANNADA,PORBANDAR,RAIGAD,JAMNAGAR,JUNAGADH; DIU,MUMBAI;
THANE,KUTCH,BHAVNAGAR; KHEDA; BHARUCH; SURAT; VALSAD,AMRELI</headline>
    <description>No immediate action is required. </description>
    <instruction>
For regions under WATCH (Yellow), no immediate action is required. This bulletin is being issued
as advice. Only national/state/local authorities and disaster management officers have the authority
to make decisions regarding the official threat and warning status in their coastal areas and any
action to be taken in response.
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<web>http://www.incois.gov.in/DSSProducts/Product\_NTWC/dss120411083800\_index\_NTWC\_pub
.htm</web>
    <contact>Indian Tsunami Early Warning Centre (ITEWC)
        Indian National Centre for Ocean Information Services (INCOIS)
        Address:"Ocean Valley", Pragathi Nagar (BO), Nizampet (SO),
        Hyderabad - 500 090, India.
        Tel: 91-40-23895011
        Fax: 91-40-23895012

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Email: tsunami@incois.gov.in </contact>

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5.0 CAP message for INCOIS High Wave Alert:

```

<?xml version = "1.0" encoding = "UTF-8"?>
    <alert xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:oasis:names:tc:emergency:cap:1.2">

        <identifier>HWA-OSF</identifier>
        <hwa>High Wave Alert Issued</hwa>
        <info id="SEC006">
        <area><areaDesc>TamilnaduSouth</areaDesc></area>
        <category>Met</category>
        <certainty>likely</certainty>
        <event>Avoid</event>
        <expires>05-06-2018 23:30</expires>
        <headline>High Wave Alert for TamilnaduSouth</headline>
        <message>High waves in the range of 3.0 - 3.4 meters are forecasted
during 17:30 hours on 03-06-2018 to 23:30 hours of 05-06-2018 along the coast of
Southern Tamil Nadu from Kolachal to Kilakarai. Current speeds vary between 50 - 64
cm/sec.</message>
        <advice>Fishermen are advised to be cautious while venturing into the
sea.</advice>
        <msgType>High Wave Alert</msgType>
        <resource>
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<urgency>Immediate</urgency>  
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<scope>Public</scope>  
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<sent>03-06-2018 16:14</sent>  
<status>Actual</status>  
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### Annexure III

#### Geographically Targeted Early warning message Dissemination through IDMS Platform using CAP

Web based IDMS Platform will facilitate State, District authorities to send early warning messages/alert/advisory to the citizens by selecting geographical areas (geo-fencing) simultaneously over multiple media (e.g. mobile phone, Landline, Radio, TV, Social Media, Internet, RSS blogs, Siren, Road Signage etc.).

This Web based IDMS Platform will aggregate forecast/ early warning message from forecasting agencies like IMD, CWC, INCOIS, GSI, SASE, MoHFW, MoAFW, Ministry of Railways etc through ITU-T x1303.x CAP messages or Web portal entry. Forecasting agencies shall need to fill the flowing information:

1. Select event from predefined Event list for that particular Forecasting agencies. e.g.: IMD can forecast/ early warning for following events and event sub category.

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. Sea State	17. Frost	16. Other events

Event	Subcategory
-------	-------------

Rainfall / Snowfall	<ul style="list-style-type: none"> <li>i) Heavy</li> <li>ii) Very Heavy</li> <li>iii) Extremely Heavy</li> <li>iv) Moderate</li> <li>v) Light</li> <li>vi) Very light</li> </ul>
Heat Wave	<ul style="list-style-type: none"> <li>i) Heat wave</li> <li>ii) Severe Heat Wave</li> </ul>
Warm Night	<ul style="list-style-type: none"> <li>i) Warm Night</li> <li>ii) Severe Warm Night</li> </ul>
Cold Wave	<ul style="list-style-type: none"> <li>i) Cold Wave</li> <li>ii) Severe Cold Wave</li> </ul>
Cold Day	<ul style="list-style-type: none"> <li>i) Cold Day</li> <li>ii) Severe Cold Day</li> </ul>
Fog	<ul style="list-style-type: none"> <li>i) Moderate</li> <li>ii) Dense</li> <li>iii) Very Dense</li> </ul>
Squall	<ul style="list-style-type: none"> <li>i) Moderate</li> <li>ii) Severe</li> <li>iii) Very Severe</li> </ul>
Sea State	<ul style="list-style-type: none"> <li>i) Rough to Very Rough</li> <li>ii) High to very high</li> <li>iii) Phenomenal</li> </ul>
Cyclone	<ul style="list-style-type: none"> <li>i) Cyclonic Storm</li> <li>ii) Severe Cyclonic Storm</li> <li>iii) Very Severe Cyclonic Storm</li> <li>iv) Extremely Severe Cyclonic Storm</li> <li>v) Super Cyclone Storm</li> </ul>

2. Select District(s) / draw or select previously saved polygon(s)/circle(s).
3. Select Warning Category from below list:

## WARNING

WARNING (TAKE ACTION)
ALERT ( BE PREPARED)
WATCH (BE UPDATED)
NO WARNING ( NO ACTION)

4. Select Forecast Probability from below list

Probabilistic Forecast (%)	
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75

5. Select spatial distribution of the current forecast from below list.

Category
Most Places
Many Places
A Few Places
Isolated places
Dry

6. Enter expiry time of the warning/forecast.
7. Type SMS within 160 characters' content that need to be disseminated to State/ District authority, restricted group of first responder etc.
8. Forecasting Agencies can also provide additional information like event description, instructions, web url, contact no.
9. On submission, CAP-EWP/IDMS shall notify concerned State/District Authority. Now SDMA/ DDMA can log in to this CAP Early Warning Platform (CAP-EWP)/IDMS. Based upon requirement /situation SDMA/DDMA can take No action/edit alert/ process alert/action later.
10. Based upon need, State/District authority can send message for public dissemination over multiple media.

11. On finalization of message with OTP authentication, State/District authority can send message for public dissemination.