Report of the 2023 CAP Implementation Workshop and Training

Background

The 2023 CAP Implementation Workshop and Training was held 10-12 October in Geneva, Switzerland, hosted by the United States Agency for International Development (USAID) and Alert-Hub.Org CIC. A Zoom Webinar was offered for those who could not participate in person. The events were co-sponsored by the International Association of Emergency Managers (IAEM) and the OASIS standards organization.

The Workshop was a technical meeting intended solely for information sharing among experts. Accordingly, Workshop participants represented themselves; they did not formally represent any organizations with which they were affiliated.

The Workshop and Training events had more than 1,000 persons registered as participants. They were from 162 countries/territories, 44 international organizations, and 116 commercial companies, academic institutions, or other non-governmental organizations. About 60 people participated in person at the Movenpick Hotel in Geneva; the photo below shows in-person participants on 11 October.

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Recordings of the 2023 CAP Workshop and Training Webinars are at the following links. Enter the given passcode when prompted, and note that sound for 10 October starts at one minute.

Training Day: 10 October link – when prompted, enter passcode: !09EF%.p

Workshop Day One: 11 October link – when prompted, enter passcode: QSQv9TP!

Workshop Day Two: 12 October link – when prompted, enter passcode: 08C=z=Cw

The following other documents might be also of interest:

- The Programme lists all of the Workshop agenda topics and links to the presentations;

- The list of Speakers includes speaker biographies, portraits and links to the presentations;

- The list of Participants gives name and organizational affiliation of registered participants.

Offers to Host the Next CAP Implementation Workshop

Workshop participants were invited to put forward offers for the location of a future CAP Implementation Workshop. The likely time frame for a 2024 Workshop is September - October. It is likely to be in Brussels, Belgium, and hosted by Traveler Information Services Association. There is also an offer for the 2025 CAP Implementation Workshop to be in Rome, Italy, and hosted by the Italian Civil Protection agency.

Report Process

At the Workshop, participants agreed on the process for producing this Workshop Report. The Workshop Chair, Eliot Christian, produces a draft Report in consultation with co-sponsors. The draft is shared among Workshop participants for one week, with the Chair making revisions based on any participant comments received. Thereafter, the Chair publishes the final Workshop Report and links to it from the 2023 CAP Implementation Workshop website.

Presentation Summaries by Agenda Item

3.1 The Use of Artificial Intelligence (Chatbot) for Emergency Warning

This presentation was given by Jumanah Al Awfi (for her biography, see the list of Speakers).

Jumanah began by noting this work is part of the EU "Engage Society for Risk Awareness and Resilience" research project. She explained that a chatbot is software used to conduct an automated chat conversation via text or text-to-speech. To improve the accuracy and quality of its understanding of questions in text, the chatbot uses Artificial Intelligence technology. She noted that during an emergency, traditional communications is slowed due to heavy traffic. The hope is that a chatbot that accurately responds to questions about the emergency could relieve some of the communications load, and thereby make timely information more accessible. Jumanah said they had demonstrated the chatbot at a Landslide evacuation exercise in Trondheim, Norway. She closed by noting that anyone can try out the chatbot at crisis.chat.

Note: Topic 3.2 was cancelled because the speaker was absent.

3.3 [Use of CAP Tools in Timor-Leste](#)

This presentation was given by Angelina Freitas (for her biography, see the [list of Speakers](#)).

Angelina explained that Timor-Leste is using the CAP editor freeware tool to create and publish early warning information related to various hazards. She presented a diagram of the agency's Standard Operating Procedure that steps from acquisition of meteorological information through forecasting and to dissemination, including CAP. She also showed an example Flood Forecast from July 2023 that used the FFG product.

3.4 [R&D of the Comprehensive ICT systems for Disaster Management](#)

This presentation was given by Takuya Iritani (for his biography, see the [list of Speakers](#)).

Takuya, an employee of Japan Telecommunications Engineering and Consulting Service (JTEC), presented about the CAP projects they are supporting in multiple countries. His main focus was on the use of the Emergency Warning Broadcasting Services (EWBS) and related technologies as a means of delivering CAP messages over the television broadcasting signal. He underscored that this is an attractive method for dissemination for several reasons: Wide coverage, Robust transmission, Reliable and secure one-way communication, Low latency, Mobile reception in various situations, Cost-effectiveness, and Smooth introduction. He gave an example of this technique as used in Latin America and Tonga. He also described the L-Alert system that is used in Japan.

3.5 [IFRC Early Warning and Early Action](#)

This presentation was given by Nathan Cooper (for his biography, see the [list of Speakers](#)).

Nathan's presentation was organized in four parts: (1) IFRC's role in Public Alerting, (2) IFRC in UN Early Warning for All, (3) IFRC Alert Hub Initiative - Tools and Services, and (4) Outlook and Engagement. Nathan noted that the IFRC Alert Hub Initiative goal is to expand the use of CAP and actionable messages for public alerting. He explained that the RCRC National Societies are auxiliary to government and a trusted name and organization. They make a connection from the national to the local level and are leading efforts to implement Community Early Warning Systems in countries worldwide. He noted that in the UN Emergency Warning Systems for All initiative, IFRC leads Pillar 4: Preparedness and Response Capacity. Nathan noted the IFRC Alert Hub and described the IFRC Public Awareness Public Education messages. He also noted a project focused on developing a CAP Editor for Alert Creation. Nathan mentioned his intent to achieve some kind of IFRC Alert Hub integration with IFRC disaster management systems.

3.6 [Prioritising Emergency Messaging Needs for Women Farming Communities](#)

This presentation was given by Lizzy Igbine (for her biography, see the [list of Speakers](#)).

Lizzy started her presentation by describing the role of the Nigerian Meteorological Agency (NiMet) in Flood Mitigation. She focused on why women should lead in the advocacy for Climate Alerting Protocols. Lizzy concluded by saying that early warning systems and advocacy for climate-smart agriculture are essential to protects women farmers and their livelihoods.

3.7 NCDR Alert Platform: One-Stop Alert Information Services

This presentation was given by Mei-Chun Kuo (for her biography, see the list of Speakers).

Mei-Chun, an expert in Geographic Information Systems (GIS), presented details about the One-Stop Alert Information Services platform. She began by noting that the NCDR Alert Platform was established when it was realized the CAP standard allows different alert data to be standardized and unified into a consistent format for disaster alert content. The NCDR Alert Platform provides sixty real-time information items from forty agencies. This includes 37 datasets from central government ministries and agencies (e.g., typhoon, earthquake, flood), nine datasets from local governments (e.g., Taipei Street Parking Allowed, Hsinchu Underground Passage Flooding, Taichung water Level Alert), and eleven datasets from Public Works (e.g., High speed railway, Power Outage, Water Outage, Metro Operation) and the array of services it offers to the public. The NCDR Alert Platform data services have been widely used by commercial firms for disaster warning applications and Mei-Chun described a wide range of other services provided by the platform, many customized as themes for particular types of users. She also described various collaborations with private companies, such as campus television broadcasting systems and cable television. She concluded by saying the primary advantage of CAP lies in its consistency and uniformity in delivering information. Mei-Chun asserted that the NCDR Alert Platform has become a primary disaster prevention and rescue data resource delivering timely and accurate information to help individuals and organizations make informed decisions during times of crisis.

3.8 SWIC Alert Hub and the Common Policies and Practices document

This presentation was given by Joey Shum Yik Lam (for her biography, see the list of Speakers).

Joey gave details on how the newly published Common Policies and Practices relate to the CAP Alert Hub that is part of the WMO Severe Weather Information Center (SWIC) operated by the Hong Kong Observatory (HKO). Joey is a Scientific Officer working at the HKO and she developed this presentation in collaboration with Armstrong Cheng. Their team supports and coordinates the operation of SWIC. Since its operation in 2005, SWIC provides a centralized source for the media and public to access official warnings and information issued by the National Meteorological and Hydrological Services (NMHS) of WMO Members. SWIC2.0 was launched as beta in 2018 to display the CAP warnings issued by WMO Members. Joey also explained that the Common Policies and Practices document lists policies and practices used by several major CAP aggregators, and it was intended to promote harmonization and to serve as a reference for developers of other CAP-enabled systems and tools. She introduced the "CAP Checker Portal", a dashboard page developed to show how published CAP alert sources, processed by SWIC2 Alert Hub, align with the "Common Policies and Practices" document or not. Organizations whose CAP alerts are published on the SWIC can make use of the CAP Checker Portal to keep track of the findings identified by the portal, and modify the CAP alerts to align with the Common Policies and Practices as deemed necessary.

3.9 CAP and Environment Canada

This presentation was given by Pongsakorn Rahman and Norm Paulsen (for their biographies, see the list of Speakers).

The speakers started by explaining that Environment Canada each year issues hundreds of thousands of CAP alerts through the National Public Alerting System (NPAS). Of these, hundreds of the most impactful CAP alerts are also carried by the Canada's emergency alerting system known as "Alert Ready". This presentation focused on how Environment Canada is dealing with issues involving the CAP alerting area, especially the use of dynamic, as distinct from pre-set, polygons to avoid spilling an alert to areas not actually at risk. They noted that this new approach will be investigated as part of an upcoming pilot project.

3.10 Zimbabwe Experience with CAP

This presentation was given by James Ngoma (for his biography, see the list of Speakers).

James noted that Zimbabwe experienced a very intense tropical cyclone in 2019 which caused people to become more conscious of extreme weather events. As a result of the growing demand for weather alerts, the CAP Editor freeware was adopted by the Zimbabwe Meteorological Services Department (MSD), and the CAP feed was included on the MSD website. James said that CAP alerts in Zimbabwe need to be disseminated on mobile phones, community sirens, and early warning radios.

3.12 How to Build a Solid Infosec Security Awareness for the Community

This presentation was given by Maged Roshdy (for his biography, see the list of Speakers).

Maged provided general advice on how to build security awareness for a community. He said that there are four key Drivers: Behavioral sense, Business sense, Personal Protection sense, and Related Job Protection sense. He emphasized that "YOU ARE THE KEY" to cyber security because breaches are often due to human error.

3.13 USAID and CAP

This presentation was given by Sezin Tokar (for her biography, see the list of Speakers).

Sezin opened by saying that the United States Agency for International Deveopmnet (USAID), Bureau of Humanitarian Assistnace (BHA) is the U.S. Government lead coordinator for international disaster assistance, reaching tens of millions of people around the world with life-saving aid. She introduced the President's Emergency Plan for Adaptation & Resilience (PREPARE) which intends to help more than half a billion people in developing countries adapt to and manage the impacts of climate change by 2030. As part of PREPARE, the U.S. responds to the UN Secretary General's call for Early Warning for All by 2027. In that regard, Sezin noted that a Quality and Trust-Outcome in Pillar 3 of that Action Plan requires: "All countries have the capability for effective, authoritative emergency alerting that leverages the Common Alerting Protocol (CAP), suitable for all media and all hazards". Sezin specifically called out USAID/BHA support for: IFRC Alert Hub, CAP trainings and workshops, the UNDRR program on Early Warning Early Action, partnering with broadcast media, and support to WMO in integrating CAP

in its Early Warning Systems work. Her presentation also addressed the role of USAID in funding the Flash Flood Guidance System, which is CAP-enabled and involves 74 countries.

3.14 The Role of Media in Early Warnings

This presentation was given by Natalia Ilieva (for her biography, see the list of Speakers).

Natalia presented from the perspective of the various members of the World Broadcasting Unions (WBU). She started by explaining that media and early warnings entails both the dissemination of early warning messages and the education of people how to act on early warning messages. Natalia included an overview of the ongoing WBU/UNDRR Media Saving Lives initiative. Focused on radio and television news broadcasters worldwide, this initiative seeks to change the mentality of content producers, from reactive to proactive, and it seeks to build good relationships between media and alert issuing agencies. From December 2020 through May 2023, this initiative engaged 88 organizations and trained over 2,000 media professionals. (This includes the online course: CAP for Broadcasters.) Natalia noted four features of CAP of particular interest to Media: CAP provides information from one authoritative, trusted source; CAP promotes simple, actionable language; CAP messaging can be very fast; and, CAP is able to be localized. Under the heading "What Next for Media and CAP", she listed: technical staff training at ASBU and EBU; refresher courses for already trained journalists from newsrooms; and creation of a certification process.

3.15 Alerting travellers with TPEG2-Emergency Alerts and Warnings (EAW)

This presentation was given by Stephanie Chaufton (for her biography, see the list of Speakers).

Stephanie is a key participant in the Traveler Information Services Association (TISA). TISA, founded in 2017, creates and maintains global, open standards for Traveler and Traffic Information Services. She noted that the Transportation Protocol Experts Group (TPEG) is a family of international standards that support real-time traffic and traveler information services. TPEG includes Traffic Flow Prediction (TFP), Weather Information (WEA), Parking Information (PKI), Road and Multimodal Routes (RMR), and Emergency Alerts and Warning (EAW). The TPEG2-EAW standard, developed by TISA, focuses on official alerts/warnings as issued by public authorities and/or authorized agencies, in order to safely deliver those messages to travelers (including drivers). With TPEG2-EAW, CAP alerts as aggregated by CAP Alert Hubs, can go directly to in-vehicle navigation systems, such as Garmin, Tom-Tom, and those offered by car manufacturers worldwide. Major benefits for travelers include: Providing location-aware information and instructions; Adhering to driver safety, avoiding driver distraction; and, Supporting real-time distribution channels. Stephanie noted the successful trial of TPEG2-EAW initiated by the German Federal Office for Civil Protection and Disaster Assistance. The key trial results are: TPEG2-EAW supports the warning process of emergency authorities; TPEG2-EAW can be disseminated both over DAB+ and mobile internet, respecting latency requirements; and, automatic conversion of CAP messages to TPEG2-EAW is feasible. The conclusion is that TPEG2-EAW messages are effective for safe and timely warnings to the traveler so they can re-route to avoid danger. Stephanie also noted that a free TPEG evaluation kit is available.

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3.16 OASIS Emergency Management Technical Committee

This presentation was given by Elysa Jones (for her biography, see the list of Speakers).

Elysa delivered an update on work of the OASIS Emergency Management Technical Committee, which she has chaired since 2004. She began with an overview and status of the full suite of specifications from the OASIS Emergency Management Technical Committee. These include the Emergency Data Exchange Language (EDXL) Distribution Element for the wrapping and routing of structured and unstructured data, Tracking of Emergency Patients, Hospital Availability, Resource Messaging, Tracking of Emergency Clients and Situation Reporting. With regard to CAP, Elysa emphasized four points: CAP is a standard not a system; The originating authority must always "own" the alert; CAP should always be at the core of system implementations; and the CEN Agreement for Europe says "social media early warning

messages and related notifications shall refer to the persistent unique URL of the CAP message". Elysa talked about activities of the Reference Implementation Subcommittee and the CAP Subcommittee. These include working with STRATEGY EU to improve crisis management across borders, the CAP Subcommittee work on the Event Terms List and the new EMTC Committee Note "Mobile Alerting Practices" that addresses use of mobile device communications in combination with CAP. (This Note was also the topic of a presentation by Mark Wood on the CAP Training Day.)

3.17 The Humanitarian Connectivity Charter: Engaging the mobile industry in disaster resilience

This presentation was given by Bryce Hartley (for his biography, see the list of Speakers).

Bryce has a key role in the non-profit GSM Association (GMSA) of mobile network operators. His talk focused on engaging the mobile industry in disaster resilience. Bryce began by stating the aim of the Humanitarian Connectivity Charter: Strengthen access to communication and information for those affected by crisis in order to reduce the loss of life and positively contribute to humanitarian response. He said the Charter has 162 mobile network operator (MNO) signatories, operating in 113 countries. Bryce also talked about the UN Early Warning for All Initiative with regard to the GSMA. He said GSMA is uniquely positioned to coordinate the mobile technology industry and catalyze partnerships, with experience supporting operators, governments and humanitarian organizations to develop and implement mobile-enabled EWS. Bryce listed six goals of GSMA in the Early Warning for All context: More countries covered by mobile-enabled EWS; Improved EWS that are more inclusive of the most vulnerable populations; Increased the political will of stakeholders to work on creating and improving EWS; Governments actively involve MNOs and humanitarian organizations in the design and creation of EWS; Sustainable financing for EWS that don't place the onus on MNOs; and, Improved understanding of the challenges to creating and implementing an EWS.

3.18 China's National Early Warning Releasing System (NEWRES)

This presentation was given by Zhiyu Cao (for his biography, see the list of Speakers).

Zhiyu Cao had three sections in his presentation: Operating Status of NEWRES, New Generation of NEWRES, and, Model of Coverage Rate. He began by explaining that NEWRES serves as a hub for alerts and it is based on CAP. NEWRES has one national center, 31

provincial centers, 343 municipal centers, and 2,015 county centers. The system provides real-time collection, sharing and rapid release of four categories of alerts: Natural disaster, Accident disaster, Public health, and Public security. These are comprised of alerts for 76 types of hazards covered by 13 departments at the national level, and 128 types of hazards all over the country. He said that from May 2015 to May 2023, a total of 2.64 million warnings were released. Regarding the New-generation of NEWRES, Zhiyu Cao labeled it as a Warning Smart Service Big Data Cloud Platform that will be Better and Faster, with More Sharing and Wide Coverage. He said it will be based on the Disaster Intensity Index which enables automatic adaptation to various service scenarios. Turning to the Model of Coverage Rate, Zhiyu Cao explained that this refers to the proportion of the public that can be covered by the warning released channels in the administrative region under the current transmission capacity, and the public can receive the messages with their terminal devices. He noted that this is difficult to calculate but it is being studied now. Because this is a problem that need to be addressed in many countries, he invited discussion with anyone interested in the subject.

3.19 Update on CAP and ITU

The presentation was given by Maritza Delgado and Vanessa Gray and (for their biographies, see the list of Speakers).

Maritza explained some of the roles of ITU with a focus on Emergency Telecommunications and Disaster Management. She said that ITU promotes the use of CAP through trainings and awareness raising. She also noted that CAP implementation is to be addressed by countries as part of their National Emergency Telecommunications Plans (NETPs). Maritza mentioned that ITU in 2020 published the Emergency Telecommunications Table-top Simulation Guide. Vanessa reiterated some points about the UN 'Early Warnings for All' Action Plan, and specifically Pillar 3 of the Plan, titled "Dissemination and Communication". She emphasized that multi-hazard early warning systems need to leverage the Common Alerting Protocol so alerts are sent by multiple communication channels: radio, television, billboards, mobile applications, social media, sirens. This increases the chance of reaching everyone at risk, and it reinforces the alert effectiveness when receivers get information through multiple channels. She then asserted that 95% of the world's population is covered by mobile broadband networks and these are commonly used for emergency alerting to the public. She explained how Cell Broadcast contrasts with Short Message Service, and that these are both distinct from applications on smart phones. She reported that ITU is working on an action plan that will: promote a regulatory approach and engage MNOs; identify and share best practices and experts; deliver trainings and technical assistance; and, develop a global project and encourage financing.

3.20 Update on CAP and WMO

This presentation was given by Adanna Robertson-Quimby (for her biography, see the list of Speakers).

Adanna provided updates on some WMO activities relevant to CAP. She also brought up the UN 'Early Warnings for All' Action Plan, and she said that CAP is a "Bridge Between Pillars 2 and 3" of that Plan. She noted five points under the heading of CAP Implementation Success: Training of the required personnel/stakeholders; Selection of a CAP editor facility and formatting

warnings in a CAP format; Establishing Standard Operating Procedures for mainstreaming CAP in the warning process; Ensuring that the official Alerting Authorities are champions of the process; and, Promoting location-based cell broadcasting. Adanna also referred to ddiscussions on multiple event names (where she noted work by UNDRR and ISC for classifying hazards); Strengthening messaging, enhancing severe weather impact-based forecasting; and, Enhanced collaboration between stakeholders.

3.21 CAP in India: SACHET System

This presentation was given by Smriti Sachdev (for her biography, see the list of Speakers).

Smriti presented the C-DOT (Center for Development of Telematics) developed CAP-based Integrated Alert System which provides stakeholders with the technology for generation and dissemination of geo-targeted alerts over various media through an integrated Platform. She asserted that this system has been implemented in India under National Disaster Management Authority and is operational across the nation for any kind of disaster, serving 1.4 billion people (~ 17% of the world). She noted that the system involves 100+ stakeholders that includes 3,000+ officials, and that alerting is conducted in 19+ languages. She said the system has disseminated by SMS more than 15 billion Targeted Disaster Alerts, and the system supports Cell Broadcast as well. Both television and radio dissemination of alerts are supported, and the system also supports dissemination by satellites. Dissemination by Public Address systems is supported at railway stations and via coastal sirens. On the Internet, the system is accessed via mobile apps and a national Disaster Alert Portal, and there is also support for social media such as WhatsApp, Facebook, and Twitter (X). In response to a question, Smriti asserted that this system is interoperable with the alerting system employed by India Meteorological Department, which uses the cloud-based CAP Editor.

3.22 CAP in India Meteorological Department

This presentation was given by Sunny Chug (for his biography, see the list of Speakers).

Sunny explained that India Meteorological Department (IMD) provides CAP alerts, on different time scales and for different spatial scales, about severe weather phenomena like tropical cyclones, thunderstorms, dust storms, heavy rain, snow, cold, heat waves, coastal weather alert etc. through its Regional Centers as well as Headquarters. With regard to dissemination of alerts, IMD employs multilingual audio, video, audio-visual, text, graphics, text-cum graphics through channels such as email, fax, alarm, website in GIS enabled platform, API, Mobile App, RSS feed, social media, OGC web services etc., with provisions for specially abled persons. He noted that IMD's CAP feeds are operational and CAP warning dissemination services have been extended to 35 sub offices of IMD all over India. The CAP alerts are automatically aggregated to the WMO Alert Hub at https://alert-hub.org and are disseminated via the Global Multi-Hazard Alert System, Google, AccuWeather, Apple, the Weather Company, etc. Sunny also showed how a Nowcast Polygon is generated from the Nowcast Decision Support Service (DSS) Portal.

3.23 CAP Warning Dissemination in Germany

This presentation was given by Mandy Best (for her biography, see the list of Speakers).

Mandy began by introducing the company mecom which operates satellite services for communications. She talked about their Modular Warning System (MoWaS) that provides several kinds of media delivery services: Cell Broadcast, Sirens, Warning Apps, Radio, News and Television, and Digital Urban Displays. From 2020 to 2023, MoWaS delivered more than 3,000 warning messages per year, on average.

3.24 CAP - Italian Profile and IT-alert

This presentation was given by Umberto Rosini (for his biography, see the list of Speakers).

Umberto covered three topics within his presentation: the CAP Italian Profile, IT-alert, and CAP VOL (dealing with Volcanoes). He explained that the CAP Italian Profile specifies rules and recommendations for the naming of files, for the value of the Sender element and for the value of the Event element. It provides Controlled Vocabularies for Italian in cases where translation is needed for an English string defined in the CAP standard. It also provides Polygon and Geocode data (released as controlled vocabularies), and guidance on use of CAP Parameters. Regarding IT-Alert, Umberto noted that the European Parliament and the European Council published a directive on the European Electronic Communications Code (EECC) in December 2018, EU 2018/1972. Article 110 of the Directive requires all EU member states to have an effective public alarm system by June 2022. (The EU-Alert standard is ETSI TS 102 900 V1.3.1) Umberto said that the EECC Directive is implemented in Italy as IT-Alert and Italian Civil Protection manages the entire IT-alert system. In addition to the public warning based on cell broadcast, thanks to the use of CAP, alerts will be released publicly to be reused by TVs, motorway panels, operations rooms and early warning systems based on other technologies such as SMS, email, and IVR. This will begin in February 2024. In regard to the CAP VOL topic, Umberto explained that the Department of Civil Protection manages the early and public warning system on the island of Stromboli (the most active volcano in the world). They want to define specifics needed in the case of CAP alerts for volcanoes. CAP VOL will definestandard parameters as needed for the particular type of a volcanic hazard event. The CAP VOL working group will also contribute to integrating the CAP TSU for tsunamis originating from such events.

3.24 CAP in Italy

This presentation was given by Marcello Marzoli (for his biography, see the list of Speakers).

Marcello talked about CAP in Italy, primarily from the perspective of the Italian National Fire Corps (CNVVF). He noted arrangements for interoperability between emergency stakeholders, highlighting agreements in place with six Regional Civil Protection Authorities (Calabria, Emilia Romagna, Lazio, Puglia, Sicily, Tuscany, and Veneto). Marcello provided an update on the STRATEGY EU action, which deals with pre-standardization in crisis management areas. This project, running from September 2020 through August 2023, involves 23 partners across a large portion of Europe. Among the main challenges are the lack of realistic environments for testing and validation of standards operational and technical interoperability and other gaps related to coordination, cooperation, logistics, and operational support in the context of crisis management. STRATEGY aims to propose, test and validate a new pre-standardization framework through

the implementation of use cases involving industry, research, end users, and standards bodies. Marcello noted several CEN Workshop Agreements pertinent to emergency management. This includes the CWA 18005:2023: Guidelines for effective social media messages in crisis and disaster management. He also described the project called "NIGHTINGALE" (Novel InteGrated toolkit for enhanced pre-Hospital life support and Triage IN challenGing And Large Emergencies).

Summaries of Presentations on the CAP Training Day

IFRC CAP Editor: Design Preview

This presentation was given by Paola Yela (for her biography, see the list of Speakers).

Paola noted that the IFRC CAP Editor work is in parallel with work on the IFRC Alert Hub and the IFRC PAPE/WhatNow work. The CAP Editor responds to an identified need for an user-friendly, secure, reliable, flexible and extensible alert editor for drafting and publishing CAP alerts. previewed the IFRC CAP Editor freeware, currently under development. She explained that the IFRC CAP Editor currently is designed to be a user-friendly, secure, reliable, flexible and extensible editor tool for drafting and publishing CAP alerts. She also said it will be fully aligned with the CAP standard and the tool will be freely available. Paola said the CAP Editor is at the Testing and Validation phase and their current schedule calls for a pilot deployment in the second part of 2023.

IFRC Activities Supporting CAP in Africa

This presentation was given by Eddie Jjemba (for his biography, see the list of Speakers).

Eddie introduced his topic by saying that the IFRC Alert Hub Initiative in Africa was implemented in seven countries (Burundi, Burkina Faso, Eswatini, Rwanda, Togo, Zambia and Uganda). Two others (Namibia and Mozambique) were not pursued due to unforeseen challenges. He said they set out to understand the main gaps and opportunities in the country's emergency alert systems. This revealed a lack of CAP awareness, and that most National Meteorological agencies were not issuing CAP alerts regularly. Eddie said the project also aimed at developing contextualized actionable messages for prioritized hazards in each country. The project was able to finalize PAPE messages covering Heatwaves, Floods, Dust storms, Drought, Extreme cold, and Hailstorms. When uploaded to the WhatNow platform, these messages would be available to Red Cross, Government and media. Eddie also talked about a project component focused on Building Partnerships with Media. He concluded with five takeaway Lessons: Strong collaboration is necessary to strengthen Early Warning Early Action; Gaps still exist in understanding and appreciation of CAP; Alerting mandates need to be clear (e.g., the respective role of a Met agency and an Emergency Management agency); National CAP systems should be linked to Community Early Warning Systems; and, it is important to have Senior Management support for CAP adoption.

CAP Over Mobile Networks

The presentations for this two-hour session were given by Elysa Jones, Thomas Wood, Mark Wood, and Mike Gerber (for their respective biographies, see the list of Speakers).

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Elysa introduced the session as having three sub-topics: Mobile Alerting Basics; Mobile Alerting Practices Version 1 OASIS Committee Note; and, Device Based Geo-Fencing.

[Mobile Alerting Basics](#) (presented by Thomas Wood)

Tom addressed five majopr points: What is Cell-Broadcast and why is it used in most mobile emergency alerts today; How Cell broadcast works within CAP based alerting systems; What are the limitations of Cell-Broadcast and what is being done with it in the future. During his explanations, he emphasized that only about %20 of the people who have a mobile phone can be using it at the same time, and that disasters will almost always cause a network overload. This means that SMS and data based alert messages are sure to fail at large scale. In contrast, Cell Broadcast sends one message to all phones in range and they pick up the message passively. Accordingly, with Cell Broadcast there is no overloading of the network. There is also no databases of subscribers and no privacy complications. Also, because Cell Broadcast operates via the control channel only accessible to the network engineers and therefore hard to spoof. In short, the features of cell broadcast make it ideal for sending mobile alerts during large scale emergencies. Tom concluded his presentation by highlighting three limitations of cell broadcast: Lack of an inbuilt feedback system; A quite low data transfer rate; and, The problem of overreach or "bleed". This last problem can be addressed through Device Based Geo Fencing, which is covered in the presentation by Mike Gerber.

[Mobile Alerting Practices Version 1 OASIS Committee Note](#) (presented by Mark Wood)

Mark delved into details about the Committee Note on Mobile Networks. An objective is to offer practical suggestions for avoiding unnecessary differences across mobile alerting implementations: to "prevent accidental incompatibility from spreading" He noted that this Committee Note for now will address only Location Based Short Message Service (LB-SMS) and Cell Broadcast (CB). Mark invites contributions from Subject Matters Experts, academia, vendors, engineers, emergency management practitioners, and others on any matter that they think is relevant.

[Device Based Geo-Fencing](#) (presented by Mike Gerber)

Mike began by explaining that the U.S. Wireless Emergency Alerting (WEA) employs Cell Broadcast from cell antennas in and around the alert area. Prior to WEA 3.0, Geotargeting has inherent overshoot because the WEA message is presented to all phones in range of the included cell antenna, even if a particular cell phone is outside the alert polygon. In WEA 3.0, the WEA message is presented only if the cell phone is within one-tenth of a mile of the alert polygon. Mike also noted that, as of September 27, WEA will support inclusion of map showing the device location relative to the alert. This will help people more quickly understand when an alert applies to them and they should take protective action.

[Esri CAP Connector: Making GIS Features from CAP Alerts](#)

This presentation was given by Ian Ibbotson (for his biography, see the [list of Speakers](#)).

Ian started with an overview of the work. He explained the concept of a Geographic Information Systems (GIS) and why GIS are useful for CAP alerts, leading to the question: How can we easily surface CAP alerts in GIS systems? One answer is to use the CAP Connector offered by

Esri in its ARCGIS tools, especially given that Esri GIS is by far the most commonly used. Ian noted that CAP Connector transforms any CAP Alert Hub feed into a dynamic, near-real-time GIS Feature Layer on the Esri GeoEvent Server. He also explained that the Esri CAP Connector follows a specification given in the document: Making GIS Features from CAP Alerts. Ian's work objective was to document the process for others while proving that the Esri CAP Connector works correctly. He showed that process, using the "unfiltered" feed published by the WMO Alert Hub operated by Alert-Hub.Org CIC. In conclusion, Ian said the mission was accomplished: CAP alerts from the unfiltered feed are present on the Esri map where they can be integrated as GIS features; the tool appears to have low latency; the features (polygons and circles) each have flat field mappings to CAP alert elements (and a few metadata elements). He also asserted that the work is reproducible, although with support recommended.

Common Policies and Practices

This presentation was given by Eliot Christian (for his biography, see the list of Speakers).

Eliot noted that the CAP standard does not address any matters of policy, nor practices such as how to present alerts to end users. These policy and practice differences can be important for users, especially re-publishers, so it would be useful to have them in a conveniently referenced document. Such a document is also expected to be useful to alerting system developers as they make various design choices.

Eliot highlighted many of the details addressed in the newly published version 2.0 of the Common Policies and Practices document. This document compiles specifics for major CAP Services such as Google Crisis Response, IFRC Alert Hub, MeteoAlarm, meteoblue, Open Broadcaster, Traveler Information Services Association, WMO Alert Hub, and WMO Severe Weather Information Centre (SWIC).